Separate and Unequal: Race and the Geography of the American Housing Market*

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Abstract

In the U.S., Black and white households with identical incomes live in neighborhoods characterized by vastly different economic resources. This racial neighborhood inequality is present in every major metropolitan area and at all points of the income distribution. We document these patterns using neighborhood income as a summary measure of economic resources and highlight where this form of racial inequality is especially severe. We then examine a series of potential explanatory mechanisms for neighborhood inequality, including decentralized racial sorting, housing discrimination, and racial differences in wealth and home ownership. We conclude with a discussion of how the separate and unequal geography of the American housing market contributes to intergenerational mobility and the speed of racial economic convergence in the United States.

JEL Codes: J15, J71, R31, R32
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1 Introduction

Racial economic convergence in the United States has proceeded exceedingly slowly since the end of the Civil War. A measure of the slow pace of convergence over this time horizon is provided by comparing it to a benchmark of how quickly one would expect group differences to diminish if economic mobility from one generation to the next were independent of race. Using this metric, Margo (2016) estimates that the difference in per capita income between Black and white Americans has declined at *less than half* the expected speed from 1870-2010.[1] Importantly, this estimate holds not only for the Reconstruction and Jim Crow eras, when the majority of Black Americans lived in the South, but also in recent decades when racial economic differences have again stagnated.[2] In this way, for the past century and a half, for generation after generation, the economic fortunes of Black Americans have consistently lagged those of white Americans who began their lives in otherwise comparable economic circumstances.

Across many aspects of American society, such as schooling, employment, the professions, lending, housing, or policing and criminal justice, there is no doubt that *racial discrimination* arising from prejudicial or adverse sentiments has played an important role in limiting the economic opportunities of generations of Black Americans.[3] But, it is not only those cross-racial interactions that are the result of racial discrimination or racist animosity that affect racial outcomes and intergenerational mobility. The systematic tendency to sort by race - what we call *racial sorting* - which is to be found in virtually every dimension of Amer-

[1] Specifically, Margo (2016) estimates that a persistence parameter of 0.85 would be needed to rationalize the slow speed of racial economic convergence in the United States over this time period. This implies a two-generation parameter of 0.72, which is more persistent than one-generation estimates of 0.3-0.6 typically estimated in the economics literature. See Jacome et al. (2021) for estimates of these parameters over the 20th Century.

[2] See Bayer and Charles (2018); Bound and Freeman (1992); Neal and Rick (2014) for a detailed discussion of the stagnation of racial economic convergence over the past half century.

[3] A large literature in economics has documented racial discrimination in various aspects of these aspects of American society. Some examples include Alsan et al. (2019); Anwar et al. (2012); Arcidiacono et al. (2010); Arnold et al. (2018); Ba (2018); Ba et al. (2021); Bayer et al. (2017); Charles and Guryan (2008, 2011); Derenoncourt and Montialoux (2021); Edelman et al. (2017); Feigenberg and Miller (2021a,b); Guryan and Charles (2013); Knowles et al. (2001); Lang and Manove (2011)

ican society, and especially in schools and neighborhoods, is another important race-based pathway that leads to outcomes that may have profound implications for intergenerational mobility.[4]

To the degree that households are informed by a desire for representation of persons of their own race in their chosen community as they self-select into neighborhoods and schools, racial sorting will emerge. The most obvious manifestation of such sorting is how starkly segregated many of America's schools and neighborhoods remain. But this is only part of the story. The primary focus of this paper is on the way that racial sorting also systematically gives rise to an equilibrium neighborhood structure that is vastly unequal: In every American metropolitan area, Black and white families who are identical in every other way routinely wind up living in neighborhoods that are nothing alike in terms of available resources. These differences in neighborhood resources work, in turn, to calcify and pass down historical inequities from one generation to the next, likely slowing the speed of racial economic convergence in the United States significantly. Importantly, this equilibrium neighborhood structure comes about as an immediate and natural consequence of the uncoordinated location decisions of millions of individuals, none of whom needs to have engaged in a direct act of discrimination or even to necessarily hold adverse views about persons of another race.

We begin this paper by documenting the vast differences in the neighborhoods in which Black and white households *with identical incomes* reside in metropolitan areas across the United States. This portion of our paper closely follows the insightful analyses of Logan (2011) and Reardon et al. (2015).[5] For the United States as a whole, Logan (2011) documents the following remarkable fact: relatively affluent Black households (defined as those with income above $75,000) live in neighborhoods with a higher average poverty rate than is

[4]Large literatures in economics have documented the effect of schools and neighborhoods on intergenerational mobility and children's outcomes. See Chetty and Hendren (2018a,b); Chetty et al. (2020, 2016); Jackson et al. (2016) for a few recent examples.

[5]We use the phrase "separate and unequal" in the title and text of our paper in part as a way to pay homage to the influence of Logan's paper on our own.

true for the neighborhoods that are, on average, home to poor white households (those with income below $40,000). Following the framework developed in Reardon et al. (2015), we use median neighborhood income as a summary statistic for available neighborhood resources. Using data from the American Community Survey for 2014-18, we document substantial racial differences in neighborhood resources throughout the entire household income distribution.[6] We show, for example, that it takes more than $65,000 in household income for a Black household to live in a neighborhood with the median level of neighborhood income. By contrast, white households with only $21,000 in income reside in these neighborhoods. More generally, Black households at every income level reside in neighborhoods that are, on average, much poorer than those in which comparable white households live.

