

# Causes and Consequences of New York City's Residential Building Boom

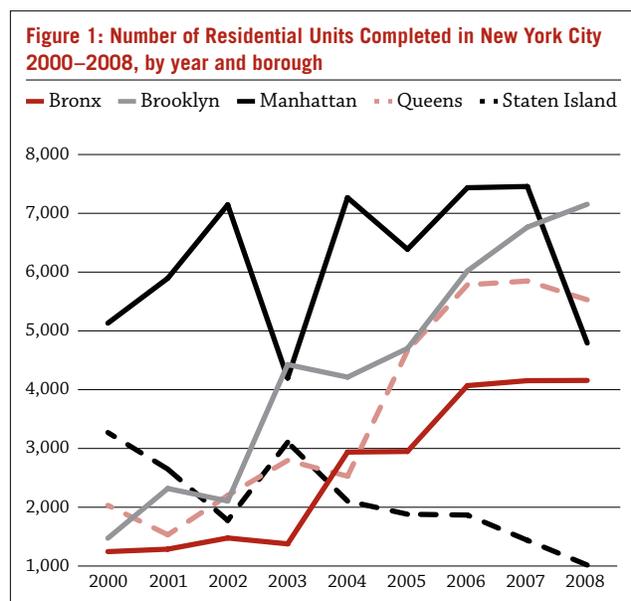
**D**uring the middle years of the last decade, the residential real estate and financial services sectors grew rapidly, helping to fuel a national economic expansion. As the nation's financial hub and the focal point of its most populous metropolitan area, New York City was a key center of this economic activity, and experienced a significant increase in residential building activity during this period. The boom in residential construction changed the face of many of the City's neighborhoods, and will have a lasting impact on New York City's housing stock. This chapter provides an overview of the boom and the changes it wrought.

The discussion begins by describing patterns of residential building activity between 2000 and 2008 in the City and its boroughs. It then describes factors that may contribute to cyclical patterns—periods of rapid growth and high levels of activity followed by periods of less activity—in the City's residential real estate construction, and compares the current cycle in New York City to patterns of building activity in other cities and in New York City's recent past.

The analysis continues by looking at the relationships between certain neighborhood characteristics—such as housing values, the presence of green space, and public transit options—and development activity during the boom. This extends the analysis in last year's *State of the City*, which explored how different neighbor-

hoods fared during upturns and downturns in housing prices. Building on our ongoing research—highlighted in *The State of New York City's Capacity to Grow* on page 25—the chapter also examines the relationship between unused zoning building capacity and building activity.

The chapter concludes by briefly considering the long-term consequences of the current building bust. As demand for new residential housing slows and the rate of building declines, developers, City officials, and community organizations are debating the fates of stalled construction sites, half-finished developments, and unoccupied buildings. While the preponderance of such properties is currently a problem, they will be a source of much-needed housing in New York City when the bust is over.



Source: New York City Department of City Planning

## BUILDING ACTIVITY IN NEW YORK CITY, 2000–2008

A real estate cycle is defined by the number of units built, by how rapidly this number grows as the expansion progresses, and by how rapidly activity contracts as the boom deflates. Figure 1 displays the number of residential units completed in the City between 2000 and 2008, by year of completion and borough.<sup>1</sup> Building activity in the City grew by 6.5% annually, on average, between 2000 and 2003, and grew more quickly (around 16.5%

<sup>1</sup> We compile information on completed buildings using data on certificates of occupancy issued by the New York City Department of Buildings. Other groups, such as the Census Bureau, use information on new construction authorized by building permits to measure building activity. However, this alternate measure may overstate the number of new units that are actually built, and there is a lag of unspecified length between the time that a building permit is issued and the building's completion.

**Table 1: Number of Residential Units Completed in NYC 2000–2008, by year and type**

Year	Single-family	2–4 family	5-plus family	Condo	Coop	Mixed-use	Total Units
2000	2,324	3,585	6,524	630	7	83	13,153
2001	1,720	4,322	5,069	2,510	13	46	13,680
2002	1,236	4,088	6,707	2,169	410	95	14,705
2003	1,945	5,493	6,101	2,141	107	116	15,903
2004	1,649	5,554	8,700	3,030	4	113	19,050
2005	1,273	7,058	8,459	3,671	0	122	20,583
2006	1,184	8,470	10,945	3,800	595	181	25,175
2007	1,055	7,826	12,352	4,055	124	247	25,659
2008	758	6,422	13,475	1,685	89	221	22,650
<b>Total New Units:</b>	13,144	52,818	78,332	23,691	1,349	1,224	170,558
<b>as % of New Units Citywide</b>	7.7%	31.0%	45.9%	13.9%	0.8%	0.7%	
<b>as % of 2000 Stock*</b>	10.3%	23.2%	45.2%	4.0%	14.5%	2.8%	

**Table 2: Residential Units Completed in NYC 2000–2008, by borough**

	Bronx	Brooklyn	Manhattan	Queens	Staten Island	NYC
<b>Total Units</b>	23,652	39,178	55,706	32,913	19,109	170,558
<b>Total Units (as % of 2000 Stock)*</b>	5.0%	4.4%	6.9%	4.3%	12.3%	5.5%

**Table 3: Share of Residential Sales that are from New Construction, 2000–2008, by borough**

	Bronx	Brooklyn	Manhattan	Queens	Staten Island	NYC
<b>Share of Residential Sales that are from New Construction</b>	5.7%	6.9%	18.5%	5.1%	14.2%	8.8%

Source: New York City Department of City Planning, New York City Department of Finance.

\*2000 housing stock is calculated using the Department of Finance's Real Property Assessment Database.

annually) between 2003 and 2006, with the number of units completed peaking in 2007 at 25,659 units and falling to 22,650 units in 2008. Manhattan gained the most units during these years, followed by Brooklyn and Queens. Manhattan and Staten Island added the majority of their new units towards the middle of the time period, while building activity in Brooklyn and the Bronx peaked in 2007 and 2008, respectively.

New York City's highly diverse housing stock includes single-family homes (which may be occupied by owners or renters), small multi-family buildings of 2 to 4 units, larger multi-family rental buildings, condominiums, and co-ops. New construction during the building boom reflected this diversity. Table 1 estimates the total number of residential units completed between 2000 and 2008 citywide, by building type. It also reports the percentage of existing units in each building type, for existing buildings built prior to 2000.

