

The beneficiaries of New York City's 421-a tax exemption program

Evaluating the effect of the city's largest tax expenditure as an affordable housing incentive through data and case study analysis

A thesis presented to the Faculty of Architecture and Planning
COLUMBIA UNIVERSITY

In partial fulfillment of the requirements for the Degree Master of Science in Urban Planning

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May 2015

ABSTRACT

New York City's largest tax expenditure, the 421-a partial tax exemption for multi-unit housing, is set to expire on June 15, 2015, sparking heated debates about whether to renew, modify, or cancel the program. Originally conceived 44 years ago as a way to incentivize development during a period of inner-city disinvestment, the program's effects and relevance are being called into question in what is now one of the hottest residential real estate markets worldwide. Despite a series of reforms which aimed to add a component of affordable housing to the program, critics feel that it is ineffective as an affordable housing program, and unnecessary as a developer incentive. This paper will study the current distribution of subsidy recipients in order to determine who is receiving the benefit at a broader scale, and then further focus on the effect of the tax exemption on recent condominium sales in two neighborhoods with distinctly different characteristics: Manhattan's Upper West Side between 59th and 79th Streets, and Morrisania/Longwood in the Bronx. These studies will take a close look at the level of benefit to developers, as well as non-developers who are able to recognize the value of the subsidy, and whether they could be considered the intended beneficiaries of the program.

Keywords

New York City, tax exemption, 421-a, affordable housing, property taxes, expenditure programs, condominium exemptions

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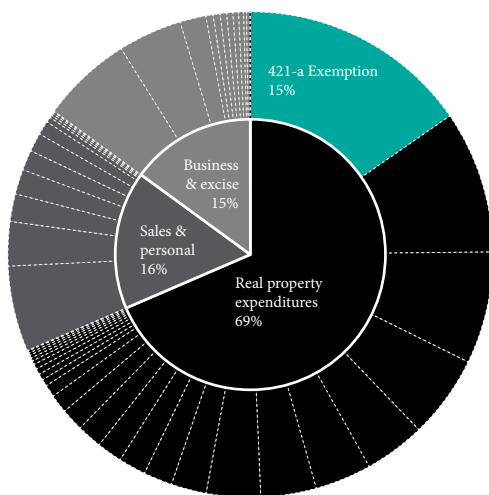
INTRODUCTION

421-a basics

The 421-a Partial Tax Exemption for New Multiple Dwellings (hereinafter referred to as “421-a”) is a 44-year old tax incentive that has subsidized most of New York City’s multi-family residential construction since it first began in 1971. At the time, it was created to stimulate housing development in an era when the city was plagued by residential disinvestment and population flight to the suburbs. As real estate investment grew through the years, the program has met growing criticism and implemented a series of reforms that would justify the exemption by modifying it from a program which subsidizes all new multi-family residential as-of-right, to one which could help incentivize a greater supply of affordable housing. In what is now one of the hottest residential real estate markets in the world, the relevance of 421-a and its efficacy in providing affordable housing is being questioned, and the program has become the subject of great controversy as it approaches its expiration date on June 15.

In recent years, the 421-a exemption has been the single largest tax expenditure program in New York City, (Office of Tax Policy, 2015; Wu, 2012). For the 2015 fiscal year, the program totaled over \$1.1 billion, and formed 15% of all tax expenditures for the city. The 421-a exemption expenditure is over 60% more than the second most expensive program, the Industrial & Commercial Incentive Program at \$685.8 million, and is more than twice the amount of the third highest expenditure, the New York City Housing Authority. It is slightly more than all business income and excise tax programs combined, and only slightly less than all sales and personal income tax programs combined. 421-a is one of the many programs which are applied to real property, which combined account for 65% of all expenditures. One possible reason that they account for such a high portion of expenditure is that property taxes are also the largest single source of New York City tax revenue, making up 42% of all revenue in the 2014 fiscal year, (Office of Tax Policy, 2015).

NYC tax expenditure by category and program



\$7,237 million estimated total expenditure
Data from the Office of Tax Policy’s Annual report on tax expenditures: Fiscal Year 2015

Figure 1: New York City’s tax expenditure by category and program

Exemptions in New York City are implemented by lowering the billable assessed value of a property. The 421-a program is often incorrectly referred to as an abatement, which differs from an exemption in that exemptions are applied before calculating a tax liability, and abatements are applied as credits against that already-calculated liability, (NYC Department of Finance, n.d.-b). Both exemptions and abatements qualify as tax expenditures.

A cornerstone of the program intent is to help ease the tax burden to developers for adding value to a property. New York City’s tax system is dependent on the estimated value of what exists on-site, and not the value of land. As a result, the assessed value of a property will usually skyrocket during development, along with its tax levy. The 421-a exemption applies to the additional assessed value added during and after development. The pre-construction assessed value, known as the base year assessed value, continues to be taxed at the standard rate. In the 2008 reforms to the program,

a cap was introduced that would limit the exempt value for certain market-rate properties. The efficacy of this cap has been mixed, a topic which will be discussed more in depth later on.

Full program benefits are granted for up to 3 years during the construction period for all 421-a properties. The benefit start year begins after construction is complete. While post-completion benefit periods have been modified over time, current applicants can receive exemption periods of 10, 15, 20, or 25 years long. The length of exemption granted depends on location and project type, and all exemption lengths include a number of years with full benefits, followed by a phase-out period that lasts until the exemption term is over, (NYC Housing Preservation & Development, n.d.). All rental units built under the program, whether they are affordable or market-rate, are subject to rent stabilization for the duration of the benefits, where the initial rents are set by the Tax Incentive Programs, (NYC Housing Preservation & Development, n.d.). There are no such limitations for condominium properties.

These incentives were devised as a way to encourage new multi-family housing development at a time when living in the city was undesirable and little profit was to be made in such construction. The housing market in New York City is now completely different from what it was then. Additional affordable housing components have been added through reform in order to keep it relevant, but 421-a remains a program that primarily subsidizes market-rate development.

The most outspoken parties in favor of renewing 421-a have been property developers, many of whom argue that the cost of construction and risk involved in the real estate business would be prohibitively high without such tax incentives, (Hutchins, 2015; Observer.com editors, 2015). The president of the Real Estate Board of New York (REBNY) Steven Spinola argues that taxes on residential properties are “high and inequitable,” and that the program temporarily offsets high tax burdens which would otherwise make it difficult to build residential housing. Additionally, he claims that a repeal of 421-a will skew the residential market toward more profitable condos rather than rental units, (Hutchins, 2015; Spinola, 2015). In March, REBNY released a report on development projects that are significantly on their way through development pipeline and rely on 421-a for financial feasibility but haven’t been approved yet, stating that the almost 5,500 affordable rental and almost 14,000 associated market rate units would likely never be built if 421a were not renewed in June, (Real Estate Board of New York, 2015).

Many critics claim that 421-a is allowing tax dollars to subsidize luxury housing and the wealthy elite, while a 20% affordable housing component does not justify the cost of the program, (Hutchins, 2015). Not every project which qualifies for 421-a requires 20% affordable housing, and the actual number of subsidized units is even lower than this amount. The Association for Neighborhood & Housing Development (ANHD) released a report in January that attempted to find the actual number of affordable housing units created through the program and mapped them across the city. They found that the number of exemptions citywide had tripled between 2004 and 2014, resulting in over 70,000 exemptions by last year. They estimated that less than 9 percent of the units developed under the program qualified as affordable housing, and criticized the concentration of affordable housing that occurred when developers were allowed to locate the affordable units off-site. The 2008 reforms ended the negotiable certificate program which allowed off-site affordable housing to effectively provide 421-a exemption to developments elsewhere in the city, but grandfathered certificates persisted after the reforms.

Additionally, they criticized how 421-a is often used with the Inclusionary Housing Program and other low income tax bonds and credits, which has allowed developers to double or triple-dip in affordable housing incentives by using the same 20% of affordable units to realize benefits under multiple programs, (Association for Neighborhood and Housing Development, 2014, 2015). The ANHD report heavily criticized the affordable housing outcomes realized through 421-a, and called for drastic reform of the program to provide a more equitable distribution of affordable housing and better tracking of performance.

Consistent with ANHD findings of counting the same affordable housing units toward multiple programs, earlier this year, Gale Brewer, the Manhattan Borough President, testified that:

It is not unusual for a project receiving 421-a to also receive Low Income Housing Tax Credit (LIHTC), zoning bonuses under the Inclusionary Housing Program (IHP), or other HUD, HPD, or HDC financing... known as “double dipping,” this is when a developer can use the same number of affordable housing units to satisfy the affordable housing requirements of multiple subsidy programs. For example, if the Department of City Planning approves a project for zoning bonus under the Inclusionary Housing Program in exchange for setting aside 20% of the units as affordable housing, then the same 20% should not be used to subsequently obtain 421-a tax benefits. Unfortunately, this happens all too often, and we end up giving away tax breaks without receiving any additional affordable housing units for 421-a subsidies. (Brewer, 2015)

He recommended the elimination of double-dipping opportunities for developers, offering units at Area Median Income (AMI) affordable to the community, granting permanent affordability for 421-a units, and increasing the transparency and data collection of the program to account for the number of affordable housing units created using 421-a, (Brewer, 2015).

Of further concern are the possible corruption risks associated with 421-a, which were being examined by anti-corruption Moreland Commission before it became defunct. 421-a was implicated in federal bribery and kickback charges in the indictment of New York State assembly speaker Sheldon Silver, where prosecutors claimed that Silver “accepted a real estate tax firm’s payments in exchange for inducing developers with business before the state to retain the law firm,” (Rodriguez, 2015). The removal of Silver from speakership, who was “long seen as a friend of the city’s real estate industry,” exacerbated developer uncertainty about the future of the program, and developers are racing to push their projects through before the next round of reform, (Geiger, 2015). Additionally, multiple loopholes have been written into legislation which specifically favored certain developments, including provision for Forest City Ratner’s Atlantic Yards Development in 2008, and another one for five luxury condominium developments in 2013, (Cohen, 2008; Coleman, McGrath, Pellegrino, Silliman, & Williams, 2014) One of the most recently discovered abuses of the program was a 36-story building on East 34th Street, a 421-a subsidized condominium building that had illegally operated as a hotel for years before it was caught earlier this year, (Bagli, 2015).

The original intent of 421-a, to provide incentives for developers to build in a depressed residential market, is no longer a valid goal given today’s real estate landscape in New York City, and the addition of affordable housing components has further complicated discussions about the program’s intent. Current debates about the program orbit one of two different goals: (1) to make residential development appealing and possible to developers where it otherwise may not be, or (2) to aid in the creation of affordable housing. While this paper will address both perspectives in its background research and literature review, it will primarily focus on the program intent and effects as an affordable housing incentive.

As a part of the larger dialogue of to what extent 421-a serves as an affordable housing program, I hypothesize and test the theory that one of the reasons 421-a may not be an effective way to provide affordability is that there are end users who gain and recognize the value of the subsidy and who are not the intended beneficiaries of the program. I will study the current distribution of subsidy recipients in order to determine who is receiving the benefit at a broader scale, and then further focus on the effect of the tax exemption on recent condominium sales in two neighborhoods with distinctly different characteristics: Manhattan’s Upper West Side between 59th and 79th Streets, and Morrisania/Longwood in the Bronx.

Understanding how property taxes and exemptions are calculated in New York City

Property tax calculations in New York City begin with an assessed value, defined by the Department of Finance based on a property’s tax class. Property classes are defined in the following table:

Table 1: Tax classes, as defined by New York City’s Department of Finance

| Property Class | Description | Level of assessment |
|----------------|--|---------------------|
| Class 1 | Most residential property of up to three units (family homes and small stores or offices with one or two apartments attached), and most condominiums that are not more than three stories. | 6% |
| Class 2 | All other property that is not in Class 1 and is primarily residential (rentals, cooperatives and condominiums). | 45% |
| Class 3 | Most utility property. | 45% |
| Class 4 | All commercial and industrial properties, such as office, retail, factory buildings and all other properties not included in tax classes 1, 2 or 3. | 45% |

Most 421-a eligible homes are in Class 2 buildings, since the minimum number of units required to qualify for the program is currently 4. The level of assessment is 6% for Class 1 properties, and 45% for Classes 2, 3, and 4, (“Definitions of Property Assessment Terms,” n.d.). Due to the assessed value ratios applied to different tax classes which in New York City, multi-family buildings are sometimes seen as over-taxed in comparison to single family homes.

$$\text{Actual Assessed Value} = \text{Market Value} \times \text{Level of Assessment}$$

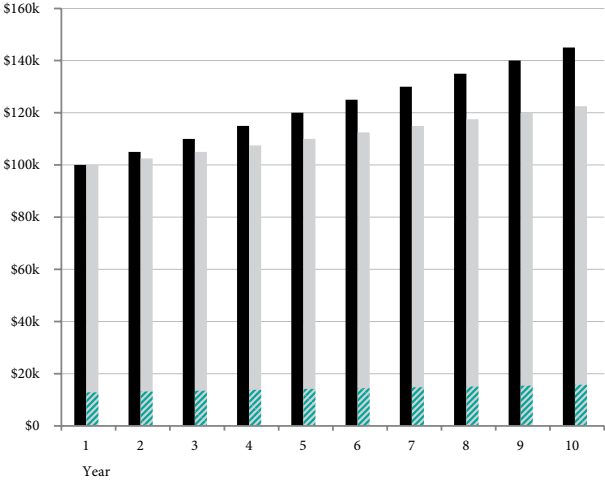
In addition to the actual assessed value of a property, a transitional assessed value is also assigned. Transitional assessed values aim to compensate for the possible volatility in the real estate market. The rise or fall of the transitional assessed value is capped to a certain percentage per year, and is applicable during a five-year phase-in period for most properties when they undergo new changes, and when exemptions are applied, (“Definitions of Property Assessment Terms,” n.d.; Independent Budget Office, 2011). If market values are rising rapidly, the transitional assessed value will fall behind the actual assessed value, and the reverse happens when plunging downturns in real estate occur. Taxable values and exemption benefits are calculated by the Department of Finance as the lower of either the actual assessed value or the transitional assessed value, (“Definitions of Property Assessment Terms,” n.d.; NYC Department of Finance, n.d.-a).

$$\text{Assessed Value} = \text{Min}(\text{Actual Assessed Value}, \text{Transitional Assessed Value})$$

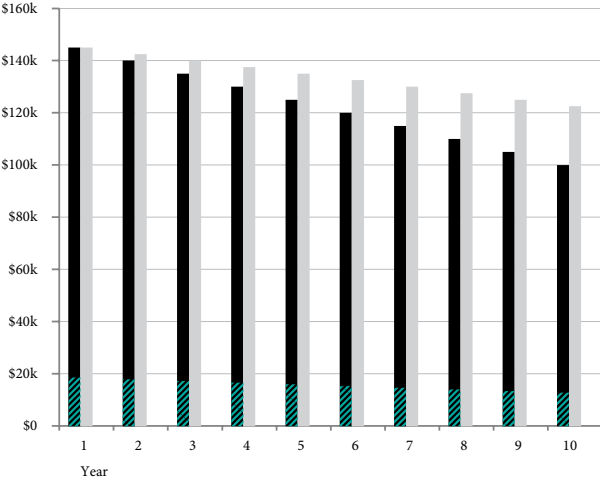
In a rising real estate market, transitional assessed values depress the taxable value used to calculate taxes. During this period, properties with transitional assessed values, which include all properties receiving exemptions, already enjoy a lower taxable value prior to receiving any exemption at all.

Such transitional value caps were designed to create neighborhood stability, in addition to helping keep cash-poor homeowners in their homes when property values escalate. In New York City, such property tax caps are a significant benefit that usually go to the most valuable properties in the wealthiest neighborhoods, rather than long-time homeowners on fixed incomes, (Hayashi, 2014).

**Billable assessed value in rising market
Taxes paid as portion of transitional assessed value**



**Billable assessed value in declining market
Taxes paid as portion of actual assessed value**



■ Actual Assessed Value ■ Transitional Assessed value ▨ Taxes paid

Numbers are for illustrative purposes only, to demonstrate residential tax law as defined by the Department of Finance. Tax rate used: 12.855%.

Figure 2: The effect of actual and transitional assessed value system on taxes paid

Without any tax exemptions, the tax owed on a property would be calculated directly as a percentage of the assessed or transitional assessed value. Tax exemptions work by lowering the taxable assessed value of a property.

The Department of Finance calls the amount deducted from the taxable value of a property for an exemption its “benefit amount.” The benefit amount is calculated as:

$$Benefit\ Amount = (Assessed\ Value - Base\ Year\ Assessed\ Value) \times Phase\ out\ Percentage$$

Two additional concepts are included in the benefit amount calculations: a phase-out percentage, and a base year assessed value. The base year assessed value is the pre-construction assessed value of the property, as the exemption is only meant to be applied to the additional value added after development. Although benefit lengths can span decades, the base year assessed value calculations never rise with inflation.

The phase-out percentages apply to different exemption lengths. All phase-out schedules start out at 100%, and decrease over time until the end of the exemption period. For full phase-out percentage tables, see appendix.

Finally, the tax discount awarded for the 421-a exemption is:

$$Tax\ discount = (Benefit\ Amount) \times Tax\ Rate$$

The remaining tax left to be paid is calculated with the benefit subtracted from the assessed value. As the benefit amount never includes the base year assessed value, the remaining tax levy will apply to the base year assessed value, as well as any assessed value that is above the exemption cap on a property, if applicable.

$$Property\ Tax = (Assessed\ Value - Benefit\ Amount) \times Tax\ Rate$$

While the level of assessment is disproportionately high for Class 2, 3, and 4 in comparison to Class 1, the tax rates for Class 1 are also rising while Class 2, which includes almost all 421-a properties, is falling. For the 2014/2015 year, Class 2 properties are subject to a 12.855% tax, (“Property Tax Rates,” n.d.). See appendix for full tax rate table.

