Rent Control, Rent Overcharge, and Racial Disparity: Evidence from Rent Stabilization in New York City∗

Brent W. Ambrose1, Xun Bian2, Ruoyu Chen3, and Hanchen Jiang4

1Smeal College of Business, Pennsylvania State University
2G. Brint Ryan College of Business, University of North Texas
3Department of Economics, University of Windsor
4Department of Economics, University of North Texas

Preliminary; Do Not Cite or Circulate without Permission

Abstract

Rent regulation has seen increasing legislative momentum in many places, but are landlords adhering to these policies? Answering this question is critical to understand the policy’s impact. We investigate non-compliance with rent caps using data from the rent stabilization policy in New York City. We uncover evidence indicative of widespread rent overcharging. Our analysis, based on panel data between 2005 and 2008, reveals that over 30% of tenants in rent-stabilized apartments without turnover were likely overcharged. Moreover, we find that minorities in rent-stabilized units are about 20% more likely to be overcharged than their White counterparts. This empirical pattern is robust after accounting for measurement errors in rent increases, alternative model specifications, and location fixed effects. Additionally, in contrast to rent-stabilized units, landlords of unregulated market units do not disproportionately increase rents for minority tenants. Furthermore, we present suggestive evidence that, compared to similar Whites, minorities who are less aware of the policy, have lower educational attainment, and are from lower-income groups, are at a greater risk of rent overcharging.

Keywords: Rent Control, Rent Stabilization, Rent Regulation, Rent Overcharge, Racial Disparity

JEL Classification: R28, R38, J15

∗First draft: November 2023. We gratefully acknowledge insightful conversations with Ingrid Gould Ellen. All errors are our own.
Rent Control and Rent Overcharge

1 Introduction

Skyrocketing rents diminish housing affordability. Since the COVID-19 outbreak in 2019, the nearly 46 million renters in the United States (i.e., more than a third of all U.S. households) have been hit particularly hard by rising rents. The median rent rose by 12% nationwide between 2019 and 2021, double the inflation rate of 6% during the same period.\(^1\) According to Moody’s Analytics, in 2022, the national rent-to-income (RTI) ratio exceeded the 30% rent-burdened threshold for the first time in 25 years since Moody began tracking this indicator.\(^2\) Simply put, this means that the typical American renter is rent-burdened.\(^3\) More residents in major U.S. cities, are now further burdened by soaring rents, especially as these areas already had less affordable rents prior to the pandemic. For example, in 2022, New York City (NYC) recorded the highest RTI ratio in the U.S., at 68.5%, suggesting that millions of New Yorkers are severely rent-burdened.\(^4\)

In the midst of the rental housing affordability crisis, rent regulation has increasingly gained traction at the federal, state, and municipal levels. In January 2023, the Biden administration released the Blueprint for a Renter Bill of Rights, which urges the Federal Housing Finance Agency (FHFA) to examine ways to limit “egregious rent increases.” One proposal made by a coalition of 17 U.S. Senators is to condition mortgages backed by Fannie Mae and Freddie Mac on enhanced tenant protections, including, most notably, limits on rent hikes.\(^5\) At the state level, Oregon became the first state to adopt a state-wide rent

---


\(^3\)The U.S. Department of Housing and Urban Development (HUD) defines “rent-burdened” as paying more than 30% of household income for rent. “Severe rent burden” is defined as paying over 50% of their income on rent.


\(^5\)On July 31, 2023, led by Sherrod Brown (D-OH), Chair of the US Senate Committee on Banking, Housing and Urban Affairs, 17 U.S. Senators sent a letter requesting FHFA condition Enterprise-backed
Ambrose, Bian, Chen & Jiang

cap on rent increases in 2019, and California soon followed suit in January 2020 (Schuetz, 2019). In November 2021, voters in Saint Paul, Minnesota, approved a rent stabilization ordinance to limit rent increases in the city. Boston is also considering re-instating rent stabilization.

While rent control has been promoted by many activists and some policymakers as a panacea to alleviate the housing affordability crisis, the efficiency of rent stabilization has been widely questioned by economists. Previous studies show that limiting rent increases may reduce housing supply and increase demand for affordable housing, both of which will exacerbate the shortage of affordable rental units. Under rent control, landlords are more likely to sell their rental properties to owner-occupants (Friedman and Stigler, 1946; Diamond, McQuade, and Qian, 2019). Additionally, with below-market rents, renters may consume excessive quantities of housing (Olsen, 1972; Gyourko and Linneman, 1989). Other effects of rent control include the deteriorating quality of rental housing stock (Downs, 1988; Sims, 2007), the mismatch between tenants and housing units (Glaeser and Luttmer, 2003; Sims, 2011; Bulow and Klemperer, 2012), and negative effects for labor market outcomes (Svarer, Rosholm, and Munch, 2005; Jiang, Quintero, and Yang, 2023). In summary, previous literature suggests that limiting rents may be inefficient in improving housing affordability. However, a largely unexplored question is: are landlords adhering to rent regulation? If not, how rampant are rent overcharges? And who do landlords overcharge? Answers these questions is critical to understand the policy’s impact.

In this study, we take the first step in answering these questions by focusing on rent stabilization in New York City. New York City has a long history of using rent regulation policy to alleviate rental affordability challenges, and the rent stabilization policy that restrict rent increases has been the dominant policy type considered in many places in the U.S..

mortgages on “limits against egregious rent hikes in properties with financing backed by Fannie Mae and Freddie Mac.”
Rent Control and Rent Overcharge

Therefore, answers to these questions are also of wider interest and broad policy implications.

It is important to note that the enforcement of the rent caps in NYC mostly relies on tenants to discover and report non-compliance. This means a tenant must overcome the information asymmetry and bear the costs of filing a complaint. For example, a tenant must first know the status (i.e., rent-regulated or not) of their apartment and understand NYC’s complicated and frequently changing rent regulation policies.\(^6\) Additionally, to determine whether there is overcharging, one must obtain the apartment’s rent history and make an effort to comprehend it.\(^7\) Furthermore, filing an overcharge complaint requires the tenant to navigate a complex and lengthy legal process with uncertain outcomes.\(^8\) Finally, the possibility of landlord retaliation as a response to filing a complaint can understandably make tenants anxious and fearful. Using a unique panel dataset of rent-stabilized units without turnover in NYC, we compare the actual rent increases of each rent-stabilized unit to NYC’s Rent Guideline Board (RGB) rent caps to determine whether landlords have overcharged rents above the caps. Our estimates suggest that over 30% of residents living in the same rent-stabilized units between 2005 and 2008 had rent increases exceeding the allowed caps. Our findings point to landlords’ rampant non-compliance with the rent-stabilization regulation in NYC.

Furthermore, rent overcharging may be unequally distributed across racial groups. Racial minority tenants with lower socioeconomic status may face greater obstacles in overcoming

---

\(^6\) Chen, Jiang, and Quintero (2023) document that many rent-stabilized units are not aware of their policy benefits. We confirm this pattern. Our summary statistics (Table 1) reveal that less than half (40.1\%) of rent-stabilized tenants in our analytical sample are aware of the status of their apartments.

