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To cite this article: Whitney Airgood-Obrycki, Magda Maaoui & Sophia Wedeen (13 Feb 2025): Rental deserts, segregation, and zoning, Journal of Urban Affairs, DOI: [10.1080/07352166.2025.2455606](https://doi.org/10.1080/07352166.2025.2455606)

To link to this article: <https://doi.org/10.1080/07352166.2025.2455606>



Published online: 13 Feb 2025.



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# Rental deserts, segregation, and zoning

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## ABSTRACT

Restrictive zoning and NIMBY attitudes have left nearly a third of neighborhoods across the United States with few options for renters. The concentration of rental housing in some neighborhoods and the exclusion of rental options from others reinforces enduring patterns of residential segregation by race and income. Neighborhoods with a lower share of rental housing are disproportionately suburban, higher-income, and white. We use the concept of rental deserts to highlight places with few rental opportunities for households and define these as neighborhoods where rental units make up less than 20% of the housing stock. We examine the characteristics of rental deserts, arguing that uneven geographies of rental opportunities bolster patterns of socioeconomic and racial segregation because renters are disproportionately lower-income and people of color. We investigate variations in the spatial distribution of rental deserts across and within metropolitan areas as well as resulting segregation by mapping divergence indices that measure the unevenness of rental housing within metropolitan areas. We find an association between rental deserts and a lack of neighborhood-level racial and economic diversity. We also find that restrictive zoning and land use regimes are associated with the presence of rental deserts, a finding that generally holds in cities and suburbs alike.

## KEYWORDS

Housing; land use;  
neighborhoods; zoning

## Introduction

In communities across the U.S., restrictive zoning and not-in-my-backyard (NIMBY) attitudes have limited the construction of multifamily homes. Multifamily homes are typically occupied by renters and provide the majority of rental housing across the country. By limiting diverse housing types, exclusionary communities effectively reduce the options available to renters. While the geography of rental options has likely expanded due to foreclosures during the Great Recession that led to a large increase in single-family rentals and the growing build-to-rent industry, renters remain limited in where they can live.

In this paper, we use the concept of rental deserts to examine the geography of rental housing, highlighting places where less than 20% of housing units are either occupied by a renter or are vacant for rent. We compare these rental deserts to high-rental areas and to mixed-tenure neighborhoods that fall in between the two. We additionally consider rental share more broadly, examining uneven geographies of tenure and housing segregation across the country. We seek to answer the following research questions:

- (1) What share of neighborhoods are rental deserts, and how do the characteristics of these neighborhoods differ from mixed-tenure and high-rental neighborhoods?
- (2) How is rental housing distributed spatially in the largest 100 metropolitan areas?

- (3) What is the relationship between the spatial distribution of rental housing and patterns of racial and socioeconomic segregation?
- (4) How do restrictive land use policies contribute to the limited geography of rental options, potentially bolstering these patterns of segregation?

The paper starts with a descriptive exploration of rental deserts using data from the American Community Survey. We first identify national patterns of rental deserts and describe how these neighborhoods differ from those with more abundant rental options. We then focus on the 100 most populous metros to examine how rental geographies vary across and within metros, mapping rental deserts and divergence index values. The divergence index allows us to identify patterns of uneven rental housing and of racial and socioeconomic segregation in each metropolitan area, by measuring the extent to which tract level shares of rental housing diverge from the metro rental share. We use basic correlations between tenure segregation and racial and socioeconomic segregation to understand the association between the two.

Finally, using the Eviction Lab's National Zoning and Land Use Database (NZLUD), we examine restrictive zoning and land use regulations at the municipal level to understand how these policies relate to the presence of rental deserts and shape the geography of renting.

By our definition, a third of America's neighborhoods are rental deserts while just 5% of census tracts are high-rental neighborhoods. We do indeed find that the households in rental deserts have higher incomes, and the population in these neighborhoods consists of a lower share of people of color. We also find that the spatial unevenness of rental housing within the largest metro areas is correlated with racial and socioeconomic segregation. Our analysis of the NZLUD finds a statistically significant relationship between indicators of municipal land use restrictions and neighborhood rental share, pointing to potential policy levers for increasing rental options.

## Rental deserts, segregation, and zoning

The concept of rental deserts was first proposed in publications from the Joint Center for Housing Studies, with a brief examination of basic characteristics of these places presented in Airgood-Obrycki and Wedeen (2022), and Airgood-Obrycki et al. (2024).<sup>1</sup> In this paper, we use the concept and term "rental deserts" to critically examine the ways that often wealthy, white communities exclude lower-income households and people of color through land use decisions. While desert terminology, such as the commonly used "food deserts," has been criticized as a deficit framework that marginalizes low-income communities and fails to recognize the structural intersection of inequalities, using desert in this context instead points to a deficit in places that are associated with areas of concentrated affluence, whiteness, and economic opportunity. We use this terminology as a starting point to examine the geography of rental housing, a topic that has otherwise been underexplored in the existing literature.

The concept of a rental desert underscores the important role that renting plays in the lives of most Americans. Apgar (2004) noted that estimates of the percentage of people who rent sometime during their life have been as high as 95%. One could argue that current or potential renters may not be interested in living in neighborhoods with low rentership rates or that access to rental options is not as crucial as access to food, which would make the presence of rental deserts relatively unproblematic. However, we assert that renting is a crucial entry point into the housing market, especially for the younger adults and lower-income people who are more likely to face borrowing constraints and be unable to buy a home (Acolin et al., 2016). Further, renting may enable people to remain in neighborhoods that they have strong attachments to as they form new households or enter old age. Neighborhood attachment encourages community involvement and has associated benefits for individuals and communities (Comstock et al., 2010; Dang et al., 2022), underscoring the importance of place and the need to create opportunities for renters in a variety of neighborhoods. While rental options may still be unaffordable and exclude lower-income households and some households of color, we argue that the presence of rental housing is a necessary baseline condition for meeting

diverse housing needs and may also be a requirement for deconstructing persistent patterns of segregation (Owens, 2019).

Renting plays a crucial role across the life course and at different income levels. For younger adults starting out with fewer financial resources in an environment of historically high home prices, renting provides an avenue for establishing a new household and living independently from parents or family (Kiefer et al., 2018). Americans are also now renting into older ages and higher incomes, either because they are shut out of homeownership or because they prefer the mobility and low maintenance obligations that renting can provide (JCHS Joint Center for Housing Studies of Harvard University, 2024), and communities may need to expand rental options to meet and capture this demand. Our rapidly aging population would further benefit from an expanded ability to rent in a variety of neighborhoods, providing opportunities for older adults who want or need fewer maintenance responsibilities (Kiger, 2023). Thus, rental deserts that restrict households' ability to rent in certain neighborhoods limit tenure and community choices for people across the life course. Expanding the set of options for renters should be a planning and policy goal that would benefit a wide range of people, providing the foundation for ensuring that people of all ages, races, and economic means can move to and live in the neighborhood of their choosing.

The recent boom in multifamily housing construction could be increasing the geography of rental housing. Multifamily homes are primarily occupied by renters and make up nearly 70% of the nation's rental stock, according to the 2022 American Community Survey. This reflects what Freemark, Lo, and Bronin (2023) refer to as the "confluence of housing tenure and housing structure types" (p. 27). This close relationship means that multifamily development patterns can in turn affect the spatial distribution of tenure. In the last decade, most new multifamily construction on a national scale has been in the core urban counties of major metropolitan areas (JCHS Joint Center for Housing Studies of Harvard University, 2022), and there has not been sufficient research to attest whether that construction is leading to more concentration in certain neighborhoods, thus exacerbating rental deserts, or whether it is leading to a rebalancing of rental options within cities. Some studies have attempted to further measure the location, clustering, and features of multifamily housing, but these are often specific to a few cities or neighborhoods (Atkinson-Palombo, 2010; Caine et al., 2017; Chakraborty et al., 2010). One study does seem to suggest the latter effect—a rebalancing of rental options within cities—in at least one location. For instance, Walter and Caine (2019) found that in the Texas Triangle, one of the fastest growing megaregions in the United States, apartments were developed most often in majority white, high-income and low-poverty neighborhoods, challenging the widespread belief that equates multifamily rental housing with central city locations and low-income populations.

