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# Impact of Gentrification-Induced Displacement on a National Scale

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*Benny Sun*

## Abstract

*Gentrification is the controversial process of renovating a poor neighborhood to conform to upper-class tastes, resulting in housing price spikes and expense concerns. While the link between gentrification and displacement is well-known, there is little research over the impact of displacement itself in an economic, political, and social context on a national scale. This paper compares nearby recipient neighborhoods of displaced families to gentrifying neighborhoods in several aspects, including pollution, median life expectancy, test-scores, and incarceration rates. This paper identifies 1148 gentrifying tracts and 1907 recipient tracts in the United States. It concludes that families who become displaced from gentrifying neighborhoods tend to move areas with worse outcomes. For example, recipient neighborhoods contain 31% greater toxicity concentration, an 8-percentile increase in the incarceration rate, a 10-percentile reduction in test scores, and a lower median life expectancy by 1 year. There is still a similar result even after controlling for household income and percent-African American. Overall, this research paper provides one answer to an important question: what is the impact of gentrification-inducement on families? These results add further context to the urgent issue of gentrification in America's cities, demonstrating how necessary steps are required to protect America's poor urban residents from gentrification.*

## 1. Introduction

Neighborhoods are the building blocks of American society. It has an over-arching impact on one's life, including

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one's friend choices, job status, happiness, and even life expectancy. Unsurprisingly, the ability to reside in a stable neighborhood is a crucial priority for any family living in the United States. The field of Urban Economics focuses on this issue, analyzing trends in housing, education, and local governments in city areas. However, over several decades, many researchers in this field have observed an alarming trend: Gentrification. Described as an influx of wealthy residents or investment into an at-risk neighborhood, many have criticized this process for increasing housing costs for poorer residents. As gentrification means added renovations to housing units or extra amenities to conform to upper-class tastes, the living expenses too often become unbearable for many (Zuk et al., 2017). If rent prices are too high for existing residents, many must choose between forgoing rent, medication, or food just to survive.

Consequently, studies have linked gentrification to significant hikes to housing costs (Hamnet, 2003). Other studies show that gentrification can lead to higher levels of displacement (Atkinson, 2000; Wyly et al., 2010; Zuk et al., 2017; Lyons, 1996). These papers focus on specific geographic areas such as London, Boston, or San Francisco. Because of gentrification, poor households are forced out of their homes (some through evictions and others willingly) to move to cheaper-cost neighborhoods. While some have argued about the expanded job opportunities or municipal resources for existing residents, (Freeman & Braconi, 2004), others have demonstrated the poorer residents cannot live there for long (Zuk et al., 2017).

However, despite this wide literature base, few studies have addressed the impacts of displacement on a national scale. While (Marcuse, 1986) and (Sumka, 1979) quantify how many Americans are displaced each year, there is little research around the concrete effects of displacement in economic, social, and political terms. This could be due to a lack of publicly available data of movers, or the data is limited to a single metropolitan area. Unfortunately, the gap in research is hampering efforts to clarify the gravity of gentrification for urban policymakers. Without a clear story of what happens to displaced households, there is no urgency to act on the issue itself.

To address this gap, this study will compare gentrifying

neighborhoods with recipient neighborhoods to evaluate the impact of displacement. Recipient neighborhoods are defined as destination census tracts that displaced families from gentrifying neighborhoods move to for cost reasons. This paper will use the NBER's Census Tract Distance Data Set to identify nearby census tracts to gentrifying neighborhoods (nbe, 2015). Candidates for recipient tracts will include cheap neighborhoods with higher population growth rates. After identifying gentrifying and recipient tracts, this study will then draw comparisons between them on environmental pollution, educational quality, crime rate, and life expectancy. If the general quality of life is worse in recipient tracts, then gentrification-induced displacement leads to families moving to worse-off areas. Thus, this study seeks to understand the consequences of displacement on a national scale.

