Unequal Siting of Affordable Housing: LIHTC Program and Tenure Segregation

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Abstract

Being the largest housing subsidy program, the federal Low-Income Housing Tax Credit (LIHTC) program has been framed as a key instrument to deconcentrate tenure, economic, and racial segregation. This project evaluates LIHTC's siting patterns—with a focus on tenure segregation—in the time frame of 2010 to 2019 among the five largest metropolitan statistical areas. Drawing on the U.S. Census data and HUD's official LIHTC database, I used a logistic regression model to assess whether LIHTC-subsidized neighborhoods were characterized as renter-concentrated net of racial and economic composition. The findings confirm that renter concentration is a strong predictor of LIHTC allocation. Specifically, a 0.1-unit increase in baseline renter concentration was associated with 39.4% higher odds of LIHTC placement ($p < 0.0001, 95\% CI[1.215, 1.603]$). LIHTC credits also tended to be distributed in high-poverty, low-income, and majority-Hispanic neighborhoods. Together, this study highlights the distinct yet understudied role of tenure segregation in shaping where subsidized housing is developed.

1 Introduction

The National Low-Income Housing Coalition estimated a severe shortage of 6.8 million affordable units for extremely low-income families across the nation (National Low Income Housing Coalition n.d.). To address the housing crisis, the Low-Income Housing Tax Credit (LIHTC) program was created in 1986 to provide tax credits as incentives for developers to construct or maintain reduced-price rental units. However, as LIHTC incentives are designed to favor development in qualified census tracts and difficult development areas, scholars are concerned that this clustering of affordable units could have reproduced existing economic and racial segregation instead of promoting integration (McClure and Schwartz 2023).

Housing is a key area where inequality is not only experienced but also reproduced. While prior housing research has mainly centered the lens of racial and income segregation (Airgood-Obrycki, Maaoui, and Wedeen 2025; McClure and Schwartz 2023), Owens (2019) pioneered by proposing tenure (renter-homeowner) segregation as a direct way to study the spatial configuration of housing. Still, little is known about the relationship between the LIHTC program and segregation by housing tenure. This project addresses this gap by asking: from 2010 to 2019, are LIHTC developments more likely to be located in renter-heavy census tracts than in owner-dominated tracts, even after controlling for neighborhoods' economic and racial composition?

2 Data and Methods

This study merged three datasets by the tracts' unique GEOID: the U.S. Census Bureau's decennial and American Community Survey (ACS) data and HUD's national LIHTC database (U.S. Census Bureau (n.d.);U.S. Department of Housing and Urban Development (2025);U.S. Census Bureau (n.d.). The purpose is to link the 2010 baseline neighborhood characteristics with future LIHTC placement decisions. Retrieved via the *tidycensus package* (Walker and Herman 2026), the 2010 decennial census data contains full counts for the tenure and racial variables; 2006-2010 ACS data supplements the economic variables. The geographic scope entailed the five most populated metropolitan areas based on the 2010 definition (New York MSA, Los Angeles MSA, Dallas MSA, Boston MSA, and Philadelphia MSA), yielding $n = 12,328$ tracts. Following the widely accepted practice, census tracts served as the proxy for neighborhoods (Owens 2019; Airgood-Obrycki, Maaoui, and Wedeen 2025). I then used the raw counts to construct the main outcome and explanatory variables.

The main response variable is *LIHTC dummy*, which is a binary indicator that labels 1 when a tract has received any LIHTC units from 2010 to 2019 and 0 when otherwise. The central explanatory variable is each tract's signed dissimilarity index component (DI) at 2010 ($mean = -3.90e-07, SD = 0.0594$). Ranging from -1 to 1, *signed di* compares a tract's share of the MSA renter population to its share of the MSA's homeowners. A positive value means that the tract has higher renter concentration, whereas a negative value indicates homeowner dominance. Other explanatory variables included *poverty rate* (PR) ($mean = 0.137; SD = 0.124$), *median household income* (MHI) ($mean = 65759; SD = 32473.97$), and *racial majority* (RM)(Asian/Black/Hispanic/White/Mixed). I defined *racial majority* as any ethno-racial group constituting more than 50% of a tract's population. The tract was categorized as racially mixed if no clear racial majority is present.