While some markets have loosened restrictions in recent years, the longer-term prevailing national trend has been communities blocking the construction of multifamily housing, often with racist and classist undertones. Suburbs have largely been shaped by a traditional separation of residential and other uses, and a preference for single-family housing, a separation largely encouraged throughout the 20th century by federal subsidies (Jackson, 1985). At the same time, they are experiencing a demographic transformation: the numbers of single-person, older adult, and multi-generational households, which do not fit the nuclear family mold that suburbs developed to serve, have all increased. Suburbs are also demographically more diverse, and yet, because they often lack rental options, they do not meet the needs of households of color who are more likely to rent. Indeed, the majority of Black households and nearly half of Hispanic households in the U.S. rent their homes according to the latest data from the American Community Survey. However, zoning actively functions as a barrier against these neighborhoods adapting to meet changing needs by restricting the addition of new units on existing lots, more multifamily housing, or a wider variety of unit sizes (Maaoui, 2018).

Empirical research has further underscored that the cities that tend to build the least housing over time also have restrictive land use rules that make building anything but single-family housing difficult (Godinez-Puig et al., 2023). Across different states, a slow but steady wave of reform is paving the way for a relaxing of zoning regulations that allows for the construction of more diverse housing typologies

(JCHS Joint Center for Housing Studies of Harvard University, 2024; Monkkonen et al., 2019). Evidence from other countries also suggests that mandating local zoning reform to reach national affordable housing construction goals can bear fruitful results, adding affordable rental units (Maaoui, 2023).

While blocking multifamily housing can limit the structure type that most renters live in, overly restrictive land use regulations also drive up costs for renters. With lower median incomes, renters' ability to move into more affluent suburban neighborhoods is constrained by the high cost of housing driven up by zoning regulations that prevent local supply increases and mandate larger homes or lots, making it economical only to build large units (Malpezzi & Green, 1996; Pendall, 2000; Schuetz, 2009; Somerville & Mayer, 2003). The effect of supply restrictions on cost has been shown across several studies. Malpezzi and Green (1996), for example, conducted an exploratory analysis using the Wharton land use control dataset on state and MSA-level regulations and the share of land unavailable for development and concluded that restrictive regulations drove up both rents and housing prices. Moreover, neighborhoods that allow only low-density housing have been found to grow more slowly, shift toward single-family, owner-occupied housing, and have smaller concentrations of Black and Hispanic residents (Pendall, 2000). Somerville and Mayer (2003) also found that the likelihood of an affordable unit "filtering up" and becoming unaffordable increased with the presence of growth controls and impact fees, as well as a low overall elasticity of housing stock. Thus, zoning and land use restrictions can limit renter options by limiting multifamily construction and by increasing the cost of housing in general.

Local regulations that reduce the supply of multifamily units are further associated with higher levels of income segregation, particularly the segregation of affluent households (Knaap et al., 2007; Lens & Monkkonen, 2016; Watson, 2009). Owens (2019) even considers that housing segregation is a critical contextual feature perpetuating income segregation. Using American Community Survey data to provide the first evidence of the extent of housing segregation by type (renter- or owner-occupied, single-family or multifamily), and by cost (rent or home values), at multiple geographic scales in the 100 largest metropolitan areas in the United States from 1990 to 2014, she shows how unequal housing opportunities across neighborhoods contribute to income segregation. Results indeed underscore that segregation by type and by cost increased overall through the past 25 years, peaking during the Great Recession. These trends explain in large part observed patterns of income segregation, although Owens calls for further research on the exact role of restrictive zoning in shaping these patterns. A study of zoning stringency in Connecticut, where only 2% of land is zoned to allow the by-right construction of multifamily housing, shows how neighborhoods allowing only single-family homes are considerably more likely to be inhabited by white households, compared to neighborhoods allowing the construction of multifamily buildings (Freemark, Lo, and Bronin, 2023).

And while this paper focuses on zoning's potential role in closing the door of certain neighborhoods on renters, we acknowledge that there are other possible means by which public choices inform rental availability in addition to zoning alone. For instance, policies like inclusionary zoning, meant as a reversal of zoning restrictiveness externalities, do not always yield expected results of equitably redistributing housing units by income because they are not sufficient to overcome NIMBY community opposition to new development, making the neighborhoods more likely to yield more IZ units the lower income, low-ownership neighborhoods least likely to resist (Kontokosta, 2015). The restructuring and demolition of public housing in the 1990s, and the overall concentration of housing voucher holders mostly in affordable areas, has further reconcentrated the most vulnerable renter households spatially even more so than in other countries (; Freemark and Steil, 2022; Kucheva, 2013).

Reducing rental opportunities bears much broader consequences in terms of neighborhood outcomes for those who are denied access to opportunity-rich places—those typically wealthier places that say no to rental housing. At the same time, almost 70% of lower-income households, a majority of which are households of color, live in rental housing, and most receive no subsidies or federal housing assistance (JCHS Joint Center for Housing Studies of Harvard University, 2024; Pendall et al., 2012). This is correlated to the unequal rates of homeownership for communities of color, particularly Black

households, who have been structurally excluded from homeownership (Choi et al., 2019; Freeman, 2005). The literature on neighborhood effects and outcomes underscores that a lack of affordable rental housing for lower-income households and households of color in amenity-rich neighborhoods impacts household trajectories, including earnings and upward mobility as well as health, school, or job access (Chetty et al., 2016; Dain & Research, 2023<sup>2</sup>; Sportiche, 2023). Local opposition to rental housing development in more affluent neighborhoods therefore reinforces these patterns of racial segregation and concentrated poverty (Lens, 2022; Rothwell & Massey, 2009).

## Data and methods

The primary data source for this study is the 2022 5-year American Community Survey. Consistent with prior research, we use census tracts as a proxy for neighborhoods. In each tract, we calculate the share of all housing units that are either vacant for rent or renter-occupied.

In the first part of our analysis, we compare the characteristics of rental deserts to neighborhoods where renting is more common, employing the rental deserts framework to underscore the communities that are most in need of expanded rental opportunities. The definition of a rental desert is arguably somewhat arbitrary regardless of the cutoff used. We use a national-level cutoff rather than a metropolitan percentile to avoid omitting rural areas where rental housing options can be sparse. Additionally, the cutoff needs to be sufficiently low to suggest that there is a deficit of options for renters but also needs to be high enough to prevent it from only picking up the most egregious cases. Notably, just 17 of the most populous 100 metros have a rentership rate below 30% making this cutoff too high because it doesn't represent scarcity in the majority of places. However, all of the largest 100 metro areas have a rentership rate above 20%. Somewhere around 15 to 20% seems to be an appropriate cutoff. The 20% threshold captures about a third of all neighborhoods nationwide whereas 15% captures a quarter of neighborhoods.

In this paper, we classify rental deserts as those where less than 20% of the housing stock is available to renters. We consider mixed-tenure communities to be those where at least 20% and no more than 80% of the stock is rental, and we classify neighborhoods with at least 80% rental housing as high-rental neighborhoods. High-rental neighborhoods were defined as such because they represent the opposite condition to rental deserts and allow us to show that while rental deserts are relatively common, the equivalent low share of homeownership options in neighborhoods across the country appears far more infrequently. Our primary focus is on the comparison between these three neighborhood types, but acknowledging that some may wish to make other comparisons or define rental deserts differently, we include further breakdowns by rental share in the appendix in Table A1 along with alternative cutoffs for rental deserts, illustrating that the descriptive patterns hold regardless of the specific cutoff used.

The second part of the analysis examines the geography of rental housing and the degree of segregation by housing tenure that exists in metropolitan areas across the country. We focus on the most populous 100 metros and first identify metro areas where rental deserts make up the largest and smallest share of neighborhoods. We then use a divergence index (Roberto, 2024), an approach originally developed as a decomposable measure of segregation, in order to measure segregation by housing tenure. This index effectively serves as a decomposable measure of the evenness of rental and owner-occupied housing. It allows us to measure the difference between the local and market-wide proportions of each group (rental and owner-occupied share at the tract level compared to the metro level). Thus, the divergence index produces a value for each metro as well as for each neighborhood. At the neighborhood level, it represents whether the share of rental housing is similar to that in the metro area as a whole.