Any abatements are additionally applied after these calculations, but will not be included as part of the scope of this paper.

RESEARCH DESIGN

Iterative data and process revision method

The research goal for this thesis has always been to create and test a hypothesis regarding one of the many phenomena that have been associated with an increasingly unaffordable housing supply in New York City. I was especially interested in identifying and researching an issue that influences the supply side of the housing market. Due to the complexity of the topic at hand and my interest in allowing the collected data to inform and reshape my research, the hypothesis, test, and even the phenomenon to be examined have evolved as a product of the process through the year. This shares some similarities with concepts outlined in the Strauss and Corbin approach to a grounded theory of research, which differs from other methodologies by allowing a theory to evolve and develop through the concurrent collecting and analyzing of the data. One goal of this research method is to lessen initial bias by allowing the data to inform a shifting hypothesis, (Hunter & Kelly, 2008). Although this thesis did not intend to follow this method at the beginning of the research process, the hypothesis I set out to test was obfuscated by the enormous impact of the 421-a tax exemption. At the outset, the planned research process was to:

1. Determine the phenomenon to research
2. Review existing literature to gain understanding of the issue and prior research methodologies used to tackle it
3. Form a hypothesis and a research methodology based on prior research on the topic
4. Gather data required for methodology
5. Analyze data
6. Summarize and discuss findings

The first phenomenon targeted for research was the demand for non-primary homes in the city. After reading previous literature focused on non-primary homes and housing supply, I decided to test the hypothesis that a homeowner who purchases a condominium unit that is not intended to serve as their primary home may be willing to pay more for housing than a full-time resident. If this disparity between willingness to pay for different levels of utility was contributing to an inflation of possible home prices, the demand for non-primary homes could be impacting recent supply-side development decisions, (Saal, 2013). Working from an open database of property sales transactions since 2003 that is maintained by New York City’s Department of Finance, I targeted the transactions of the city’s newer housing stock: buildings that were built in the year 2000 or later. From there, I aimed to see whether each of the over 44,000 properties identified in this pool qualified as primary homes based on whether they were collecting either of two tax benefits that require the unit to be a primary residence: the STAR exemption for school district taxes, and the Condo/Coop Abatement. I wrote a series of Python modules which individually queried unit borough-block-lot identifiers from the sales data to city websites in order to download their most recent tax bills and find whether they could be counted as primary residences based on their tax breaks.

When the data came back for Manhattan, less than 700 properties out of the nearly 15,000 units identified for research mentioned either the STAR exemption or the Condo/Coop Abatement. As it is generally difficult to receive multiple abatements or exemptions, the nearly 12,000 units in this sample which were collecting the 421-a exemption clouded the data that I was originally searching for.

From this process, it became clear that the 421-a exemption was a very powerful incentive for development and residential real estate, at least among the selected sample of recently-transacted units in recently-built buildings. With Python scripts still running as they collected data from other boroughs, the phenomenon shifted from non-primary homes to the 421-a exemption, and an iteration of all previous steps in the research process began.

Based on previous 421-a literature and the scope of existing sales and tax data I had, I decided to focus research on the question of who is recognizing gains from the 421-a subsidy, and whether they are the recipients that the program is intended to benefit.

Final methodology

The process was broken down into three segments: background research and literature review, general data analysis, and neighborhood case studies. The information from the first segment, especially the literature review, formed the basis for the scope of general data research and the topic of neighborhood case studies. I found that while much of the criticism targeted toward the 421-a program points to funds that are misallocated for luxury condominiums, there were few studies that dealt with the issue of 421-a as applied to condominiums specifically. In my last step, I used regression analysis of the sale of properties collecting 421-a exemptions to understand how the exemption has impacted condominium sales prices.

Background research and literature review

Various written sources were consulted for the background research on this subject. The information gleaned was divided into three sections of background research: historical overview, 421-a as public policy, and literature review.

The first section provides a chronological description of many conditions, events, and reforms which have impacted the program since the 1970s. The second section broadens the scope of understanding into the realm of greater policy, and the third section targets specific studies which are relevant to the scope and process of research for this thesis.

City-wide data gathering, cleanup, and analysis

In order to begin with an overview of the 421-a program, I needed information on all of the properties collecting the exemption. The comprehensive lists of properties receiving 421-a by borough were downloaded from the Department of Finance (DOF), and merged into a master list.

Additionally, I obtained information compiled by the Independent Budget Office (IBO) with the help of the Municipal Art Society (MAS), detailing 2013-2014 fiscal year information for 421-a exempt properties, and the amount of subsidy collected. Unlike most of the other data I was working with, this set was aggregated to the level of the building, not individual condominium units.

Another set of data, compiled by DOF in February of 2015, was obtained which included base year assessed values and updated numbers for the 2014-2015 fiscal year, but which did not include benefit amounts.

Rough estimates of construction discounts for each property were calculated from the this compiled DOF data, based on the assessed value in year 1 of the exemption. It was assumed that assessed values rose by 4% each year, an increase commonly used by assessors. It was additionally assumed that the assessed value rose steadily in the three years from the construction start date to the benefit start date. The estimated construction discount was calculated as follows, where “AV” stands for “assessed value.”

$$\text{Construction Discount} = [(AV_{Year1} - AV_{Base}) \times (.75 + .5 + .25)] \times TaxRate$$

Most of the background research involved merging information from multiple datasets together, usually through borough-block-lot identifiers (BBLs). Condominium BBLs are further complicated by the fact that a condominium building will have a lot number of, for example, 7501, while each individual unit within that condominium building has another lot number, usually ordered 1001, 1002, etc. Rental buildings, where individual units are not taxed separately, are not separated out into unique lot numbers. There are some data sets provided by DOF which can be used to help match condo parent lot numbers against child ones on each block, but none of them gave a 100% match rate.

For instances where the MAS/IBO set had to be matched against other data sets that had information at the individual condo level, a combination of “borough-block-condo identifier” or “borough-block-address number” was used in order to join parent condominium BBL identifiers to their parent lot numbers in the MAS/IBO data set. Neither match produced perfect percentages either, but together they were able to match all but 263 out of the 9,209 buildings represented against the Department of Finance individual property data. The final MAS combined data also included slightly more units than the DOF online data, a total of 153,091 rather than 153,290 residential units.

Table 2: Data sources for background research

| Source | Data type | Data set/tool | Time period / version | Scale |
|----------------------------------|------------|---|--|--|
| 421-a general information | | | | |
| DOF | Table | Comprehensive properties currently receiving 421-a | All current exemptions | Individual property |
| DOF | Table | Comprehensive properties currently receiving 421-a. Does not include expenditure, but includes base values. | All exemptions (Fiscal year 2014-2015), compiled February 2015 | Individual property |
| MAS/IBO | Table | 421-a general information. Includes exemption expenditure. | All exemptions (Fiscal year 2013-2014) | Building (condos aggregated) |
| HPD | Table | Borough-block-lot numbers within GEA | New Geographic Exclusion Area (GEA) beginning July 1, 2008 | Individual property |
| Mapping | | | | |
| DCP | Geographic | MapPLUTO | 2014v1 | Building tax lot (parent of individual property lot) |
| DOF | Geographic | Tax Blocks | August 2014 | Building tax block |

The map of the Geographic Exclusion Area (GEA) and the DOF neighborhoods were both created by taking the borough-block portion of the databases from the Housing Preservation Department (HPD) and DOF, and matching them against borough-block numbers in the DOF tax block map. For both data sets, it was assumed that the definition of the GEA and neighborhood included entire blocks, rather than splitting them up between two definitions. The current GEA list by HPD was conspicuously missing borough-block identifiers within original GEA of central Manhattan, and this area was added by hand.

To determine whether a unit was within or outside of the GEA, it was mapped in ArcGIS against the GEA map by obtaining XY coordinates from NYC's Geosupport Desktop Edition. Using the 1E function, I was able to retrieve mappable coordinates by providing a database of freeform addresses and their associated borough codes. In mapping DOF neighborhoods, the centroid of all blocks included in each neighborhood in the data was used as a point representation. The output was inaccurate for neighborhood locations in the Bronx, Queens, and Staten Island, and was manually modified based on references from the New York City Neighborhood Tabulation Areas GIS file and Google Maps.

Neighborhood case study data collection and processing

The premium realized on sale prices by 421-a subsidy was analyzed by looking at the price per square footage of housing as a function of the following variables:

- Year built
- Year purchased
- Number of bedrooms
- Estimated 421-a tax discount remaining at time of sale

Not all datasets had complete information, and a sale observation was only considered usable if all of the above data was available for the property and sale. Only sales of current 421-a properties were included in the study, as historical 421-a data is not available (information on which properties used to receive 421-a benefits but do not any longer). Any other properties may have previously received the benefit and could not be accounted for.

The Department of Finance sales data for 2003-2014 includes a DOF neighborhood definition for each line item. The original Excel files were split by borough and year. For 2003-2013, the sales had been annualized at time of download. For 2014, a rolling sales file included sales data from November 2013 to November 2014. The two time periods were joined together and duplicate sales from the overlapping time period were removed.

The following filters were applied to narrow down the properties for study:

- Neighborhood: Manhattan's Upper West Side between 59th and 79th Streets, and Morrisania/Longwood in the Bronx.
- Price: Eliminated sales prices of \$0.
- Building class categories: Residential only
- Residential units: Records with 1 residential unit transacted only
- Commercial units: Records with 0 commercial units transacted only

A simplified version of the data was processed using inflation data from the Bureau of Labor Statistics and saved, containing the following fields:

- Borough-Block-Lot code
- Original sale amount
- Sale date
- Original sale year
- Sale amount in 2015 dollars
- Neighborhood

The following additional fields were added based on whether a property's borough-block-identifier was found in the DOF list of 421-a properties:

- Is on 421-a list
- Base year of benefit
- Benefit start year
- Benefit length
- Base year assessed value
- Effective assessed value

The Department of Finance 421-a and sales data was missing many of the variables needed for analysis and further understanding, which were obtained using Python scripts which submitted individual borough-block-lot identifiers to additional websites.

Department of Finance NYC Property Portal

This website contains exemption and abatement properties on an individual basis. By submitting borough, block, and lot information, a user is able to find basic owner information, and see all of the current exemptions and abatements a property receives. From here, I was able to retrieve whether a property is collecting the 421-a exemption, the benefit amount, exemption length, start date, and end date. This site also included incomplete information about a cumulative size of the building if it is a rental property, or square footage of condominium units. Only condominium unit sizes should have applied in the query, since I was not surveying the sale of rental buildings. This information was supplemented by Property Shark for a more complete data set.

Department of Finance NYC Property lookup

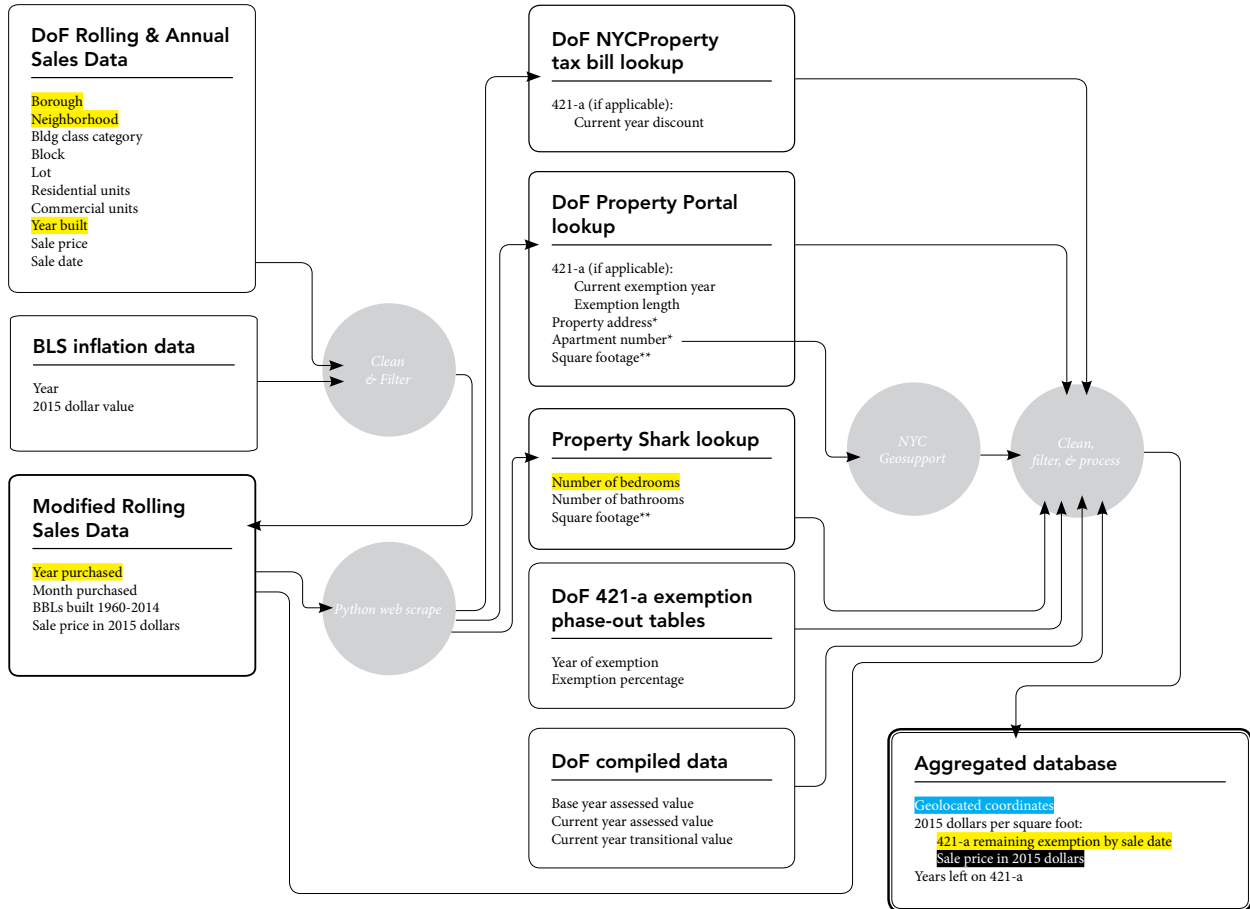
This website contains recent tax documents for each unit. A borough-block-lot submission to this website allows a user to find a list of recent statements for each parcel, including the quarterly property tax bill. The most recent quarterly bill for each property was downloaded, and the total property taxes for the year were extracted, along with the 421-a discount for the unit.

Property Shark

This website is able to look up property data by borough-block-lot identifier, and includes square footages and the number of bedrooms and bathrooms at the condo unit level for many properties.

The following diagram shows the final results of aggregation, and where each piece of information was extracted from for condominium sales analysis.

Data collection workflow diagram



| Existing dataset | Variable key | Notes |
|-------------------|---|---|
| Scraped dataset | Final regression: Independent variable Dependent variable | *Data existed in multiple sources, but most complete/standardized format from this source **Multiple data sources combined for most complete information |
| Processed dataset | Used in non-regression charts/visualizations | |

Figure 3: Diagram of data collection process for neighborhood case studies

Additional information had to be calculated from data pulled from the previous sources. Primarily, in order to understand the costs, all monetary values were converted to 2015 dollars using the inflation table in the appendix, accessed from the Bureau of Labor Statistics.

Table 3: Additional data sources for neighborhood regression case studies

| Source | Data type | Data set/tool | Time period / version | Scale |
|---|-------------------|--|---|---------------------|
| Property sales | | | | |
| DOF | Table | Annualized and rolling sales data | January 2003-November 2014 | Individual property |
| Additional property databases queried for regression | | | | |
| DOF | Individual record | Property portal: Tax benefit search | Filtered records from DOF sales: Buildings built after 1960 | Individual property |
| DOF | Individual record | NYCProperty search: most recent tax bill | Filtered records from DOF sales: Buildings built after 1960 | Individual property |
| Property Shark | Individual record | Public property search | Filtered records from DOF sales: Buildings built after 1960 | Individual property |

In order to calculate the estimated cumulative exemption benefits left for a property at the time of each sale, the current exemption amount was cross-referenced against the year of exemption at time of sale and phase-out plans for each exemption length, using the tables found on the Department of Finance’s website (see appendix). From here, the phase-out value for each year was determined, and summed in order to find the cumulative exemption left at time of sale.

For properties where the tax bill was available, the tax exemption per year was calculated using the tax discount, benefit start year, and the base value in order to find the tax rate and the phase-out percentage for the year. This yielded the full benefit amount for the year. For properties without a tax bill available but with effective assessed values and base values available for a given year, a tax rate of 12.855% was used to calculate out both past and future exemptions. Using the following calculation, where “AV” stands for “Assessed Value,” all missing variables in the equation could be found under either circumstance.

$$Exemption_{Current} = (AV_{Current} - AV_{Baseyear}) \times TaxRate \times PhaseOutPercentage_{Current}$$

For both properties with available tax bills and without, this method uses the same tax rate for each year of calculation. This undervalues previous year exemption discounts, since tax rates used to be higher than they are now. However, they also likely overvalue future year exemption discounts, as property tax rates are currently falling. A steady tax percentage for the calculations was used in order to balance out the two discrepancies in the absence of knowledge of future property tax rates.

A compounded assessed value rise of 4% per year was factored in, the standard assessment rate.

$$AV_{CurrentYear} = AV_{PastYear} \times 1.04$$

Exemption discounts for each year were calculated based on the assessed value, phase-out percentage for that year, and tax rate from the current year. Construction benefits were not included for the regression study.