The largest share of new residential units completed in the City between 2000 and 2008, about 46%, were apartments in 5-plus multifamily buildings. This repre-

sents about the same share of the City's units that were in large, multi-family rental buildings as of 2000. Development of condo units, however, did not track the existing housing stock; 14% of new units were condominiums, more than three times the share of condominium units in existing buildings in 2000. In contrast, very few units were constructed during the recent boom in co-op or mixed-use buildings, even though these building types accounted for about 17% of the City's existing units as of 2000. Development patterns for these various building types followed slightly different time trends during our period of study. Completions of 5-plus unit buildings grew steadily during this period, peaking in 2008, while development of condominiums peaked in 2007, and development of single-family homes began a slow decline as early as 2004.<sup>2</sup>

<sup>2</sup> These trends may be influenced by buildings which were intended to be condominiums, but were then occupied as rentals because of marketing problems during construction. However, as the developer's initial intended use is not recorded on the building's C of O, it is difficult to estimate the extent of this pattern.

Comparing the magnitude of new construction activity to the size of the existing housing stock helps to put the construction figures in context. Thus, Table 2 reports the number of residential units completed between 2000 and 2008 as a percentage of the number of units existing in the year 2000. Although Staten Island gained the fewest new units in absolute terms, the borough experienced the largest percentage increase in its housing stock (over 12%) during this time period. Manhattan experienced the second largest increase in percentage terms (almost 7%), with the housing stock in the remaining boroughs increasing between 4% and 5%.

Another way to gauge the extent of new development is to examine the share of residential units sold that were units in newly completed buildings. Table 3 reports these percentages for each borough between 2000 and 2008. Nearly one in five units sold in Manhattan during this time period were newly completed—a significant share of the housing market, and quite a surprising number considering the scarcity of land on which new projects can be built in Manhattan. In Staten Island, 14 percent of residential sales during this time period were sales of new buildings and units. New buildings and units represented a smaller share of housing market activity in Brooklyn, Queens, and the Bronx.

Certificates of occupancy should generally provide an accurate estimate of the number of new units completed, but they do not indicate whether the construction of a new building requires the demolition of an existing building. Unfortunately, building demolition permits currently do not report the number of units in the demolished structure. Thus, it is important to note that we are reporting and analyzing the number of new units constructed during the recent building boom, not the net increase in units.

## THE ANATOMY OF A BOOM: COMPARING THE CURRENT CYCLE IN NEW YORK CITY TO OTHER BUILDING BOOMS AND BUSTS

How does New York City's building boom and bust—both the amount of new residential housing built, and the rate of growth and decline in residential construction—compare to activity in other cities and to previous real estate cycles in New York? In theory, there are a number of reasons why patterns of development might differ between New York and other cities.

Compared to other cities, a far larger share of the residential housing stock in New York City is in multi-family buildings, which require a larger capital investment, take longer to complete, and are sold less fre-

### Economic factors contributing to cyclicity in real estate development

Cyclicity is defined as a pattern of periods of rapid growth and high levels of activity, or “booms”, followed by periods of little activity, or “busts”. One explanation for boom-and-bust patterns in residential real estate construction is that demand for housing is closely tied to household incomes and overall economic growth, which also follow cyclical patterns. However, construction activity is far more volatile than household income and housing expenditures. Another simple explanation, that developers do not anticipate future declines in real estate prices when making the decision to build at the height of a boom, is unsatisfying from an economic perspective because it relies on developers making financially unsound decisions repeatedly, from cycle to cycle.

In a theoretical analysis of the determinants of real estate cycles, Steven Grenadier identifies two additional factors that affect patterns of building activity.<sup>1</sup> First, because it takes time to build, new units continue to enter the market even as market conditions deteriorate. Second, the (virtual) irreversibility of construction encourages developers to take a “wait and see” attitude, delaying construction even as market conditions begin to recover. Once conditions have substantially improved, the developers who were waiting to build rush into the market all at once, which results in a rapid acceleration of building activity. Due to these factors, real estate development tends to be more cyclical than investment in other assets.

<sup>1</sup> See Grenadier (1995) for a complete analysis.

quently than single-family homes. The larger capital commitment and increased difficulty of selling large buildings increase potential losses for developers. This additional risk likely encourages developers to delay investment longer, until prices have reached a relatively higher level, than they would if they were developing smaller projects. This longer delay may then contribute to a more rapid acceleration in building activity in the growth stage of the boom.

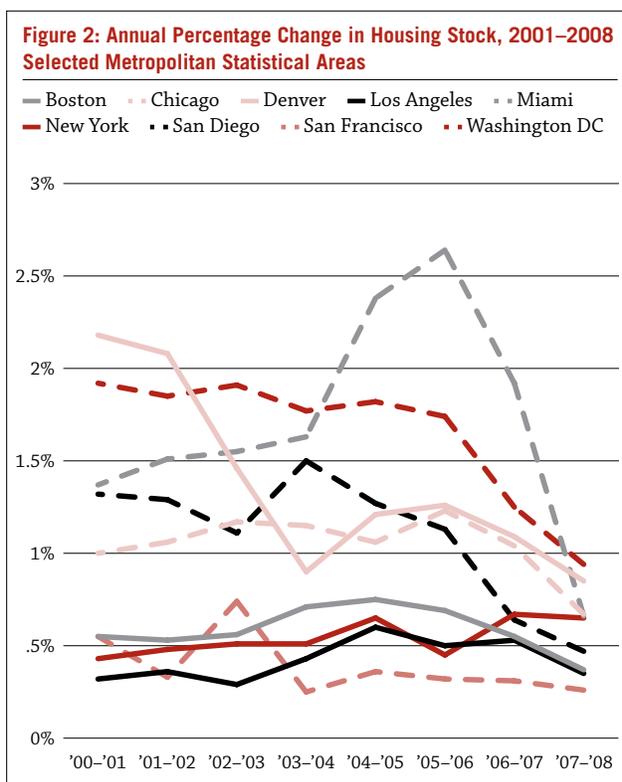
Geographic and regulatory constraints on development, as well as high construction costs, may lead developers to build less at the height of a boom in New York than in cities with more available land and fewer regulations on what can be built and where building can take place.<sup>3</sup> These factors are likely to shrink the gap between construction activity before a real estate boom and construction activity at the height of the boom.<sup>4</sup>

Figure 2 graphs the annual net percentage change in the housing stock between 2001 and 2008 for the New York City metropolitan area and for 9 other metropolitan areas (which together comprise the 10 city sample for the Case-Shiller national metropolitan house price index), using Census data.<sup>5</sup> All of these metropolitan areas experienced growth during this period. As expected, areas with a greater proportion of multifamily buildings, less vacant land available for development, and higher construction costs, such as New York City, San Francisco and Boston, saw the smallest year-to-year percentage increases in the housing stock.