\(^7\) Rent history can be difficult to understand. For this reason, the website of the City of New York (NYC.gov) states that “Rent history documents can be difficult to understand, so we recommend that once you receive it, you contact the Tenant Support Unit. We can help determine your stabilization status and check if you are being overcharged in rent.”

\(^8\) For example, it takes the Division of Housing and Community Renewal’s Office of Rent Administration an average of 24 months just to get overcharge cases assigned to an examiner. After that, it can take another six to nine months to process the case, leaving some tenants waiting for up to three years waiting for a response. See https://www.thecity.nyc/2019/09/30/new-rent-law-deluges-backlogged-tenant-overcharge-claims/. Accessed on Oct. 29, 2023.
information barriers relating to rent regulation and are, therefore, less likely to discover overcharges. Additionally, feeling powerless and vulnerable, minority tenants may be less inclined to file a complaint even when they know they are overcharged. Therefore, landlords may target uninformed and vulnerable minority tenants, imposing greater and over-the-limit rent hikes on them more frequently. We examine non-compliance with NYC’s rent-stabilization regulation and its resulting racial inequality. We show that rent overcharges are borne differently by White and non-Whites. Minorities are about 20% more likely to be overcharged relative to otherwise similar Whites. In other words, rent overcharging is hardly “color-blind”, and it takes a heavier toll on minority tenants. This empirical pattern persists when we account for measurement errors in rent increases, use alternative model specifications, and even control for spatial sorting using location fixed effects. Moreover, comparing rent increases of rent-stabilized and market-rate units, we find that landlords, in general, impose larger rent hikes on non-Whites in the rent-regulated market. However, such a pattern is not observed in the unregulated market. Exploring heterogeneity, we further show that policy awareness, education, and household income are important determinants of the likelihood of being overcharged. Relative to similar Whites, uninformed, less-educated, and low-income minority tenants are more likely to be overcharged.

We make several contributions to the literature. First, we complement previous studies on rent control by being the first to examine non-compliance. Our unique dataset allows us to examine rent increases at the unit level and identify non-compliance behaviors of landlords. We show that overcharging is concerningly common. Our results suggest that previous studies that use a unit’s rent-control status to distinguish between rent-controlled versus unregulated apartments likely underestimated the effects of limiting rents. Not all landlords of rent-controlled units abide by the caps. The average effects of rent control documented in previous studies are actually, to be more precise, the effect of rent control compromised by non-compliance. Both the benefits and costs of limiting rents are likely diluted by rent
overcharges. Therefore, our work modifies the interpretation of the results from previous studies. Additionally, we are the first to examine the racial inequality resulting from rent overcharges. We show that seemingly unprejudiced regulations can lead to non-compliance that is not race-neutral. Generally speaking, our study illustrates that to better evaluate a public policy, we must consider both compliance and non-compliance. Otherwise, we will be incognizant of the policy’s ineffectiveness and oblivious to the inequalities it creates.

We also contribute, in several ways, to the strand of studies examining racial inequality in the U.S. rental housing market. First, we identify a new kind of racial inequality – rent overcharging – which has been overlooked by previous literature. In contrast to discrimination that limits minority tenants’ access to housing (e.g., landlords favor Whites over minorities), we show that racial inequalities can also take the form of rent overcharging. Our findings suggest that minorities are not only treated unfairly when landlords select tenants but also face racial inequality when landlords adjust rents during their tenancy. Additionally, we show that landlord behaviors may contribute to the empirical pattern that relative to Whites, minority residents enjoy smaller rent discounts living in rent-controlled apartments. Overcharging diminishes rent discount. Being more likely to be overcharged, minorities benefit less from living in rent-stabilized units.

The remainder of our paper proceeds as follows: Section 2 provides a background on the related literature, Section 3 describes policy details of rent stabilization in NYC and the data used for our analysis, Section 4 discusses how we measure rent overcharges, Section 5 presents empirical evidence linking overcharges to tenant race, and Section 6 explores heterogeneity, discusses policy caveats, and conduct additional robustness checks to address those. Section 7 concludes.
2 Related Literature

We primarily contribute to the literature on rent regulation by examining the differential benefits of rent stabilization to different racial groups. Using 1968 data from NYC, Gyourko and Linneman (1989) find that relative to minorities, Whites living in rent-control units receive greater rent discounts, both in absolute terms and relative to income. Also looking at NYC in 1996, Early (2000) finds no racial differences in rent discounts. Examining more recent data from NYC, Chen, Jiang, and Quintero (2023) document a racial gap in rent discounts in the 2000s, but such a difference has narrowed since 2011. While previous studies document the presence of racial disparity in rent discounts, it is less clear why such a disparity exists. Chen, Jiang, and Quintero (2023) show that spatial sorting and gentrification may play a role. In other words, the gap in rent discounts could be a result of minority tenants being sorted into areas with smaller rent discounts. Racial differences in income, familial status, preference, and other characteristics may explain such sorting. In contrast, our findings point to an explanation that is much more disturbing and alarming. We show that such a racial disparity may be, at least partly, attributable to landlords’ discriminatory behavior. Overcharging diminishes rent discounts. Being more likely to be overcharged, minority tenants benefit less from the rent control policy.

Our study also contributes to the literature examining racial disparity in the U.S. rental markets. Previous studies document a “race gap” in access to affordable housing. Relative to Whites, minority tenants face discrimination by landlords in the allocation of rental units. For example, they are less likely to be informed about available units, allowed to inspect these units, and offered rent incentives by landlords (Yinger, 1995; Roychoudhury and Goodman, 1992; Ondrich, Stricker, and Yinger, 1999; Ewens, Tomlin, and Wang, 2014; Christensen, Sarmiento-Barbieri, and Timmins, 2020). Our studies complement this literature by uncovering a new kind of racial inequality (i.e. rent overcharging). It is important
Rent Control and Rent Overcharge

to note that most previous studies focus on discrimination at the beginning stage of tenancy when landlords screen tenants. In contrast, we document racial inequality in rent increases, which occur during tenancy. Our findings, jointly with previous literature, suggest that minorities face racial inequalities every step of the way in the rental market.

3 Policy Background and Data

3.1 Policy Background: Rent Stabilization in New York City

Rent stabilization is the dominant type of rent regulation in New York City (NYC), covering almost half of the rental units. Tenants occupying rent-stabilized units benefit from this policy because the rental growth rate is often capped at a lower level than the unregulated rental market. Specifically, rent increases of rent-stabilized units are capped and adjusted by the NYC Rent Guidelines Board (RGB) annually. For example, between October 1, 2005, and September 30, 2006, a maximum 2.75 percent increase is allowed for a one-year lease (see Table A1 for more details). Various factors are taken into consideration to determine the cap in a specific year, including housing market dynamics, economic trends, owner costs and revenues, availability of financing, changes in housing supply, affordability of rental housing, rental vacancy rates, cost-of-living indices, and other factors.