$TotalExemption_{YearOfSale}$

$$= \sum_{YearOfSale}^{YearExpires} (AV_{Year} - AV_{BaseYear}) \times TaxRate \times PhaseOutPercentage_{Year}$$

Sales were only considered usable if all of the variables for regression were available. Any sale price with a price per square foot of less than \$100 or more than \$15,000 were discarded from the sample. All data tables included in the regression results display monetary value in 2015 dollars.

A natural log transformation was applied to both price per square foot and the cumulative exemption left at time of sale, in order to adjust the logarithmic growth of numbers to fit a linear regression model. The final regression equation would be expressed as:

$$\ln(PricePerSqFt) = Coef_{.1} * SaleYr + Coef_{.2} * YearBuilt + Coef_{.3} * \ln(ExemptionLeftPerSqFt) + Constant$$

There are many factors that this model does not account for, such as whether a building has an elevator, is near a subway or the homeowner's workplace, or the effect of other financial incentives or disincentives such as transfer taxes, (Kopczuk & Munroe, 2013).

BACKGROUND RESEARCH

Historical overview of the program

The 421-a program began in 1971, when the New York City's economy and real estate market were stagnating. In parts of the city, abandoned and dilapidated properties deteriorated their neighborhoods while crime and poverty were at record highs. Housing prices were so depressed that landlords would often fraudulently choose arson for their property than trying to sell in impoverished areas, since the insurance was worth more than the property itself, (Coleman et al., 2014). The number of new permits issued for housing in New York City fell from over 70,000 in 1962, to less than 4,000 by 1975, a drop of almost 95%, (Wu, 2012). In an effort to incentivize developer investment within the city at a time people were fleeing for the suburbs, 421-a was designed to encourage new market-rate residential construction with a partial tax exemption during the construction period, and for 10 years after completion, (Association for Neighborhood and Housing Development, 2015; MAS, 2015). This was based on a similar program from 1920, which used tax incentives to reduce housing shortages in New York City after World War I, (Konopko, 1986).

The law was first renewed in 1977 while the residential real estate market within the city remained weak, citing that it was responsible for 90% of new residential construction in NYC. As early as 1981, it was becoming clear that 421-a may no longer be a necessary developer incentive in all city neighborhoods. That year, amendments were put into place that allowed NYC's Housing Preservation and Development (HPD) to "promulgate regulations eliminating certain geographic areas from the program." This would involve areas that either no longer had significant need for tax incentives, or which should be used for non-residential construction, (Konopko, 1986). This was the beginning of what would later become the Geographic Exclusion Area.

The program first came under public scrutiny in 1984 as an inappropriate allocation of resources when Mayor Ed Koch attempted to deny the \$50 million benefit to the Trump Tower on Fifth Avenue, and was forced to do so when Donald Trump brought the case as a lawsuit in state court, (MAS, 2015). At that time, 421-a was still considered an

as-of-right exemption for any multi-family residential construction on an unused or underutilized site, and from Trump’s point of view, “it was quite obvious that Fifth Avenue wasn’t exactly a marginal neighborhood, and that I’d probably succeed with Trump Tower even if I didn’t get a tax exemption,” (Trump & Schwartz, 2009). Shortly afterward, a Geographic Exclusion Area (GEA) was formed for the first time, spanning roughly the area between 14th Street and 96th Street in Manhattan, within which properties could only qualify for the program if they provided affordable housing, (MAS, 2015). Additionally, the unlimited construction period benefits were reduced to 3 years, (Konopko, 1986).

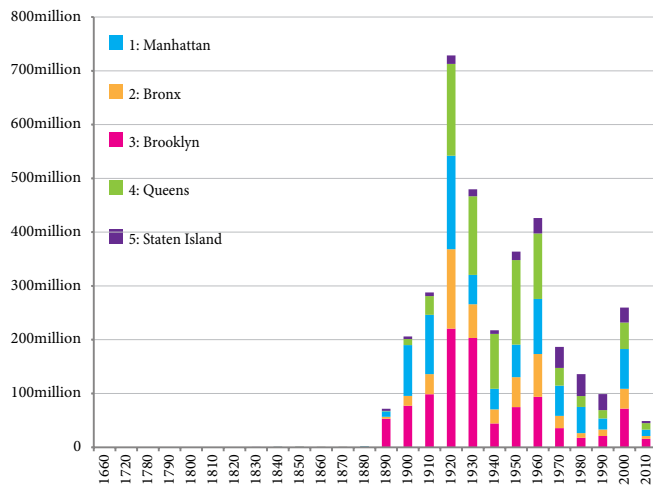
By this point, it was already speculated that projects such as Trump Tower were the pattern, not the exception to the implementation of 41-a. A New York Times article from that period pointed to speculation that “the chief beneficiaries have been land owners and speculators who were able to skim off the value of the [exemption] by raising the price of buildable sites.” George Sternlieb, who was then the director of the Center for Urban Policy Research at Rutgers University, noted:

New Jersey has roughly the same population as New York City... and New Jersey - which is no great housing state -produced 60,000 housing units last year against New York’s 10,000 to 12,000 units. My guess is that the existence of 421a basically raised the land costs. All these deals are penciled backwards, and 421a made it possible for landowners to raise prices.(Hinds, 1987)

A recovering housing market was already noticeable at that time, and critics were already criticizing it as a wasteful expenditure when market incentives for residential investment were growing. At that time, the previous 16 cumulative years of expenditure had totaled \$551 million, or around \$1.2 billion in 2015 dollars, (Hinds, 1987). Those initial 16 cumulative years of expenditure are now the annual cost of the program.

Along with the creation of the GEA in the 1980’s, a negotiable certificate program was born. It worked by offering affordable housing developments to receive four to six certificates for each affordable unit constructed. These certificates were then sold to developers within the GEA. This allowed affordable rental units to benefit from the sale of certificates to market-rate developers within the exclusion area, (Wu, 2012).

Current residential square feet in NYC by decade built



Source: MapPLUTO 2014v1

Figure 4: Amount of existing residential square feet existing by decade of construction

Although controversy surrounding certain applications of 421-a as an inappropriate subsidy of luxury development had already begun, we can see from the current MapPLUTO GIS data that from the 1970s through the 1990s, new residential development continued to decline. However, this downward trend of investment reversed rapidly in the 2000s, when city reforms and a new interest in urban living caused the residential real estate market to become quite lucrative.

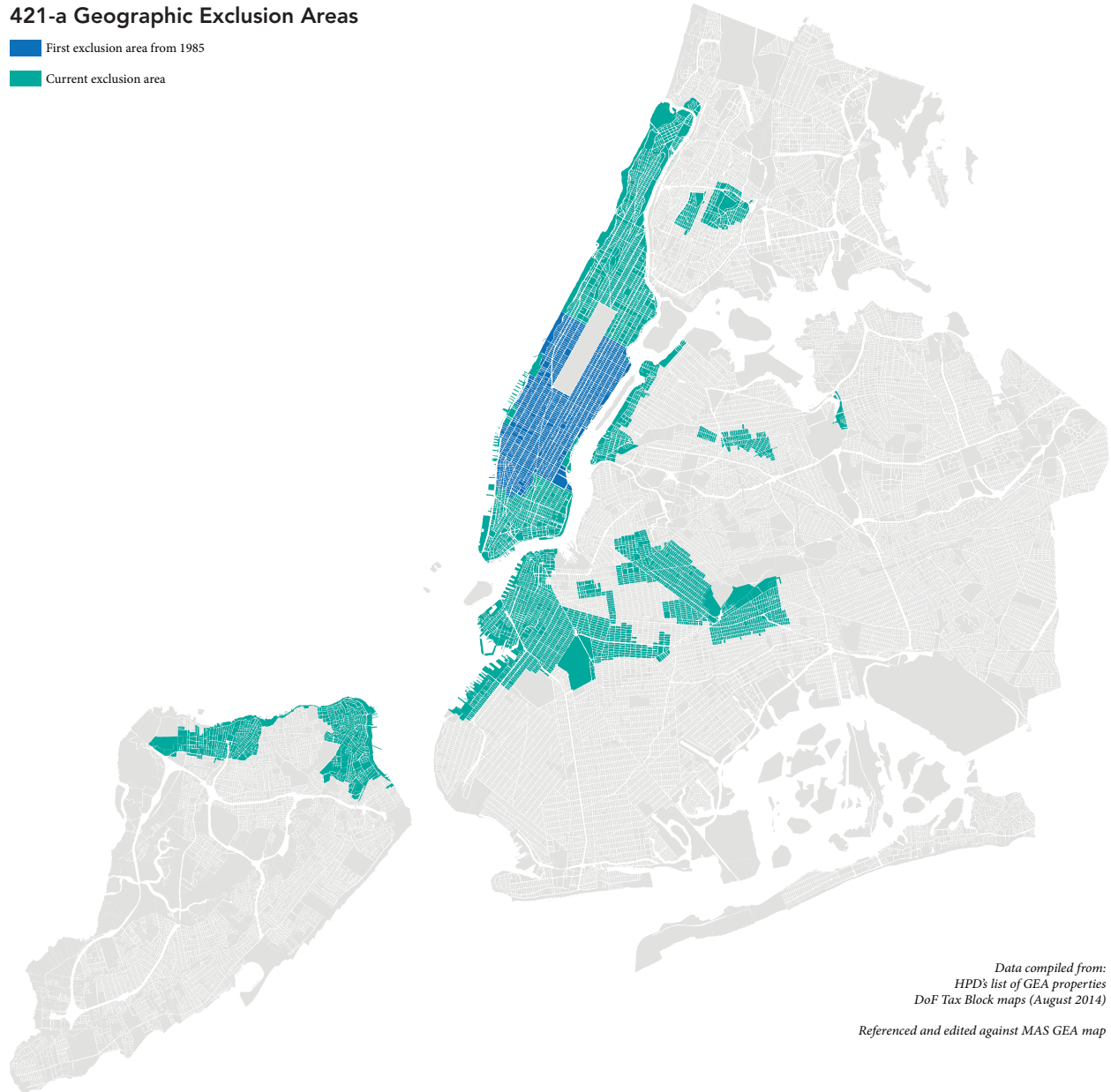
Along with this growth of residential development, new calls for reform began to grow. In 2006, Mayor Bloomberg began a task force to update the program in the new economy. During these negotiations, sweeping changes were made to the program, which were designed to emphasize affordable, rather than market-rate housing during a hot residential real estate market.

Among the changes made in 2008, the GEA was expanded to its current limits, which include all of Manhattan and certain parts of the outer boroughs (Chase, 2007; Wambua, 2013).

For properties within the GEA, affordable housing was required to be developed on-site, with a maximum of 5% total units affordable 60-80% of the Area Median Income (AMI), and the remainder of which must be affordable to those making below 60% AMI.

421-a Geographic Exclusion Areas

- First exclusion area from 1985
- Current exclusion area



*Data compiled from:
HPD's list of GEA properties
DoF Tax Block maps (August 2014)
Referenced and edited against MAS GEA map*

Figure 5: Current geographic exclusion area (GEA) for the program

With the expansion of the GEA, the 25-year extended benefit was no longer as-of-right: if a project fell outside of the GEA and within former Neighborhood Preservation or Rehabilitation Mortgage Insurance Corporation (NPP/REMIC) area, extended benefits can be achieved if it qualified for substantial government assistance or included 20% affordable units for those making 80% AMI, (Wambua, 2013). Additionally, 35-year affordability and rent stabilization requirements were put into place, so that all affordable units must remain rent-stabilized for 35 years after construction completion. After 35 years, tenants with leases remain as rent stabilized occupants, (Wambua, 2013).

In addition to the changes in affordable housing requirements which required such units to be developed on-site, the negotiable certificate program, which had been in effect for over 20 years, ended. No new certificates were issued after the 2008 reforms, although certificates that existed before the reform were grandfathered in to the end of their term.

A cap on the exemption was created for as-of-right market-rate apartments outside of the GEA, originally set for the first \$65,000 of assessed property value, and increasing every year by 3%, compounded annually. As of 2015, this would be an assessed value of about \$79,941, or an equivalent of roughly \$177,648 in market value. When a unit is subject to the exemption cap, any additional assessed value after the cap limit is not eligible for exemption benefits. This was intended to make sure there is a limit to the amount of exemption provided for market-rate housing built under the program. The effect of the exemption cap is shown in the equation below, where “AV” stands for “assessed value.”

$$\text{Capped exemption discount} = [\text{Min}(AV_{\text{CurrentYear}}, AV_{\text{ExemptionCap}}) - AV_{\text{BaseYear}}] \times \text{TaxRate}$$

Local Law 58 of 2006 specified that construction must be completed without “undue delay,” to make sure that GEA projects that began before new reforms took place would be built in a timely manner. According to HPD, the undue delay “safe harbor” is 72 months, or 6 years after the construction start date. The last completion eligibility application date was June 24, 2012, (“Exemption of new multiple dwellings from local taxation,” n.d.; Wambua, 2013).

Not long before amendments were voted on, one extra provision was added to the new state legislation. It effectively created a significant loophole around on-site and income provisions for exclusion zone developments that were elsewhere in the bill, which would allow for affordable housing to be provided in segregated sections over a large market rate project exceeding 2,500 units, while loosening the definition of income eligibility up to 70% AMI from the original 60%. As written in an article from the Journal of Law and Policy at the time,

Given the specific wording of the above section, this special exemption only applies to one large, high-profile development project already considered controversial by some due its comparative size, public cost, potential environmental impact, and its use of eminent domain to secure land for construction: the Atlantic Yards Project under development in Prospect Heights, Brooklyn by Forest City Ratner Companies. (Cohen, 2008)

The loophole was soon dubbed the “Ratner Carve Out,” and even the notoriously developer-friendly Mayor Bloomberg condemned that it would “hurt the very people that everybody talks about helping and gives some tax breaks to a developer that doesn’t need them.” In the face of this backlash, the amendment was revised before the vote, although the 70% AMI provision remained, and extended benefits granted for buildings which otherwise would not have received them. Although the carve-out was scaled back, Forest City Ratner ended up receiving millions of dollars in subsidy through Atlantic Yards that other developers were not eligible for, (Cohen, 2008).

Additional smaller reforms involving prevailing wages for employees in 421-a buildings and an extension of the construction period took some time to finalize, and during negotiations in December of 2010, 421-a briefly lapsed. It returned on June 24 2011, when the governor signed The Rent Act of 2011, extending both 421-a and rent stabilization laws to June 15, 2015. Although the construction period was extended from 3 to 6 years, the benefits continued to only apply for a total of 3 years during construction, (NYU Furman Center, n.d.; Wambua, 2013; Wu, 2012).

In January of 2013, another loophole was pushed through the state legislature, a broad housing bill which allowed certain condominium developments the right to collect 421-a even if they did not build affordable housing on-site. They did this by successfully claiming that the construction on the buildings actual began prior to 2008, when the last reforms were put in place, (Coleman et al., 2014). These buildings included the prominently criticized One57 from developer Extell, the ultraluxury condominium 30 Park Place in Lower Manhattan from developer Larry Silverstein, and 516 Fifth Avenue in Midtown by developer Joseph Sitt. While an Extell spokeswoman said that the legislation simply “remedied an oversight” in the program, others were skeptical. One57 was already underway when the legislation had passed, which suggested that it would have been built regardless of whether it had received the tax break or not. Vicki Been, the faculty director of the Furman Center for Real Estate and Urban Policy commented, “The idea of the program was that tax subsidies can be an important tool to create residential housing and affordable housing that otherwise wouldn’t be built. I don’t see how giving a tax break to a building like One57 helps either of those goals,” (Satow, 2013).

Perhaps the most visible symptom of the complex and divided history of 421-a’s intent is the complicated set of differing eligibility requirements inside and outside of the GEA. The GEA is intended to ensure that 421-a funds would either continue to fund all residential multi-family in under-developed areas, or to help incentivize affordable housing if a property fell within a high-demand zone. These two very different goals continue to divide discussions about 421-a’s performance.

421-a as public policy

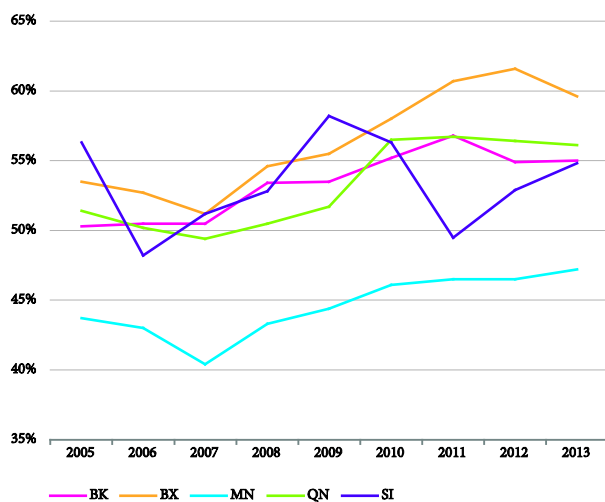
From a public policy perspective, 421-a can be debated as an incentive for developers to build residential supply in general, or as a way to generate affordable housing. Since the lowest years of the financial crisis, the construction activity in New York City has been rising rapidly again, largely driven by unprecedented growth in high-end residential construction. Projections for the current year show \$32.9 billion in activity, which would break the current yearly record of \$32 billion in the city, or 17% below the 2007 peak construction year when inflation is accounted for, (Real Estate Weekly Staff, 2014). Clearly, given this environment, it would be difficult to argue that there would be little incentive to build market-rate residential housing without 421-a, especially in high-demand areas of the city.