In our spatial exploration of rental geographies, the tract-level divergence value is calculated as:

$$\text{Divergence Value} = \left( \begin{array}{l} \text{Rental Share of Tract} * \log(\text{Rental Share of Tract} / \text{Rental Share of Metro}) \\ + \text{Owner Share of Tract} * \log(\text{Owner Share of Tract} / \text{Owner Share of Metro}) \end{array} \right)$$



The metropolitan-level divergence is a household-weighted average of the divergence values for all tracts in that metro. Because this is a newer measure, there is no literature on meaningful thresholds for what counts as high versus low divergence (Berkeley Othering & Belonging Institute, [n.d.](#)). We instead employ a relational approach to interpreting these values, dividing the divergence index into quartiles to identify places with relatively higher or lower levels of housing tenure segregation.

We then consider the relationship between this spatial unevenness of rental housing and segregation by race and income. We again use the divergence index to calculate metro-level segregation. A benefit of the divergence index is that it allows for more categories beyond a simple binary, accounting for the tract-level distribution of multiple groups relative to the metro-level distribution. We first calculate racial segregation using the distribution of the population in four categories: white, Black, Hispanic, and another race or multiracial. The second calculation measures segregation by income using three categories: lower-income households making less than \$30,000, middle-income households making \$30,000–\$74,999, and higher-income households making at least \$75,000. We use simple correlations between the metro-level housing tenure divergence value and the indicators for racial and income segregation to explore the relationships that exist.

In the final analysis, we use measures of restrictive zoning and land use regulations to investigate their relationship to rental geographies. Measuring zoning regulations nationally poses an important methodological challenge. Similar to research on multifamily rental housing, most studies of zoning are specific to a few cities or states (Schuetz, 2006, 2009, or; Fisher & Marantz, 2015 on Massachusetts; Kazis, 2020 on New York; Freemark et al., 2023 on Connecticut). To date, only a few attempts have been made to develop national datasets. The Wharton Residential Land Use Regulation Index (WRLURI; Gyourko et al., 2019),<sup>3</sup> the Urban Institute's National Longitudinal Land Use Survey (NLLUS; Lo et al., 2019),<sup>4</sup> and the Eviction Lab's National Zoning and Land Use Database (NZLUD) are three references in the field, while efforts to assemble the National Zoning Atlas are currently underway, covering close to 2,000 jurisdictions (Bronin, 2023).

We use the NZLUD (Mleczyko & Desmond, 2023), which builds off the Wharton Index and NLLUS datasets. Most national zoning data initiatives encounter the following issues: they overtly rely on surveys, which people can choose not to respond to, leading to a possible selection bias; they are also costly, and subject to measurement error, and while they require substantial resources and time to collect, they quickly become obsolete. We use the NZLUD because it is the most recent attempt at capturing the local stringency of zoning regulations, using Natural Language Processing on municipal codes as well as zoning and land use ordinances.

Using the NZLUD dataset, we examine the relationship between neighborhood rental share and measures of zoning restrictiveness for the municipality in which the census tract is located. In total, the NZLUD covers 36,851 census tracts. The overall Zoning Restrictiveness Index (ZRI) is a composite index combining 11 subindices intended to capture zoning stringency. The full index weights these components and standardizes the scores, resulting in a continuous range that includes negative values. Given the challenges of using the full index and the range of specific strategies local municipalities might employ, we examine eight of the subindices that the researchers provide, presented in [Table 1](#). We recode these indices to make them more meaningfully interpretable, and run simple regressions of the neighborhood rental share against each municipal zoning measure, distinguishing between overall results, and results specific to cities versus suburbs. While zoning itself does not dictate tenure, multifamily homes are predominantly renter-occupied, and restricting construction of these units can limit renters' options.

## Results and discussion

### *The extent and characteristics of rental deserts*

On average, 33.6% of the housing in tracts is either occupied by a renter or vacant for rent, out of a total 140.9 million housing units in 2022.<sup>5</sup> In 29,251 tracts, less than 20% of the housing stock is

**Table 1.** National zoning and land use database subindices chosen for analysis.

Index	Description	Coding Structure
Explicit growth controls	Sum of six growth control measures that capture annual limits on: Single-family permits, Multifamily permits, Single-family units, Multifamily units, Multifamily dwellings, Multifamily dwelling units	Binary, with 1 indicating 2 or more restrictions
Minimum lot size	Minimum lot sizes within municipal boundaries for districts that allow residential uses <sup>a</sup>	Categorical: Less than half acre, 1 acre up to 2 acres, 2 or more acres
Maximum permitted density	The maximum permitted number of dwelling units per acre (or square feet of lot area per acre)	Binary, expressed in units per acre with 1 indicating 30 or fewer
Minimum required parking	Parking requirements per residential unit in districts permitting residential uses, calculated using the median and mode of requirements	Binary, with 1 indicating at least 2 parking spots are required
Inclusionary zoning programs	Municipalities that have an inclusionary zoning program, including the use of in-lieu payments or fees toward affordable housing trust funds	Binary, with 1 indicating the presence of an inclusionary program
Accessory dwelling unit	Municipality permits accessory dwelling unit construction in any residential district	Binary, with 1 indicating that ADUs are allowed
Maximum height index	Building height limits, in feet and stories, across all districts in which residential uses are permitted, calculated using the median and mode	Continuous, rescaled 0 to 10 (1 unit represents 10 ft/stories)
Permitted multifamily housing	The proportion of residential districts that allow multifamily housing development by right	Continuous, rescaled 0 to 10 (1 unit represents a 10% increase in zones)

<sup>a</sup>The measure captures the largest minimum lot size in a jurisdiction.

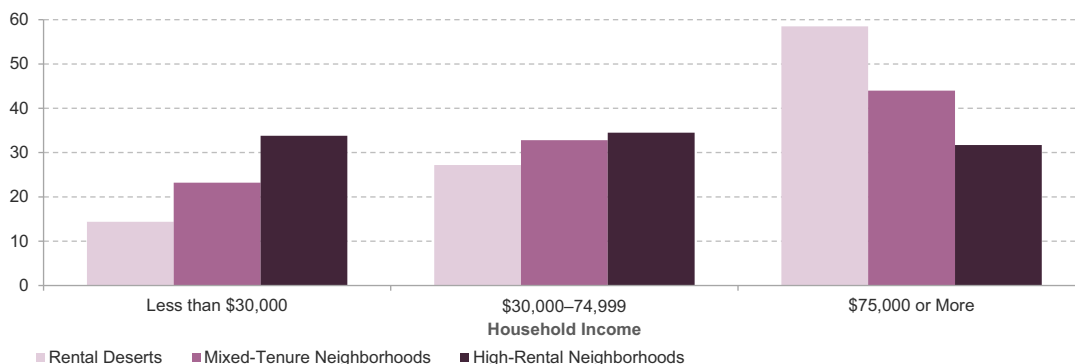
either renter-occupied or vacant for rent. These rental deserts account for 35.1% of the more than 84,000 tracts nationally but cover about two thirds of the country’s land area. In 11,313 tracts (13.6%), are what we consider extreme rental deserts in which less than 10% of the stock is occupied by renters or vacant for rent.<sup>6</sup>

Rental deserts are disproportionately located in the suburbs,<sup>7</sup> where restrictive land use regulations and not-in-my-backyard (NIMBY) politics can be common, and they are underrepresented in urban neighborhoods. In fact, suburban tracts account for 55% of all tracts nationally but 68% of rental desert neighborhoods. Conversely, 28% of all tracts are urban, but these neighborhoods include only 9% of all rental deserts. Rental deserts are only slightly overrepresented in micropolitan and rural areas. These geographies make up 9 and 7% of tracts respectively and just over 22% of all rental deserts. Neighborhoods where less than 10% of units are occupied by renters or vacant for rent are also overrepresented in suburban neighborhoods. Three quarters of extreme rental deserts are in suburban neighborhoods, compared to 8% in urban neighborhoods.