Notably, it is difficult to enforce the rent cap. In fact, many tenants occupying rent-stabilized units are even unaware that their units are actually subject to rent regulation (Chen, Jiang, and Quintero, 2023). Even among the rent-stabilized tenants who are correctly aware of their beneficiary status, detecting rent cap violations would not be easy in practice. It is the tenants’ sole responsibility to ensure that the policy is enforced by seeking legal counsel or contacting the New York State Division of Housing and Community Renewal (DHCR).9

---

9See “Rent Increases in Rent Regulated Apartments” https://www.nyc.gov/site/hpd/services-and-information/other-housing-issues.page.
In addition, there are a few occasions where greater rent increases are allowed. The first is “Vacancy Allowance” (or “Vacancy Bonus”). When turnover occurs, the landlord can increase the rents of a rent-stabilized units above the RGB mandated cap. In some cases, landlords can increase the rents as high as 20 percent upon tenant vacancy. We choose to focus on rent-stabilized units without tenant turnover to avoid the confounding factors due to such “vacancy allowance”. The second is “Capital Improvement”. In general, when certain types of capital improvements are undertaken in the unit, or when large investments are put into the building, landlords can also raise the rents higher than the allowed cap. The third is “Preferential Rent”. It is possible that the landlord may charge the tenant less than what is legally allowed to charge for the apartment, known as “preferential rent”. However, the seemingly benefits offered to tenants by such Preferential Rent does not mean a free lunch; by contrast, landlords can always terminate preferential rents upon lease renewal, leading to a much higher rent increase all at once. We discuss the implications of both Capital Improvement and Preferential Rent provisions for our results in section ?? and argue that they are not likely to be the driving forces behind our findings regarding rent overcharge and racial disparity.

3.2 Data: The New York City Housing and Vacancy Survey

In this paper, we use the 2005 and 2008 waves of the New York City Housing and Vacancy Survey (NYCHVS) for our empirical analysis. The data have several unique advantages

\[\text{Technically, there are different types of “Capital Improvement”. For example, one is known as Major Capital Improvements (MCI) } \text{https://hcr.ny.gov/system/files/documents/2023/07/fact-sheet-26-07-2023.pdf, while another is known as Individual Apartment Improvement (IAI) } \text{https://hcr.ny.gov/apartment-iai-and-building-mci-improvements. For the latter, if landlords can pass along a portion of the cost to the new tenants in the form of a permanent monthly rent increase, and there is no cap on IAI investments, and there is no cap on the total rent increase that can be made at vacancy. This is another reason motivating us to focus on units without turnover.}\]

\[\text{The NYCHVS has been conducted by the Census Bureau in the U.S. about every three years since 1965. The primary objective of NYCHVS is to accurately estimate the rental vacancy rate for the NYC government required by law.}\]
for the research questions in this paper, compared to other commonly used housing data, including but not limited to the American Housing Survey (AHS). First and foremost, for each wave of NYCHVS, the accurate rent-regulation status of each housing unit is available, which is verified through administrative sources and contains no measurement error. This feature allows us to measure tenants’ awareness of the rent stabilization policy. Second, the 2005 and 2008 waves have a unique panel data structure, allowing us to link the same housing units between the two waves. Without such panel linkages, it is impossible to calculate the rent increase and to determine whether the increase is below the legally allowed cap. Third, the NYCHVS is representative of the entire NYC and contains detailed information about the housing units and their occupying tenant characteristics.

To construct the analytical sample for our empirical analysis, we use the subset of housing units with no tenant turnover between the 2005 and 2008 waves of NYCHVS. In other words, we focus on tenants who have occupied the same housing units in both 2005 and 2008. Excluding the rent-stabilized units experiencing tenant turnover means the vacancy allowance and vacancy decontrol are not relevant, and we can more precisely identify whether a unit is indeed overcharged. Focusing on the same tenant also alleviates the concern of measurement error in self-reported rents. More details are discussed in Section ?? below.

4 The Rent Overcharge in New York City

4.1 Measure Rent Overcharge

Conceptually, we can define $\text{Overcharge}_{i,t}$ for a rent-stabilized housing unit $i$ in period $t$ as a binary indicator, which equals 1 if the rental increase rate between period $t$ and $t-1$ is higher than the legally allowed cap, and equals to 0 otherwise. $\text{Overcharge}_{i,t}$ is formally defined in Equation 1.
\[
Overcharge_{i,t} = \begin{cases} 
1, & \text{if } \frac{R_{i,t} - R_{i,t-1}}{R_{i,t-1}} > \text{rent increase cap between } t-1 \text{ and } t \\
0, & \text{if } \frac{R_{i,t} - R_{i,t-1}}{R_{i,t-1}} \leq \text{rent increase cap between } t-1 \text{ and } t 
\end{cases} 
\] (1)

To construct \(Overcharge_{i,t}\) using the 2005 and 2008 NYCHVS data, we take a two-step approach. In the first step, we calculate the rent increase rate (%) between 2005 and 2008 based on the monthly contract rent reported by the tenant. In the second step, we choose the appropriate rent increase cap set by the Rent Guidelines Board (RGB). In Table A1, we document the rent increase cap set by RGB in NYC during our sample study period. The specific caps primarily depend on the length of the contract. In theory, rent increases of stabilized units from 2005 to 2008 should be capped at

\[
100\% \times 103.5\% \times 102.75\% \times 104.25\% - 100\% \approx 10.866\% 
\] (2)

where 103.5\% corresponds to the 3.5\% cap for a one-year lease between 2004 and 2005, 102.75\% corresponds to the 2.75\% cap for a one-year lease between 2005 and 2006, and 104.25\% corresponds to the cap for a one-year lease between 2007 and 2008. Finally, we compare the calculated rent increase rate with the appropriate rent increase cap and define \(Overcharge_{i,t}\) accordingly.

While defining \(Overcharge_{i,t}\) seems to be straightforward, assuring the validity of this measure is crucial to understanding the existence and the prevalence of rent overcharge in New York City and to further analyze its incidence. First and foremost, one may be particularly concerned about the measurement error in calculating the rent increase, given that rents are self-reported. However, the fact that we focus on the same tenants without turnover alleviates the concern significantly, as it is less likely for the same tenant to misreport his or her own rent. In addition, since that rent accounts for a large share of NYC renters’ monthly income and is usually a reoccurring monthly payment, it is less likely to
Rent Control and Rent Overcharge

be misreported. Moreover, we conduct various robustness checks in section 5.2 and consider alternative measures in section 5.3.

4.2 Descriptive Evidence

Table 1 presents descriptive statistics of variables used in our regression analysis. The average rent increase for our sample is 15.7%, and the average probability of overcharging is 44%. Additionally, we include in our analysis a rich set of household characteristics. Specifically, we include in our regression models, the household head’s age, gender, and educational attainment, household income, household size, and the number of children. Table 1 reports the sample means and standard deviations of our full sample and the two sub-samples by race of the household head: White versus non-White. A comparison of means reveals that households headed by non-Whites, on average, have larger rent increases (16.6% vs. 14%) and are likely to be overcharged (45.8% vs. 40.7%). Differences also exist in other average characteristics between Whites and non-Whites. For example, household heads who are non-Whites are more likely to be female, younger, and less educated. Additionally, households headed by non-Whites tend to be larger and have more children and lower income than white households. Furthermore, households headed by non-Whites are less likely to be aware of the rent-control status of their apartments. 54.2% of white households living in a rent-stabilized unit correctly report such a status. In stark contrast, only 32.7% of minorities are aware their apartments are rent-stabilized.
### Table 1: Descriptive Evidence