Overall, this research is significant because it reveals the full story of displacement in the United States. By answering a major question of whether Americans are negatively impacted by displacement, it becomes the logical next step from other important studies. Instead of proving the link between gentrification and displacement, it contextualizes why displacement itself is an urgent problem in the field of Urban Economics. This paper is organized as followed. Section 2 discusses the Literature Review. Section 3 shows the research goal. Section 4 describes the methodology. Section 5 includes Results & Discussion. Finally, Section 6 ends with a conclusion.

## 2. Literature Review

The term gentrification originates from the 1950s and 1960s, describing the influx of 'gentry' into London's lower echelon neighborhoods (Zuk et al., 2017). Since then, researchers have used gentrification as a term for rent or housing price hikes due to renovations, investment, or migration of wealthy residents. Gentrification has been referred to as a form of "neighborhood change" characterized by rising property values (Richardson et al., 2020). Often at the street level, there is a visible upgrading of buildings with housing being refurbished and businesses being established. However, these upgrades often come at the cost of accessibility for its residents. (Chizeck, 2016) found that gentrifying neighborhoods in Philadelphia lost low-cost housing options at a rate five times faster than non-gentrifying neighborhoods. The brunt of these costs is placed predominantly on the shoulders of the disadvantaged.

There are multiple causes of gentrification. (Eckerd, 2010) finds that environmental quality improvements such as solar panel installments or the upgrading of parks in poorer communities can increase living expenses for residents nearby. Even investments with good-intentions can have unintended consequences for gentrification. Moreover, (Newman &

Wyly, 2006) find that market-rate housing can cause luxury housing development near at-risk neighborhoods. In turn, as home developers continue to renovate to attract wealthy clients, there is a subsequent price hike for neighboring houses. Others are also now analyzing the effect of the public sector on gentrification such as transportation investment (Zuk et al., 2017). The production of railways or train stations brings economic activity closer together, increasing the demand for housing in these areas as well. Overall, the causes of gentrification is a complex issue that has been researched in depth.

In general, studies in this field have varying definitions of gentrification and even displacement, which often changes the outcome of certain results. For instance, (Banzhaf & McCormick, 2006) defines gentrification by analyzing changes in rental costs, the creation of new housing stock, and increases in income. Conversely, (Vigdor et al., 2002) measures an increase in educated or wealthy residents in a given area. For displacement, some have only analyzed the evictions rate in a gentrifying neighborhood (Freeman & Braconi, 2004) while others focus on exit rates of all poor neighborhoods (Atkinson, 2000). This added confusion creates unequal or conflicting results across the academic space. This study will attempt to choose the most logical definitions to have the most accurate results.

Moreover, most studies try to find a link between gentrification and displacement in a specific metropolitan area. (Atkinson, 2002) finds that half of the studies on gentrification discuss the displacement link, rather than analyzing the consequences of displacement. There has been several conclusions generated around this topic. For instance, (Atkinson, 2000) utilizes Longitudinal Census Data in London from the 1980s to the 1990s and analyzes changes in household income and population demographics. They find that gentrification leads to greater displacement of vulnerable groups in London. There was a reduction of unskilled workers by 78% and inactive workers by 46%.

(Vigdor et al., 2002) also analyzes the link between displacement and gentrification through focusing on exit rates of poor households in the Boston Area, finding contradictory results because of differing definitions. (Slater, 2009) utilizes the 1980s and 1990s housing data from New York City to demonstrate how gentrification leads to displacement for poorer residents. Most of these studies follow a similar pattern of analyzing a single city for gentrification and displacement. Thus, there have been little to none national-level studies on gentrification in this field.

Several studies have indicated that gentrification has little to no impact on displacement (Freeman & Braconi, 2004; Ding et al., 2016; Ellen & O'Regan, 2011). However, others have argued that these studies focus on comparing the mobility rates of all low-income groups. The issue becomes

that low-income groups are more likely to move in general, but the movement occurring in gentrifying neighborhoods is specifically because of displacement (Richardson et al., 2020). Furthermore, when analyzing gentrifying neighborhoods specifically, the amount of low-income households moving into these areas declines significantly, revealing evidence of exclusionary displacement (Ding et al., 2016). For this reason, gentrifying neighborhoods have a net-loss of poor households as rent and housing price increases force the disadvantaged out and the wealthy in.