However, there is a lot of debate about the program as a way to incentivize affordable housing. As the city and country recover from the recession, New York City’s population in every borough has grown steadily since 2010, and the city is scrambling to build enough housing to keep up with demand (U.S. Census Bureau, n.d.). With high-end developments leading the residential construction growth, affordability continues to elude city residents and may be all but impossible to build without government subsidy.

A rent-burdened household is defined by 30% or higher of the income being used for rent, while “severe rent burden” is where 50% or higher of the income is used for rent. According to Mayor de Blasio’s 2014 housing report, almost 55% of all rental households in New York City were “severely rent-burdened” as of 2012. From 2005 to 2012, the median gross rent in NYC rose by about 11% after adjusting for inflation, while the median income rose by only 2.5%, (The Mayor’s Office of the City of New York & De Blasio, 2014). According to ACS data, the rent burdened population has never been below 40% for any borough in any year since 2005. Manhattan has historically had the lowest rates of rent burden of the boroughs. This may be counterintuitive due to the continuous attention Manhattan receives for its high real estate prices, but is likely due to the higher incomes of Manhattan residents as well. With the exception of Staten Island, all boroughs experienced their lowest rent burden rates during the economic highs of 2007, but that rate has been growing since the economic downturn in 2007.

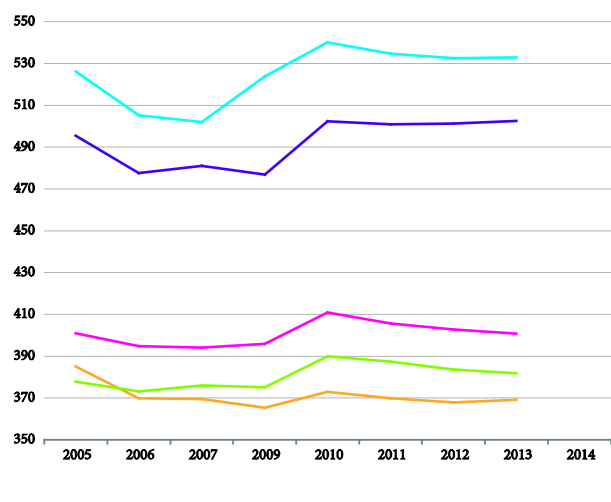
The primary target of affordable housing regulation is often supply-side incentives and regulation, as it has historically been easier for cities to regulate housing on the supply, rather than demand side. From 2002 to 2013, the Bloomberg administration sought to address affordable housing through supply-side growth, and primarily through developer subsidies, (The Mayor's Office of the City of New York & Bloomberg, 2004). Mayor de Blasio's housing plan also points to insufficient housing stock and new construction as one of the culprits of the affordable housing problem, and the key strategies proposed include mandatory inclusionary housing and encouragement of building more housing stock, (The Mayor's Office of the City of New York & De Blasio, 2014). Mayor de Blasio has stated that he needs the 421-a program in order cooperate with developers to meet his ambitious goal of providing 80,000 more affordable housing units in the next ten years, (Real Estate Board of New York, 2015). The ongoing logic is that supply incentives would help alleviate the rent burden by producing more units, many of them affordable by regulation, and therefore help keep costs down. Despite an increase in housing stock in the last 10 years, the amount of built residential square footage per person has not kept up with population, decreasing as population has risen since 2010.

Percentage of New Yorkers who are rent-burdened by borough



Source: American Community Survey 2005-2006, ACS 1-year estimates 2007-2013

Average square feet of housing per person by borough



Source: NYC MapPLUTO and ACS 1-year estimates. *2008 data not available from MapPLUTO and is omitted.

Figure 6: Rent burden and housing supply per capita by borough, 2005-2014

Another complication in addressing affordable housing supply is the definition of affordable housing. The affordability standards which must be met in order for a project to qualify are set by the area median income (AMI) of the city. The AMI areas are defined by the U.S. Department of Housing and Urban Development (HUD). The New York, NY HUD Metro Fair Market Rents Area (HMFA) includes Bronx, Kings, New York, Putnam, Queens, and Richmond counties. However, this aggregated median income applies to affordable housing projects throughout the city, and does not account for the many areas of New York where the average median income by census tract can be as low as 16% of AMI, about half threshold of what HUD would consider Extremely Low Income. NYC's Department of Housing Preservation and Development (HPD), which determines 421-a eligibility, generally defines a unit as affordable housing if its cost is less than 30% of the household income as a percentage of AMI. Such policies which set standards that do not apply to many communities in the city were one problem targeted in Brewer's testimony on 421-a in January, (Brewer, 2015).

Median income as a percentage of AMI, 2013

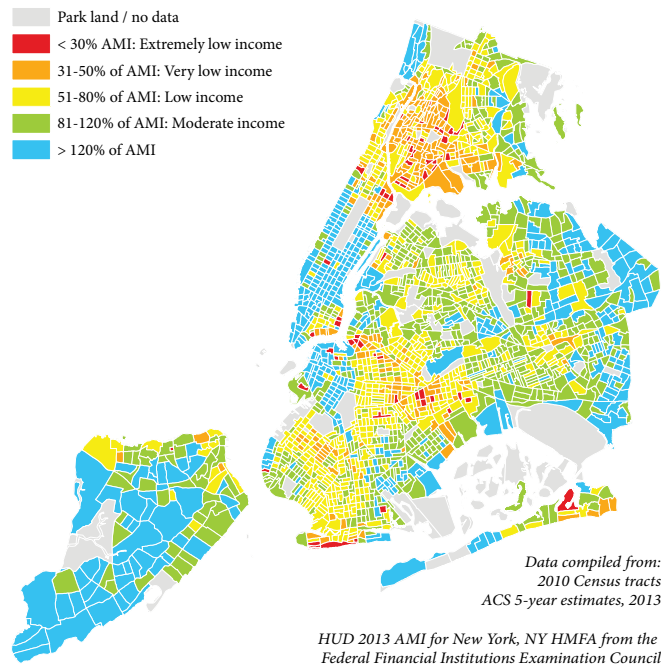


Figure 7: Map of median income by census tract as a percentage of AMI, 2013

In New York City, especially Manhattan, land is an extreme constraint in the development of affordable housing units. Developers commonly cite land prices as the major hurdle to being able to build anything other than high-end or government-subsidized residential buildings. Regulatory measures often aim to ease the burden of construction and land costs, a huge portion of supply-side decisions, (Adams & Füss, 2010; Kenny, 1999).

An unprecedented surge in land prices began between 2002 and 2004, (Rowan, 2004), and the average price per square foot of land between 1999 and 2006 rose from \$46.65 to \$366, a factor of 6.82 times, or 6.77 once inflation is factored in. One explanation for such high land values is that an inelastic land supply, such as exists in New York City, will bring a rise in land prices as there is greater construction output, (Ball, Meen, & Nygaard, 2010). Additionally, the cost of land to be used for residential development grew at a much faster rate than land for commercial use, indicating that there was higher profit to be made in residential than commercial real estate, (Federal Reserve Bank of New York, Haughwout, Orr, & Bedoll, 2008).

If 421-a is not renewed, the first speculated market effect is a drop in land values. Although impossibly high land prices are often the cited culprit for difficulties in building affordable housing in the city, The Real Estate Board of New York (REBNY) also argues that falling land prices as a reaction to the disappearance of the 421-a program could cause further barriers to affordable housing development. This is based on speculation that landowners will take land off the market until developers willing to pay more for it. The result, they argue, would be a “development freeze,” which would run counter to supply-side affordable housing efforts (Hutchins, 2015).

Many of the issues brought up in the current debate were first mentioned decades ago, but continue to go unaddressed. In 1987, during the first wave of reforms following the controversial Trump tower, a New York Times article expressed the exact same problem the exemption faces today, almost 30 years later:

“Land sellers here appear to be the primary beneficiaries of the program in that it appears to us that the benefits are already incorporated in the price of the property being offered,” said Winthrop D. Chamberlain, a partner in Orb Management, a Manhattan management and development concern. “These programs usually contain the seeds of their own demise,” he added. “They usually provide great stimulus in the beginning, but eventually the market becomes so stimulated that prices are driven up and the program self-destructs.”

To the extent that the 421a subsidy was capitalized in inflated land prices, development became more dependent on the subsidy, which explains why most developers say that the subsidy now is essential for housing production to go forward and why almost all of them seek abatements. When a subsidy like this is capitalized, however, it loses its ability to do its job - stimulate marginal developments. "Every subsidy gets capitalized - tax abatements, depreciation allowances - you can't avoid some capitalization, but too much subsidy was given too capriciously," said Louis Winnick, the Ford Foundation's urban specialist. "Capitalization doesn't wipe out the value of the subsidy, but it cuts into its public value." (Hinds, 1987)

Another popular argument in favor of the 421-a exemption is that property owners of expensive units are subject to disproportionately high property taxes, and will permanently pay higher property taxes once their exemption expires. New York City property owners may feel that they have to pay extremely high taxes, but the property in the city is also worth much more than many other places in the United States. A 2010 nationwide study of property taxes showed that the average homeowner paid a median of 1.14% of the home value that year, while New York City's median was .78%, (Yee, 2012).

In addition to the general debate about tax exemptions and their effects on generating residential construction, the exemption as applied to different types of housing units can be captured in very different ways. With rental units, the exemption is given to the owner of the building, not the tenant. In this case, an affordable unit renter can pay lower rents while the building owner collects 421-a exemption, which can be used to offset the cost of maintaining that unit during the exemption period. For market-rate rental units collecting 421-a benefits, the building owner may still continue receiving 421-a benefits in exchange for keeping the rent increases under control.

For condominium units, the exemption is directly received by the homeowner, which conceivably could alleviate the cost of homeownership for the duration of the exemption. However, it is also likely that the subsidy is captured by the developer or the reseller of a condo rather than the current homeowner, as the anticipated returns from the exemption could well be built into the sale price of a condominium; I will explore this concept in the case study portion of the research. There is some evidence that the capitalization of tax benefits could encourage owners to sell for profit, giving early homeowners a benefit without long term affordability, (Hayashi, 2014). The benefit to mortgage-holders is also fleeting, as the exemption is designed to phase out over time.

For homeowners purchasing a property receiving 421-a, the tax benefit acts similarly to a temporary mortgage interest deduction (MID), allowing them to pay less per month or year for the cost of homeownership. A national 2012 study of mortgage interest deductions on buyer activity showed a 10.9-18.4% increase in home size purchased with the national MID, but no relationship between the MID and rate of home ownership, (Hanson, 2012). If the study results are applicable in New York City as well, such deductions are not providing greater rates of homeownership in the city, but they are allowing homeowners to purchase larger or more prime-located properties.

Further complicating matters is the fact that the program has very little data available to measure its performance by. There is no database which tracks the number of affordable housing units built under 421-a, and much of the data that does exist is not open to the public. The following excerpt is from a 2008 report on the program:

In a data-oriented era of accountability, a program that stands to cost the public so much money but lacks adequate tools to measure it is difficult to defend. Absent quantifiable performance targets, it is, and will continue to be, virtually impossible to determine whether the 421-a program is efficient... As long as some indeterminate amount of affordable housing is built... it only fosters unfocused and ultimately unsupported debate on whether the number of affordable units built exceeded, met, or fell short of expectations. Unless and until there are clear performance goals, it will also continue to remain unclear whether the program is meeting expectations in terms of efficiently using public funds.(Cohen, 2008)

However, the same condition continues to exist today. DOF, which administers the benefit, does not have a system to regularly exchange data from HPD, which determines eligibility. In the end, people can spend an immense amount of time speculating on the program's efficacy and performance, but there are no data to back up its effects on the affordable housing market.

Literature review

Most previous research about the 421-a program took place around the time of its major reforms. One of the earliest research papers on the exemption was written in 1986 in the Fordham Urban Law Journal, almost 30 years ago, after the controversial construction of the Trump Tower. It primarily relied on combining information from previous court cases and newspaper articles in order to come to the author's own conclusion on recommendations for the program. It included a description of the program controversy which is hauntingly similar to the current dialog:

Political rhetoric and posturing renders objective analysis of the program extremely difficult. Public interest groups who condemn the program have cited the huge sum of tax dollars the exemption has excused, the high income levels of the residents of the buildings, and the luxurious nature of the housing constructed under the program. On the other hand, proponents assert that the inflated costs of purchasing land and constructing buildings in New York City necessitate the exemption; that it has enhanced the city's tax base; and that its overall impact has been, and will continue to be, beneficial to the city.

This study concluded that the construction of luxury units didn't necessarily render the program undesirable, as they may help ease a housing shortage and strengthen the local economy. However, it was already understood that programs which reduce development costs across the board tend to increase land prices. As such, land sellers would be the primary beneficiaries of the program because the benefits are already factored into the property price, and the value to developers is lessened because they are paying more for land. Citing previous studies, the paper stated that the benefits of luxury developments exceeded the cost of the program by the additional tax levy of those properties, and that an income restriction should not exist for 421-a buildings. However, it did recommend that 421-a only be applied to rental housing, as there was enough incentive to construct and purchase luxury cooperatives and condominiums without any additional exemption. They also recommended reforms to include a penalty for converting rental buildings to condominiums shortly after the exemption period expires, (Konopko, 1986).

A growing number of studies were published on the effects of 421-a around the 2008 reforms. In 2005, a study by the Pratt Center for Community Development cited Independent Budget Office information that only 7% of the 69,000 units subsidized between 1985 and 2002 were affordable to low or moderate income families. Only one-third of new construction was utilizing the program, so they understood that it was possible to develop without the subsidy if needed, (Pratt Center for Community Development, 2005).

An article in the Journal of Law and Policy pointed out that there is a general fear that developers simply will not build at all because of low profits if the exemption is removed. However, they note that the majority of buildings constructed between 1985 and 2006 were built outside of the 421-a program. They point to cities such as Los Angeles and Seattle, which have more aggressive affordable housing policies development policies which have not hurt their housing markets: Los Angeles only gives exemptions to 100% affordable housing developments owned by not-for-profits, and Seattle "statutorily compels developers to build between 20% and 30% of affordable units across the city."

Additionally, they found that the difference in requirements between properties inside and outside of the exclusionary zone have created an unintended "halo" on the outside of areas next to the zone. Within the halo border, units could fetch increasing higher market-rate rents because of gentrification while enjoying unrestricted

affordability requirements for 421-a development. They concluded that it was a mistake to only include part of the city within the GEA, that the market is unlikely to offer affordable housing without subsidy but that exemptions are likely unnecessary for market-rate units, and that the program's affordability requirements simply are not stringent enough to meet its goals given the cost, (Cohen, 2008).

A 2012 thesis by Jenny Wu from the Real Estate program at MIT also conducted an in-depth study of the program. She collected current and historical available data related to the program, tax expenditures in the city, and permit issuances in combination with interviews in order to frame her further discussion and research on 421-a. From there, she chose a co-op building in Chelsea as a case study to understand how property taxes would be calculated and whether the program impacted the financial feasibility of the project.

One major point from her background research stems from a study of construction costs, home prices, and permits issued over time. She found that although the cost of construction has been steadily increasing, "the changes in permit issued are very volatile and closely follows the changes in housing prices. This implies that construction costs may not be the significant variable affecting housing supply." In other words, the decision of whether to build may rely more on housing demand and its associated prices than supply-side constraints, which in the past decade have been outpaced by surges in home pricing.

In her case study of the financials for "the Marais" building in Chelsea, which was originally designed as a rental property and converted to cooperatives as the superstructure was built, she concludes that the building could not have been built without 421-a benefits given current prices of land, construction, and market values in the neighborhood. However, the financial models yielded in testing alternate scenarios also suggested that the property tax benefits from the 421-a program were not enough on their own to incentivize the 20% of affordable housing, and that the project was only feasible with both Low-Income Housing Tax Credits and the 421-a exemption. Although she acknowledged that on-site affordable housing is a better way to combat gentrification, she also pointed out that on-site units are more costly than other options. She suggested that the negotiable certificate program be renewed with modifications that would have greater cost efficiency by commanding a higher price per certificate for affordable housing developers, (Wu, 2012).

A 2014 study of the program was also conducted by the New School for Public Engagement at the request of the Manhattan Borough Commissioner, which focused on how the exemption could be amended to increase the construction of affordable housing. It utilized both qualitative and quantitative methods to assess the impact of three scenarios: renewing 421-a without any changes, eliminating the program, or amending it to increase affordable housing. In addition to a broad research frame consisting of historical and political research, literature review, and interviews, they utilized a standard developer *pro forma* to see how the affordability requirements affected financial feasibility for a hypothetical project with 104 units, with the goal of finding changes in affordability requirements that would least affect a developer's return on equity (ROE).

Using a baseline ROE of 8% to 9%, a standard minimum for residential real estate, they found a baseline ROE of 8.8% for 20% affordable units which utilized both current 421-a benefits and the LIHTC program. They found that although changing the ratio of affordable housing units had a large impact on ROE, decreasing the AMI ceiling with the same percentage of affordable housing units had a smaller impact on the return. Without any 421-a subsidy at all, they found a 4.5% ROE for mixed market-rate and affordable units, while market-rate units only would return 10.1%.

Ultimately, they recommended the following steps to the Manhattan Borough President's Office to increase affordable housing under the program: establish on-going working relationships between HPD and DOF, make 421-a data open source, establish a task force to analyze its performance and provide recommendations, (Coleman et al., 2014). This study was heavily cited in the January testimony of Manhattan Borough President Gale A. Brewer this year, (Brewer, 2015).