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>White</th>
<th>Non-White</th>
<th>T-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>sd</td>
<td>mean</td>
<td>sd</td>
</tr>
<tr>
<td>Rent increase (%)</td>
<td>0.157</td>
<td>0.527</td>
<td>0.140</td>
<td>0.523</td>
</tr>
<tr>
<td>Probability of rent overcharge</td>
<td>0.440</td>
<td>0.497</td>
<td>0.407</td>
<td>0.491</td>
</tr>
<tr>
<td>Female head</td>
<td>0.563</td>
<td>0.496</td>
<td>0.510</td>
<td>0.500</td>
</tr>
<tr>
<td>Head’s education: College</td>
<td>0.318</td>
<td>0.466</td>
<td>0.563</td>
<td>0.496</td>
</tr>
<tr>
<td>Household income</td>
<td>54.616</td>
<td>49.593</td>
<td>68.045</td>
<td>61.691</td>
</tr>
<tr>
<td>Household size</td>
<td>2.352</td>
<td>1.434</td>
<td>1.740</td>
<td>1.100</td>
</tr>
<tr>
<td>Number of children</td>
<td>0.174</td>
<td>0.486</td>
<td>0.072</td>
<td>0.344</td>
</tr>
<tr>
<td>Policy awareness</td>
<td>0.401</td>
<td>0.490</td>
<td>0.542</td>
<td>0.499</td>
</tr>
<tr>
<td>Observations</td>
<td>2909</td>
<td>1006</td>
<td>1903</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Probability of overcharging is defined as $\% \Delta$ nominal contract rent > NYC Rent Guidelines Board (RGB) cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceeds 10.8660%). Except for rent growth rate and probability of overcharging, summary statistics of all other variables are based on their 2005 values. College is a dummy variable that equals one if the household head has a college degree. Household income is in thousand 2017 USD. Policy awareness is a dummy variable that equals one if the reported rent regulation status of rent-stabilized tenants is either rent-controlled or rent-stabilized. Data comes from 2005 and 2008 NYCHVS. The sample contains always-stabilized units with no rental turnovers. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

## 5 Rent Overcharge and Racial Disparity

### 5.1 Are Non-Whites More Likely to be Overcharged?

We begin by estimating the following linear probability model (LPM) to examine the link between rent overcharges and tenant race.

$$
Overcharge_{it} = \alpha \times \text{Non-White}_i + X'_{it} \beta + \epsilon_{it}
$$

(3)

where $Overcharge_{it}$ is the binary indicator of rent overcharge defined in Equation 1. Non-White is the binary indicator of being a minority. We also include in Equation 3 $X_{it}$, a vector of household demographic and economic control variables.

Estimated coefficients and robust standard errors from our baseline models are presented in Table 2. In Model 1, we regress $Overcharge$ on the indicator variable $\text{Non-White}$. We
then incrementally add age (and its squared term) and gender in Model 2, education in Model 3, household income in Model 4, and household size and the number of children in Model 5. Several observations can be made from Table 2. First, across the board, Non-White consistently exhibits a strong positive association with the probability of being overcharged. Incrementally adding household characteristics to the model raises the estimated coefficient just slightly. Our preferred specification, Model 5, shows that minority tenants are 6.5 percentage points more likely than Whites to be overcharged. Relative to the baseline probability of 33.2% of overcharging, our results suggest that minorities are 19.58% more likely to be overcharged.\footnote{0.065/0.332 = 19.58\%}

We further unpack the non-White group into three subcategories: Black, Hispanic, and Asian American Pacific Islander (AAPI), and we re-estimate our baseline models with a separate indicator variable for each. Results are presented in Table B3 in Appendix B. All three minority subgroups are strongly associated with a greater likelihood of being overcharged. While racial disparity exists between Whites and all minority subgroups, heterogeneity does exist. The disparity appears to be the largest for the AAPI group with them being 8.8 percentage points more likely to be overcharged than Whites. It is followed by 6.3 percentage points for Blacks and 5.9 percentage points for Hispanics. Relative to otherwise similar Whites, AAPI, Blacks and Hispanics are respectively 26.59\%, 19.03\%, and 17.82\% more likely to be overcharged.\footnote{0.088/0.331 = 26.59\%; 0.063/0.331 = 19.03\%; 0.059/0.331 = 17.82\%}

5.2 Robustness Checks

We conduct several robustness checks.
Table 2: Racial Disparity in Rent Overcharge: Main Results

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White</td>
<td>0.052***</td>
<td>0.052***</td>
<td>0.061***</td>
<td>0.062***</td>
<td>0.065***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.020)</td>
<td>(0.021)</td>
<td>(0.021)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Age</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td></td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>-0.013</td>
<td>-0.012</td>
<td>-0.011</td>
<td>-0.011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td></td>
</tr>
<tr>
<td>Education: College</td>
<td>0.022</td>
<td>0.020</td>
<td>0.017</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.023)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td></td>
<td></td>
<td></td>
<td>-0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.008)</td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td></td>
<td></td>
<td></td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.023)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.407***</td>
<td>0.334***</td>
<td>0.322***</td>
<td>0.319***</td>
<td>0.332***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.093)</td>
<td>(0.094)</td>
<td>(0.094)</td>
<td>(0.097)</td>
</tr>
<tr>
<td>Y</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
</tbody>
</table>

Note: Dependent variable = rent overcharge dummy, which is defined as \(\%\Delta\) nominal contract rent \(>\) cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Control variables are defined as in Table 1. The sample contains always-stabilized units with no rental turnovers. * \(p < 0.10\), ** \(p < 0.05\), *** \(p < 0.01\).
Rent Control and Rent Overcharge

**Threats due to Measurement Errors**

Our estimated overcharge may contain measurement errors. To account for the possibility that we may falsely identify a unit being overcharged when it is not, we modify our overcharge indicator to allow for some margins of error. Specifically, we redefine $\text{Overcharge} = 1$ if $\% \Delta \text{Contract Rent} > \text{Cap} + 1\%$ and re-estimate our models. We then repeat this exercise with cap plus 2% and 3%. Note that the average rent increase for our sample between 2005 and 2008 is 15.7%. Using the cutoffs of cap plus 1%, 2%, and 3%, we allow for margins of error ranging between 6.4% and 19.11% of the average rent increase.\(^{14}\) Results from regressions using the alternative cutoffs are reported in Table 3. First of all, it is critical to note that even when allowing for a 3% margin of error, we still have over 34% of observations with rent increases above the cutoff, as opposed to 44% without considering measurement errors. This indicates that the vast majority of overcharges are quite substantial (i.e., greater than 3%).

Examining the connection between overcharges and tenant race, we obtain results that are similar to our baseline models. Model 5 controls for all household characteristics, and with cutoffs of cap plus 1%, 2%, and 3%, Non-Whites are respectively 7.9, 6.8, and 7.0 percentage points more likely to be overcharged. The marginal effects are quite substantial. Relative to the baseline probabilities, these estimates suggest that non-Whites are approximately 18% to 20% more likely to be overcharged.\(^ {15}\) These results are very similar to our baseline estimate that minorities are 19.58% more likely to be overcharged.