Alarming, gentrification has a disproportionate impact on socially vulnerable and racial minorities. (Mohai & Bryant, 1992) finds strong evidence of how displacement occurs in areas with high concentrations of racial minorities such as African-Americans. Thus, many studies have used a reduction of racial minorities as another measure to identify gentrifying tracts. (Wyly et al., 2010) utilizes the New York City Housing and Vacancy Survey data from 2002 to 2008 to measure how vulnerable groups are affected by gentrification. They conclude that renters were nearly twice as likely to become displaced in New York City compared to home-owners, demonstrating the precarious nature of unstable housing prices. Therefore, gentrification has been described as a 'human rights violation' with its origins in racial segregation and historical white flight.

Overall, by using the annual housing survey to track movers and displaced households, (Sumka, 1979) found that nearly 500,000 households were forced to move away from 1974 to 1976. Another study analyzes 1 neighborhood in 5 American cities and concludes that 23% of movers in these areas considered their movement as a form of displacement (Schill & Nathan, 1983). While these studies are dated, they provide important insight into the prevalence of displacement.

Unfortunately, the methodology for analyzing displacement's impact on poor families is very limited. By employing Census Tract Data from 1990 and 2000, (McKinnish et al., 2010) discovers that migrants entering into gentrifying neighborhoods are more likely to be educated and wealthy, while those exiting these neighborhoods are likely poor and uneducated. This means that the demographic composition of gentrifying tracts changes throughout the gentrification process, becoming less diverse economically and racially. However, the study does not track how the movers are affected in this process. Using the LA FANS Survey, a comprehensive data set that tracks residential movement, (Qiang et al., 2020) finds that genuine results of gentrification-induced displacement. Namely, displaced households moved to areas with higher crime rates, greater pollution, and worse education. However, this study is limited to the area of Los Angeles.

The impact of displacement has crucial consequences on one's outcomes. (Chetty & Hendren, 2017) focuses on

the impacts of neighborhoods themselves through analyzing de-identified tax records. They conclude that living in a neighborhood below one's income percentile can lower their future incomes by 0.7% for each year. (Chetty et al., 2018) also discovers the neighborhoods are vastly unequal across the United States, where opportunity is significantly lacking in certain areas. Overall, this study aims to contribute to existing research gaps by comparing recipient neighborhoods of displaced households to gentrifying tracts in social, economic, and political terms.

### 3. Purpose

1. Identify Gentrifying and Recipient Tracts in America using a clear pass-check test.
2. Compare Tracts on Pollution, Educational Quality, Crime, and Life Expectancy to Determine Quality of Life Difference
3. Derive a Conclusion on Whether Displaced Families Move to Worse-Off Areas Using the Data as Evidence

### 4. Methods

This study aims to compare gentrifying neighborhoods to recipient neighborhoods of displaced households. This paper must first identify both groups by assessing changes at the census tract level (the basic unit of a neighborhood). Therefore, John Logan of Brown University's Longitudinal Tract Data Base is used because it compares the characteristics of census tracts in all 50 states from 2000 and 2013 (Logan et al., 2018). To analyze census tracts in urban areas (where gentrification traditionally occurs), the paper only conducts data analysis on census tracts with a CBSA code, which amounts to around 69,000 census tracts. From here, this paper adopts Freeman's methodology of identifying gentrifying tracts (the most cited paper on gentrification (Freeman & Braconi, 2004)). This includes passing several checks.

Because the process of gentrification is caused by an influx of richer, more educated residents moving into a poorer area, changes in household income, %-college-educated, and home values are analyzed.