3 In their 1999 analysis of the costs of new housing construction in New York City, Salama et. al. identify a number of factors which contribute to higher development costs in the City relative to other cities, including: the supply of vacant land, environmental and zoning regulations, the City building code and permit approval process, and the cost of construction labor. An update to this study published in 2005 reported that housing construction prices in the City rose faster than the national average, and these costs remained the highest among all metropolitan areas.

4 In their critique of current housing policy, Glaeser and Gyourko (2008) provide a review of the evidence documenting the empirical relationship between the extent of local building regulation, higher construction costs, and reduced building activity.

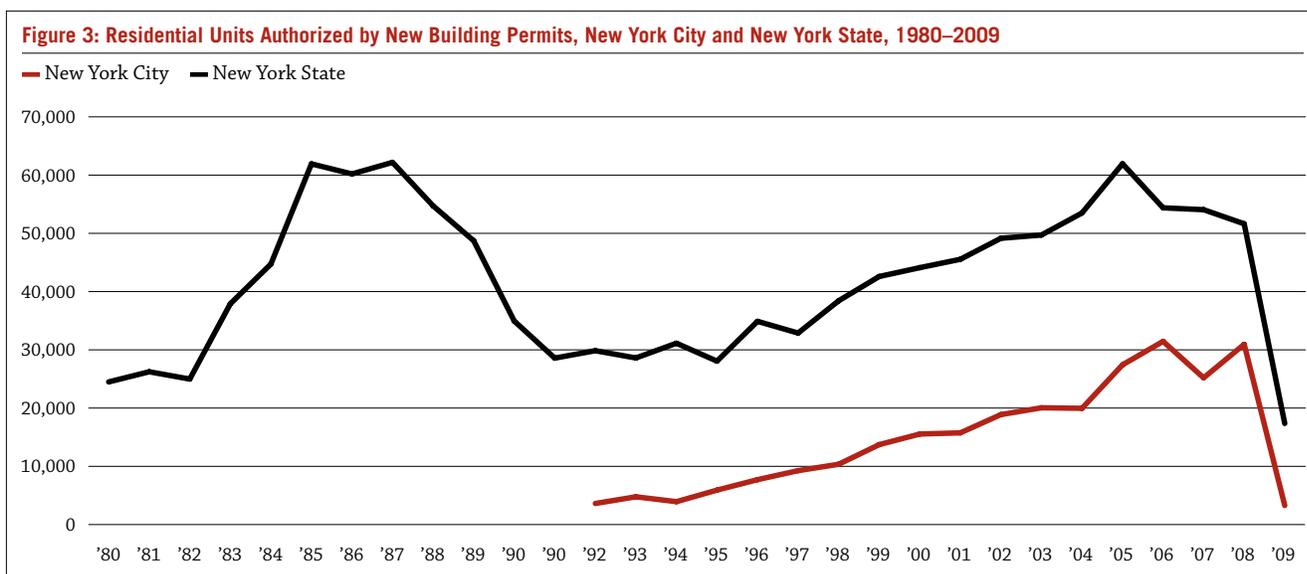
5 Data on the number of residential units in metropolitan areas is available from the Census Bureau. Because annual data on the stock of housing is not available for cities, Figure 2 presents data for Metropolitan Statistical Areas (MSAs), which encompass the cities' suburban counties. Data for Las Vegas is not shown on Figure 2 because values exceed the scale of the graph; the average annual percentage change in housing stock in Las Vegas was 4.3%. Information on the sample of MSAs used in the Case-Shiller indices is available at: <http://www.standardandpoors.com/indices/main/en/us/>. The statistics presented in Figure 2 are changes net of removals from the housing stock.



Source: U.S. Census Bureau

In contrast, metropolitan areas such as the Washington DC metro area (which includes rural counties in Maryland and Virginia), Miami, and Las Vegas saw more rapid growth during the boom. They also experienced a larger decline in annual growth towards the end of the decade than the more supply-constrained metropolitan areas. The number of new units built in Staten Island between 2000 and 2008 as a share of the existing housing stock (around 14%) was similar to the percentage change in the housing stock for Washington DC (14%) and Denver (11.5%), but was higher than in the other boroughs, probably because Staten Island's residential housing stock is more similar to housing in these cities (with more single-family homes and lower density) than the other boroughs are similar to these cities.

To explore differences between New York City's previous real estate cycle, which occurred between 1982 and 1992, and its most recent boom and bust, we have to turn to state-level data, because city-level data on building activity are not readily available prior to the



Source: U.S. Census Bureau; New York City Department of Buildings

1990s.<sup>6</sup> Figure 3 graphs the number of units authorized by residential building permits issued in New York State between 1980 and 2009. It also shows the number of units permitted in New York City between 1992 and 2009. The increase in building activity between 1982 and 1987 in New York State was more rapid and dramatic than the increase between 1995 and 2005. If we accept trends in building activity in New York State as a rough proxy for trends in building activity in New York City, the same was likely true in the City.

It appears that the decline in building activity during the current bust has been more precipitous than the decline between 1987 and 1991. During the previous bust, it took four years for state-level building activity to fall off to pre-boom levels, and the total number of new units authorized by building permits in 1991 was still slightly higher than in 1982. In contrast, after rebounding slightly between 2007 and 2008, the number of units permitted in the City in the current bust fell by almost 90% in a single year (between 2008 and 2009), to a level lower than the number permitted in 1992; and the number of units permitted in New York

State in 2009 fell to its lowest level in the last 30 years.