We repeat this analysis for each of the largest metropolitan areas in the United States. In general, racial inequality in neighborhood resources is even greater when we focus on individual metropolitan areas. In the Chicago metropolitan area, for example, it takes more than $150,000 for Black households to live on average in neighborhoods with the median level of neighborhood income, while white households with just $10,000 in income live, on average, in neighborhoods where mean income is *higher* than the neighborhood median. There is substantial heterogeneity in neighborhood inequality across metropolitan areas. The highest levels are generally concentrated in the most segregated cities of the North and Midwest, most of which exhibit patterns similar to Chicago. The lowest levels of racial neighborhood inequality are concentrated in the less segregated cities of the Sunbelt and West. Overall, there is a strong correlation between the level of residential segregation in a city and our measure of racial neighborhood inequality, consistent with the idea that the degree of racial sorting may be an important driver of both phenomena.[7]

The second part of the paper explores a number of mechanisms that might contribute

[6] We use the 2015-2019 Integrated Public Use Microdata Series (IPUMS) from the American Community Survey for home-ownership analysis presented in Section 3.4.

[7] Logan (2011) also documented a strong correlation between racial segregation and inequality of neighborhood outcomes for Black and white households with comparable incomes.

to this stark pattern of racial segregation and neighborhood inequality.[8] We first consider the potential role of decentralized racial sorting - i.e., households self-selecting into neighborhoods on the basis of their preferences to have persons of their same race among their neighbors. To motivate why sorting naturally leads to racial inequality in neighborhood resources, we first document an important fact about the set of the neighborhoods that are available in most US metropolitan areas: neighborhood resources are often tightly bundled with neighborhood racial composition.[9] In particular, we show that in the vast majority of US cities, with a few exceptions, like Washington D.C. and Atlanta, it is impossible to choose a neighborhood with both a high median income and a high percentage of Black neighbors because such places essentially do not exist. Given the set of available neighborhoods, any household wishing to live in such a neighborhood is forced to choose between either satisfying their preferences for neighborhood racial makeup or having high neighborhood resources. Consistent with this constraint on their choices, we observe that high income Black households reside in a very diverse set of neighborhoods: many live in relatively high income neighborhoods where they are a part of a small racial minority, while many others reside in neighborhoods with a higher percentage of Black neighbors and far lower resources. As a result, relative to white households with comparable incomes, high income Black households, on average, live in neighborhoods with substantially lower mean income levels and exhibiting much greater variation in economic resources.

While the limited availability of neighborhoods with both high number of Blacks and high mean income can help explain different neighborhood characteristics for high income Black and white households, it cannot as easily explain racial neighborhood inequality among household with lower income, for whom a more racially diverse set of potentially affordable neighborhoods is available. In this case, it is helpful to think more generally about the trade-off that households face when choosing a neighborhood given the strong and consistent

[8] Aliprantis et al. (2018) provides a comprehensive analysis of a number of mechanisms related to racial neighborhood inequality.

[9] This portion of our paper follows closely aspects of the analysis in Bayer and McMillan (2005) and Bayer et al. (2014).

correlation between neighborhood income and racial composition in the vast majority of metropolitan areas. In essence, this correlation implies that the price of buying into a higher income neighborhood generally includes both higher housing prices and a higher (lower) fraction of white (Black) neighbors. Given any form of segregating preferences, the presence of additional white neighbors increases the relative value of these neighborhoods for white households and, therefore, what they are willing to pay to live there, relative to comparable Black households. In economic terms, highly resourced neighborhoods are subsidized for white households and taxed for Black households through neighborhood racial composition, with Black and white Americans experiencing vastly unequal neighborhood resources as a direct consequence.[10]

We turn next to a discussion of the potential role of housing discrimination in driving racial inequality in neighborhood resources. We argue that housing discrimination, by illegally restricting the locational choices of Black households, exacerbates the effects of racial sorting. From the perspective of our analysis, this creates an observational equivalence between housing discrimination and unconstrained racial sorting, with each accentuating the separate and unequal pattern of neighborhood sorting observed in the vast majority of American metropolitan areas.

We close the paper by considering two additional potential mechanisms related to racial differences in wealth and home ownership. Because we do not observe wealth directly in our data set, our discussion of this potential mechanism draws heavily on the analysis of Aliprantis et al. (2018), which uses data from the Panel Study of Income Dynamics to analyze how wealth affects household consumption of an index of neighborhood quality. The results of their analysis imply that wealth differences explain about 30 percent of the racial gap in the consumption of neighborhood quality. Our analysis of home ownership is motivated by the idea that there may be a complementarity between neighborhood and

[10]In Section 3, we discuss results from Bayer and McMillan (2005) which quantifies the contribution of racial sorting on differences in the exposure of a number of measures of neighborhood resources for Black and white households in one empirical setting.

tenure choice, especially given that certain neighborhoods are dominated by owner-occupied single family homes and others by renter-occupied apartments. The sharpest finding from our analysis is that, for high income households, there is almost no racial difference in both a household's own likelihood of owning a home and the home ownership rate in their chosen neighborhood. This suggests that racial differences in home ownership are not an important driver of neighborhood sorting at higher income levels. At lower income levels, however, barriers to Black home ownership may play an important role in driving racial neighborhood inequality.

The paper concludes with a discussion of the implications of racial residential and school segregation for intergenerational mobility and racial economic convergence. We argue that the racial interactions studied here, which result from the uncoordinated sorting of millions of individual households into schools and neighborhoods, have enormous consequences for the economic mobility of Black households and have likely contributed significantly to the slow speed of racial economic convergence in the United States for well over a century. While much of the literature on race and racism in economics (including a number of our own studies) has focused on tests for direct acts of discrimination, the consequences of the these kind of racial interactions, which do not require a direct or targeted act of discrimination, have received far less attention. It is our hope that the magnitude of the neighborhood inequality documented here (and in the related literature), as well as the suggestive evidence on potential underlying explanations, spurs future research on both the causal mechanisms that underlie this form of racial inequality and its implications for American society.