Single-family homes are much more common in rental desert neighborhoods, unsurprisingly so given that single-family homes have much higher homeownership rates. In neighborhoods where less than 20% of housing is rented, single-family homes accounted for 85% of all housing on average in 2022, compared to just 63% in mixed-tenure neighborhoods, and 17% in neighborhoods that are predominantly rentals. Conversely, multifamily buildings with 5 or more units accounted for 3% of the housing stock on average in rental deserts, compared to 69% of the units in neighborhoods with abundant rental options. While single-family units can be converted to rentals and an increasing number are built as rentals, the lack of multifamily homes in these neighborhoods is likely a significant factor in limiting opportunities for renter households because multifamily units tend to have higher rentership rates. The absence of multifamily homes, which on average have lower rents than single-family rentals, may also limit options for lower income renters in particular.

By limiting the number of rental options, neighborhoods effectively exclude lower-income households from their communities. The median household income in rental deserts is \$99,670 on average. The median income in mixed-tenure neighborhoods, however, is \$71,780, and it is \$53,170 in areas with robust rental options. The lack of rental options in some neighborhoods reinforces inequities in the distribution of households and contributes to socioeconomic



**Average Share of Households (Percent)**

**Figure 1.** Household incomes are highest in rental deserts. Notes: In rental deserts, less than 20% of the housing stock is for rent or renter-occupied. High-rental neighborhoods are at least 80% for rent or renter-occupied. Mixed-tenure neighborhoods are between 20 and 80% for rent or renter-occupied. Figures shown are neighborhood averages. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

segregation. Rental deserts not only have higher median incomes on average but also have a much larger share of higher-income households who make at least \$75,000 (Figure 1). A full 58% of rental desert households are higher-income, compared to just 32% of households in neighborhoods with abundant rental options. Conversely, just 14% of rental desert households have incomes under \$30,000, while 34% of high-rental neighborhoods are made up of lower-income households.

The concentration of the rental stock also contributes to segregation by race and ethnicity, as people of color are more likely to be renters. Due to longstanding and ongoing discrimination in education and the labor market, Black and Hispanic households have lower median incomes than white households and less generational wealth to draw from, limiting the resources available for a down payment and contributing to their relatively higher rentership rates. Moreover, centuries of racially discriminatory government policies and practices, as well as discrimination in the housing and homebuying market, have denied households of color, and Black households in particular, access to homeownership opportunities.

The legacy of these deep-rooted inequities is evident in the low share of people of color in rental deserts (Figure 2). While people of color made up two thirds of the population in high-rental neighborhoods on average, a quarter of the population consisted of people of color in rental deserts. High-rental neighborhoods also had three times the share of Black or Hispanic people in rental desert neighborhoods. In contrast, the average rental desert neighborhood had more than twice the share of white people (75%) living in high-rental neighborhoods (33%).

### ***The spatial distribution of rental housing***

In seventeen of the 100 most populous metros, more than 40% of neighborhoods are rental deserts. These are primarily in the South and West and include North Port, Cape Coral, and Palm Bay. Five metros, all located in the West, have very low rates of rental deserts. Less than a fifth of all tracts in these metros have sparse rental housing. The rentership rate is higher in these metros at more than 40%, which may explain why rental housing accounts for a larger share of all housing in most neighborhoods. Across the largest metros, the share of neighborhoods that are rental deserts has a strong negative correlation ( $-0.85$ ) with the rentership rate. In the metros that are most dominated by homeownership, the rentership rate is at least 23%, but because there are rental deserts that limit the

Average Share of Population (Percent)



**Figure 2.** Neighborhoods with more rental options are more diverse. Notes: In rental deserts, less than 20% of the housing stock is for rent or renter-occupied. High-rental neighborhoods are at least 80% for rent or renter-occupied. Mixed-tenure neighborhoods are between 20 and 80% for rent or renter-occupied. Black, Asian, and white people are non-Hispanic. Hispanic people may be of any race. People of color include all people who do not identify as non-Hispanic white. Figures shown are neighborhood averages. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

places where renters can live, the renter population cannot be evenly spread across all neighborhoods even in low-rentership metros.

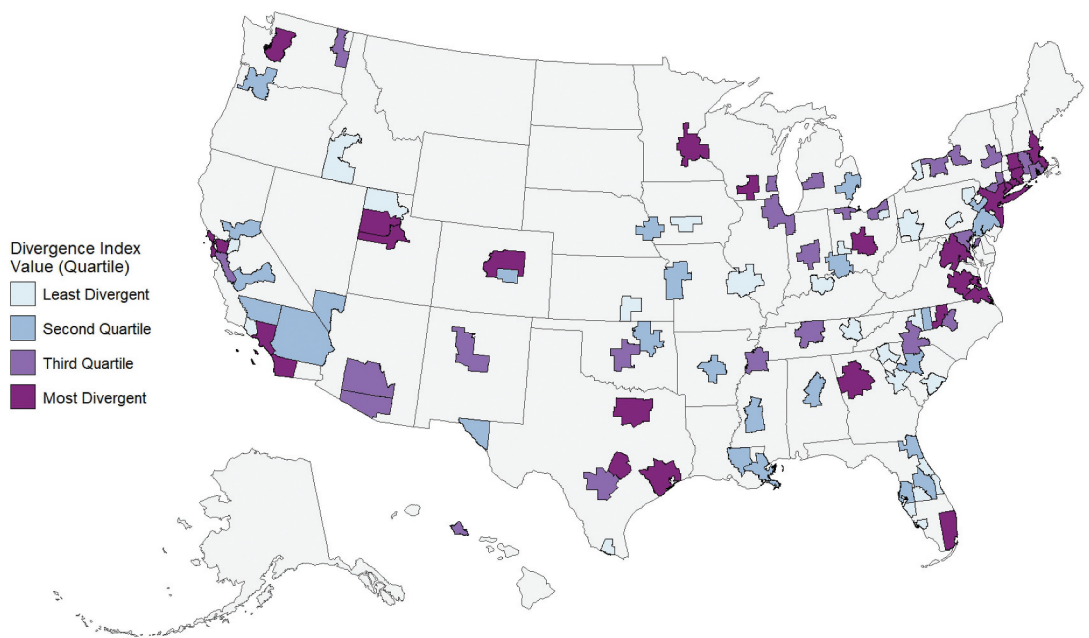
The share of rental deserts in a metropolitan area is one indicator of the exclusion of rental housing. The divergence index value for metropolitan areas further illustrates the unevenness of rental housing and is also a decomposable measure that can show which tracts have an especially different rental share as compared to the larger metro. A higher divergence index score indicates that there is a greater degree of housing segregation by tenure. The divergence index is a relatively new indicator of segregation, however, making it difficult to interpret what thresholds indicate meaningful differences. To overcome this challenge, we take a relative approach, sorting the 100 largest metro areas by their divergence score and dividing them into quartiles. [Figure 3](#) thus emphasizes the divergence index values in terms of percentile rank rather than raw score. This approach is useful for locating the most segregated cities and metropolitan areas in the United States without having to delineate a precise threshold.

Rental housing is unevenly distributed in many metros across the country. In these more divergent metros, the rental share across tracts is most different from the overall rental share of the metro. Three of the five metros with the highest divergence scores are located in Texas, including Dallas, Austin, and Houston. The Northeast is also home to several divergent metros, with New York topping the list and Bridgeport, New Haven, Hartford, and Boston all falling in the top quartile.