In both episodes, growth in employment and incomes in the financial and legal services industries fueled demand for residential housing in the City, reductions in interest rates lowered carrying costs for developers, and changes in the structure of mortgage markets expanded credit access for buyers, all of which contributed to a boom in residential development.<sup>7</sup> City housing policies – the introduction of the Ten-Year Plan in the prior bust, and current changes to the 421-a property tax abatement program—may have contributed to differences in the pattern of decline between the two busts.

The 421-a tax abatement program was created in 1971 during a period of shrinking population and falling property values in New York City to provide long-term tax abatements for a large share of City developments. The program was curtailed in late 2006 (with the modifications taking effect in June, 2008), restricting the geographic scope of the as-of-right program to exclude all of Manhattan and selected neighborhoods in other boroughs, and setting a limit on the amount of assessed value exempt from taxation.

<sup>6</sup> Here, we shift our analysis from certificates of occupancy to building permits because building permit data is more readily accessible historically. State building permit data may serve as a proxy for trends in City building permits if the City is not growing much more rapidly than the state. This was the case between 2000 and 2009, when the City's share of total state population increased only slightly, from 42.2% to 42.9%.

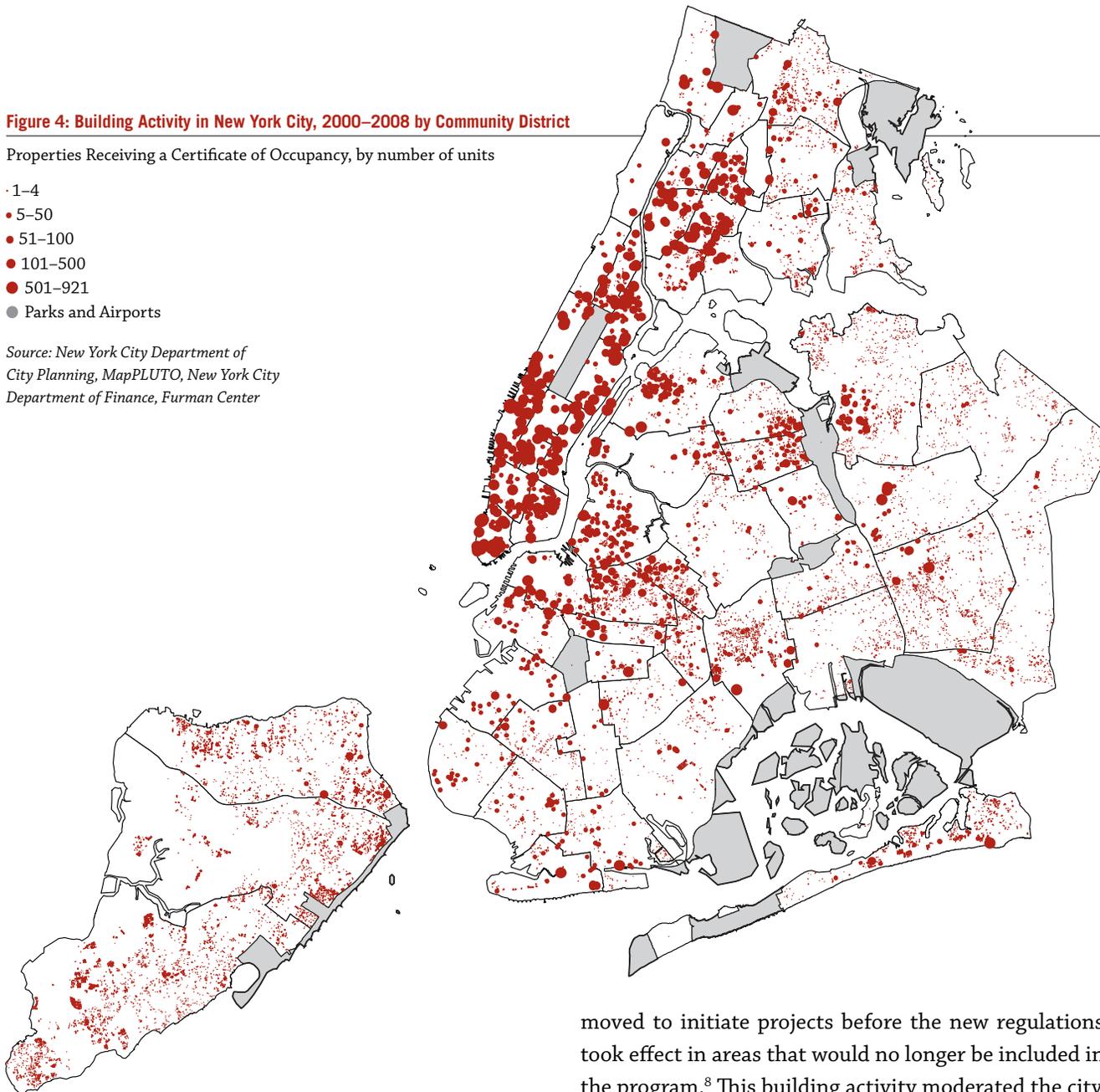
<sup>7</sup> See Glaeser and Gyourko (2008) for an empirical analysis of the relationship between the volatility of household income and the cyclicity of residential construction between 1980 and 2005, and Chomsisengphet and Pennington-Cross (2006) for a discussion of regulatory changes and innovations in the mortgage market during the 1980s.

**Figure 4: Building Activity in New York City, 2000–2008 by Community District**

Properties Receiving a Certificate of Occupancy, by number of units

- 1–4
- 5–50
- 51–100
- 101–500
- 501–921
- Parks and Airports

Source: New York City Department of City Planning, MapPLUTO, New York City Department of Finance, Furman Center



An unintended consequence of this regulatory change may have been a rush by developers to take advantage of the expiring tax provisions, contributing to the rebound in citywide permitting activity between 2007 and 2008 and the steep decline during the following year. Because the City Department of Finance does not identify units participating in the 421-a program until they are completed, we report 421-a participation for newly completed units.