While this study is focused on identifying and quantifying the impacts of displacement, there was no publicly available movers data to track displacement. Instead, this study will analyze population changes in nearby census tracts of gentrifying neighborhoods which are called "Recipient Neighborhoods". This study assumes that the nearby-poorer neighborhoods with high population growth rates are the neighborhoods that displaced families move to after living in a gentrifying area. This provides the best alternative data on displacement.

## Impact of Gentrification-Induced Displacement on a National Scale

2000 Census Eligibility	2010 Census Eligibility
Median Home Value below 40th percentile within CBSA	Increase in Median Home Value above 60th percentile within CBSA
Median Household Income below 40th percentile within CBSA	Increase in Median Household Income above 60th percentile within CBSA
Population Greater than 500	Population Greater than 500
Any College-Educated Residents	Increase in College-Educated Residents above 60th percentile within CBSA

*Table 1. Identifying Gentrifying Neighborhoods*

Some other assumptions include the fact that most displaced households will live within the same CBSA code and have the same job. Thus, census tracts within 10 miles of a gentrifying tract are considered as candidates. Here, the NBER's Census Tract Distance Database is utilized to find census tracts within 10 miles of a gentrifying tract. Then, the paper adopts a similar eligibility test for recipient neighborhoods. Generally, poorer neighborhoods were chosen because they are cheaper to live in. The numbers/qualifications of the eligibility test were chosen to provide a comparable amount of recipient census tracts with the gentrifying tracts.

After identifying gentrifying and recipient census tracts, this study will compare each on four different factors: toxicity concentration to measure pollution, incarceration rates to measure crime, 3rd Grade math test-scores to measure education quality and life expectancy. For toxicity concentration, this paper utilizes the Census Bureau's Risk-Environment Screening Index (RSEI) which provides data on toxicity concentration on a census-tract level (rse, 2018). For test scores and incarceration rates, this paper uses Dr. Raj Chetty's Opportunity Insights dataset (Chetty et al., 2018). For life expectancy, this research uses the CDC's Life Expectancy 2010-2015 data set (cdc, 2020).

Comparisons among gentrifying tracts and recipient tracts will include forming a percentile-based number within a CBSA for some variables (incarceration rates and test-scores) while just comparing the national averages for other variables (toxicity concentration and life expectancy). This is because some cities have a different level of expectations for these factors, so the variables had to be adjusted accordingly. The statistical comparisons will occur in four major tests.

1. Comparing the mean of each variable between recipient and gentrifying tracts
2. Conducting a t-test to measure the significance in difference of means
3. Conducting a non-parametric rank sums test to further show the difference in means given that the standard deviation is large

4. Performing linear regression with gentrification (as a categorical variable), household income, and %-African American as independent variables and the four factors as the dependent

This is the equation for the linear regression model:

$$Y_i = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon$$

The first variable is the intercept. The second term contains gentrification as a categorical variable (0 = gentrified and 1 = recipient). The third term is median household income. The fourth term is %-African American. The last term is a normal zero-mean random variable. The model controls for household income and %-African American so this paper can understand more accurately how gentrification impacts the dependent variable.  $Y_i$  are the four factors that will be tested individually: pollution, test-scores, incarceration rates, and life expectancy. If recipient tracts have a generally worse quality of life, it demonstrates the negative effects of displacement and is a strong proof that policymakers and private individuals should account for the effects of gentrification when renovating or investing in a given area.

## 5. Results and Discussion

### 5.1. Identifying Gentrified and Recipient Tracts

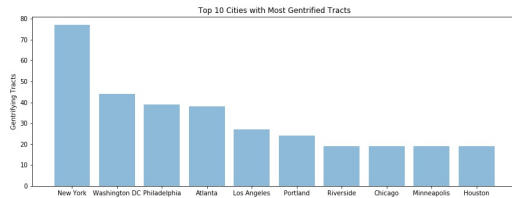
After cleaning the LTDB, 1148 gentrifying census tracts and 1907 recipient census tracts in the United States were identified. This means that around 10% of poorer census tracts with CBSA codes gentrified from 2000 to 2013. This is comparable to (Richardson et al., 2020) who found 1049 gentrifying census tracts with a similar methodology. Overall, this study builds a stronger base for how gentrification is a pressing issue in the United States. In one instance, a gentrifying tract in Laramie County, Wyoming experienced the average home value increase by 700% in just 10 years. When analyzing the top 10 cities with the largest amount of gentrifying tracts, they were as follows: The top 10 cities in the United States with the most gentrifying tracts accounted for 28% of total gentrified tracts. From Figure 1, New York