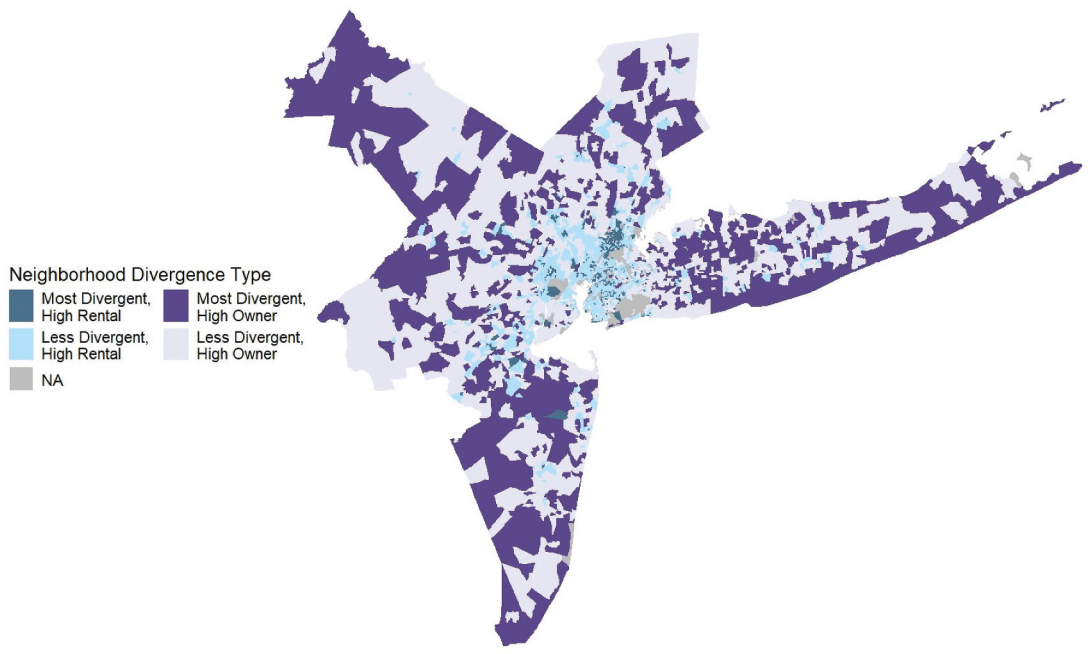
Metros where rental housing is most evenly distributed are also spread across the country but are slightly more concentrated in the South and Midwest. In these metros, the rental share at the tract level generally matches the metro-level rental share more closely. Florida is home to some of the least divergent metros, with North Port, Lakeland, and Palm Bay posting the lowest index values. While these metros in particular have among the highest share of rental desert neighborhoods, the low divergence index value reflects the fact that these places have relatively low rental shares overall.

We take this divergence analysis a step further by mapping index values at the census tract level, zooming in on three of the most divergent metro areas where tenure is unevenly distributed, namely New York, Austin, and Atlanta. The maps show the neighborhoods that fall in the most divergent quartile for the metro area. In mapping these three metro areas, we further classify highly divergent census tracts into two types based on whether they have a higher rental or higher owner share relative to the metro. This distinction makes the spatial clustering of neighborhoods with limited rental opportunities even more evident.

In the New York metro, two thirds of the most divergent tracts are characterized by a high ownership rate, and these disproportionately fall in the suburbs ([Figure 4](#)). Therefore, the metro-



**Figure 3.** Metro-level divergence index values for housing tenure. Note: The most divergent metros are in the top quartile of divergence index scores, indicating that rental housing is unevenly distributed within the metro. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

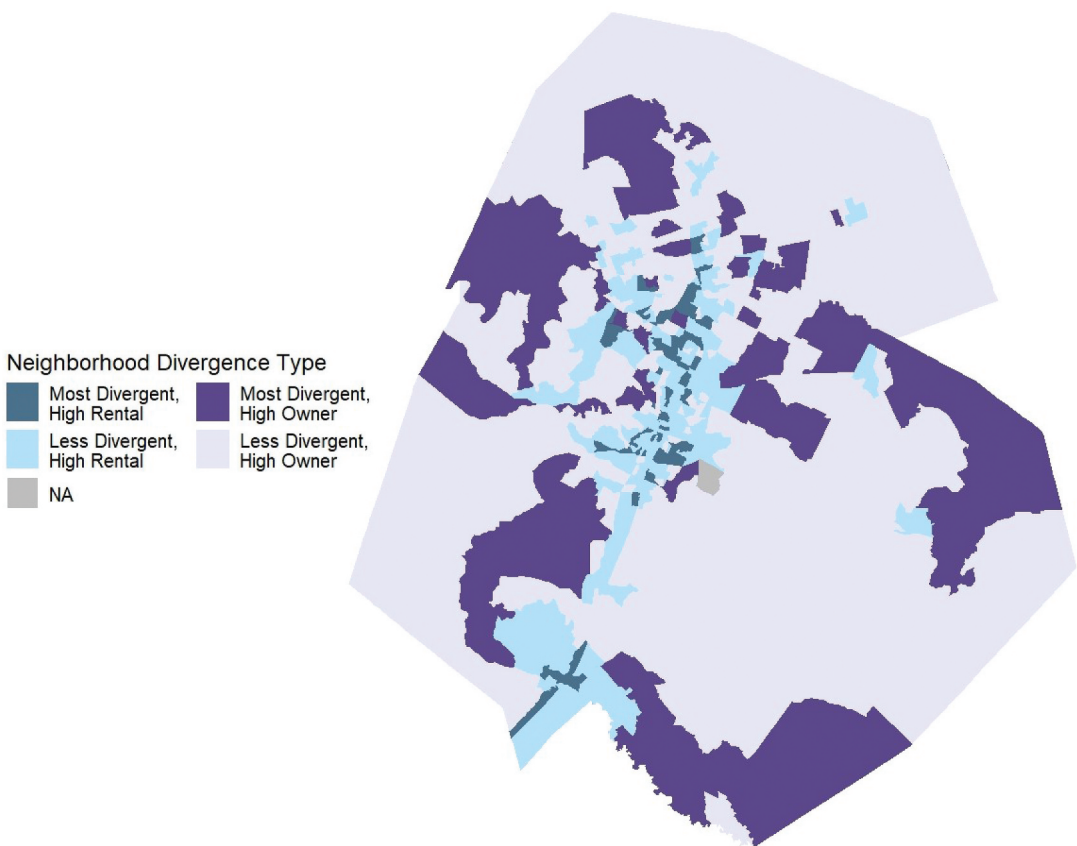


**Figure 4.** Tract Divergence Index Scores in the New York-Newark-Jersey City Metropolitan Area. Note: Most divergent tracts are in the top quartile of the metro's divergence index scores, indicating that the share of rental housing differs more from that of the metro area overall. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

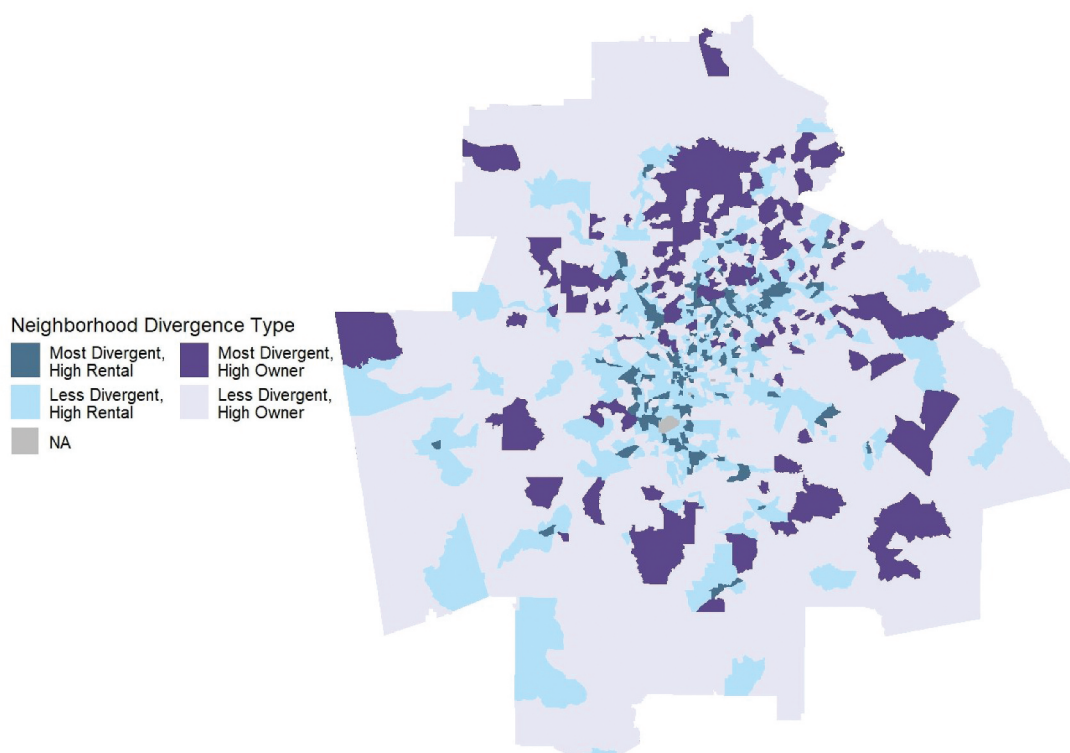
level divergence index of the New York metro already allows us to claim that housing segregation is high there, while examining the census tract level shows that this degree of segregation translates into high levels of spatial clustering as well. New York stands out in its high degree of ownership in suburban areas, while high rental neighborhoods are almost entirely concentrated in the core. This means most of the region has effectively closed its doors to the average New Yorker who does not have the capital for a down payment, the income for a mortgage payment, or the expectation of a long tenure.