Participation in the tax abatement programs in the Bronx fell by 18 percentage points between 2007 and 2008, from 39% of units to 21%. In contrast, the share of new units receiving tax abatements in Brooklyn and Queens remained relatively constant, as developers

moved to initiate projects before the new regulations took effect in areas that would no longer be included in the program.<sup>8</sup> This building activity moderated the citywide downward trend in this category of development, and resulted in a flood of new units being completed in concentrated geographic areas just as demand for new residential housing softened.

While there was more rapid growth in construction activity during the previous boom, the subsequent bust was more gradual and development in the City stabilized at pre-boom levels. As the 1980s boom waned, then-Mayor Koch initiated the Ten-Year Plan, a broad public-private partnership to encourage residential development, and the City's capital expenditures on housing increased steadily during the bust, possibly cushioning the fall in

<sup>8</sup> The *New York Magazine* article "The Billingsburg Bust" suggests that this may have been the case in Greenpoint/Williamsburg, for example.

**Table 4: Access to Parks and Transit, by borough**

	Share of Units within 1/4 Mile of a Park		Share of Units within 1/2 Mile of a Subway/Rail Entrance	
	New Construction (2000–2008)	Existing Units (2000)	New Construction (2000–2008)	Existing Units (2000)
<b>Bronx</b>	95.9%	91.1%	69.5%	69.9%
<b>Brooklyn</b>	91.2%	82.4%	78.8%	77.8%
<b>Manhattan</b>	70.2%	93.7%	89.5%	90.8%
<b>Queens</b>	75.6%	74.9%	46.7%	49.6%
<b>Staten Island</b>	63.1%	64.5%	19.9%	19.2%

Source: New York City Department of City Planning, MapPLUTO, New York City Department of Parks and Recreation, New York City Department of Transportation, Furman Center

market-rate development.<sup>9</sup> Comparing trends in building activity during New York City's recent boom and bust to patterns in other cities and previous eras underscores the fact that every boom is different, and one experience cannot predict outcomes in a different time and place.

## THE LOGIC OF A BOOM: BUILDING ACTIVITY ACROSS NEW YORK CITY NEIGHBORHOODS

As discussed earlier, building activity during the boom period affected all corners of the City. Staten Island experienced the largest percentage increase in its housing stock (over 12%), followed by Manhattan (at almost 7%), while the other boroughs saw increases of between 4 and 5 percent. Figure 4 displays the geographic distribution of new units completed between 2000 and 2008 across the City. While much development occurred in traditionally robust areas such as the Upper East Side, Midtown, and Clinton/Chelsea neighborhoods, the map highlights the large amount of new construction that also took place in Central Harlem, Greenpoint/Williamsburg and Bedford Stuyvesant. Indeed, Greenpoint/Williamsburg and Flushing/Whitestone were ranked among the top 15 community districts in numbers of new residential units completed between 2000 and 2008.

This dispersed building activity may be due in part to the shortage of developable land in areas which grew during the previous boom. But the development patterns also may be related to various characteristics of the City's neighborhoods. To better understand those relationships, we examined the correlation between the

number of units built in a community district between 2000 and 2008, and selected housing market and socio-economic characteristics of the district.<sup>10</sup>

The amount of development in a community district is positively correlated with housing values at the beginning of the decade and with growth in housing prices between 1996 and 2004, both of which are rough measures of demand for housing in the neighborhood. In addition, the number of units built is positively correlated with the neighborhood's median household income in 2000 and with student test scores in the neighborhood's schools. Development activity is negatively correlated with the percentage of neighborhood residents who were nonwhite in 2000.

Finally, new development, like much of the City's existing housing stock, was located in areas with good access to public transportation and green space. Table 4 reports that the share of new development that was located within a half-mile of rail transit was consistent with the share of existing housing units located within a half-mile of rail transit: this ranges from 20% of units in Staten Island to 90% in Manhattan. In Brooklyn, Queens, and the Bronx, new construction was more likely than existing buildings to be located near parks, and in Brooklyn and Staten Island, new construction was more likely to be located near rail transit.

These results indicate that, on average, neighborhoods with better amenities or infrastructure and higher housing values received new development, while neighborhoods with less developed amenities and with higher shares of nonwhite residents received less.

<sup>9</sup> Figure 1 of Schill et. al. (2002) graphs annual total City capital expenditures for housing between 1987 and 2000, and provides details on then-Mayor Koch's Ten Year Plan, which committed \$4.4 billion to build or renovate over 100,000 housing units.

<sup>10</sup> See Appendix Tables 1 and 2 for details on the results of this analysis.

	<b>Bronx</b>	<b>Brooklyn</b>	<b>Manhattan</b>	<b>Queens</b>	<b>Staten Island</b>	<b>NYC</b>
<b>Share of New Units (2004–2008) that were Built on Sites with Substantial Unused Capacity in 2003</b>	78.9%	74.2%	65.7%	74.9%	59.1%	72.7%
<b>Share of All Lots with Substantial Unused Capacity in 2003*</b>	39.2%	27.9%	25.9%	19.3%	29.7%	25.9%

Source: New York City Department of City Planning, New York City Department of Finance, Furman Center \* This rate differs slightly from the Unused Capacity Rate featured throughout the rest of this book. In this section, the rate refers to the share of LOTS with substantial unused capacity. Throughout the remainder of the book, the Unused Capacity Rate refers to the percentage of LAND AREA with substantial unused capacity.

Another important factor shaping where building occurs is the availability of sites that are relatively easy to develop. All else being equal, we would expect lots with the greatest capacity for new development (or the largest gaps between what is actually built and what zoning allows to be built) to be the most attractive development sites. For these lots, the regulatory costs of changing the current use are small compared to the benefits of developing the lot to its full zoning capacity. For several years, the Furman Center has been tracking such lots to better understand their role in development and to understand why many remained developed at levels below their zoned capacity in the face of market pressures. As part of that research, we have identified all of the residentially zoned lots in the City that in 2003 were built to less than half of the total square footage permitted by New York City’s zoning code. Based on that work, we introduce in this year’s State of the City a new indicator, the “Unused Capacity Rate,” which is equal to the percentage of residentially zoned land area in a borough or community district made up of lots with substantial unused capacity. This new indicator, and our related research, are described in greater detail in *The State of New York City’s Capacity to Grow* on page 25.