In March of this year, the Municipal Art Society released an online project which mapped all of the 421-a exempt units in the city, and attempted to estimate the amount of affordable housing provided for each project. Although it was more of a project intended to display 421-a information publicly and not one with a definitive hypothesis and results, the data from the project was heavily used in my own analysis, (MAS, 2015).

Additional concepts were drawn from a research paper on property taxes written in 2014, by Andrew Hayashi at the University of Virginia School of Law. He studied the subject of property tax caps in New York City through DOF data of market and assessed values for one-to-three family homes. In his preliminary research, he pointed out that one of the reasons property taxes are so despised in the United States is that an increase in property value does not bring cash that can pay for one's property taxes. Most income is not taxed until it is recognized, which usually happens when cash is received for an asset, such as the sale of stocks. Homeowners are understandably resistant to selling their homes if they do not have the cash to afford the property tax payments, as it is their shelter and often carries sentimental value. Such concerns led to a series of limitations on property taxes that began over 35 years ago and are still in effect.

Hayashi makes the argument that assessment caps already function as tax expenditures, with over \$1.5 billion in foregone property tax revenue in 2008 for one-to-three family homes, or 12% of the total property tax revenue for the year. Perhaps unsurprisingly, the largest benefits due to assessment caps went to ZIP codes with the most valuable properties, the wealthiest households, and the smallest share of minorities. On average, these high-income neighborhoods were also associated with the shortest tenures within their homes, where the properties that appreciate more rapidly are more likely to sell. Given that the intent of property tax caps is to help keep people in their homes despite an increase in property value, the regressive distribution and high turnover of its most-benefited properties indicates that the cap is not working as intended.

Most importantly in the scope of this thesis, he mentions that there is some evidence that the value of tax benefits could even be overcapitalized into the price of a home, allowing that benefit to be monetized by selling the property and perversely inducing owners to sell, (Hayashi, 2014).

Most of this previous research on 421-a focused either on its broad effects and distribution, or in case studies, whether the feasibility of a project would be impacted by reform or expiration scenarios. While the feasibility of single projects forms the basis for 421-a as a development subsidy, the direct monetary beneficiaries of the program have not been studied in as much depth. The analysis for this thesis will use the latest datasets available to provide the broad scope of 421-a expenditure, and use the results to determine case study neighborhoods to study the effect at sale in one of its most heavily criticized applications: condominiums.

FINDINGS

City-wide analysis

A preliminary analysis of data was performed of existing data sets I collected in order to generate a broad understanding of the program, and determine the neighborhoods for the case study portion of the research.

When most people refer to the benefits granted by the 421-a exemption, they are referring to the 10, 15, 20, or 25 year exemption periods that begin after building construction. However, there are other two other significant factors that affect the exemption expenditure before the primary post-construction benefits are applied: assessed value caps, and construction period expenditure.

10% of the property tax base for these properties is already missing due to capped assessed values.

From the DOF data compiled data on the 2014 year, there was \$11,088,934,969 in effectively taxed assessed value for 421-a properties, while an additional \$1,164,037,173 in true assessed value was missing in the transitional assessed value numbers. Since taxes are based on the lower of either assessed or transitional value, this is just over 10% of the property tax base that is missing for these units, before the 421-a exemption is added as an additional bonus.

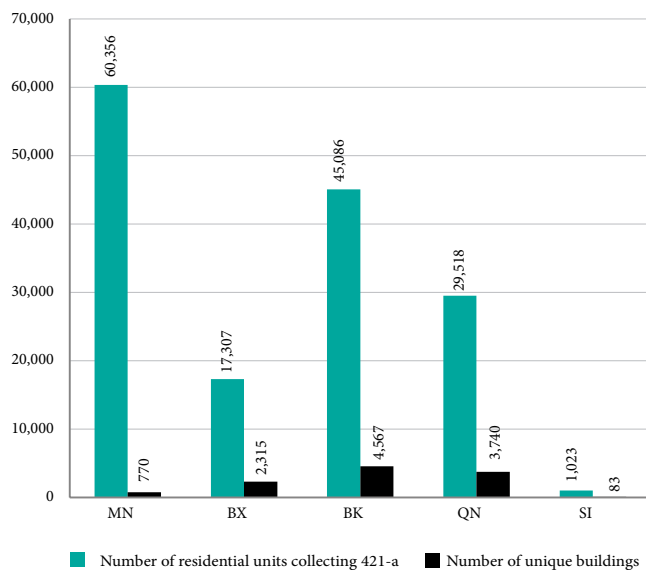
Construction period benefits additionally add significant exemption expenditure.

Additionally, in addition to the year post-construction benefits awarded, developers with 421-a benefits also receive exemptions during the construction period for up to 3 years, (NYC Housing Preservation & Development, n.d.). This is not subject to a phase-out schedule, and all 3 years receive 100% of the calculated exemption based on the transitional or assessed value at the time. Assessed values usually escalate dramatically at this time, due to the construction activity contributing to market value.

From the February Department of Finance compiled data which included base year assessed values for each unit, an estimate of over \$1.6 billion in benefits was used to subsidize the construction period for currently active 172,360 residential units receiving 421-a across the five boroughs. This averages out to just over \$9,000 in subsidies to construct each unit, before completion benefits began. When calculated by borough, this varies widely from an average of \$2,773 per unit in the Bronx, to \$15,963 in Manhattan.

Post-construction benefits are unevenly distributed across the boroughs: Manhattan's 39.4% of 421-a units make up 61% of all expenditure.

Number of 421-a buildings and units by borough



Data from the Department of Finance 421-a website

Figure 8: Comparison of the number of 421-a buildings vs. units by borough

From a compiled study of the online 421-a spreadsheets provided on DOF's website, we find that 11,475 unique addresses encompassing 153,290 residential units are currently collecting benefits. Manhattan's 770 buildings only make up 6.7% of the total number of buildings receiving exemptions in the city, while the Bronx, Brooklyn, and Queens have thousands of buildings currently receiving the benefit.

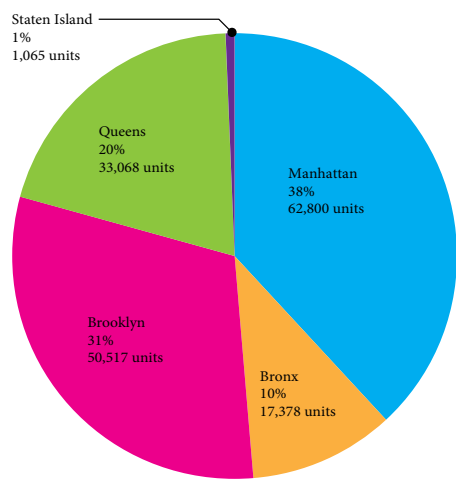
However, due to the far greater density of building in Manhattan, the borough also contains the highest total number of units: the 60,356 Manhattan units make up 39.4% of all active 421-a units in the city. This is an average of 78 units per address, compared to the citywide average of 13 units per address.

The number of units built in Manhattan with 421-a benefits may be less than 40% of the total units for the city, but the subsidy amounts to a larger percentage of the total expenditure for all active buildings over the course of their completion period benefits. At nearly \$670 million, Manhattan's expenditure makes up 61% of the \$1.1 billion

dollars in 2014 exemption benefits. Manhattan's average expenditure per unit is \$11,062, which is 1.6x the citywide average of \$7,201 per unit and 4.2x the Bronx average of \$2,596.

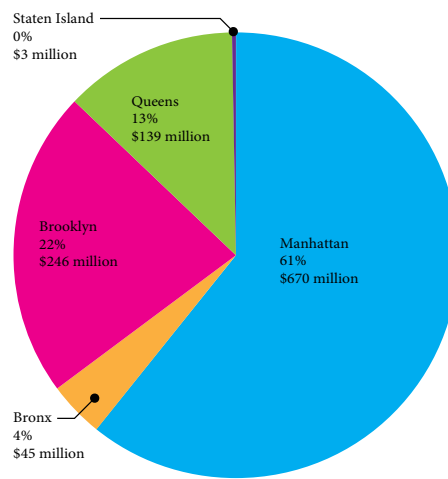
It is clear from this information that each large project awarded 421-a benefits has enormous consequences for the future expenditure of the program. On average, each Manhattan building collected \$870,000 benefits in 2014, and 5 buildings are collecting more than \$10 million annually each. These are the Mercedes House developed by Two trees at 11th Avenue, 505 West 37th Street developed by TF Cornerstone, Riverbank West developed by the Harry Macklowe Real Estate Company on 10th Avenue, New York By Gehry developed by Forest City Ratner on Spruce Street, and Emerald Green developed by Glenwood on West 38th Street. All of these buildings, with the exception of Emerald Green, contain more than 800 apartments or condo units, and are marketed as luxury residences. Some are advertised as rent regulated buildings, which is a requirement for all rental housing built under the program for the duration of the exemption. The average 421-a expenditure for each unit in these buildings vary between \$12,000 to over \$18,000, compared with the citywide average of \$7,201.

421-a units by borough in 2014



164,828 total units for active buildings
Data from DOF

421-a expenditure by borough in 2014



\$1,102,417,138 total estimated expenditure for active buildings
Data from IBO/MAS

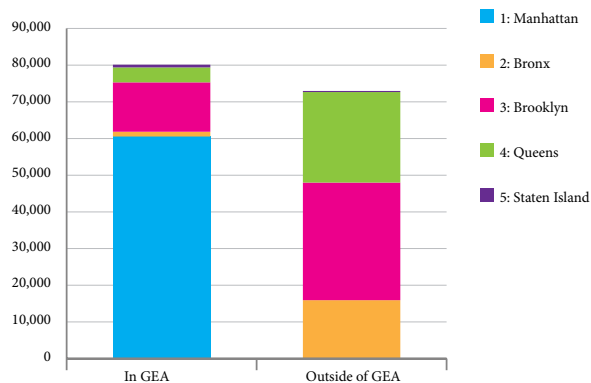
Figure 9: 421-a units and expenditure by borough, 2014

Despite additional restrictions in the Geographic Exclusion Area (GEA), both the overall the expenditure and expenditure-per-unit within the GEA are greater than outside of it.

When the GEA map was referenced against units by borough-block code, I found that a total of 80,123 units fall within the exclusion area, making up 52% of total 421-a units. Manhattan makes up over 75% of the units that are within the area. Brooklyn makes up most of the units outside of the GEA, with both Queens and the Bronx taking up a healthy portion of non-GEA units.

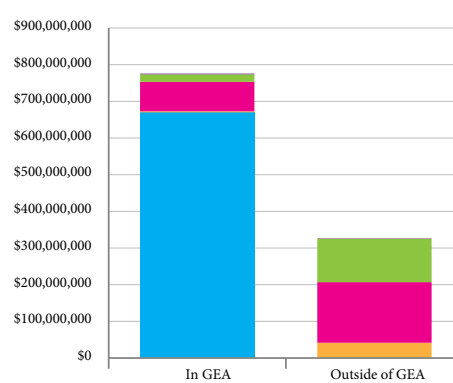
However, in a similar pattern to the borough of Manhattan, the expenditure-to-unit ratio for GEA units is much greater than for non-GEA units. With a cumulative expenditure of almost \$776 million, GEA units account for over 70% of 421-a expenditure for the year. In this case, the expenditure-to-unit ratio for an average GEA unit is 1.3x the average for all units, while non-GEA units have a ratio of 0.6x the average expenditure.

Number of active units by GEA location and borough



Data from IBO/MAS referenced against compiled GEA map

421-a expenditure in 2014 by GEA location and borough



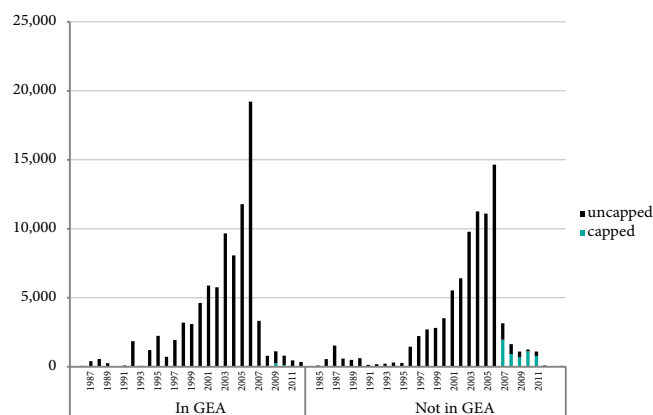
Data from IBO/MAS referenced against compiled GEA map

Figure 10: 421-a units and expenditure within and outside of the GEA

The lack of assessed value caps within the GEA has contributed to disproportionate expenditure in wealthier neighborhoods.

In addition to GEA reforms to the program, the concept of an assessed value cap was introduced in 2008, intended for market-rate housing built with 421-a benefits. The benefit eligibility is awarded on the base year of each unit, or the tax year prior to the construction start date, as certified by HPD, (NYC Department of Finance, n.d.-b). However, the wording only applied to as-of-right market-rate housing, and therefore the caps mostly did not apply to market-rate units within the GEA where 20% of affordable housing was included.

Number of capped units by GEA status and base year of benefit



Data from DoF compilation for HDC compiled against GEA map

Figure 11: Number of capped units by GEA inclusion status and base year of benefit

From the DOF data cross-referenced against the GEA map, I found that the number of units granted 421-a benefits both inside and outside of the GEA peaked in the base year of 2006, indicating a rush to take advantage of pre-reform exemptions. Within the GEA, this rush was far more prominent, with base year 2006 units rising 63% above the previous year.

Since exemption caps only apply to as-of-right developments with no affordable housing requirement, it is unsurprising that few units within the GEA have ever been subject to an exemption cap. Only 405 of the 2,720 units with post-2008 base years are subject to exemption caps. This 15% cap rate for GEA properties is very low in comparison to the 74% cap rate for non-GEA properties which were granted benefits in the same period.

Mapping the expenditure by neighborhood shows that the greatest overall tax benefits are concentrated in Central Manhattan. Additionally, the expenditure per unit is generally much higher within the GEA than outside of it. Exemption caps were introduced as a way to limit the benefit for market-rate housing, but since they do not apply to developments that meet a 20% affordable housing requirement in the city's most expensive neighborhoods, these expensive market-rate units within the GEA enjoy uncapped benefits.

421-a tax expenditure by neighborhood and amount per unit

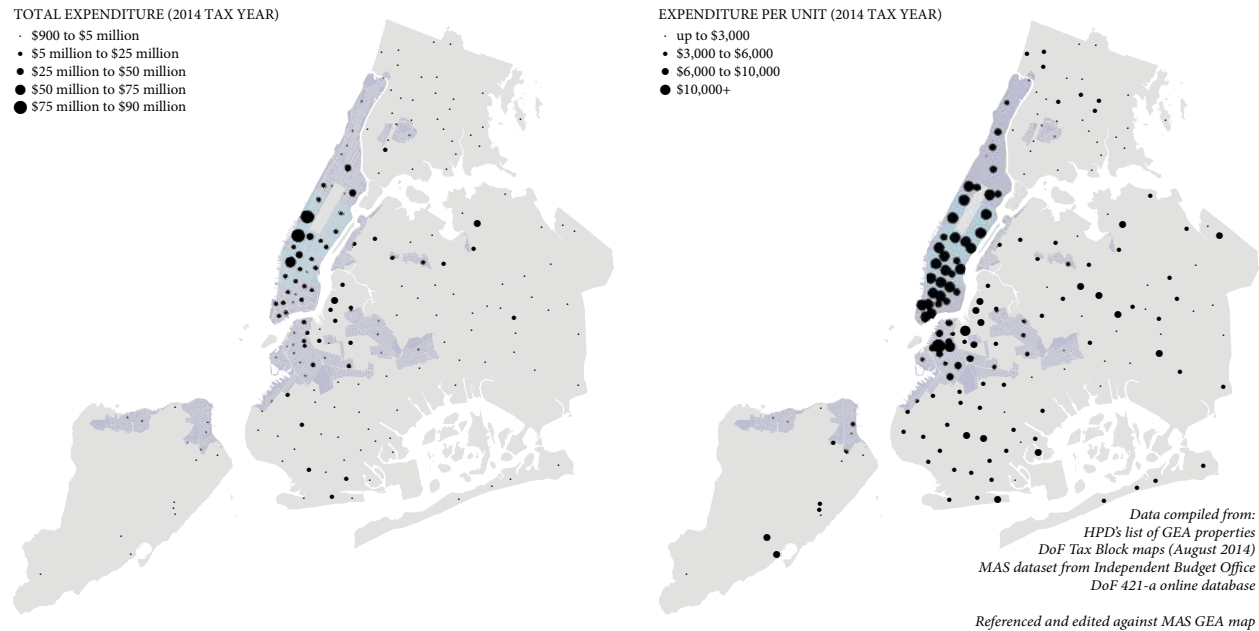


Figure 12: 421-a expenditure by location and amount per unit

For the year 2014, based on an annual compounded cap amount of 3% and a tax rate of 12.855%, a capped unit is limited to receive a maximum of roughly \$9,977 in tax expenditure. This is an exemption on about \$172,474 in market value. Many neighborhoods within the GEA, and over 60% of Manhattan neighborhoods, are collecting an average expenditure per unit that is greater than \$10,000 per unit. This average is greater than the full exemption cap, even though most of these units are well into their phase-out periods. The highest benefit awarded to a single uncapped unit with a post-2008 base year is a 20-year extended exemption for a 2013 condo located within a luxury tower development by Related on the Upper East Side. With a market value of \$3.3 million and a full benefit value of \$1.4 million, its pre-phaseout expenditure is \$167,476, or almost 17x the expenditure cap that applies for most market-rate units outside of the GEA. An exemption cap on all market-rate units, regardless of GEA status, would have significantly decreased the cost of the program.