Because the outcome variable $LIHTC$ is binary, I used a logistic regression model to predict the log odds of LIHTC placement, while other neighborhood characteristics are computed as controls:

$$\text{log-odds}(\text{LIHTC}_i) = \beta_0 + \beta_1 \text{DI}_i + \sum_{r \in \text{Racial Majorities}} \beta_{2,r} \text{RM}_{i,r} + \beta_3 \text{PR}_i + \beta_4 \log \text{MHI}_i$$

Median household income is log-transformed to reduce its extreme right skewness driven by the minority of affluent households. The change of Akaike Information Criterion provides evidence that the log-transformation indeed enhances the accuracy of the model in comparison to the original form (Table 1 in Appendix).

Both poverty rate and median household income are incorporated since they reveal distinct economic aspects. While household income shows the overall resource levels ("center"), poverty rate focuses on the lower end of the population ("bottom of the distribution"). VIF values below 5 suggest that the inclusion of both economic variables does not cause collinearity problems (Table 2 in Appendix).

3 Results

Descriptive Analysis: As shown in Appendix's Table 3, tracts that later received LIHTC placement from 2010 to 2019 were characterized, in 2010, by a lower median household income and higher poverty rate and on average tended to be more renter concentrated ($di = 0.0244$). Figure 1 visualizes the distribution of *signed di* percentiles by LIHTC exposure. LIHTC-receiving tracts occupy a substantially higher median percentile of +47.3%, in comparison to the non-treated tracts (median percentile = −8.6%). Compared to the non-treated tracts, the treated tracts are heavily clustered in the positive tail, with their upper quartile approaching +75%, reaffirming that LIHTC units are disproportionately concentrated in renter-heavy tracts.

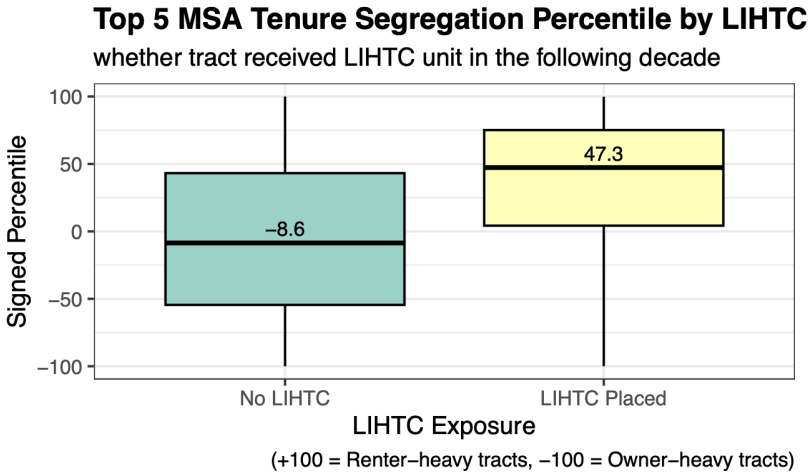

Figure 1: Distribution of signed DI percentile by LIHTC exposure

Regression Analysis: Appendix's Table 4 presents the odds ratios of the regression results. Figure 2 displays the coefficients in log odds with their respective 95% confidence intervals. The main predictors—median household income, poverty rate, majority-Hispanic, and signed di—all have extremely minimal p-values ($p < 0.001$) with confidence intervals that do not encompass 0.

Tenure segregation operates as the strongest predictor of LIHTC placement. The one unit odds ratio is practically unuseful since DI only ranges from -1 to 1. After rescaling, a 0.1 unit of increase in `DI` is associated with about 39% ($OR = 1.394, 95\% CI = [1.215, 1.603]$) increase in the odds of LIHTC placement.

For the economic factors, poverty rate is positively associated with the odds of LIHTC development from 2010 to 2019 ($OR = 1.287$, $95\% CI = [1.187, 1.395]$ for 10 percentage point increase). An increase in median household income is related to a reduction in the odds of LIHTC placement

$(OR = 0.574, 95\%CI = [0.444, 0.742])$.

The racial patterns are more complicated. Relative to majority-white neighborhoods, majority-Hispanic neighborhoods have about 1.39 times the odds of being selected for LIHTC siting in the following decade. There is positive but weaker statistical evidence for majority-Black and mixed race neighborhoods ($p_{black} = 0.051; p_{no-majority} = 0.072$). The coefficient for majority-Asian tracts is not statistically significant (OR $= 0.581; p = 0.065$).