**Threats due to Model Misspecification**

Our linear probability models (LPM) may suffer from model misspecification. As a robustness check, we re-estimate all specifications with a probit and a logit model. Estimated marginal effects and robust standard errors of our probit models are reported in Panel A of

\(^{14}\)0.01/0.157% = 0.064; 0.02/0.157% = 0.127; 0.03/0.157% = 0.191.
\(^{15}\)0.079/0.395 = 0.20; 0.068/0.369 = 0.1842; 0.070/0.346 = 0.20.
### Table 3: Robustness Checks: Threats due to Measurement Error

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A. %ΔRent &gt; Cap + 1%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.057***</td>
<td>0.058***</td>
<td>0.067***</td>
<td>0.069***</td>
<td>0.079***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.021)</td>
<td>(0.021)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.358***</td>
<td>0.296***</td>
<td>0.283***</td>
<td>0.280***</td>
<td>0.305***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.091)</td>
<td>(0.092)</td>
<td>(0.092)</td>
<td>(0.095)</td>
</tr>
<tr>
<td>$\bar{Y}$</td>
<td>0.395</td>
<td>0.395</td>
<td>0.395</td>
<td>0.395</td>
<td>0.395</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel B. %ΔRent &gt; Cap + 2%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.049***</td>
<td>0.051***</td>
<td>0.058***</td>
<td>0.058***</td>
<td>0.068***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.021)</td>
<td>(0.021)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.337***</td>
<td>0.303***</td>
<td>0.293***</td>
<td>0.292***</td>
<td>0.322***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.090)</td>
<td>(0.091)</td>
<td>(0.091)</td>
<td>(0.094)</td>
</tr>
<tr>
<td>$\bar{Y}$</td>
<td>0.369</td>
<td>0.369</td>
<td>0.369</td>
<td>0.369</td>
<td>0.369</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel C. %ΔRent &gt; Cap + 3%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.047***</td>
<td>0.052***</td>
<td>0.057***</td>
<td>0.058***</td>
<td>0.070***</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.019)</td>
<td>(0.020)</td>
<td>(0.020)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.315***</td>
<td>0.340***</td>
<td>0.333***</td>
<td>0.331***</td>
<td>0.368***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.089)</td>
<td>(0.090)</td>
<td>(0.090)</td>
<td>(0.093)</td>
</tr>
<tr>
<td>$\bar{Y}$</td>
<td>0.346</td>
<td>0.346</td>
<td>0.346</td>
<td>0.346</td>
<td>0.346</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
</tbody>
</table>

*Note: Dependent variable = rent overcharge dummy, which is defined as %Δ nominal contract rent > NYC RGB cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Models (1) - (5) shown above correspond to those shown in Table 2. Data comes from 2005 and 2008 NYCHVS. The sample contains always-stabilized units with no rental turnovers. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. 

16
Table 4, and those of the logit models are reported in Panel B. The results are very similar to those from our baseline models. Minority tenants are 5.2 to 6.6 percentage points more likely to be overcharged.

**Table 4: Robustness Checks: Threats due to Model Specification**

<table>
<thead>
<tr>
<th></th>
<th>Panel A: Model Specification (Probit Model)</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Non-White</td>
<td>0.052***</td>
<td>0.052***</td>
<td>0.061***</td>
<td>0.062***</td>
<td>0.066***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.020)</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.022)</td>
</tr>
<tr>
<td></td>
<td>Panel B: Model Specification (Logit Model)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Non-White</td>
<td>0.052***</td>
<td>0.052***</td>
<td>0.061***</td>
<td>0.062***</td>
<td>0.066***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.020)</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>( \bar{Y} )</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
</tbody>
</table>

*Note:* Dependent variable = rent overcharge dummy, which is defined as \( \% \Delta \) nominal contract rent > NYC RGB cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Models (1) - (5) shown above correspond to those shown in Table 2. Data comes from 2005 and 2008 NYCHVS. The sample contains always-stabilized units with no rental turnovers.

**Controlling for Location Fixed Effects**

It is possible that spatial sorting may contribute to our findings. For example, rent overcharging may be more widespread in minority neighborhoods but less common in locations where most residents are white. In other words, it may not be landlords targeting and overcharging minorities. Instead, what we capture could be the spatial difference in rent overcharging between white and non-white neighborhoods. To test this hypothesis, we first incorporate borough fixed effects into our models to control for spatial sorting. As shown in Panel A of Table 5, the racial disparities in rent overcharging persist with borough fixed effects, and
the estimated coefficients are close to those from our baseline models. To account for spatial sorting at a more granular level, we further include sub-borough fixed effects. Results are reported in Panel B of Table 5. We continue to observe that minorities are much more likely to be overcharged relative to Whites. Our results based on borough and sub-borough fixed effects suggest that larger rent hikes are imposed on minorities in the same neighborhood.

**Table 5: Robustness Checks: Controlling for Spatial Sorting**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel A. Borough Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.051**</td>
<td>0.052**</td>
<td>0.058***</td>
<td>0.058***</td>
<td>0.061***</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.020)</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.417***</td>
<td>0.359***</td>
<td>0.350***</td>
<td>0.349***</td>
<td>0.359***</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.095)</td>
<td>(0.096)</td>
<td>(0.096)</td>
<td>(0.099)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\bar{Y})</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
</tr>
<tr>
<td>(N)</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
<tr>
<td>Household Characteristics</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borough FE</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel B. Subborough Fixed Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.067***</td>
<td>0.067***</td>
<td>0.068***</td>
<td>0.068***</td>
<td>0.069***</td>
</tr>
<tr>
<td></td>
<td>(0.024)</td>
<td>(0.024)</td>
<td>(0.025)</td>
<td>(0.025)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.479***</td>
<td>0.428***</td>
<td>0.427***</td>
<td>0.430***</td>
<td>0.438***</td>
</tr>
<tr>
<td></td>
<td>(0.071)</td>
<td>(0.115)</td>
<td>(0.116)</td>
<td>(0.116)</td>
<td>(0.118)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\bar{Y})</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
</tr>
<tr>
<td>(N)</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
<tr>
<td>Household Characteristics</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-Borough FE</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Dependent variable = rent overcharge dummy, which is defined as %\(\Delta\) nominal contract rent > NYC RGB cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Models (1) - (5) shown above correspond to those shown in Table 2. Data comes from 2005 and 2008 NYCHVS. The sample contains always-stabilized units with no rental turnovers. * \(p < 0.10\), ** \(p < 0.05\), *** \(p < 0.01\).*
5.3 Alternative Outcome Variable: Rent Increase

We extend our analysis by re-estimating our models using the rent increases (%) directly as our dependent variable (instead of the binary variable `Overcharge`). By doing so, we hope to achieve two purposes. First, our finding that minorities are more likely to be overcharged could be a snippet of the more general phenomenon that landlords are more likely to raise rents on minorities, regardless of whether such rent increases exceed the cap. In this case, examining the relationship between rent increases and race serves as a useful alternative test of our hypothesis. Second, examining rent increases also allows us to compare rent-controlled units and market-rate ones, which are not subject to the rent caps. By doing so, we can see whether a similar pattern is observed in the unregulated market. If landlords are more likely to raise rents on minorities in both markets, then such a racial disparity is a more widespread phenomenon that exists in both the stabilized and unregulated rental markets. Alternatively, if racial inequality in rent increases is only observed in the rent-stabilized market, it then raises the question: Could such racial inequality be an unintended consequence of the rent-control regulation? It is possible that without rent caps, landlords do not differentiate the race of the tenants when raising rents. However, if there are limits on rent hikes, landlords target non-Whites for non-compliance because minority tenants are less likely to file complaints.