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<b>Recipient Census Tract Eligibility in 2013</b>
Population Growth Rate above 60th percentile (from 2000 to 2013)
Median Household Income below 30th percentile
Median Home Value below 30th percentile

*Table 2. Identifying Recipient Neighborhoods*



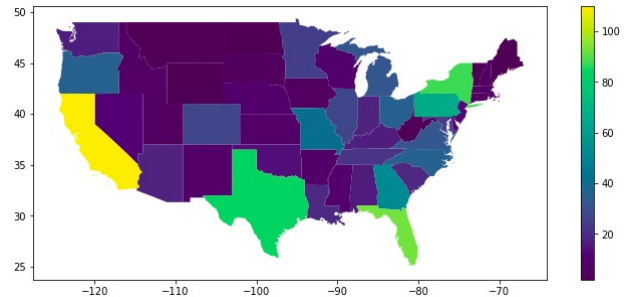
*Figure 1. Gentrifying Tracts in Top Cities*

City has the most amount of gentrifying tracts by far with 77. Afterward, Washington DC had 44, Philadelphia had 39, and Atlanta had 37. Ostensibly, this result demonstrates that large pockets of gentrification occur in the near the oldest and largest cities in the United States. When doing further analysis, gentrification tends to occur in areas near central business districts, where employers may be seeking more college-educated workers. Wealthier residents are also drawn into these areas because they prefer the bustling urban lifestyle. However, further research should be conducted to analyze how city-characteristics may impact the rate or occurrence of gentrification.

In [Figure 2](#), most of the gentrifying tracts occurred in the states of California, Texas, New York, Florida, and Pennsylvania. Most states with a large amount of gentrifying tracts were near the coast, which is typically where there is a plethora of economic activity and urban development. Unsurprisingly, most rural-majority states such as the Midwest had a small amount of gentrifying tracts, while most gentrifying tracts occurred in populated states with large metropolitan areas.

When looking closer at statistics of [Figure 2](#), nearly 37% of all metropolitan areas or 342 CBSA areas had at least one gentrifying tract. However, instead of being spread out, most of the gentrification occurs in concentrated areas. Just 24 CBSA areas that had greater than 10 gentrifying tracts accounted for nearly half of all gentrification in the United States. This means that gentrification is prevalent and focused on certain cities within America, rather than being a universal issue found in all places.

Recipient neighborhoods followed a similar pattern of concentration because the study mainly looked at poorer neighborhoods with higher population growth rates that were



*Figure 2. Gentrifying Tracts in America*

nearby to gentrifying neighborhoods. Again, this method is not perfect, and based on predicting where people move, so more accurate depictions of movers data could improve the methodology in the future.

### 5.2. Comparing Gentrified and Recipient Tracts

Now, this section will compare the 1148 gentrifying tracts with the 1907 recipient tracts of displaced households. This will aid in identifying and quantifying the impact of displacement from a gentrifying neighborhood.

#### 5.2.1. TOXICITY CONCENTRATION

The toxicity concentration score from the RSI provides comprehensive data on the total amount of toxic pollutants released into the atmosphere and water supply of a given census tract. The sources of these pollutants mostly originate from factories, chemical plants, cars, and water leakage. After comparing the average toxicity concentration score, this important result was achieved in [Figure 3](#):

On average, recipient neighborhoods have 31% greater toxicity concentration, highlighting how families can be displaced to areas with greater pollution. After conducting a t-test on the difference of means, there is a p-value of 0.0042. Because the data was not normally distributed and the standard deviation was so high, rank sums were also employed with a p-value of 0.0022. Thus, the null hypothesis can be rejected with 95% confidence that both means are the same.