The Austin metro shows a second type of spatial clustering of rental housing, displayed in Figure 5. In Austin, the majority of divergent tracts are again high-ownership and also primarily suburban. High-rental neighborhoods are generally concentrated in the urban core. But while the urban/suburban divide is still evident, Austin features a nearly contiguous corridor of high rental tracts that extends south through a swath of ownership. Even with this additional stretch of rental options, tenure remains highly clustered at the neighborhood level throughout the Austin metro.

While the Atlanta metro has a high overall score on the divergence index, the neighborhoods with a disproportionately high rental share are more dispersed than in New York or Austin (Figure 6). There is still a predominantly urban/suburban pattern to the distribution of rental and owner-occupied housing, but the relationship is less striking than in New York and Austin. Highly divergent tracts with a higher ownership share form a ring around the urban core, possibly reflecting the legacy of early suburban development, while highly divergent rental tracts are clustered near the center of the



**Figure 5.** Tract divergence index scores in the Austin-Round Rock-Georgetown Metropolitan Area. Note: Most divergent tracts are in the top quartile of the metro's divergence index scores, indicating that the share of rental housing differs more from that of the metro area overall. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.



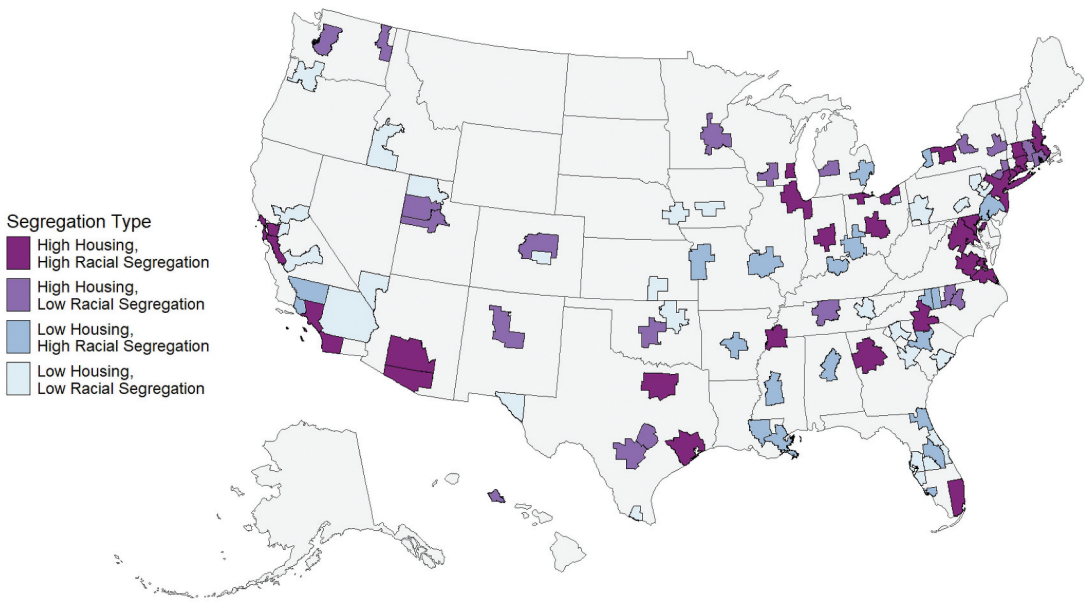
**Figure 6.** Tract divergence index scores in the Atlanta-Sandy Springs-Alpharetta Metropolitan Area. Note: Most divergent tracts are in the top quartile of the metro's divergence index scores, indicating that the share of rental housing differs more from that of the metro area overall. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

metro. But renting is possible across more of the metro's geography, with high-rental and high-ownership tracts interspersed even in more suburban locations.

### ***Housing tenure and racial and socioeconomic segregation***

The unevenness of rental housing can perpetuate patterns of racial and socioeconomic segregation. The descriptive analysis does indeed show that neighborhoods consisting of a greater share of rental housing have populations with higher shares of people of color and households with lower incomes. For the final analysis, we examine the relationship between metro-level tenure segregation and racial and socioeconomic segregation. We again use the divergence index and calculate two additional scores for each of the 100 most populous metros. The racial divergence index compares the share of white, Black, Hispanic, and any other race in the tract to the composition of the overall metropolitan area. The income divergence index considers the share of households that are lower-income (making less than \$30,000), middle-income (making \$30,000–\$74,999), and higher-income (making at least \$75,000) as compared to the broader metro. We correlate these indices with the housing tenure divergence index described in the previous section.

The spatial unevenness of housing tenure is associated with higher levels of both racial and socioeconomic segregation. Across the largest 100 metros, the statistically significant coefficient for the correlation between the housing tenure and racial divergence indices is 0.37, while the correlation between housing tenure and income divergence is slightly lower at 0.31. The correlation is stronger when accounting only for occupied homes (0.46 for race and 0.40 for income),



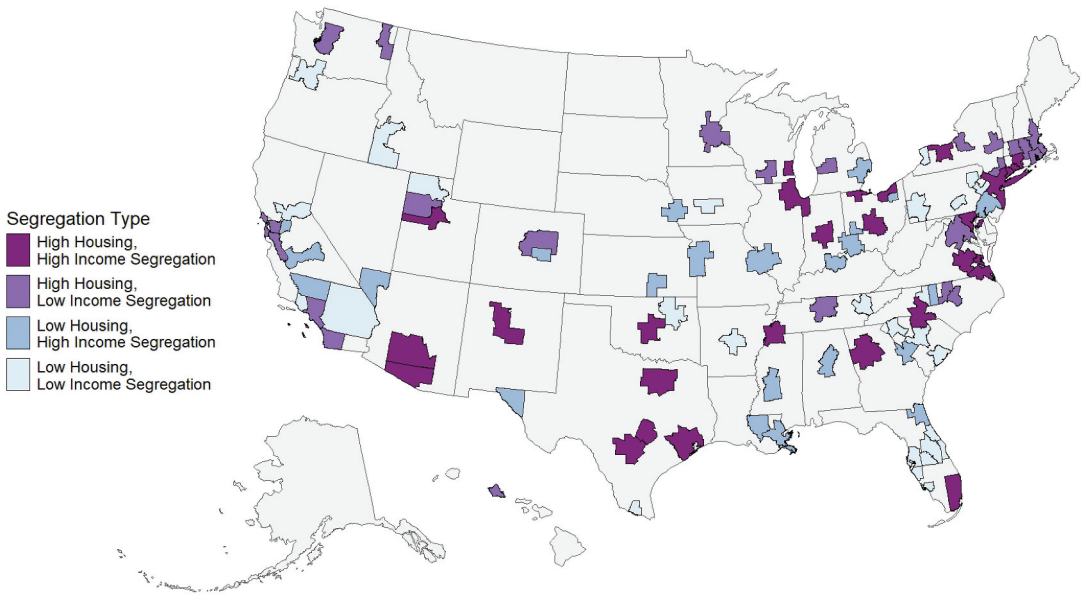
**Figure 7.** Metro areas with high housing and high racial segregation. Notes: Metro areas with high segregation are in the top half of divergence index values while low segregation indicates values that fall in the bottom half. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

possibly pointing to the unsuitability of vacant units for actually providing expanded housing opportunities. The moderate correlation, which is in line with the findings of Owens (2019), suggests that housing tenure shapes the landscape for racial and socioeconomic segregation but that there are other features of metro spatial structures that also drive demographic segregation. Who has access to homeownership in different metro areas likely contributes. There may be other factors at play as well, including legacies of historic settlement patterns and exclusion that remain despite tenure shifts over time.