Results from regressing rent increases on race are reported in Table 6. Panel A presents results estimated using rent-stabilized units. When all household characteristics are controlled, our preferred specification (Model 5) suggests that rent increases for non-Whites are 5.6 percentage points higher than otherwise similar white tenants. Results estimated using market-rate units are presented in Panel B. The effects of race on rent increases are statistically insignificant. Taken together, we find that landlords impose larger rent hikes on minorities in the rent-controlled market. However, we do not observe such a pattern in the
Table 6: Racial Disparity in Rent Growth Rate (Rent Stabilized Units vs. Market Rate Units)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Rent-Stabilized Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.026</td>
<td>0.038*</td>
<td>0.051**</td>
<td>0.049**</td>
<td>0.056**</td>
</tr>
<tr>
<td></td>
<td>(0.020)</td>
<td>(0.020)</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.140***</td>
<td>0.047</td>
<td>0.028</td>
<td>0.034</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.104)</td>
<td>(0.103)</td>
<td>(0.104)</td>
<td>(0.105)</td>
</tr>
<tr>
<td>Y</td>
<td>0.157</td>
<td>0.157</td>
<td>0.157</td>
<td>0.157</td>
<td>0.157</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
<tr>
<td><strong>Panel B: Market Rate Units</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>0.026</td>
<td>0.033</td>
<td>0.030</td>
<td>0.025</td>
<td>0.050</td>
</tr>
<tr>
<td></td>
<td>(0.031)</td>
<td>(0.033)</td>
<td>(0.031)</td>
<td>(0.031)</td>
<td>(0.033)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.176***</td>
<td>0.272*</td>
<td>0.280*</td>
<td>0.299*</td>
<td>0.340**</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.160)</td>
<td>(0.163)</td>
<td>(0.165)</td>
<td>(0.168)</td>
</tr>
<tr>
<td>Y</td>
<td>0.191</td>
<td>0.191</td>
<td>0.191</td>
<td>0.191</td>
<td>0.191</td>
</tr>
<tr>
<td>N</td>
<td>1182</td>
<td>1182</td>
<td>1182</td>
<td>1182</td>
<td>1182</td>
</tr>
</tbody>
</table>

Note: Dependent variable = % rent increase. Models (1) - (5) shown above correspond to those shown in Table 2. Data comes from 2005 and 2008 NYCHVS. The sample in Panel A contains always-stabilized units with no rental turnovers. The sample in Panel B contains market units with no rental turnovers.

6 Heterogeneity and Discussions

6.1 Heterogeneous Effects

We further explore the heterogeneity with respect to policy awareness, education, and household income. First, if landlords target minority tenants because they are less likely to be aware of the rent-control status of their apartments and are less likely to file an overcharge
Rent Control and Rent Overcharge

complaint, we should expect policy awareness, education, and household income can mitigate the estimated effects shown in Table 2. Regardless of race, informed and resourceful tenants (in terms of the ability and/or funds needed to file a complaint) should be more likely to report non-compliance. Therefore, landlords may be more likely to engage in discriminatory behaviors when dealing with uninformed and disadvantaged tenants. To look into such heterogeneities, we conduct sub-sample analyses by separating our full sample by policy awareness, education, and household income. For policy awareness, we use \( \text{Aware} = 1 \) to indicate rent-stabilized tenants correctly reporting living in rent-stabilized or rent-controlled housing units. \( \text{Aware} = 0 \) indicates rent-stabilized tenants incorrectly reporting living in unregulated market units or not knowing the rent regulation status. For education, high education is defined as the household head having a college degree or above. For household income, we split the sample by the median income of the base year (2005).

The results of our sub-sample analyses are reported in Table 7. Our previously identified racial inequality in overcharges appears to be primarily driven by uninformed, less educated, and low-income tenants. Estimated coefficients of \( \text{Non-White} \) using the uninformed, low-education, and below-median-income samples are statistically significant and substantially larger than those estimated from the informed, high-education, and above-median-income samples, which are statistically insignificant.

We conduct two robustness checks on our sub-sample analysis. First, we add borough fixed effects. Second, we replace \( \text{Non} - \text{White} \) with the three minority subcategories: Black, Hispanic, and AAPI. Results are presented in Table B5 in Appendix B. Our results are qualitatively the same with borough fixed effects added to the model. We continue to see uninformed, less-educated, and low-income minorities are much more likely to be overcharged than otherwise similar Whites. Such a pattern persists when we use minority subcategories. Further looking into different minority groups, we find the “race gap” in rent overcharge is larger for Black and AAPI tenants (i.e. both statistically and economically more significant).
than for Hispanics.

**Table 7: Racial Disparity in Rent Overcharge: Heterogeneity**

<table>
<thead>
<tr>
<th></th>
<th>Policy Awareness</th>
<th>Education</th>
<th>Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aware</td>
<td>Unaware</td>
<td>High</td>
</tr>
<tr>
<td>Non-White</td>
<td>0.052</td>
<td>0.065*</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.034)</td>
<td>(0.037)</td>
<td>(0.036)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.376***</td>
<td>0.487***</td>
<td>0.314*</td>
</tr>
<tr>
<td></td>
<td>(0.159)</td>
<td>(0.144)</td>
<td>(0.174)</td>
</tr>
<tr>
<td>Y</td>
<td>0.467</td>
<td>0.430</td>
<td>0.440</td>
</tr>
<tr>
<td>N</td>
<td>1167</td>
<td>1262</td>
<td>925</td>
</tr>
</tbody>
</table>

*Note:* Dependent variable = rent overcharge dummy, which is defined as $\% \Delta$ nominal contract rent $>$ NYC RGB cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Regression models shown above correspond to column (5) of Table 2. The model controls for the age, age squared, gender, and education attainment of household head and total household income. Policy awareness is defined as follows: being aware means rent-stabilized tenants reporting living in rent-controlled or rent-stabilized housing units; being unaware means rent-stabilized tenants reporting living in unregulated market units or not knowing the rent regulation status. High education is defined as householder heads being college graduates, low education is defined as heads not having college degrees. Data comes from 2005 and 2008 NYCHVS. The sample contains always-stabilized units with no rental turnovers.
6.2 Additional Discussions

We observe that White tenants in rent-stabilized are much less likely to be overcharged than their minority counterparts in rent-stabilized units. Is this finding truly indicative of the underlying racial inequality, possibly caused by the landlord’s selective behavior, or could this pattern be driven by institutional provisions mechanically?

As discussed in Section 3.1, there are several conditions in which landlords can increase the rents higher than the legally capped amount. Two major ones are (1) capital improvement and (2) preferential rent. In this section, we argue that these two specific policy provisions are less likely to be the driving forces behind the observed racial disparity and provide suggestive evidence.