2 Racial Inequality in Neighborhood Resources

The rest of our paper proceeds in two main steps. In this section, we present a series of figures that illuminate the vast disparities in the neighborhoods in which Black and white households *with identical incomes* live, across the United States as a whole and in every

major metropolitan area. In the next section, we examine a series of potential mechanisms that might explain this sorting pattern.

The data for most of our analysis are drawn from the 2014-2018 5-year sample of the American Community Survey, although the 2015-2019 sample is used for home-ownership analysis. Throughout our analysis, we report and discuss results for Non-Hispanic Black and Non-Hispanic white households in the main text of the paper. We report comparable results for Asian and Hispanic households (as defined by the Census) for the key aspects of our analysis in the Appendix. More details about sample construction and procedure used to create the figures presented below are also included in the Appendix.

2.1 United States as a Whole

We begin our analysis by presenting a series of figures that characterize the neighborhoods in which Black and white households at each income level reside. In particular, for the United States as a whole, Figure 1 plots the average neighborhood income level for Black and white households, respectively. This figure is motivated by a similar figure reported in Reardon et al. (2015) for the 2007-2011 ACS sample. For each household, the measure of neighborhood income is the median income in their Census tract. To standardize the results, the plots are reported using the percentiles of both the household and neighborhood income distributions. Corresponding dollar amounts are also shown along the each axis.

To appreciate the extent of racial disparities in neighborhood income, it is helpful to compare the red solid line (Black households) and the blue dashed line (white households) both vertically and horizontally. The vertical difference in the lines summarizes disparities in neighborhood outcomes for Black and white households with identical incomes. Focusing on the dashed vertical line shown in the first panel of the figure, for example, shows that white households with $60,000 in income reside in neighborhoods with an average median income of $65,000, while Black households with the same household income level reside in neighborhoods with an average median income of $53,000. The difference of $12,000 is

equivalent to 18 percentile points of the distribution of median income across Census tracts in the United States. A nice feature of this figure is that it is easy to see how the vertical difference in the lines varies throughout the entire income distribution. For the United States as a whole, a substantial vertical distance is present throughout the entire income distribution. The gap is larger, as measured by percentiles of the neighborhood income distribution, at the bottom of the household income distribution, about 30 percentile points, and smaller at the top of the income distribution, about 10 percentile points.

Examining the horizontal difference in the lines provides another striking way to summarize the vast racial disparities in neighborhood outcomes. In essence, this comparison contrasts the household income required for Black versus white households to reside in neighborhoods with a given income level. Focusing on the dashed horizontal line shown in the second panel of the figure, for example, shows that while it takes more than $75,000 in income for Black households to reside in neighborhoods with $57,000 in median income on average, white households with just $21,000 in income reside in comparable neighborhoods. Similarly enormous gaps are present at every neighborhood income level. Again, larger differences generally obtain at lower income levels.

The Figure 1c highlights a final way to compare outcomes. The points "x", "o" and "+" mark the locations of the household at the 10th, 50th and 90th quantiles of the income distribution for Black and white households, respectively. By comparing these points for Black and white households, it is possible to decompose the difference in neighborhood outcome into components due to (i) differences in neighborhood outcomes for households with identical incomes and (ii) racial differences in the amount of household income associated with a given quantile of the income distribution. The figure highlights one way this decomposition can be done at the median. Starting at the median Black income of $40,000, the vertical difference between Black and white lines captures component (i), while the difference in neighborhood outcomes between white households with income of $66,000 (white median income) versus $60,000 captures component (ii).

It is immediately obvious from the locations of points "x", "o" and "+" that differences in neighborhood outcomes *conditional on identical incomes* are responsible for the vast majority of the observed racial disparities at each quantile. In particular, this first component makes up 95, 73, and 60 percent of the observed racial differences in neighborhood outcomes at the 10th, 50th, and 90th percentiles, respectively. Thus, remarkably, throughout the entire income distribution, the unequal neighborhood assignment of Black and white households with identical incomes is the main driver of racial neighborhood inequality.

2.2 Metropolitan Areas

By summarizing neighborhood outcomes for the United States as a whole, Figure 1 naturally combines racial differences in neighborhood outcomes that arise due to differences in location patterns within and across local housing markets. If, for example, white households systematically live in higher income metro areas, some of the differences in neighborhood outcomes may reflect sorting across metro areas rather than across neighborhoods per se. To isolate the role of within-metro sorting in driving racial disparities in neighborhood income levels, we now present comparable figures for eleven large metropolitan areas, chosen to highlight heterogeneity in patterns across the the United States. Statistics for a full set of large metro areas are reported in Appendix Table B.1.

The figures for the eleven metro areas shown in Figure 2 highlight several important results that arise from looking at neighborhood outcomes within metropolitan areas.[11] First, the differences within metropolitan areas are, in general, significantly larger than those observed for the United States as a whole in Figure 1. In New York, for example, the vertical difference between the Black and white lines at $60,000 in household income is $30,000 compared to $13,000 nationally. The horizontal differences in New York are even more striking: to reside in neighborhoods with an average median income of $70,000 requires

[11] The magnitude of the neighborhood inequality documented here for 2014-2018 is especially striking given the recent increase in Black suburbanization and reductions in racial neighborhood inequality documented in Bartik and Mast (2021). See their paper for a more detailed analysis of the trends in racial neighborhood inequality from 1970-2020.

over $200,000 in income for Black households compared to only $20,000 for white households. Similarly enormous gaps obtain for many of the nation's largest metropolitan areas.