Table 4: Yearly capped unit tax expenditure and market value equivalent, based on 3% annual AV cap increase and historical Class 2 tax rates, rounded to nearest dollar

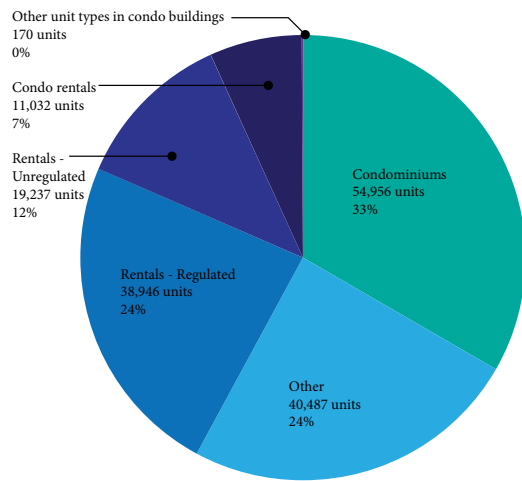
| Year | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| AV cap | \$65,000 | \$66,950 | \$68,959 | \$71,027 | \$73,158 | \$75,353 | \$77,613 | \$79,942 |
| Market value equivalent | \$144,444 | \$148,778 | \$153,241 | \$157,838 | \$162,573 | \$167,451 | \$172,474 | \$177,648 |
| Tax expenditure | \$8,356 | \$8,606 | \$8,865 | \$9,131 | \$9,404 | \$9,687 | \$9,977 | \$10,277 |

Condominiums make up a disproportionately large part of 421-a expenditure.

Within the 421-a datasets, there is some overrepresentation of condominiums that occur. Some rental buildings which also include condominiums in the same project were classified as condominiums in the original data. As it was not possible to separate out which ones were condominiums and which ones weren't, the information here refers to all buildings with condominiums in them, not condominiums themselves. However, these entries are rare, and the numbers represented below include a small portion of units within condominium buildings that are not condo units. Regardless, that does not affect the finding that the expenditure-per-unit in condominium buildings is higher than other building types.

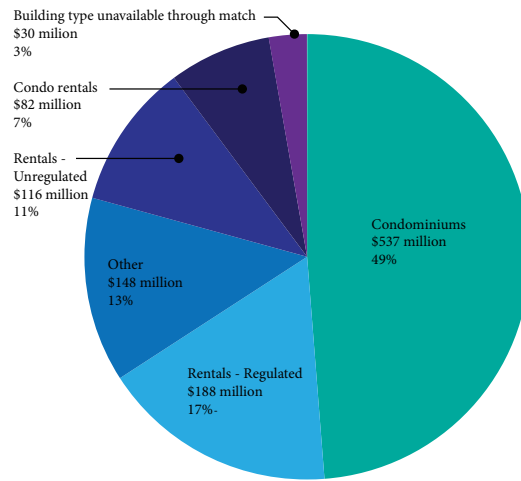
One-third of the number of units receiving 421-a are condominiums, and almost one quarter of the units fall into other categories (parking, storage, smaller family homes, in-building amenities, etc). With 3/4 of New York City's housing stock consisting of rental apartments and 69% of residents who rent rather than own, the units built with 421-a exemption comprise a larger portion of condominium and other non-rental units when compared to general city characteristics, (Naked Apartments, n.d.).

421-a units by building category in 2014



164,828 total residential units represented
Data from Department of Finance

421-a spending by building category in 2014



\$1,102,417,138 total estimate, chart data rounded to nearest million
Expenditure data from IBO/MAS, matched to unit types from the Department of Finance

Figure 13: 421-a units and expenditure by building type

Rentals, excluding condo-rentals, are 36% of the units which are collecting benefits but amount to only 28% of 421-a expenditure. On the other end of the spectrum, condominiums make up one-third of all units receiving 421-a exemption, but are nearly half of all current 421-a expenditure at \$537 million. Given this, the ratio of rental expenditure per unit is .8x the citywide average for all unit types, while the ratio of condominium expenditure per unit is 1.5x the average.

It is possible for condominiums to qualify as affordable housing, but there is little data available on which condominium units qualified as affordable. In condominium buildings which include affordable housing, there is usually a mix of condominium and rental units, and very little literature is available about developing affordable condos. Under these circumstances, it is difficult to estimate the proportion of 421-a condominiums which could have qualified as part of the 20% affordable required for many projects. There is no protection under 421-a for the resale of a condominium unit, so even if the first homebuyer purchased at an affordable price, they could immediately turn it around and sell it for full market value.

Less than half of the units currently receiving 421-a are rental housing. Of the rental units, nearly 39,000, or 52%, are in rent-regulated buildings. This is consistent with existing city-wide rent-stabilization numbers, where approximately half of all rental units are subject to rent stabilization, (The Mayor’s Office of the City of New York & De Blasio, 2014).

Estimates on the exact number of affordable housing units subsidized through the program are not available. Estimates range from 9% from the Association for Neighborhood & Housing Development, to the 14% units affordable for up to 120% AMI reported in last year’s New School report, (Association for Neighborhood and Housing Development, 2015; Coleman et al., 2014). It is unclear as to whether other these studies have tried to also assess condominium affordability, or whether such numbers only address the rental portion of 421-a expenditure.

The neighborhoods of the Upper West Side between 59th and 79th Streets, and the Bronx neighborhood of Morrisania/Longwood were chosen as case study sites based on their 421-a expenditure and distribution of buildings receiving benefits.

Two neighborhoods were identified for additional study. As Manhattan’s expenditure per unit is the highest and the Bronx’s is the lowest, I decided to choose one of the highest-expenditure neighborhoods from each borough. Although the Clinton neighborhood has a higher overall expenditure than the Upper West Side between 59th and 79th Streets, I decided to study the UWS neighborhood because it had a greater proportion of expenditure going to condominiums than Clinton, which is consistent with most neighborhoods in Manhattan.

Additionally, I chose the Morrisania/Longwood neighborhood of the Bronx as a case study. Although the Riverdale neighborhood has greater expenditure for condominiums, the Morrisania/Longwood neighborhood has the greatest amount of expenditure in the Bronx. I decided it would also show contrast in a neighborhood with more rental subsidy, and be suitable for a comparative study.

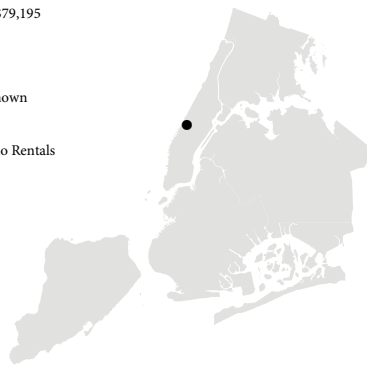
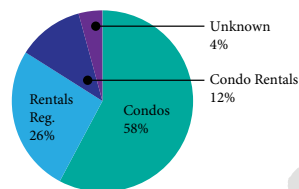
The average annual expenditure per unit in the Manhattan neighborhood is \$79,195, nearly 29x the \$2,749 expenditure per unit in the Bronx neighborhood.

See appendix for expenditure breakdown for all neighborhoods.

Manhattan: Upper West Side 59-79th Streets

Fiscal year 2014 total expenditure: \$79,828,966
 Number of residential units: 1,008
 Average annual expenditure per unit: \$79,195

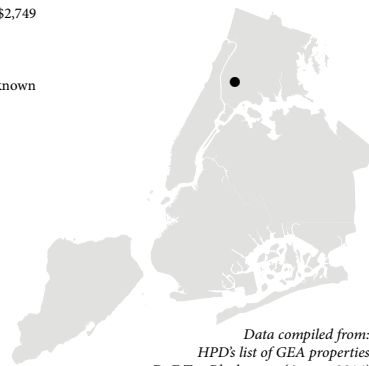
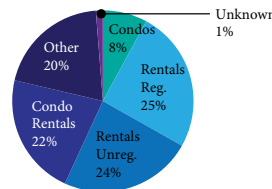
EXPENDITURE BREAKDOWN



Bronx: Morrisania/Longwood

Fiscal year 2014 total expenditure: \$12,150,422
 Number of residential units: 4,419
 Average annual expenditure per unit: \$2,749

EXPENDITURE BREAKDOWN



Data compiled from:
 HPD’s list of GEA properties
 DoF Tax Block maps (August 2014)
 MAS dataset from Independent Budget Office
 DoF 421-a online database

Referenced and edited against MAS GEA map

Figure 14: Neighborhoods chosen for condominium study

Neighborhood case studies

Manhattan: Upper West Side (59-79th Streets)

8,652 total sales occurred in this neighborhood between 2003 and November of 2014. Fifteen total buildings collecting 421-a were represented in this data. 3,175 sales of properties were selected that either are collecting 421-a exemptions. Of these, 2,544 total sales out of the total had data on all regression variables to be used.

The minimum home price in the applicable data set was \$81,600.34 in 2015 dollars, while the highest was \$89.8 million for the then-record-breaking sale of the penthouse of 15 Central Park West in 2012.

The variation in home prices was considerable, with the highest value fetching about 125x the price per square foot as the lowest sale. Most of the home prices were skewed toward the lower end of the spectrum, with a mean price per square foot of about \$1,667 and mean home value of \$2.95 million. The extreme variations in prices are reflected in a standard deviation of the sale amount that is greater than the mean value.

The regression results showed an adjusted R-squared of .32, meaning that the model is able to explain about 32% of the variation in price per square foot.

The regression results have P values of 0.000 for all variables, which indicates that results are statistically significant. The effect of an estimated exemption left per square foot is positive, with a coefficient of 0.16 and .22 within a 95% confidence interval.

The positive effect of the exemption is more impactful at this logarithmic scale than the effect of bedrooms, sale year, or year built of the unit. Square footage has already been accounted for both in sale price and the exemption remaining. While the natural log transformations are unable to provide a dollar-for-dollar increase on value for the exemption, this shows that the amount of 421-a exemption left at the time of sale is reflected in higher condominium sale prices.

Table 5: Manhattan Upper West Side (59-79th Streets) applicable sales descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|--|------|----------------|----------------|-------------|-----------------|
| Sale year | 3175 | 2008.953 | 2.589599 | 2003 | 2014 |
| Sale amount | 3175 | \$2,953,223.00 | \$4,318,391.00 | \$81,600.34 | \$89,800,000.00 |
| Price per square foot | 3175 | \$1,667.36 | \$956.38 | \$106.08 | \$13,309.61 |
| Bedrooms | 3175 | 2.009449 | 1.029146 | 1 | 7 |
| Year built | 3175 | 1991.94 | 31.40928 | 1886 | 2009 |
| Estimated exemption left at time of sale | 2544 | \$111,397.70 | \$86,191.14 | \$3,726.99 | \$910,388.50 |
| Estimated exemption left at time of sale per sq. foot | 3175 | \$56.02 | \$34.90 | \$0.00 | \$195.16 |
| ln (price per square foot) | 3175 | \$7.32 | \$0.42 | \$4.66 | \$9.50 |
| ln (Estimated exemption left at time of sale per sq. foot) | 2544 | \$4.16 | \$0.47 | \$1.55 | \$5.27 |

Table 6: Manhattan Upper West Side (59-79th Streets) estimated 421-a remaining regression overview

| Number of obs | F(4, 2539) | Prob > F | R-squared | Adj R-squared | Root MSE |
|---------------|-------------|----------|-----------|---------------|----------|
| 2544 | 300.91 | 0 | 0.3216 | 0.3205 | 0.33316 |

Table 7: Manhattan Upper West Side (59-79th Streets) estimated 421-a remaining regression coefficients

| In (price per square foot [2015 dollars]) | Coef. | Std. Err. | t | P> t | 95% Conf. Interval | |
|--|------------|-----------|--------|-------|--------------------|------------|
| Sale year | 0.0406156 | 0.0033574 | 12.1 | 0.000 | 0.034032 | 0.0471992 |
| Year built | -0.0959779 | 0.0051076 | -18.79 | 0.000 | -0.1059933 | -0.0859625 |
| Bedrooms | 0.1315606 | 0.00695 | 18.93 | 0.000 | 0.1179324 | 0.1451889 |
| In (Estimated exemption left at time of sale per sq. foot) | 0.1916617 | 0.0174287 | 11 | 0.000 | 0.1574859 | 0.2258375 |
| _cons | 117.3216 | 10.5954 | 11.07 | 0.000 | 96.54514 | 138.0981 |

Bronx: Morrisania/Longwood

This Bronx neighborhood saw a lot less development and condominium sales than the Upper West Side comparison. 65 unique addresses were found collecting 421-a data, although only 8 unique streets were represented: Boston Road, Brook Avenue, East 156th Street, East 158th Street, Franklin Avenue, Intervale Avenue, and St. Ann's Avenue.

157 observations had the complete data required for regression, out of the 640 total transactions that took place during the study period.

The home prices saw far less variation than in Manhattan, with a minimum price per square foot of just over \$100, to a maximum of \$534. The distribution of prices followed a fairly even bell curve, although a natural log transformation was still applied to home price per square foot and exemption remaining, in order to gain further linearity and to follow the same regression model as Manhattan.

The Morrisania/Longwood regression showed a higher adjusted R-squared value of .52 than the Upper West Side model. As there are many variables that were not able to be captured in this model, it is possible that more external factors such as building amenities and proximity to the Hudson River or Central Park affect the home sale values in Manhattan than they do in this Bronx neighborhood.

This models shows that the sale price of homes have lowered since 2003 rather than increased, as they have in the Upper West Side regression. The year built and number of bedrooms do not show a statistically significant correlation to the sale price, unlike the Manhattan results. This may be a result of a smaller sample size, as well as less difference between 1 and 3 bedrooms, rather than Manhattan's range of 1 to 7. It was not possible to run the regression again with only one bedroom size at a time, because the sample size was already fairly small.

The estimated exemption left per square foot also shows a statistically significant increase to the home value per square foot, with a P>|t| of 0.009. The positive coefficient has a span of 0.036 to 0.244 over a 95% confidence interval. The coefficient for the exemption impact is larger than all other factors, except for the sale year. Again, it is clear from the model that the value of the exemption is reflected in the condominium sales price, and recognized by homeowners and developers upon the sale of the property.

Table 8: Bronx Morrisania/Longwood applicable sales descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|-----|--------------|-------------|-------------|--------------|
| Sale year | 167 | 2009.078 | 1.261067 | 2007 | 2014 |
| Sale amount | 167 | \$263,063.90 | \$68,597.42 | \$70,000.00 | \$446,350.00 |
| Price per square foot | 167 | \$298.20 | \$74.16 | \$100.50 | \$533.93 |
| Bedrooms | 167 | 1.934132 | 0.5822446 | 1 | 3 |
| Year built | 167 | 2001.545 | 22.94748 | 1910 | 2009 |
| Estimated exemption left at time of sale | 157 | \$103,315.20 | \$32,698.77 | \$50,220.38 | \$279,742.50 |
| Estimated exemption left at time of sale per sq. foot | 167 | \$108.97 | \$40.93 | \$0.00 | \$208.87 |
| ln (price per square foot) | 167 | \$5.66 | \$0.28 | \$4.61 | \$6.28 |
| ln (Estimated true exemption left at time of sale per sq. foot) | 157 | \$4.71 | \$0.30 | \$3.93 | \$5.34 |

Table 9: Bronx Morissania/Longwood estimated 421-a remaining regression overview

| Number of obs | F(4, 152) | Prob > F | R-squared | Adj R-squared | Root MSE |
|---------------|------------|----------|-----------|---------------|----------|
| 157 | 43.90 | 0.000 | 0.536 | 0.524 | 0.186 |

Table 10: Bronx Morissania/Longwood estimated 421-a remaining regression coefficients

| ln (price per square foot [2015 dollars]) | Coef. | Std. Err. | t | P> t | 95% Conf. Interval | |
|--|------------|-----------|--------|-------|--------------------|------------|
| Sale year | -0.1447095 | 0.0117306 | -12.34 | 0.000 | -0.1678855 | -0.1215334 |
| Year built | 0.006042 | 0.0145721 | 0.41 | 0.679 | -0.022748 | 0.034832 |
| Bedrooms | 0.0051806 | 0.026636 | 0.19 | 0.846 | -0.047444 | 0.0578052 |
| ln (Estimated exemption left at time of sale per sq. foot) | 0.1398646 | 0.0527275 | 2.65 | 0.009 | 0.0356911 | 0.244038 |
| _cons | 283.5942 | 38.09924 | 7.44 | 0.000 | 208.3218 | 358.8666 |

DISCUSSION

Below is a brief summary of the findings from both the city-wide data analysis and the neighborhood case studies:

1. Over 10% of the original tax base is missing due to transitional assessed value caps before the 421-a is applied at all.
2. Estimated pre-construction benefits average just over \$9,000 per unit city-wide, although it varies widely from Manhattan's \$15,963 to the Bronx \$2,773.
3. The expenditure-per-unit ratio was disproportionately high for condominiums, the borough of Manhattan, and within the GEA. The spending-per-unit ratio is 1.5x the city-wide average for condominiums, 1.6x the city-wide average in Manhattan, and 1.3x the city-wide average in the GEA.

4. Significant expenditure is given through uncapped exemptions for market-rate units within the GEA.
5. Exemption values are reflected in higher condominium sales prices, regardless of neighborhood and other factors in competitive markets which may drive up the cost of homes.

Although all findings have significant implications about the current performance and future of 421-a, I will focus on the last two: uncapped market-rate exemptions within the GEA and higher condominium sale prices as a result of the exemption.