**Threats due to Capital Improvement**

While landlords can charge higher rents due to capital improvement, it is unlikely that this particular policy provision is driving the observed racial disparity. If the opposite is true, it would imply that landlords are more likely to provide housing improvement renovation to minority tenants than White tenants, and, therefore, charge minority tenants more rents than legally allowed than their White counterparts. This seems highly unlikely.

In order to alleviate the concerns due to capital improvement provision, we construct a housing quality index and control the differences in housing quality in two waves. The housing quality index is a count of the number of building and housing unit quality issues. For example, whether there are issues with the building’s external walls, windows, staircase, and floor; the overall quality of the building being poor; and issues with the housing units such as toilet breakdown, kitchen issues, internal wall issues, floor issues, water leakage, and having rats or mice.

In Table 8, we first re-produce our baseline results in Column (1) to facilitate comparison.
In Column (2), we present the results controlling for the quality differences from 2005 to 2008. The coefficient in front of the Non-White dummy, our key variable of interest, is virtually unchanged.

6.2.1 Threats due to Preferential Rent

The provision of preferential rent means that rent-stabilized tenants can pay lower rents because landlords are charging less than legally allowed rent. One particular caveat of this seemingly affordability-supporting provision is that landlords can increase rents significantly upon lease renewal, effectively terminating the preferential rent provision and creating a skyrocketing rent increase for the existing tenant. Thus, preferential rent offers great option value for landlords.

If the findings about the racial disparity in rent overcharge are primarily due to the existence of preferential rent, this would suggest that, on the one hand, during our study period, landlords are more likely to terminate the preferential rent and significantly increase rents beyond the cap assigned by the RGB for minority tenants. On the other hand, it also means minority tenants are likely to benefit more from the preferential rent before our study period, which makes it ambiguous to determine whether minorities are positively or negatively affected ultimately.

To alleviate the concerns due to preferential rent, we additionally control for the rent discounts (Chen, Jiang, and Quintero, 2023) for each rent-stabilized unit in our baseline and check whether the coefficient in front of the Non-White dummy remains salient. We argue that controlling the rent discounts in the baseline would approximately remove this preferential rent because those tenants who benefit from preferential rent in the baseline would have larger rent discounts. Results are presented in the Column (3) of Table 8. There are two interesting observations. First, the coefficient in front of the rent discount variable is significantly positive, which suggests that tenants living in rent-stabilized units with larger
Rent discounts in the baseline are more likely to be overcharged in the future. This is reasonable since the larger the rent discounts are, the more financial loss landlords suffer. Therefore, it is not surprising to observe that landlords with greater financial losses would be more likely to overcharge, as a channel to be partly compensated. Second, controlling for rent discounts does not absorb the “White premium”. If anything, the coefficient in front of the Non-White dummy becomes even larger after rent discounts are controlled for.

Overall, we are confident that the racial disparity in rent overcharge is not mechanical, i.e., not directly driven by some unique policy provisions by rent stabilization. The racial disparity in rent overcharge is more likely to be owning to landlords’ selective behavior directly.
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White</td>
<td>0.065***</td>
<td>0.065***</td>
<td>0.076***</td>
<td>0.076***</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Age</td>
<td>0.003</td>
<td>0.003</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.011</td>
<td>-0.011</td>
<td>-0.014</td>
<td>-0.014</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Education: College</td>
<td>0.017</td>
<td>0.017</td>
<td>-0.002</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>Household income</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Household size</td>
<td>-0.005</td>
<td>-0.005</td>
<td>-0.003</td>
<td>-0.003</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Number of children</td>
<td>-0.001</td>
<td>-0.001</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>ΔQuality issues</td>
<td>-0.002</td>
<td>-0.002</td>
<td>-0.002</td>
<td>-0.002</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>Rent discount</td>
<td>0.140***</td>
<td>0.140***</td>
<td>0.366***</td>
<td>0.367***</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.016)</td>
<td>(0.095)</td>
<td>(0.095)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.332***</td>
<td>0.333***</td>
<td>0.366***</td>
<td>0.367***</td>
</tr>
<tr>
<td></td>
<td>(0.097)</td>
<td>(0.097)</td>
<td>(0.095)</td>
<td>(0.095)</td>
</tr>
</tbody>
</table>

| Y                         | 0.440       | 0.440       | 0.440       | 0.440       |
| N                         | 2909        | 2909        | 2909        | 2909        |

Note: Dependent variable = rent overcharge dummy, which is defined as %Δ nominal contract rent > NYC RGB cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 10.8660%). Model in column (1) is the baseline model shown in column (5) of Table 2. Model in column (2) controls for changes in housing quality index. Model in column (3) controls for rent discounts in 2005. The sample contains always-stabilized units with no rental turnovers. * p < 0.10, ** p < 0.05, *** p < 0.01.
7 Conclusion

Investigating rent overcharging in NYC’s rent-stabilized market, we provide evidence that overcharging is concerning widespread. Over our sample period (2005 - 2008), 30% to 40% of tenants living in rent-controlled units experienced rent overcharging. Our findings suggest many landlords of rent-controlled do not abide by NYC’s rent regulation, and the effectiveness of the rent caps is rather limited. Perhaps more importantly, we find non-Whites are approximately 20% more likely to be overcharged than Whites. This pattern persists when allowing for margins of error, and our results are robust to different model specifications and controlling for spatial sorting of tenants.

We also document that, in general, landlords of rent-controlled impose larger rent hikes on minorities, which is consistent with our finding that minorities are more likely to be overcharged. However, we do not observe greater rent increases for minorities in the unregulated market. This suggests that racial inequality in rent hikes may be unique to the rent-controlled market and could be an unintended consequence of the rent regulation.

Exploring heterogeneities, we show that policy awareness, education attainment, and family income are crucial determinants of the likelihood of being overcharged. Uninformed, less educated, and low-income minorities are substantially more likely to be the target of rent overcharging than Whites. In other words, tenants who may benefit the most from rent stabilization are also the ones most likely to be overcharged.
References


Rent Control and Rent Overcharge


Appendix A  Institution and Data Details

Appendix A.1  Rent Stabilization in New York City

Table A1: NYC Rent Guidelines Board Rent Caps (2005-2008)

<table>
<thead>
<tr>
<th>Time</th>
<th>One-Year Lease</th>
<th>Two-Year Lease</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/1/2008-9/30/2009&lt;sup&gt;c&lt;/sup&gt;</td>
<td>4.5%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>8.5%&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>4.0%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>8.0%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>10/1/2007-9/30/2008</td>
<td>3.0%</td>
<td>5.75%</td>
</tr>
<tr>
<td>10/1/2006-9/30/2007</td>
<td>4.25%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>7.25%&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>3.75%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.75%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>10/1/2005-9/30/2006</td>
<td>2.75%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.5%&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>2.25%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.5%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>10/1/2004-9/30/2005</td>
<td>3.5%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.5%&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>3.0%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.0%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: <sup>a</sup> if the owner provides heating at no charge to the tenant. <sup>b</sup> if the tenant pays for heating. <sup>c</sup> if the most recent vacancy lease (i.e., new lease, not renewal lease) was executed six years or more ago, a minimum of 4.5% or $45, whichever is greater, for a one-year lease (4% or $40, whichever is greater, where the tenant pays for heat) or 8.5% or $85, whichever is greater, for a two-year lease (8% or $80, whichever is greater, where the tenant pays for heat) shall apply.

