

ECONOMIC PROFILE OF NYC HOUSING VIOLATIONS

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Hypothesis

We wanted to explore the relationship between housing violations across bureaucratic organizations in New York City and socioeconomic factors. Specifically, we sought to investigate the following hypothesis: are housing violations more likely to remain ongoing and more likely to occur in lower income neighborhoods?

Data

Our data was obtained from the Census Bureau and NYC Open Data APIs. We merged two datasets for the basis of our analysis: Housing Maintenance Code violations and Department of Buildings (DOB) violations. After cleaning the merged dataset, we also merged median income data for each zip code in the New York City area. The final dataset contains the following columns: house_number, street, zipcode, boro, latitude, longitude, type_of_violation, class, status, year_of_violation, med_income, and above_median.

Findings

Claim #1: There is a significant association between whether a violation case is open or closed and the median income classification (high income vs. low income) of the zipcode.

Support for Claim #1: We used chi-square independence test to investigate the relationship between a housing violation case's status (open or closed) and the income classification (high income vs low income) of the violation zipcode. With a T-statistic of 0.41059 and p-value of 0.5217, we fail to reject the null hypothesis. There is not sufficient evidence to prove that there is a significant association between the housing violation case's status and the income classification of that zipcode.

Claim #2: The distribution of median income across zip codes with violations is lower than the median income of New York City.

Support for Claim #2: We employed a one-sample t-test that yielded a T-statistic of -3.45220 and p-value of 0.00057 which tells us that the distribution of zip codes in our dataset is statistically different and lower than the city-wide median income distribution.

Claim #3: On average, there are more violations per year in lower income zip codes compared to higher income neighborhoods.

Support for Claim #3: We employed a two-sample t-test to investigate this claim where we split our dataset into high income and low income violations and then calculated the total number of violations per each split. With a T-statistic of -14.09345 and p-value of $7.553e-1$, our test shows that there is a statistically significant difference between the number of violations in lower income neighborhoods compared to higher income.

Socio-historical Context and Impact Report

Socio-Historical Context

As we are examining the housing data in New York City, and how housing code/DOB (department of buildings) violations are related to median incomes, our data analysis is directly tied to unequal standards of living for different income groups in the city. There are a number of historical factors that have been documented to effect the relationship between income and housing violations, and we wanted to explore how this extended into the present. In the Roosevelt administration when the newly created Home Owners' Loan Corporation automatically gave any neighborhood with even one Black resident a "D" rating on a scale ranging from "A" to "D". By devaluing property values of Black residents on a federal level, the government made it difficult for residents to sell their homes at fair rates. Furthermore, the federal government began to insure bank mortgages through the Federal Housing Administration in the same FDR administration, but restricted these new mortgages to only white people and favored financing new homes in single-family home suburbs. This led to the historical process known as "white flight" in which middle class white residents fled cities for the suburbs. In doing so, former residents drew resources away from the city and municipalities, already favoring white residents in the suburbs, began to invest less and less in amenities and basic infrastructure in the cities. This disinvestment led to the degradation of housing that manifested in increased housing violations for decades to come.

The history of gentrification within many neighborhoods of the city further complicates the background of our data. A lot of the research done on housing inequalities in New York City has been based on these trends, including both qualitative and quantitative work. Particularly notable is a 2019 study which showed that 12% of the low income neighborhoods (which we examine) are currently going through gentrification, while 9% are simply being displaced, without actually experiencing gentrification. Often these patterns of gentrification are justified on the basis of potentially "improving" the state of neighborhoods with multiple housing violations and lower income residents, making them "opportunity zones" for private investors to move into. The same study highlights how a program providing tax incentives to encourage such investment further accelerated gentrification in the city.

The primary stakeholders in our analysis are of course the residents of New York City, law enforcement in the city, and landowning entities (like landlords and other individuals). Our data reveals that there are a higher number of housing code violations overall in lower income zipcodes, which means lower quality of housing overall for lower income populations in New York City. A 2019 article by the organization Localize.city even showed a strong correlation between housing violations and asthma rates, using similar housing violations data as we did. Our research could potentially benefit, especially given more resources and time, lower income residents of NYC by bringing to light the housing violations they coexist with every year.

Ethical Considerations

Our data might suffer from confirmation bias. Our hypothesis was that higher income areas would have lesser violations, but we also entered this project assuming that this would be true already. There is a possibility that we might have simply used the analysis which fit our own pre-existing assumptions about housing in New York City, which might inflate the value of our results. Additionally, as our data does not contain any nuances (such as racial makeup of neighborhoods and zipcodes), it might be unknowingly biased against certain groups. For example, we just use a binary of high-income versus low-income zipcodes, but there might be further complicating factors, such as what if zipcodes with high income residents with also more racial diversity were having disproportionately high housing violations compared to other high income zipcodes? Such instances should also be examined to provide more nuance to our analysis.

We use address level data for the locations of occurrences of housing code and DOB violations, and these addresses are included in the main dataset we use for our analysis and data visualizations. This could have serious privacy implications for those who live at those addresses, as their identities could potentially be traced. This thus could infringe on the privacy of all who live in the New York City metropolitan area who have been charged with a DOB/housing code violation in the past 10 years.

Additionally, our analysis could be used to even justify gentrification, which would be the misuse of our research. Advocates for gentrification could easily point to our data and claim that such low income neighborhoods do need to be uplifted, and the moving in of high income individuals/families would actually benefit the housing conditions in these zipcodes. We could possibly prevent this by delving further and depicting the socioeconomic inequalities, especially the racial inequalities in housing conditions, which are also present, or maybe even the role of housing spending and law/housing code enforcement priorities in New York City in our data.

Works Cited

- “Is Your Home Bad for Your Health? Know If Mold, Roaches and Rodents Are a Problem before Moving In.” *Localize*, 21 July 2020,
www.localize.city/blog/is-your-home-bad-for-your-health-know-if-mold-roaches-and-rodents-are-a-problem-before-moving-in/.
- “New York City Gentrification Creating Urban ‘islands of Exclusion,’ Study Finds.” *Berkeley News*, 10 Apr. 2019,
news.berkeley.edu/2019/04/10/new-york-city-gentrification-creating-urban-islands-of-exclusion-study-finds/.
- Rothstein, Richard. *The Color of Law: A Forgotten History of How Our Government Segregated America*. Liveright, 2018.