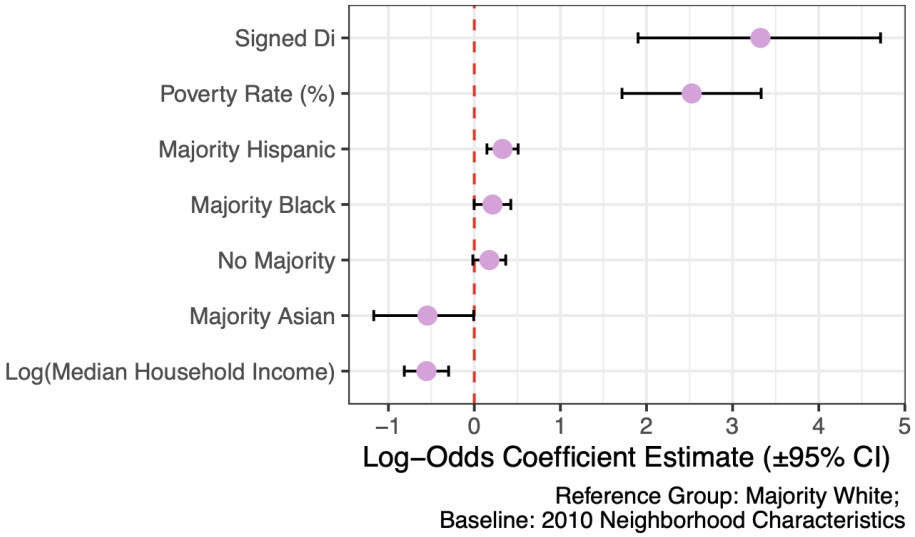

Figure 2: Where do LIHTC units tend to be placed?

4 Discussion

The descriptive results reveal a siting pattern of disproportionately placing subsidized low-income units in already renter-concentrated areas. The regression model further shows that a tract's higher baseline concentration of renters positively predicts LIHTC unit placement in the next decade, even after accounting for the racial and economic variables. Housing and segregation scholars should consider the potential of residential segregation as a valuable dimension to understand how governmental resources are spatially allocated.

Furthermore, a neighborhood with a higher concentration of low-income residents or a lower median household income is more likely to be selected for LIHTC placement. This pattern is expected given the program's stated goal in aiding economically disadvantaged communities. Selected tracts for placement also tend to be more majority-Hispanic, showing how Latino communities emerge as concentrated sites of subsidized housing in the recent decade. Having established these siting patterns, future research should examine their consequences: how LIHTC placement has alleviated or reproduced the existing neighborhood inequalities.

One important limitation is that the results of this study are essentially associational. No causality about the effect of LIHTC on tenure segregation can be claimed due to the absence of randomized experimental design. Various contextual factors, such as local zoning rules, political opposition (NIMBY), and access to quality schools, are omitted in this study, which all function as important confounding variables that both shape LIHTC placement and the neighborhood's later changes in tenure segregation. A more rigorous evaluation should aim to incorporate these factors as well.

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Appendix

Table 1: AIC Test

	AIC
Original	7235.974
Log-transformed	7231.636

Table 2: Variance Inflation Factors

	GVIF	Df	GVIF^(1/(2*Df))
log(median_income_2010)	4.675439	1	2.162276
pct_poverty_2010	3.902076	1	1.975367
racial_majority_2010	1.560713	4	1.057220
signed_di_2010	1.380387	1	1.174899

Table 3: Baseline Characteristics by LIHTC Placement

lihtc_dummy	mean_di	mean_income	mean_poverty
No LIHTC Placement	-0.0027	67759.35	0.1265
LIHTC Placement	0.0244	47431.12	0.2307

Table 4: Odds-Ratios of the Logistic Regression Model

term	estimate	std.error	statistic	p.value	conf.low	conf.high
(Intercept)	24.0272	1.4903	2.1332	0.0329	1.3036	449.3117
log(median_income_2010)	0.5743	0.1312	-4.2281	0.0000	0.4438	0.7421
pct_poverty_2010	12.4936	0.4120	6.1285	0.0000	5.5600	27.9726
racial_majority_2010asian	0.5805	0.2943	-1.8479	0.0646	0.3105	0.9934
racial_majority_2010black	1.2363	0.1087	1.9511	0.0510	0.9980	1.5285
racial_majority_2010his-panic	1.3882	0.0924	3.5488	0.0004	1.1581	1.6640
racial_major-ity_2010mixed_race	1.1918	0.0975	1.7999	0.0719	0.9834	1.4413
signed_di_2010	27.7546	0.7180	4.6287	0.0000	6.6995	111.9076

Statement of AI Usage

Completing this project did not involve the use of generative AI.