### Appendix A.2 Data and Sample Construction

#### Table A2: Is there a Racial Difference in Rental Turnover?

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White</td>
<td>-0.001</td>
<td>-0.011</td>
<td>-0.005</td>
<td>-0.009</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.014)</td>
<td>(0.016)</td>
<td>(0.016)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-0.025***</td>
<td>-0.026***</td>
<td>-0.025***</td>
<td>-0.024***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Age squared</td>
<td></td>
<td>0.000***</td>
<td>0.000***</td>
<td>0.000***</td>
<td>0.000***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.023*</td>
<td>-0.023*</td>
<td>-0.029**</td>
<td>-0.027*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.014)</td>
<td>(0.014)</td>
<td>(0.014)</td>
<td></td>
</tr>
<tr>
<td>Education: College</td>
<td>0.017</td>
<td>0.030*</td>
<td>0.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.016)</td>
<td>(0.017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td></td>
<td>-0.000***</td>
<td>-0.000**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td></td>
<td></td>
<td>-0.024***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.006)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>0.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.232***</td>
<td>0.969***</td>
<td>0.958***</td>
<td>0.968***</td>
<td>1.001***</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.069)</td>
<td>(0.069)</td>
<td>(0.069)</td>
<td>(0.070)</td>
</tr>
<tr>
<td>Σ</td>
<td>0.232</td>
<td>0.232</td>
<td>0.232</td>
<td>0.232</td>
<td>0.232</td>
</tr>
<tr>
<td>N</td>
<td>3788</td>
<td>3788</td>
<td>3788</td>
<td>3788</td>
<td>3788</td>
</tr>
</tbody>
</table>

*Note:* Dependent variable = rental turnover dummy that equals one if a unit changed tenants between 2005 and 2008. The sample contains always-stabilized units. * p < 0.10, ** p < 0.05, *** p < 0.01.
Appendix B.1 Unpacking the Minority Classification
## Table B3: Main Results: Detailed Minority Groups

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>0.052**</td>
<td>0.053**</td>
<td>0.060**</td>
<td>0.061**</td>
<td>0.063**</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.026)</td>
<td>(0.027)</td>
<td>(0.027)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.044**</td>
<td>0.045**</td>
<td>0.054**</td>
<td>0.055**</td>
<td>0.059**</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.024)</td>
<td>(0.025)</td>
<td>(0.025)</td>
</tr>
<tr>
<td>AAPI</td>
<td>0.080**</td>
<td>0.078**</td>
<td>0.082**</td>
<td>0.083**</td>
<td>0.088**</td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td>(0.035)</td>
<td>(0.035)</td>
<td>(0.036)</td>
<td>(0.036)</td>
</tr>
<tr>
<td>Age</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.011</td>
<td>-0.010</td>
<td>-0.009</td>
<td>-0.009</td>
<td>-0.009</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Education: College</td>
<td>0.020</td>
<td>0.017</td>
<td>0.014</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.023)</td>
<td>(0.023)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size</td>
<td>-0.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>-0.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.407***</td>
<td>0.332***</td>
<td>0.321***</td>
<td>0.319***</td>
<td>0.331***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.093)</td>
<td>(0.094)</td>
<td>(0.094)</td>
<td>(0.097)</td>
</tr>
<tr>
<td>(\bar{Y})</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
<td>0.440</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
</tbody>
</table>

Note: Dep. var = \(\%\Delta\) nominal Contract Rent > Cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceed 12.7542\%). The sample contains always-stabilized units with no rental turnovers.
## Appendix B.2 Additional Robustness Checks

### Table B4: Robustness Check: Alternative Rent Cap

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White</td>
<td>0.044**</td>
<td>0.044**</td>
<td>0.054**</td>
<td>0.055**</td>
<td>0.058***</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.020)</td>
<td>(0.021)</td>
<td>(0.022)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Age</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Age squared</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
<td>-0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Female</td>
<td>-0.012</td>
<td>-0.011</td>
<td>-0.010</td>
<td>-0.010</td>
<td>-0.010</td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Education: College</td>
<td>0.026</td>
<td>0.023</td>
<td>0.020</td>
<td>0.020</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
<td>(0.023)</td>
</tr>
<tr>
<td>Household income</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Household size</td>
<td>-0.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>-0.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.432***</td>
<td>0.366***</td>
<td>0.352***</td>
<td>0.349***</td>
<td>0.361***</td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.093)</td>
<td>(0.094)</td>
<td>(0.094)</td>
<td>(0.097)</td>
</tr>
<tr>
<td>$\bar{Y}$</td>
<td>0.461</td>
<td>0.461</td>
<td>0.461</td>
<td>0.461</td>
<td>0.461</td>
</tr>
<tr>
<td>R-square</td>
<td>0.002</td>
<td>0.002</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>N</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
<td>2909</td>
</tr>
</tbody>
</table>

*Note: Dependent variable = rent overcharge dummy, which is defined as $\% \Delta$ nominal contract rent > cap (i.e., rent growth of 10.3304% for the 2005-2008 period for leases commencing on and after 10/1/2005). Control variables are defined as in Table 1. The sample contains always-stabilized units with no rental turnovers. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.}
Table B5: Heterogeneity with Borough Fixed Effects

### Panel A: White vs. Non-White

<table>
<thead>
<tr>
<th>Policy Awareness</th>
<th>Education</th>
<th>Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aware</td>
<td>Unaware</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>-0.037</td>
<td>-0.062*</td>
</tr>
<tr>
<td></td>
<td>(0.033)</td>
<td>(0.036)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.516***</td>
<td>0.448***</td>
</tr>
<tr>
<td></td>
<td>(0.157)</td>
<td>(0.135)</td>
</tr>
</tbody>
</table>

| Borough FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Y          | 0.387 | 0.361 | 0.366 | 0.372 | 0.369 | 0.371 |
| N          | 1149  | 1259  | 902   | 1979  | 1263  | 1618  |

### Panel B: All Race and Ethnicity

<table>
<thead>
<tr>
<th>Policy Awareness</th>
<th>Education</th>
<th>Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aware</td>
<td>Unaware</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>0.057</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(0.042)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.015</td>
<td>0.037</td>
</tr>
<tr>
<td></td>
<td>(0.040)</td>
<td>(0.040)</td>
</tr>
<tr>
<td>AAPI</td>
<td>0.052</td>
<td>0.120**</td>
</tr>
<tr>
<td></td>
<td>(0.064)</td>
<td>(0.063)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.486***</td>
<td>0.393***</td>
</tr>
<tr>
<td></td>
<td>(0.159)</td>
<td>(0.136)</td>
</tr>
</tbody>
</table>

| Borough FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Y          | 0.387 | 0.361 | 0.366 | 0.372 | 0.425 | 0.306 |
| N          | 1149  | 1259  | 902   | 1979  | 1556  | 1325  |

Note: Dep. var = %Δ nominal Contract Rent > Cap (i.e., a rental unit if its nominal rent growth rate between 2005 and 2008 exceeds 12.7542%). The sample in Panel A contains always-stabilized units with no rental turnovers. The sample in Panel B contains market units with no rental turnovers.