To explore the relationship between the presence of unused building capacity and development activity, we examined the correlation between the number of units built in a community district and the district’s unused capacity rate. As we would expect, community districts with higher unused capacity rates were more likely to add a larger number of units than areas with less room to grow.

We can see even more clearly the extent to which lots with significant unused zoning capacity played a central role in determining where building took place during the boom by looking at parcel level data. Table 5 reports the

percentage of units completed between 2004 and 2008 that were built on sites that had substantial unused capacity in 2003. In Brooklyn, the Bronx, and Queens, nearly three-quarters of the units built between 2004 and 2008 were built on sites that had substantial unused capacity. While a quarter of the new units in the City were built on sites that did not have substantial unused capacity, the availability of land not yet developed to its fullest zoning potential is an important factor among the many that determined where development occurred during the building boom.

An additional factor affecting the amount of development activity across neighborhoods was homebuyers’ access to credit. As in the rest of the country, New York City experienced significant growth in the incidence of mortgage lending to individual borrowers whose financial circumstances, such as poor credit histories or undocumented sources of income, previously would have prevented them from obtaining mortgage credit. The map shown in Figure 5 documents the relationship between the construction of 1-4 family homes in an area between 2000 and 2008 and the share of mortgage loans issued in 2005 that were “high cost.”<sup>11</sup> In general, we see that areas where a greater proportion of loans were high cost experienced a greater increase in new 1-4 family properties.

This pattern partly reflects the distribution of lower-density neighborhoods across the City, and the more stringent lending requirements for condos than for 1- and 2-family homes, so it should not be interpreted as a causal relationship. However, the number of new units

11 Ideally, we would like to measure the correlation between growth in high-cost lending between the early years of the boom and the height of the boom, and subsequent construction of owner-occupied properties. Since loans reported under HMDA were not classified as “high cost” prior to 2004, we focus on data from 2005, the height of high cost lending in the City, as a proxy for growth in high cost lending across areas.

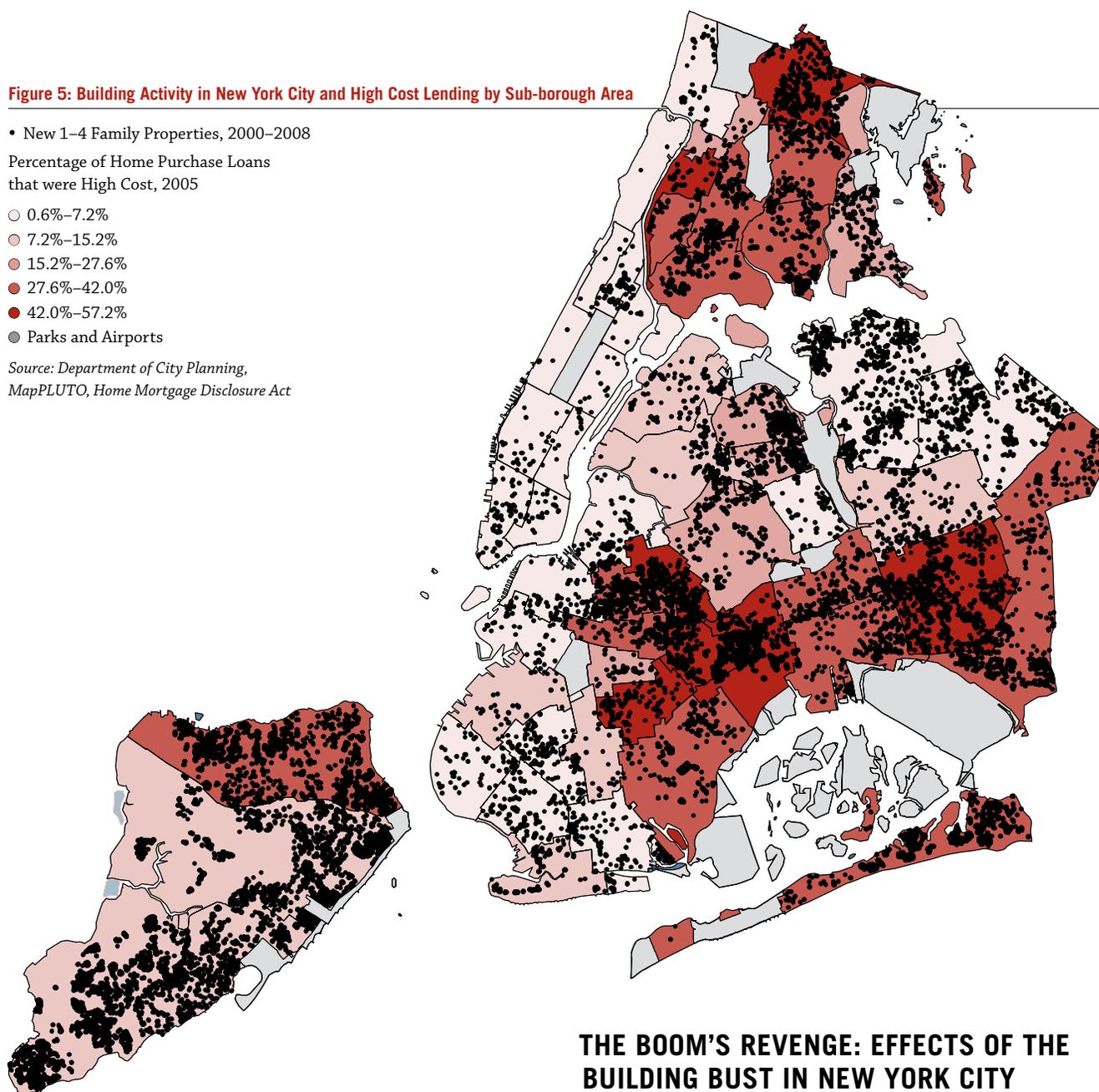
**Figure 5: Building Activity in New York City and High Cost Lending by Sub-borough Area**

• New 1–4 Family Properties, 2000–2008

Percentage of Home Purchase Loans that were High Cost, 2005

- 0.6%–7.2%
- 7.2%–15.2%
- 15.2%–27.6%
- 27.6%–42.0%
- 42.0%–57.2%
- Parks and Airports

Source: Department of City Planning, MapPLUTO, Home Mortgage Disclosure Act



added in central Brooklyn and southern Queens was larger than in northern Queens and southern Brooklyn, areas where 1- and 2-family homes are also common, but where high cost lending was lower. Moreover, the relationship between the expansion of mortgage credit and building activity has been documented in other cities.<sup>12</sup> The virtual disappearance of high cost lending in 2008, documented in *The State of New York City's Mortgage Lending*, on page 22, may have an effect on the development of owner-occupied properties in the near future.