The overall correlation does mask metros where there is a high degree of both housing and demographic segregation. Figure 7 shows in dark purple the metropolitan areas that fall both in the top half of housing divergence index scores and in the top half of racial divergence scores. Figure 8 similarly shows in dark purple places with high housing divergence and high income divergence. Across these two maps, there are 22 metro areas that score in the top half on all three divergence indices. These metros span the Northeast, South, and Midwest but are relatively absent from the West. Included in the list of 22 metros with high segregation by housing tenure, race, and income are Atlanta, Chicago, and Miami. Three metros—Dallas, Houston, and New York—are in the top quartile of all three measures.

At the other end of the spectrum, 20 metros fall in the bottom half of divergence index scores across all three measures, shown in light blue on both maps. These are predominantly located in the West and South, including Portland, Sacramento, and Tampa. Seven metros fall in the bottom quartile of all three indices. Four of these are in the South, including three metros in Florida and McAllen, Texas. Two of these metros—Boise City and Ogden—are in the West, while Des Moines is the only metro low in all three criteria in the Midwest. The Northeast has no metros that are in the bottom quartile on all three measures of segregation. While there does appear to be a strong relationship between the unevenness of housing tenure and racial and socioeconomic segregation in several metro areas across the country, the relatively modest correlations across the entire sample of metro areas suggest that other dynamics are shaping patterns of segregation and that housing tenure is just one factor.





**Figure 8.** Metro areas with high housing and high income segregation. Notes: Metro areas with high segregation are in the top half of divergence index values while low segregation indicates values that fall in the bottom half. Source: Author tabulations of U.S. Census Bureau, 2017–2022 American Community Survey Estimates.

### ***The relationship between zoning and rental housing availability***

The uneven spatial distribution of rental housing and resulting association with segregation may be the product of restrictive zoning that limits the construction of multifamily housing. The Eviction Lab's Zoning Restrictiveness Index is a composite, relative measure of how restrictive the land use regime is in metropolitan areas and in municipalities. However, the combination of subindices in the composite ZRI might obscure the underlying dynamics and distinct land use regimes of different places. The components of the overall index, for example, are weighted and vary in whether they apply to multifamily or single-family regulations and in the way they are measured, resulting in differences in both the magnitude and the direction of some subindices. We look at several subindices individually to identify the types of zoning regulations that might lead to a higher or lower rental share. We do this at the municipal level, using the characteristics of the municipality in which each neighborhood is located, because the municipal level is where land use regulation decisions and implementation typically occur and where index coverage is better, and we recode some of the subindices to allow for meaningful interpretation of a one-unit increase in the index relative to the neighborhood rental share. When running simple regressions of the neighborhood rental share against each municipal zoning measure, we distinguish between overall results, and results specific to cities versus suburbs. We want to reiterate that this analysis points to associations between land use and rental share and cannot be interpreted as a causal relationship.

For four of the subindices, a higher value indicates greater restrictiveness. These four indices have a negative association with higher rental share (Table 2). Having growth control restrictions at the municipal level is associated with close to a 3-percentage-point lower share of rental housing as compared to jurisdictions with no growth control restrictions. The most restrictive lot size requirements are similarly related to producing a lower rental share by 8 percentage points as compared to the least restrictive requirements. Lower permitted densities are also associated with a lower rental share, with restrictive places producing a rental share that is 6 percentage points lower than nonrestrictive places. And requiring a greater number of parking spaces, which can make projects infeasible, is associated with a 6-percentage point lower rental share.

**Table 2.** Relationship between zoning restrictiveness subindices and neighborhood rental share.

Dependent variable: Neighborhood rental share	All		City		Suburb	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
<b>Explicit Growth Controls Index</b> (reference: no growth control restrictions)	-2.46**	0.96	-5.32***	0.94	-2.30	1.48
<b>Minimum Lot Size Index</b> (reference: less than half acre)						
Half acre up to 1 acre	-5.77***	0.44	-5.62***	0.58	-2.79***	0.66
1 acre up to 2 acres	-4.42***	0.39	-3.93***	0.49	-4.51***	0.63
2 or more acres	-7.78***	0.36	-7.23***	0.47	-5.61***	0.55
<b>Maximum Permitted Density Index</b> (reference: 31 or more units per acre)	-5.85***	0.38	-3.25***	0.56	-2.25***	0.51
<b>Minimum Required Parking Index</b> (reference: less than 2 spaces)	-5.48***	0.29	-3.59***	0.34	-3.57***	0.45
<b>Inclusionary Zoning Program Index</b> (reference: municipality does not run inclusionary zoning program)	8.24***	0.29	5.19***	0.43	2.21***	0.45
<b>Accessory Dwelling Unit Index</b> (reference: ADUs not allowed anywhere in jurisdiction)	4.26***	0.31	-0.39	0.45	1.41**	0.45
<b>Maximum Height Index</b> (scaled by 10s of feet allowed)	2.18***	0.11	1.40***	0.14	0.13	0.21
<b>Permitted Multifamily Housing Index</b> (scaled by 10% increase in zones)	1.94***	0.07	0.27**	0.11	1.87***	0.10

For the other four indices where a higher value indicates less restrictiveness there is a positive relationship with a neighborhood's rental housing share. Municipalities that have inclusionary zoning programs or that allow ADUs in their jurisdiction are associated with higher shares of rental housing, by respectively 8 percentage points and 4 percentage points. And municipalities that allow greater maximum heights and have more zones that allow multifamily housing by right are also home to neighborhoods with a higher share of rental housing as compared to more restrictive municipalities.

These findings generally hold in cities and suburbs alike. Having growth control restrictions at the municipal level in cities is associated with close to a 5-percentage-point lower share of rental housing as compared to jurisdictions with no growth control restrictions, versus a 2-percentage-point lower share in suburbs. The most restrictive lot size requirements are similarly related to producing a lower rental share by 7 percentage points as compared to the least restrictive requirements in cities, and 6 percentage points in suburbs. Lower permitted densities are also associated with a lower rental share, with restrictive places producing a rental share that is 3 percentage points lower than nonrestrictive places in cities, and 2 percentage points lower in suburbs. And requiring a greater number of parking spaces, which can make projects infeasible, is equally associated with a 4-percentage point lower rental share in cities and suburbs alike.

Meanwhile, for the other four indices where a higher value indicates less restrictiveness there is also a positive relationship with a neighborhood's rental housing share in cities and suburbs. Municipalities that have inclusionary zoning programs in their jurisdiction are associated with higher shares of rental housing, by respectively a 5-percentage point in cities and a 2-percentage point in suburbs. And municipalities that allow greater maximum heights and have more zones that allow multifamily housing by right are also home to neighborhoods with a higher share of rental housing as compared to more restrictive municipalities.

## Conclusion

The findings of this paper point to the uneven geography of rental housing across the country. Restrictive zoning has shaped this landscape. Neighborhoods with lower shares of rental housing are located in municipalities that impose strict growth controls, require large minimum lot sizes, limit

density, and mandate a higher number of parking spots with new construction. Conversely, neighborhoods with a higher share of rental housing are in municipalities with more permissive land use regimes that allow ADUs, provide incentives for inclusionary housing, have by-right multifamily zones, or permit construction at greater heights.

When neighborhoods have a limited set of options for renter households, they reinforce longstanding racial and socioeconomic segregation. The descriptive results point to the stark differences in the characteristics of rental deserts as compared to neighborhoods where a higher share of the housing is vacant for rent or renter-occupied. Rental deserts are much more likely to consist of white residents with higher incomes. Across the largest 100 metropolitan areas, the spatial unevenness of rental housing is correlated with higher levels of racial and socioeconomic segregation. While housing tenure is not the only factor that produces these outcomes, the lack of rental options in neighborhoods across the country is an important consideration in unraveling legacies of racism and inequality.