A second feature of the within-metropolitan figures is that there is considerable variation in racial differences in neighborhood outcomes both across the income distribution and across metro areas. In Detroit, for example, the differences are clearly larger near the bottom of the income distribution, while in Boston they are larger near the top of the distribution. And even a cursory glance across the panels of Figure 2, shows that there is substantial variation in racial disparities in neighborhood outcomes across metro areas. Racial disparities in neighborhood outcomes, across the entire income distribution, are twice as large, for example, in Boston versus Houston.

To summarize the heterogeneity in racial disparities in neighborhood outcomes across metropolitan areas, Table 1 summarizes the 10 metro areas with the largest and smallest (vertical) differences in neighborhood outcomes at the 10th, 50th, and 90th quantiles of the Black income distribution, respectively. Overall, disparities in neighborhood outcomes for Black and white households are clearly much larger in the major cities of the North and Midwest compared to the South and West.

Figures 3 and 4 provide a series of maps that highlight the relationship of four important measures for a number of large metropolitan areas. Figure 3a shows the vertical gap in neighborhood outcomes for Black and white households, measured at the median Black income level. As discussed above, this measure is generally greatest in the major cities of the North and Midwest. Figure 3b shows the difference in neighborhood outcomes attributable to racial inequality in household income at the median - i.e., the second component of decomposition shown in the Figure 1c. This measure is also especially high in a number of Midwestern cities.

Figure 4 shows two maps that characterize residential segregation in the same set of metropolitan areas: Figure 4a is based on the dissimilarity index, while Figure 4b uses the isolation index. A comparison of the four maps shown in Figures 3 and 4 highlights the strong

and obvious correlation at the metro level between residential segregation and within-metro racial disparities in neighborhood resources for Black and white households. This correlation pattern is consistent with the notion that the degree of racial sorting may be an important driver of both segregation and racial neighborhood inequality.

3 Mechanisms

Having shown the vast disparities in the neighborhoods in which Black and white households with identical incomes reside in Section 2, we now examine a series of potential mechanisms that may contribute to this sorting pattern. In what follows, we explore the potential role of (i) decentralized racial sorting, (ii) housing discrimination, (iii) racial differences in wealth, and (iv) home ownership. Our primary goal is not to provide definitive causal evidence on any of these mechanisms, but instead to highlight suggestive evidence pointing to the potential role of each.

3.1 Decentralized Racial Sorting

We begin by considering the role of racial sorting - i.e., self-selection into neighborhoods based on preferences over racial makeup - in driving location decisions and, as a result, the sorting patterns shown in Section 2. While racial sorting almost tautologically causes residential segregation, that it also contributes to differences in neighborhood resource levels for otherwise identical Black and white households may be less obvious. To provide some motivation and suggestive evidence for why these disparities are likely to accompany racial segregation, we begin by presenting descriptive analyses of the set of neighborhoods that are available in US metropolitan areas. This set of neighborhoods generally creates a stark trade off for Black households, ultimately leading to racial inequality in equilibrium neighborhood assignments. We conclude this subsection with a discussion of the findings in Bayer and McMillan (2005), which explicitly quantifies the effect of decentralized racial sorting on

neighborhood resources levels in one empirical setting.

We being by documenting an important fact about the set of the neighborhoods that are available in most US metropolitan areas: that neighborhood resources are often tightly bundled with neighborhood racial composition. Figure 5 shows scatter plots of Census tracts with the median neighborhood income on the vertical axis and the share of Black residents on the horizontal axis. A separate plot is shown for each of the eleven major metropolitan areas we have been following in the text.[12] These plots reveal an obvious empirical regularity: In most US cities, with a few exceptions like Washington DC and Atlanta, it is difficult (or even impossible) to choose a neighborhood that simultaneously provides even moderate levels of both median income and the share of Black neighbors.

The restricted nature of the set of available neighborhoods creates a stark trade off for any household who would prefer to live in a neighborhood with relatively high levels of income and the share of Black neighbors - i.e., one in the upper right quadrant of these scatter plots. Consider, for example, the case of a high income Black household with these preferences living in the Boston metropolitan area. Given the set of available neighborhoods, this household would be forced to choose between living in a relatively high income neighborhood where they are a part of a small racial minority and a neighborhood with a higher percentage of Black neighbors but far lower neighborhood resources.[13]

Bayer and McMillan (2005) and Bayer et al. (2014) show that this neighborhood availability constraint is sharply binding in practice for high income and highly educated Black households. Bayer et al. (2014), for example, shows that across US metropolitan areas approximately 40 percent of college educated Black households live in neighborhoods that closely resemble those in which college educated white households reside in terms of both racial composition and neighborhood resources. In contrast, the other 60 percent of college educated Black households live in neighborhoods with a much higher fraction of Black neighbors, but substantially lower levels of neighborhood resources. Using detailed neighborhood

[12]Similar plots are presented in Bayer and McMillan (2005) and Bayer et al. (2014).

[13]Similarly stark trade offs routinely arise when it comes to choosing a school in many metropolitan areas.

date from the San Francisco Bay Area, Bayer and McMillan (2005) show that high-income Black households (defined as those with incomes above about $200,000 in 2021 dollars) reside in an incredibly heterogeneous set of neighborhoods. These neighborhoods range from very high-amenity, predominantly white neighborhoods to neighborhoods with a more sizeable share of Black neighbors but also substantially (2-3 standard deviations) lower levels of neighborhood amenities/resources, including neighborhood income, education, school test scores, and public safety. Given the heterogeneity in these neighborhood choices, the average level of neighborhood resources for high income and highly educated Black households is substantially lower than those of comparable white households in each study.