Because the standard deviation of the toxicity concentration

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	p-value	co-efficient
<b>Gentrification</b>	0.039	0.08112
<b>Household Income</b>	0.023	-0.0441
<b>% African American</b>	0.183	0.2183

Table 3. Toxicity Linear Regression Model (R-Squared of 0.059)

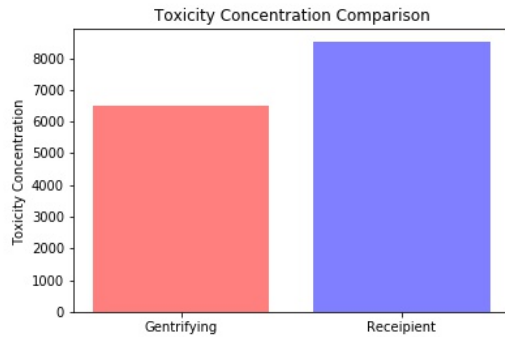


Figure 3. Toxicity Concentration Comparison

was so high, we had to take the log of the data before normalizing everything else into the z-score. This made the results more accurate in the linear regression. Because co-efficient is positive and the p-value is below the 5% margin, there is strong evidence that gentrified neighborhoods have significantly less water and air pollution, when controlling for household income and %-African American. Overall, this result makes sense because wealthy residents would choose to move into areas with less pollution-producing plants nearby such as factories or chemical plants. Because poorer families have less financial resources and political power, they are unable to escape the pollution prevalent in poorer neighborhoods. Moreover, the renovation process could make neighborhoods cleaner (such as solar panel installments or closing coal plants) at the expense of rising housing expenditures. In turn, gentrified areas have less pollution because there is less highly-polluting activity. On the other hand, other factors such as cleaner cars tend to be more expensive which reduces pollution, and thus less prevalent in poorer neighborhoods. The link between environmental discrimination and displacement has not been discussed before, so this result could shed some important light on gentrification.

### 5.2.2. INCARCERATION RATES

To analyze the differing incarceration rates among census tracts, the median percentile within a CBSA was measured for a more fair comparison. This is because some cities are more aggressive with their policing than others.

From Figure 4, moving to a recipient neighborhood in-

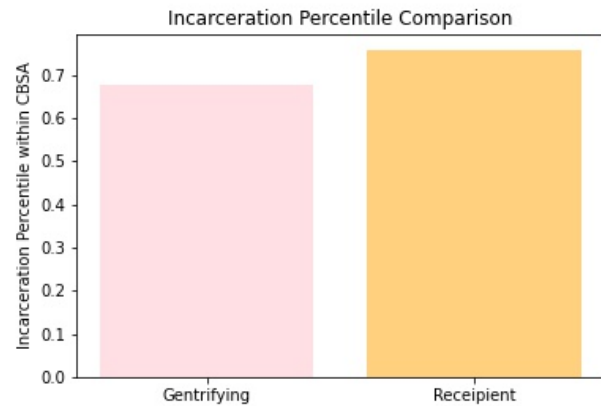


Figure 4. Incarceration Percentile Comparison

creases the incarceration-rate percentile by 8 points on average. In turn, families must face higher crime rates in their respective areas compared to a gentrifying neighborhood.

After conducting a t-test and non-parametric rank sums, there is further evidence of the clear difference in incarceration rates. The t-test displayed a  $1.7 \times 10^{-17}$  in p-value, while the rank sums showed a  $4.1 \times 10^{-12}$  in p-value. Both values were below the 5% margin.

Because the co-efficient of gentrification is positive, recipient neighborhoods face higher incarceration rate-percentiles. Controlling for household income and %-African American, being a recipient community is equivalent in incarceration by 3.68 percentile points.