Increasing rental options in a range of neighborhoods is a worthwhile policy goal. State and local governments across the country are recognizing the need to expand diverse housing options and have already begun to enact zoning changes to allow for more types of housing in areas that were previously zoned exclusively for single-family homes. For example, in 2021 Massachusetts enacted a new requirement that the 175 communities served by the Massachusetts Bay Transportation Authority have at least one zoning district that permits multifamily housing by right. By enabling multifamily construction, these zoning changes could increase the number of rental options available in desirable locations and reduce the number of rental deserts. Notably, zoning in the U.S. cannot dictate tenure, and opening zoning for multifamily homes still does not guarantee that these homes will be available for rent, nor will zoning changes and increased multifamily housing alone be enough to confront persistent inequities in where people can live. Building homes at lower price points and expanding housing subsidies in a range of neighborhoods will also be necessary to create socioeconomically integrated, mixed-tenure communities.

As we work to deconstruct structural racism, it is important to recognize there are still fundamental barriers that shape where people can live. It will take work from community members to support new housing, especially affordable housing, and to educate neighbors on the importance of creating inclusive housing opportunities for renters and homeowners alike. Planners and local governments will likely need to smooth the path for and incentivize rental housing construction in neighborhoods where there is none. This goal could be achieved through regulatory reforms, such as relaxing setback, density, floor area ratio, and parking requirements, or through subsidies.

This exploratory analysis leaves more questions to be answered. In future work, we will explore how the spatial distribution of rental housing relates to neighborhoods of opportunity. And while we argue that renters should have options in any neighborhoods in which they would like to live, we hope to further investigate what other features of neighborhoods (such as access to transportation, employment opportunities, and affordable homes) will need to be considered to support renters. Additionally, we plan to look at rental housing geographies over time, examining how single-family rentals have expanded the set of neighborhoods available to renters and whether the increasing presence of higher-income households in the rental market could start to break down the socioeconomic divide between rental deserts and high-rental neighborhoods. Understanding the impact of spatial inequities in housing tenure will be crucial for planners who are trying to create inclusive, vibrant communities.

## Notes

1. A quick scan of the literature allowed us to confirm that while low-income neighborhoods are often conceptualized as food deserts or retail deserts (see Schuetz et al., 2012), they are not addressed as rental deserts. Furthermore, empirical studies on deserts focus for the most part on limited geographies.
2. In 2012, the school districts of the cities of Chelsea, Everett, Malden, Revere, and Winthrop, just north of Boston, launched a partnership to align the sequencing of their academic curriculums because so many of their students were moving across districts mid-year, and missing geometry units while repeating algebra units, for example: “in

blue-collar cities, the rent escalations often send people packing, with their kids, to the next city over . . . it is a game of musical chairs stacked for the wealthy” (Dain & Research, 2023, p. 39).

3. The Wharton Residential Land Use Regulation Index is a survey of local residential land use regulatory regimes for over 2,450 primarily suburban communities across the U.S. The range of regulatory tools includes impact fees and space dedications by developers, as well as affordable housing requirements in some places (about 14% of the communities in our survey).
4. The National Longitudinal Land Use Survey (NLLUS) was administered in 1994, 2003, and 2019. In 1994, the survey included the 25 most populous core-based statistical areas (CBSAs) in the U.S. In 2003 and 2019 it included the top 50 most populous CBSAs. This survey includes only jurisdictions with land-use planning authority. We could have selected 31 variables from the NLLUS codebook, but since it is a survey, it includes a high volume of missing observations. The NLLUS does not include land-use practices in most small areas in the U.S. For the 2019 survey, they identified 3,106 jurisdictions for outreach.
5. The median rental share is 28% with a standard deviation of 23%. The interquartile range across all tracts is 33%.
6. The subset of extreme rental deserts is also typically more suburban, higher-income and whiter than other rental deserts.
7. Suburbs are defined using the “census-convenient” definition delineated in Airgood-Obrycki et al. (2021). Urban and suburban tracts are located in metropolitan areas. Urban tracts fall within the first principal city listed or in any other principal city with a population greater than 100,000. Suburban neighborhoods are any other tracts that fall within the metro area that are not classified as urban.

## Acknowledgments

The authors thank the anonymous reviewers for their careful reading of the manuscript and their insightful comments and suggestions.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Appendix

**Table A1.** Alternate definitions of rental deserts.

Rental share breakdown methods		Share of Tracts					Average Tract Share				
		Number of tracts	Urban	Suburban	Micropolitan	Rural	People of color	White people	Single-family homes	Households with incomes under \$30,000	Households with incomes above \$75,000
<i><b>Straight rental share</b></i>											
Rental desert (20% cutoff)	Rental Desert	29,251	9.4	68.3	11.1	11.3	24.7	75.3	85.3	14.4	58.5
	Not a rental desert	54,137	38.7	48.1	8.2	5.0	48.8	51.2	59.2	24.0	43.1
Rental desert (15% cutoff)	Rental Desert	20,420	8.4	70.7	10.2	10.7	23.2	76.8	87.0	13.2	60.8
	Not a rental desert	62,968	34.9	50.2	8.9	6.1	45.9	54.1	62.3	23.0	44.5
10-percentage-point bands	Less than 10	11,313	7.9	74.7	8.0	9.4	21.8	78.2	89.1	11.6	64.4
	10–19.9	17,938	10.3	64.2	13.0	12.5	26.6	73.4	82.9	16.1	54.8
	20–29.9	14,565	18.5	58.4	12.2	10.9	35.0	65.0	77.3	19.0	49.8
	30–39.9	11,305	30.5	52.7	10.2	6.6	44.0	56.0	71.1	21.7	45.4
	40–49.9	9,063	39.7	48.7	8.6	3.1	50.5	49.5	62.3	24.2	42.4
	50–59.9	6,886	49.3	43.9	5.7	1.1	56.9	43.1	51.5	26.6	39.8
	60–69.9	4,914	58.4	37.5	3.8	0.3	60.8	39.2	39.4	28.0	38.1
	70–79.9	3,465	63.8	33.9	2.2	0.1	64.2	35.8	27.5	29.6	36.5
	80–89.9	2,234	68.8	29.6	1.5	0.1	65.7	34.3	17.5	33.3	32.9
	90 or More	1,705	69.7	28.0	1.9	0.3	67.9	32.1	15.6	34.6	30.0
<i><b>Rental share percentile</b></i>											
Quintiles	Bottom	16,678	8.0	72.4	9.3	10.3	22.6	77.4	87.8	12.6	62.1
	2nd	16,677	12.1	62.0	13.1	12.8	28.6	71.4	81.3	17.0	53.2
	3rd	16,678	23.1	56.3	11.6	9.0	38.7	61.3	75.1	20.0	48.0
	4th	16,677	38.6	49.2	8.6	3.7	49.7	50.3	63.1	23.9	42.8
	Top	16,678	60.1	36.1	3.4	0.4	62.2	37.8	34.3	29.5	36.5
Metro quintiles	Bottom	15,850	10.3	78.6	11.1	0.0	26.5	73.5	88.2	11.8	64.2
	2nd	15,281	17.3	73.4	9.3	0.0	34.0	66.0	81.3	15.0	56.9
	3rd	15,298	28.4	62.2	9.3	0.0	42.2	57.8	71.7	18.9	49.8
	4th	15,282	41.9	48.8	9.3	0.0	49.8	50.2	59.1	23.5	42.9
	Top	15,663	55.1	34.4	10.5	0.0	56.9	43.1	38.4	31.3	33.3
Deciles	Bottom	8,339	7.8	76.6	7.3	8.4	21.6	78.4	90.0	11.0	65.9
	2nd	8,339	8.2	68.2	11.4	12.2	23.5	76.5	85.6	14.2	58.3
	3rd	8,339	10.5	63.5	13.2	12.8	26.7	73.3	82.7	16.4	54.2
	4th	8,338	13.8	60.6	12.9	12.8	30.5	69.5	80.0	17.5	52.1
	5th	8,340	19.0	58.2	12.5	10.3	35.6	64.4	77.0	19.2	49.4
	6th	8,338	27.3	54.4	10.7	7.6	41.8	58.2	73.3	20.8	46.5
	7th	8,338	34.3	50.9	9.6	5.2	46.9	53.1	67.6	22.8	44.2
	8th	8,339	42.9	47.4	7.5	2.2	52.5	47.5	58.7	25.0	41.5
	9th	8,339	54.0	40.7	4.7	0.6	59.1	40.9	45.4	27.6	38.6
	Top	8,339	66.3	31.6	2.0	0.1	65.2	34.8	23.2	31.4	34.4