<sup>12</sup> Mayer and Pence (2008) find that across the country, "...high-cost loans are prevalent in areas with large amounts of new construction, consistent with a link between construction and the expansion of credit."

## THE BOOM'S REVENGE: EFFECTS OF THE BUILDING BUST IN NEW YORK CITY

As in 1987, the popular press is currently awash in articles lamenting the end of New York City's building boom. Titles such as "The Billyburg Bust" and "Fighting Eyesores Before They Start" suggest that boom and bust patterns of residential development can have negative consequences not just for developers' solvency, but also for neighborhoods with concentrations of affected properties. To assess the impact of the collapse of residential housing construction on the City's housing market, we need improved measures of the extent of the building bust, including improved counts of the stock of unsold properties, unoccupied buildings, and stalled building sites.

There are several possible outcomes for developments in the current bust: some developments are *unsold*, meaning that the units were intended for owner-occupancy but were not able to fetch a buyer on the market; others are *unoccupied*, meaning that the units were recently issued a C of O but are currently vacant; and still others are *unfinished or stalled*, meaning that construction on the property was started but stopped before the issuance of a C of O.<sup>13</sup>

Unsold units will tend to have a negative effect on the sales prices of other properties by increasing the supply of units on the market. Even if they are not currently for sale, unoccupied buildings may also have a negative effect on the values of surrounding properties, through their effect on streetscapes, vermin, and crime. For a number of reasons related to the documentation of completions and sales in New York City, it is difficult to estimate precisely the numbers of newly built unsold units and unoccupied buildings, and this remains an area of future work.<sup>14</sup>

Buildings that were started but never completed are also likely to have a negative impact on housing values, and can pose a threat to local safety. The problem of stalled construction sites has become of such concern in the City that the Department of Buildings created a task force in February 2009 to address the issue. The task force stepped up inspection of at-risk projects to better identify stalled sites and developed a system that allows neighborhood residents to report unsafe conditions at these sites. To encourage developers to report stalled sites themselves, and to remove delays to restarting stalled construction, the City Council passed legislation in October 2009 to provide four-year building permit extensions to developers who provide comprehensive site safety plans and agree to ongoing inspections.<sup>15</sup>

13 Identifying unsold condo units which are currently occupied as rentals remains an area for future work.

14 Right to the City-NYC, a coalition of affordable housing advocates, conducted a field survey of 9 community districts in the fall of 2009 and identified 601 vacant condominium buildings. The results of Right to the City's survey are summarized at: <http://www.righttothecity.org/new-research-601-buildings-with-vacant-condos-found-in-9-nyc-community-districts.html>

15 Builders who obtained permits before recent changes to the City building code would not have to re-file their plans to resume construction activity (see <http://legistar.council.nyc.gov/Legislation.aspx> for details on Local Law 1015-A, the "stalled sites" legislation).

**Table 6: Stalled Construction Sites (as of 1/1/2010)**

	Number of sites
<b>Bronx</b>	23
<b>Brooklyn</b>	244
<b>Manhattan</b>	82
<b>Queens</b>	143
<b>Staten Island</b>	36
<b>NYC</b>	528

**Table 7: Community Districts with the Most Stalled Sites**

	Number of sites
<b>Greenpoint/Williamsburg (CD 201)</b>	75
<b>Jamaica/Hollis (CD 412)</b>	26
<b>Borough Park (CD 212)</b>	24
<b>Flushing/Whitestone (CD 407)</b>	21
<b>Fort Greene/Brooklyn Heights (CD 202)</b>	20

Source: New York City Department of Buildings

Table 6 shows the DOB's estimates of the number of stalled sites in each borough as of December 2009, and Table 7 highlights the 5 community districts with the largest numbers of identified sites.<sup>16</sup> The DOB does not claim to have identified every stalled site in the City, but even this complaint-driven system identified 528 stalled sites across the City. Although these sites may not be representative of the full set of stalled sites around the City, the problem of stalled construction sites seems to be worst in Brooklyn and Queens. Greenpoint/Willemburg, Jamaica/Hollis, and Fort Greene/Brooklyn Heights—areas which experienced rapid growth during the building boom—are among the five neighborhoods with the most stalled sites.

As more properties are identified by and reported to the Department of Buildings, the number of stalled sites on this list is likely to grow in the short term. These efforts to track the number of stalled sites, if matched by efforts to provide more comprehensive estimates of unsold units and unoccupied buildings, will help us to better assess the consequences of the building bust.

16 Since the DOB does not distinguish between residential and commercial stalled construction, these figures include both residential and commercial sites.

## CONCLUSION

The recent building boom in New York City will have a lasting impact on the residential housing stock. In Staten Island, the sheer volume of new units built (over 12% of the existing housing stock) will affect the physical landscape of its neighborhoods. In other boroughs, recent construction is tilting the housing stock towards condominiums. Over 14% of new units built were condominiums, three times the existing share of condo units.

In comparison to many other large cities, New York City experienced a relatively modest construction boom during the 2000s. Cities with lower-density housing stock, more room to grow, and lower construction costs added a larger percentage of residential units to the housing stock, but also experienced steeper declines in building activity during the latter half of the decade. This is not to suggest that the City is in the clear, as it is experiencing far more dramatic declines in building activity than it did in the boom-and-bust the City experienced in the 1980s.

Much of the building activity during the boom took place in neighborhoods such as Greenpoint/Williamsburg, Flushing/Whitestone, and Bedford Stuyvesant, which experienced less development during the boom of the 1980s. The availability of sites with unused zoning capacity was a particularly important predictor of development, as nearly three-quarters of new units built after 2003 were built on sites with substantial unused capacity in 2003.