The scatter plots shown in Figure 5 highlight a clear trade off that many Black households face when choosing a neighborhood in which to live and, therefore, provide some clear intuition for how decentralized racial sorting might lead to racial inequality in neighborhood resources. The trade off suggested by these scatter plots would appear, however, to primarily affect high income Black households and, yet, the analysis of Section 2 shows that racial inequality in neighborhood resources is present throughout the entire income distribution. As it turns out, another feature of the set of neighborhoods that are available in metro areas across the United States creates a similar trade off throughout the income distribution: the strong and consistent correlation between neighborhood racial composition and neighborhood income. In essence, this correlation implies that the price of buying into a higher income neighborhood generally includes both higher housing prices and a higher (lower) fraction of white (Black) neighbors. Given any form of segregating preferences, the presence of additional white neighbors increases the relative value of these neighborhoods for white households relative to their Black counterparts.[14] In economic terms, the increased whiteness of these high amenity neighborhoods provides an implicit subsidy to white households, leading them to bid up housing prices in these neighborhoods, thereby driving a substantial

[14]By segregating preferences, we mean differential preferences for neighborhood racial composition that lead white households to be willing to pay (relative to Black households) to sort into a neighborhood with a higher fraction of white neighbors.

wedge in equilibrium neighborhood assignment for Black and white Americans in the vast majority of metropolitan areas.

To provide a sense of how neighborhood racial composition and neighborhood income levels co-move throughout the income distribution, Figures 6 and 7 follow the same structure as Figure 1 but with neighborhood racial composition on the vertical axis. In particular, Figure 6 shows how the exposure to white neighbors varies with household income, while Figure 7 shows reports exposure to households of one's own race. These figures again reveal a striking pattern: as household income increases, exposure to a higher share of white neighbors goes hand in hand with the increase in average neighborhood income (shown in Figure 1) *for both Black and white households*. In most metropolitan areas, Black households see a significant decline in the share of Black neighbors as their incomes increase and they sort, on average, into higher income neighborhoods. These equilibrium sorting patterns provide a clear sense of the trade off between neighborhood income and race that Black households face throughout the income distribution. In contrast, own race exposure systematically increases for white households as they buy into higher income neighborhoods.

Quantifying the importance of decentralized racial sorting on racial inequality in neighborhood resources is challenging because it requires both an empirical strategy for estimating household preferences over neighborhoods and a framework for computing a sorting equilibrium in a counterfactual world without preferences for the race of one's neighbors. Bayer and McMillan (2005) carries out such an empirical analysis using detailed Census and neighborhood data for the San Francisco Bay Area in 1990. The paper uses the school attendance zone boundary discontinuity design from Black (1999) and Bayer et al. (2007) to estimate a model of residential sorting that includes household preferences over a wide variety characteristics related to housing, schooling, neighborhood, and commuting distance. It then simulates the new sorting equilibrium that results when preferences over neighborhood racial composition are set to zero. Racial differences in work locations, education, and income levels are not changed in this simulation and yet the results imply that removing preferences for

neighborhood racial composition eliminates *half of the racial gap* in neighborhood income, neighborhood education, school test scores, and exposure to crime. While additional studies are needed for other cities and time periods, these results provide clear evidence that decentralized racial sorting leads directly to substantial racial inequality in neighborhood resources.

3.2 Housing Discrimination

The discussion of the previous subsection proceeds under the implicit assumption that households are free to choose among neighborhoods in an unconstrained fashion. Yet the economics literature provides strong evidence of racial discrimination against Black households in the housing and mortgage markets.[15] Such housing discrimination might affect choices by either effectively eliminating certain neighborhood options for Black households or making them more costly in terms of house prices, rent, and search costs.

In general, it is impossible to distinguish whether the separate and unequal sorting pattern observed in US cities is driven by decentralized racial sorting or housing discrimination using observational data on household location decisions alone. That is, whether Black households are illegally restricted from locating in highly resourced, predominantly white neighborhoods or white households simply outbid them to live there, the implications for the equilibrium sorting pattern are the same.[16] While this observational equivalence makes it difficult to tell these mechanisms apart in the data, it also implies that active housing discrimination effectively strengthens the mechanism of decentralized racial sorting and, thus, further accentuates the inequities in neighborhood resources between Black and white Americans caused by the racial sorting.

[15] See Bayer et al. (2017, 2018); Christensen and Timmins (2018, 2021); Ghent et al. (2014); Hanson et al. (2016) for example.

[16] For a more detailed discussion of this observational equivalence see Bayer and McMillan (2008).

3.3 Wealth

A third potential explanation for the separate and unequal sorting pattern shown in Figures 1 and 2 is that Black households are far less wealthy than white households, even conditional on income. To provide evidence on this mechanism, we turn to the analysis of Aliprantis et al. (2018), who use data from the Panel Study of Income Dynamics (PSID) to analyze how wealth affects household consumption of an index of neighborhood quality. They conclude that racial differences in wealth can explain about 30 percent of the racial gap in the consumption of neighborhood quality, but that a significant gap remains unexplained even conditioning on the detailed measure of wealth contained in the PSID.

That racial differences in wealth are an important driver of racial neighborhood inequality seen in Figures 1 and 2 is not surprising given the enormous racial wealth gap.[17] What is remarkable about the results of Aliprantis et al. (2018) is that wealth differences explain less than a third of the racial gap in neighborhood resources. In other words, the racial neighborhood inequities caused by decentralized racial sorting, housing discrimination, and other mechanisms work to *triple* the differences that would arise due to (already substantial) racial differences in wealth alone.