Typically, an influx of wealthier residents may mean stronger political support for comprehensive policing measures, which could deter crime in the long term. However, for families who are displaced, they do not receive the same benefits and are instead forced into poorer neighborhoods with greater crime rates. Moreover, because recipient neighborhoods lack the same economic or job opportunities that gentrifying neighborhoods have, these areas usually have more crime. While proponents of gentrification argue that the reduction in crime is a positive impact, these results indicate that gentrification could simply be pushing the brunt of the costs onto less-fortunate census tracts. Thus, this result further proves another negative impact of displacement.

## Impact of Gentrification-Induced Displacement on a National Scale

	p-value	co-efficient
<b>Gentrification</b>	0	0.1347
<b>Household Income</b>	0	-0.1632
<b>% African American</b>	0	0.3488

Table 4. Jail Linear Regression Model (R-Squared of 0.192)

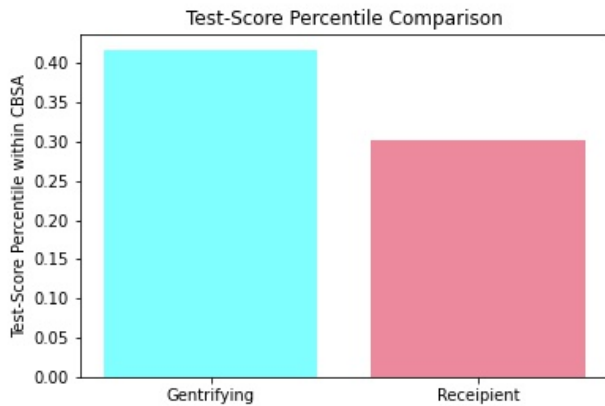


Figure 5. Test-Score Percentile Comparison

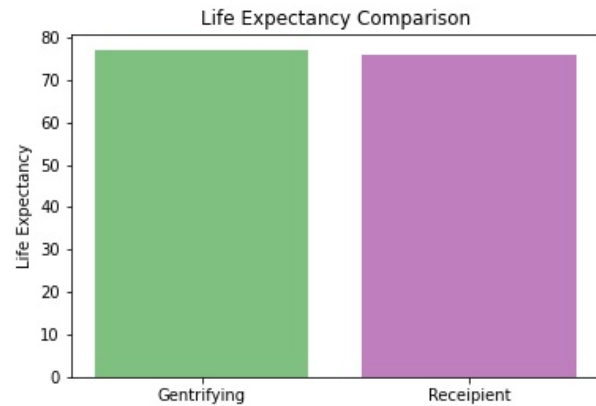


Figure 6. Life Expectancy Comparison

### 5.2.3. EDUCATION QUALITY

Educational quality was based on percentiles within a CBSA of the median 3rd-grade math test score, taken from Dr. Raj Chetty's Opportunity Insights Data Set. Again, education standards vary across state lines, so adjustments had to be made accordingly.

From this result, recipient neighborhoods have on average a 33% lower test-score percentile within a CBSA or around 11 percentile points lower. Using t-test and rank sums, this conclusion is statistically sound. For the t-test, the p-value was  $2.0 \times 10^{-21}$  and for rank sums, it was  $1.5 \times 10^{-19}$ . Thus, the null hypothesis can be rejected, which proves that recipient neighborhoods on average have lower test scores.

Surprisingly, household income is not statistically significant. From this, results show that gentrification must play a greater role in determining test-scores. Also, when controlling for household income and % African American in the linear regression, living in a recipient community decreases the average math score by 4.52 percentile points. Overall, when property values go up, so do revenues from property taxes. Therefore, local budgets increase in the long term, allowing municipalities to spend more on school budgets. This could be in the form of hiring more teachers, buying new books, adding more classrooms, or implementing more technology. Conversely, poorer, recipient neighborhoods have a weaker tax base because the median household in-

come is so much lower, so they are unable to afford these amenities. While test scores are not a perfect indicator of educational quality, it does show if the school has the resources to prepare their students on standardized tests in elementary school. Recipient neighborhoods are lacking in this department, demonstrating the need for more equal educational opportunities.