The language of benefit caps in common debate is vague. Most commonly, it is dismissed that all market-rate units are subject to this cap. However, a closer look reveals that market-rate units within the GEA are not subject to an exemption cap, as each project should include a minimum of 20% of affordable housing and therefore are not as-of-right. Given that these are the highest-valued properties in the city and placed in a zone that was intended to exclude granting excessive benefits to luxury housing, such market-rate units should be the primary target of assessed value exemption caps. Many of the market-rate units in projects that include affordable housing are the largest beneficiary of this exemption, such as the Upper East Side luxury condominium unit discussed earlier, collecting nearly 17x the exemption cap.

If 421-a is to continue as a program within the GEA, it makes no sense for such uncapped exemptions on market-rate units to exist. As-of-right developments in depressed neighborhoods are not the subject of public outrage: luxury developments in the highest-priced neighborhoods of the city are. Since market-rate rentals built with 421-a are subject to rent regulation for the duration of their benefit period, a capped exemption for market-rate units could also contribute to affordability for higher earners. However, it does not make sense to grant unlimited benefits for some of the most luxurious apartments in the entire city.

In my study of condominium sales, I found that the sale price per square foot of a property was positively impacted for each dollar of exemption left on that property at time of sale, in both the Manhattan and Bronx neighborhood. This knowledge is intuitive, as a person who anticipates paying less in property taxes is willing to pay more for a home or to take out a larger mortgage. However, the implications of this finding can affect how we see the role of post-construction exemptions for condominiums.

In a rental building, the post-construction exemption helps offset the cost of maintaining a building, and rent regulation is applied for at least the duration of the exemption, allowing that money to fund the maintenance of rent-regulated apartments.

For condominiums, the post-construction exemption is captured by the seller. There is no regulation on the price of condo sales at all in most cases. If a developer built an affordable unit condominium, which is relatively rare, there is also no check in place to ensure that the unit stays affordable after its first sale, for the duration of the exemption length. In this case, the first buyer would simply offer a higher bid for the unit to the condo developer, while the developer keeps that money with no commitment to housing affordability for the future of the condo. Each additional buyer is compensating for the cost of the exemption to the previous owner, and the exemption simply becomes a way to move wealth to the developer and early condominium owners.

Additionally, there are other tax benefits in place that can help owners afford their condominium units without using 421-a specifically. For example, the condominium and co-op abatement is a nearly \$400 million per year program which gives tax breaks to owners of such property. Whether its program funds are property allocated is the subject of another line of inquiry, but ultimately condominium owners do have other options when it comes to affording their home.

CONCLUSIONS

The 421-a program was born from the need to produce housing when no one wanted to live in the city, and is now trying to use many of the same strategies to incentivize development for the opposite problem: so many people want to live in the city that it is no longer affordable.

The debate on how to address 421-a when it comes up for renewal in June is crucial. In the highest-demand areas of the city, which the GEA attempts to encompass and where the vast majority of 421-a benefit is granted, there is definitively no need to incentivize market-rate development. Here, the only goal and the only subsidy should be for affordable housing. Developers say that other subsidies such as LIHTC are not enough on their own to make building affordable housing worthwhile, especially given the high cost of land. However, landowners would not be able to demand so much if such exemptions are not inflating the value of their property; in the end, the removal of the exemption would reflect in lower land values, and the real estate market is capable of adjusting to that change without this artificial price inflation.

However, there are still areas of the city which see very little investment, such as many neighborhoods in the Bronx, which could benefit from tax benefits for market-rate units. Given that both the depressed and the high-demand inflated market conditions exist and that the program has spent an enormous amount of money to subsidize very little affordable housing, it should be discontinued in all but the most disinvested of neighborhoods. In order to address affordability, a new affordable housing tax benefit program could be implemented which specifically targets affordable housing units, and which does not use well over 80% of its expenditure to subsidize market-rate units.

In summary, my initial recommendations are to:

1. Discontinue 421-a except in the most disinvested of neighborhoods, where it will be an as-of-right benefit.
2. Apply the rest of the current expenditure to a new affordable housing program which grants benefits directly to the affordable housing components of development projects.

Unfortunately, further complicating matters is that rent stabilization laws are also expiring and coming up for renewal at the exact same time: June 15. It is most likely that such drastic cutbacks or the removal of 421-a, while it makes sense, will be politically compromised in exchange for the renewal terms for rent stabilization laws. Given that the political expectation is for 421-a to be renewed with some reform due to the coinciding interests, the following discussion will focus on what I have found to be the most necessary changes.

The following list of recommended 421-a reforms is derived from the data analysis performed:

1. Apply assessment value benefit caps to all market-rate units which qualify for 421-a exemption, regardless of whether the project is as-of-right.
2. End 421-a exemptions for condominiums. The exemption is not meant to be permanent, provides no long-term affordability for condominium units, and simply transfers wealth between early owners of the units. Condominium buildings make up almost half of total program expenditure, and reforming this section could significantly improve the portion of funds that are distributed according to the intent of the program.

The recommendation to remove benefits for condominiums was suggested as early as 1986, during the first 421-a reforms (Konopko, 1986). The effect of the exemption specifically on condominiums has not been studied in depth in most of the literature I was able to find, but my research is also consistent with this conclusion.

From other literature reviewed, it is clear that the market is not likely to yield any affordable housing voluntarily without subsidy. However, the application of multiple subsidy programs for the same 20% means that the effect of each program is diminished, and the price of land will continue to be artificially inflated through expected tax breaks. The unintended beneficiaries of this system are not only early condominium homeowners. In all cases, the landowners are another unintended beneficiary of these subsidies. The 421-a benefit is factored into how much developers are willing to pay for land, and landowners pay very little property tax on underdeveloped property.

Other suggestions from prior literature, such as ending the practice of applying the same 20% of affordable housing for 421-a benefits, the IHP, and LIHTC, and adapting a system of tracking and transparency for better accountability on the performance of the exemption in providing affordable housing, should be seriously considered as well.

This thesis largely ended its research with an example of two neighborhoods encompassing about 4,000 total sales transactions regardless of whether the condominiums would have qualified as affordable housing or not. That data is not publicly available. Although there are no restrictions in place for even an affordable condominium unit to prevent a first homebuyer from simply turning around and selling it to someone at a higher price, it is possible that there were some condominiums that qualified as affordable housing to the first homebuyer that were built under the program.

Unlike the speculation about the amount of affordable rental units provided, further study can be conducted on condominium affordability with relative accuracy. HPD provides spreadsheet calculators of estimated affordability requirements for homes, and it should be possible to compare this against historical sales data and AMI to see how many of the condominiums built with 421-a subsidy and sold could have been considered affordable. This method of calculating affordability for condominiums was identified as a part of my research process, but was not pursued due to a lack of time.

This thesis recommended a discontinuation of 421-a as applied to condominiums, but that does not mean that affordable homeownership in New York City is an invalid goal – it simply means that the 421-a program has not been an effective way of providing affordability for condominiums. Further research should also be conducted on programs such as the condominium and co-op abatement to see whether they are an effective way to help homeowners purchase and stay within their units.

A reform of the 421-a program must set a clear statement of its intended goals, and tirelessly track where all of the expenditure has gone to assess whether it is meeting those goals. I urge decision-makers to carefully consider the implications of uncapped market-rate benefits and large condominium expenditures, and advocate for reforms which serve the affordable housing needs of the city's residents.

ACKNOWLEDGEMENTS

I would like to extend my warmest gratitude to my advisor David King, and my reader Jesse Keenan, for their generous input and guidance throughout my research process.

Additionally, I would like to acknowledge my colleagues for their feedback and support throughout the year, and to the wonderful people at the Municipal Art Society and the Housing Development Corporation for their help along the way.

Finally, this thesis would not have been possible without the endless personal support of my friends, family, and my tirelessly encouraging partner Mark.

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NYC Property database: <http://nycprop.nyc.gov/nycproperty/nynav/jsp/selectbbl.jsp>

Department of Finance property portal: <https://a836-propertyportal.nyc.gov/>

Property Shark: <http://www.propertyshark.com/mason/>

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APPENDIX

List of acronyms

| | |
|-------|--|
| AMI | Area Median Income |
| ANHD | Association for Neighborhood and Housing Development |
| AV | Assessed Value |
| BBL | Borough-Block-Lot |
| DCP | Department of City Planning |
| DOF | Department of Finance |
| FMR | Fair Market Rent |
| HDC | Housing Development Corporation |
| HMFA | HUD Metro FMR Area |
| HPD | Housing Preservation and Development |
| HUD | Housing and Urban Development |
| GEA | Geographic Exclusion Area |
| IHP | Inclusionary Housing Program |
| LIHTC | Low-Income Housing Tax Credits |
| MAS | Municipal Art Society |
| MID | Mortgage Interest Deduction |
| NOI | Net Operating Income |
| ROE | Return on Equity |

Additional reference tables

Table 11: Bureau of Labor Statistics inflation calculator

Accessed 3/20/2015 from the Bureau of Labor Statistics (http://www.bls.gov/data/inflation_calculator.htm)

| Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2015 Value | \$1.27 | \$1.24 | \$1.20 | \$1.16 | \$1.13 | \$1.09 | \$1.09 | \$1.07 | \$1.04 | \$1.02 | \$1.00 | \$0.99 |

Table 12: Property tax rates for NYC tax classes

Accessed 4/17/2015 from the Department of Finance (<http://www1.nyc.gov/site/finance/taxes/property-tax-rates.page>)

| YEAR | 2014-2015 | 2013-2014 | 2012-2013 | 2011-2012 | 2010-2011 | 2009-2010 |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|
| Class 1 | 19.16% | 19.19% | 18.57% | 18.21% | 17.36% | 17.09% |
| Class 2 | 12.86% | 13.15% | 13.18% | 13.43% | 13.35% | 13.24% |
| Class 3 | 11.13% | 11.90% | 12.48% | 12.47% | 12.63% | 12.74% |
| Class 4 | 10.68% | 10.32% | 10.29% | 10.15% | 10.31% | 10.43% |

Table 13: 421-a phase-out years with percentage of benefits

Accessed 4/21 from the DOF tax exemption calculations (<https://a836-propertyportal.nyc.gov/calculations.aspx>)

| Year | 10-year term | 15-year term | 20-year term | 25-year term |
|------|---------------|---------------|---------------|---------------|
| 1 | 100% | 100% | 100% | 100% |
| 2 | 100% | 100% | 100% | 100% |
| 3 | 80% | 100% | 100% | 100% |
| 4 | 80% | 100% | 100% | 100% |
| 5 | 60% | 100% | 100% | 100% |
| 6 | 60% | 100% | 100% | 100% |
| 7 | 40% | 100% | 100% | 100% |
| 8 | 40% | 100% | 100% | 100% |
| 9 | 20% | 100% | 100% | 100% |
| 10 | 20% | 100% | 100% | 100% |
| 11 | Fully Taxable | 100% | 100% | 100% |
| 12 | - | 80% | 100% | 100% |
| 13 | - | 60% | 80% | 100% |
| 14 | - | 40% | 80% | 100% |
| 15 | - | 20% | 60% | 100% |
| 16 | - | Fully Taxable | 60% | 100% |
| 17 | - | - | 40% | 100% |
| 18 | - | - | 40% | 100% |
| 19 | - | - | 20% | 100% |
| 20 | - | - | 20% | 100% |
| 21 | - | - | Fully Taxable | 100% |
| 22 | - | - | - | 80% |
| 23 | - | - | - | 60% |
| 24 | - | - | - | 40% |
| 25 | - | - | - | 20% |
| 26 | - | - | - | Fully Taxable |

Table 14: Spending by neighborhood: Manhattan

MAS/IBO dataset merged with DOF data

| Neighborhood | Condos | Rentals - Regulated | Rentals - Unreg'd | Rentals - Other | Other | Unknown | Grand Total |
|-------------------------|--------------|---------------------|-------------------|-----------------|--------------|-------------|--------------|
| CLINTON | \$33,872,518 | \$15,858,228 | \$11,329,270 | \$18,128,625 | \$7,669,671 | | \$86,858,311 |
| UPPER WEST SIDE (59-79) | \$46,123,914 | \$20,916,227 | | \$9,391,800 | | \$3,397,025 | \$79,828,966 |
| CHELSEA | \$25,167,781 | \$18,236,978 | \$4,094,481 | \$850,753 | \$6,139,883 | | \$54,489,876 |
| HARLEM-CENTRAL | \$20,875,688 | \$1,780,029 | \$3,393,479 | \$4,554,784 | \$11,632,331 | \$2,015,070 | \$44,251,382 |
| FASHION | \$6,670,724 | | \$13,817,778 | \$23,598,357 | | | \$44,086,859 |
| MIDTOWN WEST | \$21,510,481 | \$12,658,444 | \$1,053,322 | \$6,528,289 | \$43,343 | | \$41,793,878 |

| | | | | | | | |
|---------------------------|--------------|--------------|-------------|-------------|--------------|-------------|--------------|
| HARLEM-EAST | \$4,175,852 | \$7,363,072 | \$9,067,076 | \$4,657,743 | \$5,726,632 | \$126,408 | \$31,116,782 |
| TRIBECA | \$16,011,103 | \$3,785,760 | \$3,186,423 | | | \$92,135 | \$23,075,421 |
| UPPER EAST SIDE (79-96) | \$16,211,640 | \$5,670,671 | | | | | \$21,882,311 |
| MURRAY HILL | \$12,321,149 | \$3,075,129 | \$5,963,329 | | | | \$21,359,607 |
| FINANCIAL | \$7,073,440 | \$6,243,079 | \$7,388,514 | | | | \$20,705,033 |
| JAVITS CENTER | | \$14,965,983 | \$4,930,573 | | | | \$19,896,556 |
| FLATIRON | \$2,641,712 | \$13,301,592 | | | \$3,712,616 | | \$19,655,920 |
| CIVIC CENTER | \$7,517,630 | \$10,963,384 | | | | | \$18,481,013 |
| UPPER WEST SIDE (79-96) | \$3,454,027 | \$4,219,497 | \$574,252 | | \$437,788 | \$3,516,548 | \$12,202,111 |
| SOUTHBRIDGE | | \$256,295 | \$355,270 | \$490,635 | \$11,016,360 | | \$12,118,560 |
| UPPER WEST SIDE (96-116) | \$7,745,055 | \$3,524,274 | | | \$658,837 | | \$11,928,166 |
| MIDTOWN CBD | \$11,909,890 | | | | | | \$11,909,890 |
| UPPER EAST SIDE (59-79) | \$10,687,898 | \$138,476 | \$897,059 | | | \$65,304 | \$11,788,738 |
| SOHO | \$10,759,095 | | | | | | \$10,759,095 |
| GREENWICH VILLAGE-CENTRAL | \$3,461,475 | \$93,687 | \$106,466 | | \$2,140,490 | \$3,169,628 | \$8,971,746 |
| KIPS BAY | \$8,110,485 | \$574,798 | | | | | \$8,685,284 |
| EAST VILLAGE | \$2,664,672 | \$1,186,318 | \$487,156 | | \$413,103 | \$3,567,769 | \$8,319,019 |
| MIDTOWN EAST | \$8,094,397 | \$150,129 | | | | | \$8,244,526 |
| LOWER EAST SIDE | \$3,866,155 | \$3,378,702 | \$521,419 | | \$92,427 | \$77,883 | \$7,936,586 |
| GREENWICH VILLAGE-WEST | \$6,777,464 | \$821,358 | | | | | \$7,598,823 |
| ALPHABET CITY | \$1,406,177 | \$714,187 | \$752,595 | \$928,566 | \$1,313,121 | \$169,571 | \$5,284,217 |
| MANHATTAN VALLEY | \$2,021,217 | | \$12,907 | \$2,258,997 | \$541,637 | \$16,684 | \$4,851,442 |
| GRAMERCY | \$2,310,049 | | \$18,508 | | | | \$2,328,558 |
| UPPER EAST SIDE (96-110) | \$2,171,685 | | | | | | \$2,171,685 |
| CHINATOWN | \$1,737,051 | | | | | | \$1,737,051 |
| LITTLE ITALY | \$424,640 | | | | \$1,010,289 | \$76,284 | \$1,511,213 |
| HARLEM-UPPER | \$1,195,997 | | | | | \$71,580 | \$1,267,577 |
| WASHINGTON HEIGHTS UPPER | \$984,138 | | \$49,286 | | \$96,799 | | \$1,130,223 |
| INWOOD | \$312,867 | \$122,020 | | | \$185,911 | | \$620,798 |
| HARLEM-WEST | \$555,313 | | | | | | \$555,313 |
| WASHINGTON HEIGHTS LOWER | \$474,865 | | | | | | \$474,865 |