At present, there are hundreds of stalled construction sites scattered across the City, and many more vacant buildings and unsold condo units. While a handful of stalled developments are being restarted as smaller projects, and some vacant condo buildings and unsold condo units will be converted to rentals, it is difficult to estimate the number of developments that remain stalled or unoccupied.<sup>17</sup> It is even more difficult to assess the impact of these properties on the housing market going forward. Stalled sites, unoccupied buildings, and unsold units—currently reminders of the

decade's wild ride—could represent the potential for the City's future growth if they are properly managed. While there is much debate among developers, lenders, and City officials over the fate of these properties, there is a consensus that lower expectations—of numbers of units completed, developers' and lenders' profits, construction wages, tax revenues, and other benefits that accompany development—will be the norm during the next few years to come.

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<sup>17</sup> In the article "Stalled Projects Come Back From Dead", real estate blog *The Real Deal* identified 8 stalled construction projects that are currently being converted to smaller scale, non-residential development, such as parking lots and single-story retail.

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## DATA SOURCES AND METHODOLOGY

We compile information on building completions using data on temporary and final certificates of occupancy issued by the New York City Department of Buildings and provided to us by the Department of City Planning. After the Department of Buildings completes an inspection of a building to ensure that the construction complies with building codes and standards of habitability, the Department issues a certificate of occupancy. We use information from the first certificate issued for each property.

This data is also available through the Department's Building Information System, at: <http://www.nyc.gov/html/dob/html/bis/bis.shtml>.

We obtain additional information on new buildings by linking certificates of occupancy to property records from the New York City Department of Finance's Real Property Assessment Database (RPAD), available at: [http://www.nyc.gov/html/dof/html/property/property\\_val\\_valuation.shtml](http://www.nyc.gov/html/dof/html/property/property_val_valuation.shtml). RPAD is also the source for the number of existing housing units in 2000.

Properties in both the Certificates of Occupancy and RPAD datasets are identified by the borough, block, and lot numbers (the "BBL" numbers), which together provide a unique identifier for each property in New York City. Condominium units are assigned their own BBL numbers, and the entire condo building is assigned a BBL number which links buildings to units.

In general, this identifier is consistent over time, even if the building on the lot changes. However, there are some situations where the BBL number for a given property can change, and the BBL number recorded on the certificate of occupancy is different from the BBL number recorded in the tax assessment database. The most common situations where this occurs are:

- Tax lots are merged, split, or altered, and the resulting lots are assigned new BBL numbers;
- New construction is issued a certificate of occupancy before a final BBL number is assigned;
- A new condominium building is associated with the previous BBL number, or assigned a new BBL number, on its certificate of occupancy. When the condo units are assessed for taxation, each unit is assigned its own unique BBL.

In our sample of 38,270 certificates of occupancy, 2,510 observations (approximately 6.5% of the sample) do not match to a record in the tax assessment database using BBL numbers. In these cases, we match buildings with new certificates of occupancy to buildings with tax assessment records located in the same borough and block and with the same number of units (plus or minus one unit).

Data on property sales are from the New York City Automated City Register Information System (ACRIS), available at: <http://www.nyc.gov/html/dof/html/jump/acris.shtml>

Cross-city building statistics are measured at the Metropolitan Statistical Area (MSA) level using data on annual estimates of housing units, by county, from the Census Bureau, available at: <http://www.census.gov/popest/housing/HU-EST2008-4.html>. The statistics presented in Figure 2 are changes net of removals from the housing stock. Data on residential building permits authorized in the State of New York are from the Census Bureau, Division of Mining, Manufacturing, and Construction Statistics, Series C40, available at: <http://www.census.gov/const/www/C40/annualhistorybystate.pdf>.

Data on residential building permits issued in New York City are provided by the Department of Buildings. Data on City properties receiving 421-a tax abatements are available from the New York City Department of Finance at [http://www.nyc.gov/html/dof/html/property/property\\_tax\\_reduc\\_421\\_a.shtml](http://www.nyc.gov/html/dof/html/property/property_tax_reduc_421_a.shtml).

Community district-level information on housing values, household income, racial composition, school performance, and the location of parks and rail transit stations are compiled from a range of sources (including the Census, ACRIS, the New York City Department of Education, and Geographic Information Systems analysis), and are available from the Furman Center for Real Estate and Urban Policy's New York City Housing and Neighborhood Information System, available at: <http://www.nychanis.com>.

In the correlations analysis, the number of units built in each community district is adjusted for the number of units in the district in 1999, to account for the fact that some districts are geographically larger than others. Student test scores are the percent of students in neighborhood schools performing at or above grade level on statewide math examinations in 2000.

**Appendix Table 1: Correlations of CD-Level Housing Market Characteristics with Number of Units Built, 2000–2008**

	Median price of housing unit, 2000	Percent change in prices 96–04	Unused capacity rate, 2003
% change in units, 2000–2008	0.03354	0.05443	0.49473

*Notes: Analysis is at the community district level, N=59. Number of units built normalized by number of existing units in 2000.*

*Source: New York City Department of City Planning, New York City Department of Finance, Furman Center*

**Appendix Table 2: Correlations of CD-Level Socioeconomic Characteristics with Number of Units Built, 2000–2008**

	Median household income, 2000	Percent nonwhite 2000	Percent students at grade level (math), 2000
% change in units, 2000–2008	0.19336	-0.18222	0.22742

*Notes: Analysis is at the community district level, N=59. Number of units built normalized by number of existing units in 2000.*

*Source: New York City Department of City Planning, U.S. Census Bureau, New York City Department of Education, Furman Center*

Information on lot-level zoning is based on Furman Center research currently in progress.

Data on the percentage of home purchase loans that are high cost is reported under the Home Mortgage Disclosure Act. Details on constructing the high-cost loan indicator are located in the “Indicator Definitions and Rankings” section of this volume, beginning on page 36.

The New York City Department of Building’s list of stalled construction sites is available at: [http://www.nyc.gov/html/dob/html/guides/snapshot\\_report.shtml](http://www.nyc.gov/html/dob/html/guides/snapshot_report.shtml). ■