3.4 Home Ownership

We conclude this section by taking up the possibility that racial differences in home ownership rates might contribute to inequality in neighborhood resources. Broadly speaking, this analysis is motivated by the idea that there may be a complementarity between neighborhood and tenure choice. Renters, for example, will generally have a difficult time locating in neighborhoods that are dominated by owner-occupied single family homes, while home owners are unlikely to locate in neighborhoods consistently primarily of multi-family apartment buildings.

[17] Darity Jr et al. (2018); Hamilton and Darity (2017) document the wealth gap between Black and white households with similar education and income levels.

To examine the potential role of this mechanism in driving the sorting pattern shown in Figure 1, Figure 8 shows how a household's own likelihood of owning a home increases with income for Black and white households, respectively. Not surprisingly, these figures reveal a home ownership gap between Black and white households *conditional on income*, although the gap is generally smaller near the top of the income distribution. To explore whether household tenure choice might constrain location choices, Figure 9 follows a similar structure but instead plots the average neighborhood home ownership rate for Black and white households at each income level. Again there is a clear racial gap. At most income levels, Black households systematically choose neighborhoods with lower owner occupancy rates, providing some suggestive evidence that there may be an important link between tenure and neighborhood choice. Interestingly, however, Figure 9 shows that there is almost no difference in neighborhood owner occupancy rates for Black and white households near the top of the income distribution in most metropolitan areas. Thus, racial differences in home ownership are unlikely to play much of a role in driving the observed differences in neighborhood resources for high income Black and white households seen in Figure 1.

In this way, barriers to Black home ownership appear to be a potentially important driver of neighborhood inequality in the lower and middle of the income distribution, but not at the top. More research is needed to establish a causal relationship between racial differences in home ownership and neighborhood inequality.

4 Discussion and Conclusion

The motivation for this paper can be summarized as a hypothesis with two parts: first, that decentralized racial sorting leads to vast inequities in school and neighborhood resources for Black and white households who are essentially identical in every other way and second, that these inequities have important consequences for racial differences in intergenerational mobility and, therefore, the speed of racial economic convergence in the United States.

While housing and lending discrimination certainly exacerbate it, and racial sorting may, in many instances, be motivated by prejudice and animosity, the racial interactions at the heart of this hypothesis can arise without any targeted or direct acts of discrimination. Instead, this equilibrium structure emerges organically as the natural consequence of millions of schooling and residential locations made by individuals based, in part, on the racial makeup of their neighbors or child's peers. The magnitude of the resulting inequities underscores the limits of focusing racial equity efforts only on reducing direct forms of discrimination without addressing the role of individual decisions in creating the structure of our neighborhoods, schools, and other institutions.

Racial sorting also has important implications for the impact of a wide range of policies related to zoning, housing, school choice, and mortgage lending. In predicting or evaluating the likely effect of such policies, it is critical to account for the fact that preferences and policy jointly shape the way that households are ultimately matched to schools and neighborhoods in equilibrium.

While linking racial sorting directly to racial differences in intergenerational mobility is beyond the scope of this paper, the existing literature clearly suggests that the impact is substantial. Chetty et al. (2020), for example, estimate that adding neighborhood fixed effects to an analysis of intergenerational mobility accounts for a sizeable difference in the mobility of Black versus white Americans. And, while this estimate captures the impact of racial differences in residential neighborhood well, it does not account for differences in school quality that may arise for Black and white children who reside in similar neighborhoods but attend different schools, either because of differential access to private and charter schools or the role of racial sorting in public school choice systems.

While much of the literature on race and racism in economics has focused on tests for direct acts of discrimination, the inequities in resources resulting from racial sorting have received far less attention. Given the magnitude of neighborhood inequality documented here, there is an urgent need for more research on the causal mechanisms that underlie this

form of inequality and its implications for racial economic convergence in the United States.

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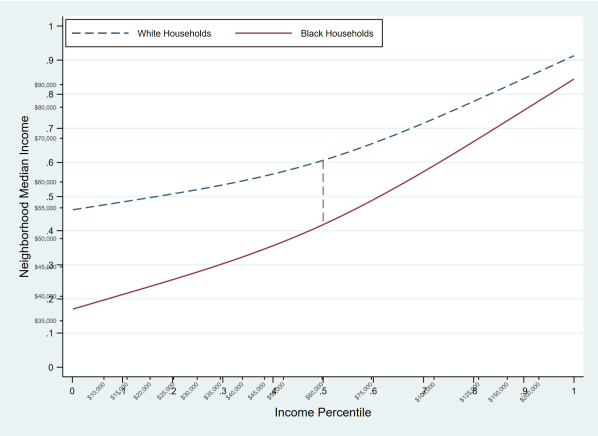
Table 1: Differences in Neighborhood Outcomes by Income Quantiles