Table 15: Expenditure by neighborhood: Bronx

MAS/IBO dataset merged with DOF data

| Neighborhood | Condos | Rentals - Regulated | Rentals - Unreg'd | Rentals - Other | Other | Unknown | Grand Total |
|---------------------------|-------------|---------------------|-------------------|-----------------|-------------|-----------|--------------|
| MORRISANIA/LONGWOOD | \$963,101 | \$3,068,640 | \$2,877,916 | \$2,649,253 | \$2,440,387 | \$151,126 | \$12,150,422 |
| HIGHBRIDGE/MORRIS HEIGHTS | \$90,879 | \$2,669,637 | \$369,774 | | \$606,181 | \$46,144 | \$3,782,616 |
| RIVERDALE | \$1,885,350 | | | | \$556,094 | \$196,584 | \$2,638,028 |
| MELROSE/CONCOURSE | | \$1,614,074 | \$78,632 | | \$701,985 | \$12,092 | \$2,406,784 |
| KINGSBRIDGE/JEROME PARK | \$816,451 | \$779,620 | \$393,248 | | \$77,363 | | \$2,066,682 |
| WILLIAMSBRIDGE | \$255,006 | | | | \$1,746,175 | \$42,747 | \$2,043,929 |
| EAST TREMONT | \$161,775 | \$729,928 | \$221,098 | | \$626,409 | \$246,431 | \$1,985,641 |
| SOUNDVIEW | \$1,053,168 | | | | \$863,496 | | \$1,916,664 |
| BAYCHESTER | \$121,491 | \$258,303 | \$306,332 | | \$859,765 | \$47,512 | \$1,593,404 |
| BEDFORD PARK/NORWOOD | \$164,361 | \$629,180 | \$401,893 | | \$327,466 | \$61,426 | \$1,584,326 |
| BELMONT | \$158,393 | \$219,371 | \$72,396 | | \$897,903 | \$34,416 | \$1,382,479 |
| WESTCHESTER | | \$6,548 | \$129,955 | | \$1,163,172 | \$56,172 | \$1,355,847 |
| BRONXDALE | | | \$6,335 | | \$1,263,324 | | \$1,269,659 |
| CROTONA PARK | | \$312,606 | \$134,827 | | \$514,357 | \$196,686 | \$1,158,477 |
| MORRIS PARK/VAN NEST | | \$233,356 | | | \$915,665 | \$5,874 | \$1,154,896 |
| FORDHAM | | \$767,977 | \$212,308 | | \$71,319 | | \$1,051,604 |
| MOUNT HOPE/MOUNT EDEN | | \$724,766 | \$98,946 | | \$139,560 | | \$963,272 |
| MOTT HAVEN/PORT MORRIS | | \$93,951 | \$377,577 | \$52,919 | \$337,623 | | \$862,070 |
| SCHUYLERVILLE/PELHAM BAY | \$311,673 | \$5,885 | | | \$294,511 | \$49,669 | \$661,738 |
| COUNTRY CLUB | \$415,309 | | | | \$107,742 | | \$523,051 |
| BATHGATE | | \$185,183 | | | \$217,852 | \$15,687 | \$418,723 |
| THROGS NECK | \$143,166 | | | | \$100,612 | \$26,857 | \$270,635 |
| CASTLE HILL/UNIONPORT | \$29,859 | | | | \$181,738 | \$17,246 | \$228,842 |
| PARKCHESTER | | | | | \$223,315 | | \$223,315 |
| PELHAM PARKWAY NORTH | | | | | \$218,607 | | \$218,607 |
| FIELDSTON | | | \$5,190 | | \$185,138 | | \$190,329 |
| KINGSBRIDGE HTS/UNIV HTS | | | \$6,596 | | \$180,539 | \$637 | \$187,771 |
| WAKEFIELD | | | | | \$184,150 | | \$184,150 |
| PELHAM PARKWAY SOUTH | | | \$22,356 | | \$62,610 | | \$84,967 |
| CITY ISLAND | \$49,235 | | | | | | \$49,235 |
| HUNTS POINT | | | | | \$43,352 | \$5,557 | \$48,909 |
| WOODLAWN | | \$6,797 | | | \$21,263 | | \$28,060 |

Table 16: Expenditure by neighborhood: Brooklyn

MAS/IBO dataset merged with DOF data

| Neighborhood | Condos | Rentals - Regulated | Rentals - Unreg'd | Rentals - Other | Other | Unknown | Grand Total |
|-----------------------|--------------|---------------------|-------------------|-----------------|-------------|-------------|--------------|
| WILLIAMSBURG-NORTH | \$13,886,343 | | \$5,840,918 | \$2,864,168 | \$1,822,319 | \$2,742,334 | \$27,156,082 |
| BEDFORD STUYVESANT | \$10,434,461 | \$814,680 | \$2,900,350 | \$537,623 | \$3,329,135 | \$63,115 | \$18,079,365 |
| WILLIAMSBURG-EAST | \$7,723,824 | \$1,257,491 | \$2,459,746 | | \$5,599,474 | \$446,566 | \$17,487,101 |
| WILLIAMSBURG-CENTRAL | \$11,595,755 | | \$472,754 | | \$323,816 | \$1,544,196 | \$13,936,522 |
| WILLIAMSBURG-SOUTH | \$6,700,929 | | \$1,031,849 | \$2,750,076 | \$2,702,584 | \$243,275 | \$13,428,713 |
| DOWNTOWN-METROTECH | \$7,143,937 | \$5,316,002 | | | | | \$12,459,939 |
| GREENPOINT | \$5,354,673 | | \$1,429,659 | | \$1,976,460 | \$256,979 | \$9,017,771 |
| DOWNTOWN-FULTON MALL | \$7,416,177 | \$1,228,479 | | | \$73,961 | | \$8,718,617 |
| CROWN HEIGHTS | \$3,695,990 | \$1,466,495 | \$929,990 | | \$2,188,981 | \$71,339 | \$8,352,795 |
| BOROUGH PARK | \$6,690,111 | | \$45,255 | \$118,190 | \$1,369,203 | \$64,502 | \$8,287,262 |
| BRIGHTON BEACH | \$6,966,182 | | \$528,811 | | \$188,926 | \$91,735 | \$7,775,653 |
| FORT GREENE | \$1,890,143 | \$612,201 | \$2,128,147 | | \$2,068,993 | \$135,010 | \$6,834,494 |
| BOERUM HILL | \$5,355,016 | \$467,928 | \$523,324 | | \$154,446 | | \$6,500,713 |
| PARK SLOPE | \$5,154,484 | | \$621,390 | | \$321,294 | \$17,675 | \$6,114,843 |
| SUNSET PARK | \$4,719,214 | \$220,672 | | | \$835,287 | \$70,671 | \$5,845,844 |
| DOWNTOWN-FULTON FERRY | \$5,031,408 | \$162,897 | \$599,219 | | | | \$5,793,524 |
| GRAVESEND | \$4,641,359 | | \$32,006 | | \$642,674 | \$119,279 | \$5,435,317 |
| SHEEPSHEAD BAY | \$4,198,774 | | \$739,276 | | \$382,345 | \$77,409 | \$5,397,804 |
| PARK SLOPE SOUTH | \$2,933,361 | \$506,929 | \$920,077 | | \$118,687 | | \$4,479,055 |
| BUSHWICK | \$407,284 | \$347,008 | \$656,450 | \$131,435 | \$2,592,185 | \$342,874 | \$4,477,237 |
| CLINTON HILL | \$2,437,592 | \$374,115 | \$891,589 | | \$442,278 | \$185,905 | \$4,331,480 |
| GOWANUS | \$2,141,836 | | \$1,039,791 | | \$517,527 | \$36,966 | \$3,736,120 |
| MADISON | \$2,033,257 | | \$542,498 | | \$68,486 | \$247,786 | \$2,892,027 |
| OCEAN PARKWAY-NORTH | \$1,317,072 | | \$873,631 | | \$305,838 | \$358,462 | \$2,855,003 |
| BAY RIDGE | \$1,889,274 | \$51,266 | \$91,591 | | \$403,625 | \$361,085 | \$2,796,841 |
| CARROLL GARDENS | \$1,963,732 | | \$432,244 | \$136,574 | \$138,092 | | \$2,670,641 |
| BENSONHURST | \$2,020,616 | | \$3,339 | | \$526,421 | | \$2,550,377 |
| MIDWOOD | \$1,936,674 | | \$9,745 | | \$325,811 | \$96,375 | \$2,368,605 |
| FLATBUSH-NORTH | \$1,578,556 | | \$412,957 | | \$156,016 | | \$2,147,529 |
| PROSPECT HEIGHTS | \$1,904,845 | | | | \$93,201 | \$40,076 | \$2,038,123 |
| COBBLE HILL-WEST | \$1,340,263 | | | | \$457,173 | \$113,549 | \$1,910,984 |
| BATH BEACH | \$1,468,729 | | | | \$388,403 | \$22,842 | \$1,879,974 |
| FLATBUSH-CENTRAL | \$1,412,848 | | \$11,160 | | \$364,943 | | \$1,788,951 |
| BROOKLYN HEIGHTS | \$1,645,773 | | | | | | \$1,645,773 |

| | | | | | | | |
|--------------------------|-----------|-----------|-----------|--|-------------|-----------|-------------|
| EAST NEW YORK | \$281,991 | \$699,343 | \$278,310 | | \$361,711 | \$9,828 | \$1,631,183 |
| BERGEN BEACH | \$901,484 | \$542,842 | | | | | \$1,444,326 |
| OCEAN PARKWAY-SOUTH | \$965,426 | | \$126,290 | | \$160,718 | \$94,553 | \$1,346,987 |
| WYCKOFF HEIGHTS | \$663,882 | | | | \$596,055 | | \$1,259,937 |
| WINDSOR TERRACE | \$800,959 | | \$128,769 | | \$264,795 | | \$1,194,522 |
| MILL BASIN | \$73,934 | | | | \$1,026,080 | | \$1,100,014 |
| DYKER HEIGHTS | \$846,145 | | | | \$97,523 | | \$943,668 |
| KENSINGTON | \$768,640 | | | | \$156,474 | | \$925,114 |
| CANARSIE | \$718,405 | | | | \$96,197 | | \$814,602 |
| FLATBUSH-LEFFERTS GARDEN | \$662,042 | | \$56,798 | | \$47,548 | | \$766,388 |
| CONEY ISLAND | \$220,693 | \$149,724 | | | \$32,173 | \$57,609 | \$460,200 |
| RED HOOK | \$89,175 | | \$232,705 | | \$117,983 | | \$439,863 |
| FLATBUSH-EAST | \$280,199 | \$1,051 | | | \$156,285 | \$2,184 | \$439,718 |
| OCEAN HILL | | | \$216,500 | | \$173,052 | \$8,120 | \$397,672 |
| BUSH TERMINAL | \$41,881 | | \$193,885 | | \$16,046 | \$66,397 | \$318,210 |
| COBBLE HILL | \$310,417 | | | | | | \$310,417 |
| MARINE PARK | \$196,982 | | | | | \$4,738 | \$201,719 |
| FLATLANDS | | | | | | \$108,841 | \$108,841 |
| BROWNSVILLE | | \$12,875 | | | \$88,730 | | \$101,605 |
| MANHATTAN BEACH | \$101,348 | | | | | | \$101,348 |
| CYPRESS HILLS | | | | | \$82,980 | | \$82,980 |
| NAVY YARD | \$40,157 | | | | | | \$40,157 |
| OLD MILL BASIN | \$6,076 | | | | | | \$6,076 |
| GERRITSEN BEACH | \$4,044 | | | | | | \$4,044 |

Table 17: Expenditure by neighborhood: Queens

MAS/IBO dataset merged with DOF data

| Neighborhood | Condos | Rentals - Regulated | Rentals - Unreg'd | Rentals - Other | Other | Unknown | Grand Total |
|------------------|--------------|---------------------|-------------------|-----------------|--------------|-------------|--------------|
| FLUSHING-NORTH | \$19,883,168 | \$1,843,566 | \$687,409 | | \$4,428,387 | \$517,128 | \$27,359,657 |
| ASTORIA | \$5,951,065 | \$3,864,355 | \$3,036,146 | \$971,795 | \$6,765,212 | \$785,038 | \$21,373,610 |
| CORONA | \$3,648,213 | \$985,375 | \$242,237 | | \$11,618,965 | \$415,708 | \$16,910,498 |
| LONG ISLAND CITY | \$11,123,576 | \$517,534 | \$2,970,466 | | \$885,464 | \$117,654 | \$15,614,695 |
| ELMHURST | \$3,785,677 | \$319,091 | \$203,608 | \$43,860 | \$4,882,119 | \$97,584 | \$9,331,938 |
| JAMAICA | \$1,902,198 | \$352,442 | \$1,489,972 | \$136,545 | \$2,844,950 | \$533,112 | \$7,259,219 |
| FLUSHING-SOUTH | \$1,132,841 | \$805,744 | \$1,964,370 | | \$414,405 | \$1,019,839 | \$5,337,199 |
| WOODSIDE | \$2,684,704 | \$657,790 | \$65,574 | | \$1,650,107 | \$127,292 | \$5,185,466 |
| BRIARWOOD | \$1,010,139 | \$254,103 | \$2,242,864 | | \$1,180,941 | \$52,780 | \$4,740,828 |
| REGO PARK | \$1,144,778 | \$1,273,553 | \$251,642 | | \$168,106 | \$733,089 | \$3,571,167 |

| | | | | | | | |
|--------------------------|-------------|-----------|-----------|----------|-----------|-----------|-------------|
| KEW GARDENS | \$1,759,187 | \$113,938 | \$914,725 | | \$715,388 | | \$3,503,238 |
| FOREST HILLS | \$1,992,377 | | \$107,940 | | \$989,573 | \$101,678 | \$3,191,569 |
| FAR ROCKAWAY | \$1,168,376 | \$346,544 | | | \$679,215 | | \$2,194,135 |
| JACKSON HEIGHTS | \$608,692 | | \$102,564 | | \$990,972 | \$17,126 | \$1,719,353 |
| HAMMELS | \$874,235 | | \$355,086 | | \$236,687 | \$8,693 | \$1,474,702 |
| MIDDLE VILLAGE | \$675,610 | | | | \$517,150 | | \$1,192,760 |
| ROCKAWAY PARK | \$1,000,847 | | | | \$60,126 | \$42,279 | \$1,103,251 |
| RIDGEWOOD | \$766,352 | | | | \$222,450 | \$10,137 | \$998,939 |
| COLLEGE POINT | \$457,464 | | | | \$228,540 | \$59,431 | \$745,436 |
| RICHMOND HILL | \$4,323 | | \$123,803 | \$51,762 | \$504,014 | \$32,325 | \$716,227 |
| SUNNYSIDE | \$523,011 | \$75,326 | \$41,162 | | \$20,486 | | \$659,986 |
| OZONE PARK | \$184,901 | | | | \$288,952 | | \$473,853 |
| JAMAICA ESTATES | \$211,834 | | | | \$214,881 | \$8,449 | \$435,164 |
| BAYSIDE | \$149,986 | | | | \$273,987 | | \$423,974 |
| SPRINGFIELD GARDENS | | \$217,946 | \$94,933 | | \$98,170 | | \$411,049 |
| GLENDALE | \$52,012 | | | | \$298,860 | \$32,896 | \$383,768 |
| MASPETH | \$141,826 | | | | \$203,182 | \$28,047 | \$373,055 |
| EAST ELMHURST | | \$4,331 | | | \$365,284 | | \$369,616 |
| ARVERNE | | \$96,980 | | | \$211,762 | \$21,400 | \$330,141 |
| HOLLIS | \$123,174 | | \$5,441 | | \$117,155 | | \$245,770 |
| LITTLE NECK | | | | | \$242,066 | | \$242,066 |
| WOODHAVEN | | | \$2,609 | | \$190,598 | | \$193,207 |
| ROSEDALE | | | \$29,941 | | \$159,296 | | \$189,238 |
| BEECHHURST | \$184,170 | | | | | | \$184,170 |
| HOWARD BEACH | | | | | \$154,517 | | \$154,517 |
| JAMAICA HILLS | | | | | \$130,467 | | \$130,467 |
| DOUGLASTON | \$75,806 | | | | \$5,830 | | \$81,635 |
| HILLCREST | | | | | \$67,723 | | \$67,723 |
| QUEENS VILLAGE | | | | | \$49,016 | | \$49,016 |
| FRESH MEADOWS | \$44,447 | | | | | | \$44,447 |
| SOUTH JAMAICA | \$17,003 | | | | \$24,842 | | \$41,845 |
| FLUSHING MEADOW PARK | | | | | \$37,476 | | \$37,476 |
| SO. JAMAICA-BAISLEY PARK | | | | | \$36,694 | | \$36,694 |
| OAKLAND GARDENS | | | | | \$15,980 | | \$15,980 |
| CAMBRIA HEIGHTS | | | | | \$4,819 | | \$4,819 |
| SOUTH OZONE PARK | | | | | \$956 | | \$956 |

Table 18: Expenditure by neighborhood: Staten Island

MAS/IBO dataset merged with DOF data

| Neighborhood | Condos | Rentals - Regulated | Rentals - Unreg'd | Rentals - Other | Other | Unknown | Grand Total |
|-------------------------|-----------|---------------------|-------------------|-----------------|-----------|----------|-------------|
| NEW BRIGHTON-ST. GEORGE | \$546,845 | | | | | | \$546,845 |
| GRYMES HILL | \$34,855 | | | | \$489,285 | | \$524,141 |
| STAPLETON | | \$16,173 | \$2,353 | | \$442,392 | | \$460,918 |
| CONCORD-FOX HILLS | \$35,738 | | | | \$335,424 | | \$371,162 |
| STAPLETON-CLIFTON | \$198,082 | | | | | | \$198,082 |
| NEW BRIGHTON | | \$3,921 | \$148,173 | | \$35,801 | | \$187,894 |
| MARINERS HARBOR | | \$104,758 | \$13,415 | | \$52,894 | | \$171,067 |
| MIDLAND BEACH | | | | | \$135,015 | | \$135,015 |
| GREAT KILLS | \$110,474 | | | | | | \$110,474 |
| PORT RICHMOND | \$46,474 | \$3,181 | | | \$3,342 | \$43,918 | \$96,915 |
| NEW DORP | \$73,274 | | | | | | \$73,274 |
| TOTTENVILLE | \$13,784 | | | | \$51,550 | | \$65,333 |
| ELTINGVILLE | \$49,738 | | | | | | \$49,738 |
| NEW DORP-HEIGHTS | \$47,668 | | | | | | \$47,668 |
| ROSEBANK | | | | | \$45,013 | | \$45,013 |
| CONCORD | \$35,880 | | | | | | \$35,880 |