### 5.2.4. LIFE EXPECTANCY

From the data analysis, gentrified neighborhoods had an average life expectancy of one more year than recipient neighborhoods (from 77 years to 76 years).

From this result, we can conclude based that the three other factors (environmental pollution, crime rate, and educational systems) have an impact on mortality. Even though one year may seem insignificant, the quality of life may be extremely impacted by the displacement event.

Using both the t-test and rank sums, the null hypothesis is rejected that the life expectancy means of gentrified and recipient neighborhoods were the same. The t-test p-value returned  $6.1 \times 10^{-9}$  while the rank sums p-value returned  $7.4 \times 10^{-13}$ .

The linear regression model however had a strange result. It shows gentrification in the positive direction, meaning that recipient neighborhoods have a greater life expectancy

## Impact of Gentrification-Induced Displacement on a National Scale

	p-value	co-efficient
<b>Gentrification</b>	0	0.1347
<b>Household Income</b>	0.192	-0.1632
<b>% African American</b>	0	0.3488

Table 5. Test Linear Regression Model (R-Squared of 0.068)

	p-value	co-efficient
<b>Gentrification</b>	0	0.1390
<b>Household Income</b>	0	0.3989
<b>% African American</b>	0	0.017

Table 6. Life Linear Regression Model (R-Squared of 0.273)

even though previous analysis suggests otherwise. This may be because household-income and gentrification are highly-correlated, so household income affected the results of gentrification. Otherwise, this result suggests further more accurate research in the future.

## 6. Conclusion

This study provides one answer to the question: what are the impacts of gentrification-induced displacement? First, this paper utilized the Freeman method of identifying gentrifying tracts through examining increases in household income, professionals in the population, and median home value. For recipient tracts, this paper used its unique methodology of finding nearby census tracts with lower median home values and higher population growth rates. Initially, 1148 gentrifying tracts and 1907 recipient tracts were identified in the United States. Most of these neighborhoods were concentrated in larger urban areas rather than being spread out.

Afterward, this paper compared gentrifying tracts and recipient tracts on four factors: toxicity concentration, 3rd-Grade Math Test Scores, Incarceration Rates, and Average Life Expectancy. After using multivariate linear regression (controlling for household income and % African American) and t-test and rank sums, this study found that displaced households tend to move to areas with a worse quality of life. For example, recipient neighborhoods contain 31% greater toxicity concentration, an 8-percentile increase in the incarceration rate, a 10-percentile reduction in test scores, and a lower median life expectancy by 1 year. While the life-expectancy linear regression generated strange results, this is most likely because household income and gentrification were highly correlated in this situation.

These results should be alarming for both policymakers and residents when deciding housing policies near at-risk neighborhoods. While prior studies have focused on the link between gentrification and displacement, none have conducted

comprehensive research on the concrete consequences of displacement itself. Even when analyzing displacement effects, most are limited to one metropolitan area. Thus, this paper contributes to the growing literature base by quantifying the effects of displacement through analyzing the environmental, social, and economic factors on a national scale. It proves how displacement can create genuine harm for the poorest of Americans. Hopefully, this paper will spark greater research into the aspect of displacement to establish a greater picture of the injustice in gentrification.

Future research should focus on collecting national movers data to further collaborate on the results of this paper. Because this private information is not readily available, many assumptions had to be made in this study, including focusing on nearby poor neighborhoods with high population growth rates. More accurate data could further provide greater insight into the complexities of displacement in gentrifying neighborhoods. Moreover, a more comprehensive approach towards analyzing the quality of life would be better. Instead of just analyzing these four features, other research papers could focus on more elaborate connections with displacement. For example, studies could compare changes in environmental pollution, crime, job opportunity, or educational quality over 13 years to find interesting patterns. Overall, this paper only scratches the surface on the issue of displacement, and more research could further establish how gentrification is a prevailing problem in the United States.

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