Rank	10th	50th	90th
Metros with Largest Differences			
1	CHICAGO, IL (0.426)	MILWAUKEE-WAUKESHA, WI (0.385)	BUFFALO-NIAGARA FALLS, NY (0.391)
2	MIAMI, FL (0.410)	CHICAGO, IL (0.380)	MILWAUKEE-WAUKESHA, WI (0.355)
3	NEWARK, NJ (0.404)	BUFFALO-NIAGARA FALLS, NY (0.366)	GRAND RAPIDS-MUSKEGON-HOLLAND, MI (0.340)
4	JACKSONVILLE, FL (0.378)	NEW YORK-NEWARK, NY-NJ-PA (0.363)	ROCHESTER, NY (0.329)
5	NEW YORK-NEWARK, NY-NJ-PA (0.375)	NEWARK, NJ (0.356)	MIAMI, FL (0.314)
6	NORFOLK-VIRGINIA BEACH-NEWPORT NEWS, VA-NC (0.369)	PITTSBURGH, PA (0.348)	NEWARK, NJ (0.314)
7	BERGEN-PASSAIC, NJ (0.358)	PHILADELPHIA, PA-NJ (0.344)	NASSAU-SUFFOLK, NY (0.309)
8	NEW HAVEN-BRIDGEPORT-STAMFORD-WATERBURY-DANBU (0.353)	MIAMI, FL (0.344)	CHICAGO, IL (0.305)
9	LOS ANGELES-LONG BEACH, CA (0.351)	CINCINNATI, OH-KY-IN (0.338)	PHILADELPHIA, PA-NJ (0.299)
10	MILWAUKEE-WAUKESHA, WI (0.348)	JACKSONVILLE, FL (0.333)	CLEVELAND-LORAIN-ELYRIA, OH (0.297)
Metros with Smallest Differences			
1	RIVERSIDE-SAN BERNADINO, CA (0.133)	RIVERSIDE-SAN BERNADINO, CA (0.057)	RIVERSIDE-SAN BERNADINO, CA (0.031)
2	LAS VEGAS, NV-AZ (0.143)	LAS VEGAS, NV-AZ (0.081)	LAS VEGAS, NV-AZ (0.070)
3	MONMOUTH-OCEAN, NJ (0.159)	PHOENIX-MESA, AZ (0.122)	SACRAMENTO, CA (0.074)
4	PHOENIX-MESA, AZ (0.159)	PORTLAND-VANCOUVER,OR-WA (0.131)	ORANGE COUNTY, CA (0.075)
5	PORTLAND-VANCOUVER,OR-WA (0.169)	SAN ANTONIO, TX (0.151)	PHOENIX-MESA, AZ (0.081)
6	SEATTLE-BELLEVUE-EVERETT, WA (0.173)	MIDDLESEX-SOMERSET-HUNTERDON, N (0.152)	SAN ANTONIO, TX (0.084)
7	ORANGE COUNTY, CA (0.179)	TAMPA-ST. PETERSBURG-CLEARWATER, FL (0.155)	GREENVILLE-SPARTANBURG-ANDERSON, SC (0.090)
8	MIDDLESEX-SOMERSET-HUNTERDON, N (0.216)	MONMOUTH-OCEAN, NJ (0.158)	AUSTIN-SAN MARCOS, TX (0.090)
9	SALT LAKE CITY-OGDEN, UT (0.218)	ORANGE COUNTY, CA (0.165)	PORTLAND-VANCOUVER,OR-WA (0.105)
10	FORT LAUDERDALE, FL (0.219)	DENVER, CO (0.182)	SALT LAKE CITY-OGDEN, UT (0.106)

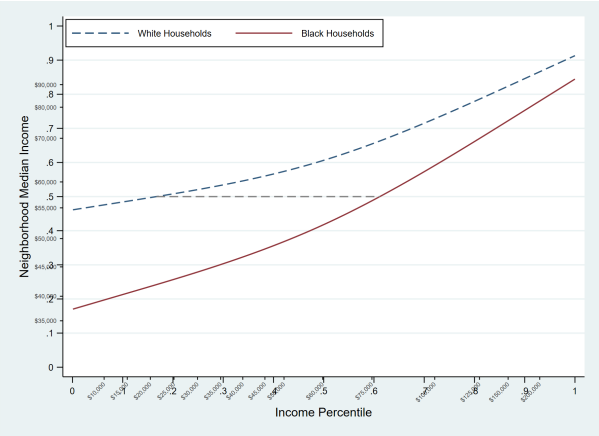
Notes: This table ranks the 10 metro areas with the largest and smallest differences in neighborhood outcomes evaluated between 10th, 50th, and 90th income quantiles within Black and white income distributions. The column headers specify the income quantiles. The numbers in the parentheses next to metropolitan areas indicate the percentile vertical distance due to differences in neighborhood outcomes. *Source:* American Community Survey 2014-2018

Figure 1: Neighborhood Median Income by Household Income and Race (U.S.)

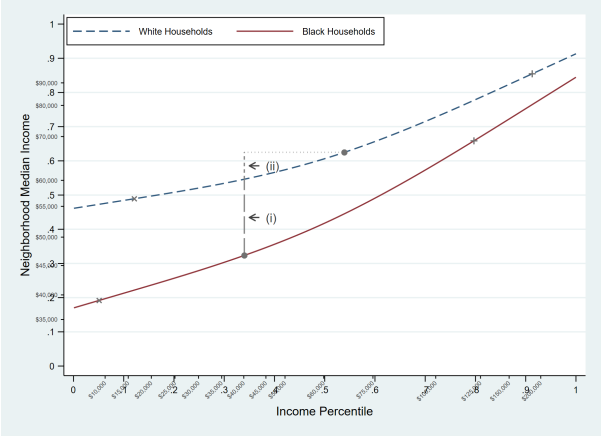
(a) Vertical Difference



(b) Horizontal Difference



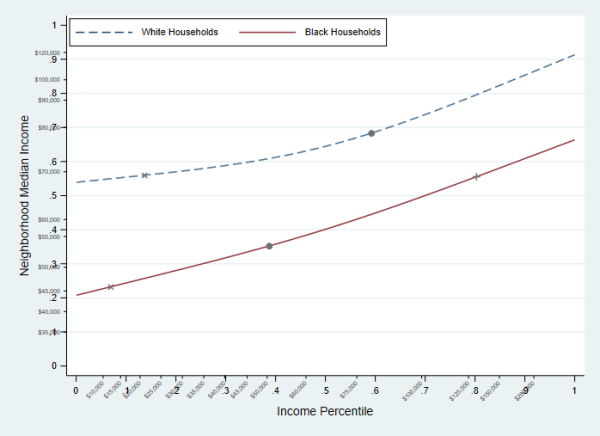
(c) Decomposition



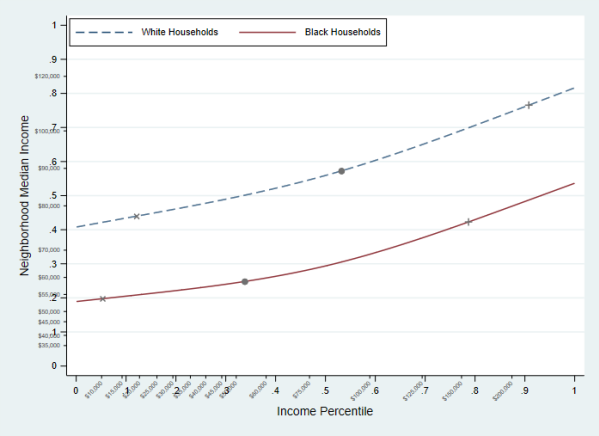
Notes: The three figures above plot the average of the median neighborhood household income level for Black and white households against the income percentile in the United States. The vertical dashed line in the first panel represents the difference in neighborhood outcome for Black and white households with identical incomes. The horizontal dashed line in the second panel shows the additional household income required for Black households to live in the same neighborhoods as their white counterparts. The last figure decomposes the difference in neighborhood outcomes into two components: (i) difference for households with identical incomes and (ii) racial difference in household income for a given quantile; "x", "o", and "+" mark 10th, 50th, and 90th income quantiles within each race's income distribution, respectively. *Source:* American Community Survey 2014-2018

Figure 2: Neighborhood Median Income by Household Income, Race (MSA)

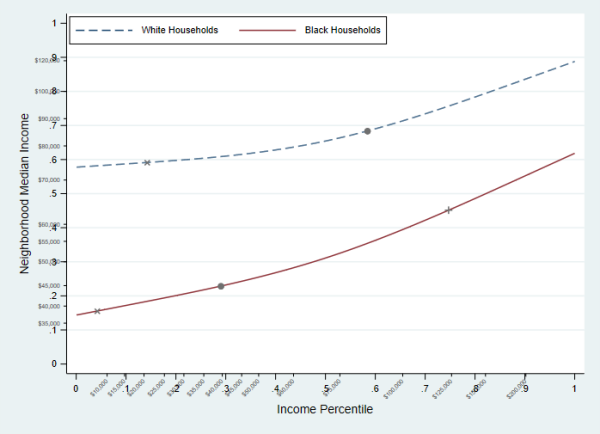
(a) Atlanta



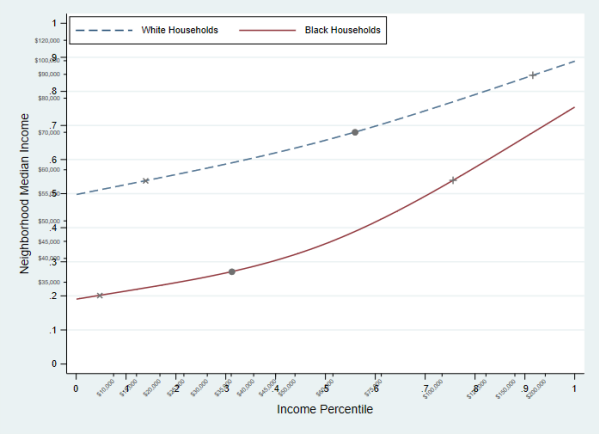
(b) Boston



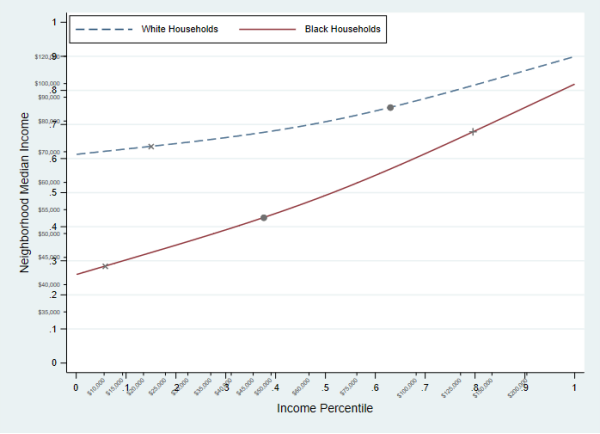
(c) Chicago



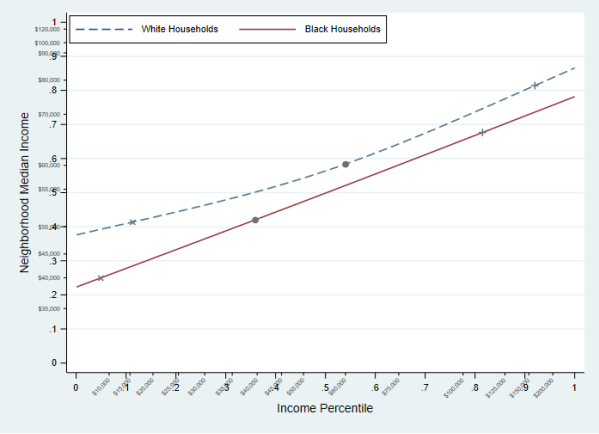
(d) Detroit



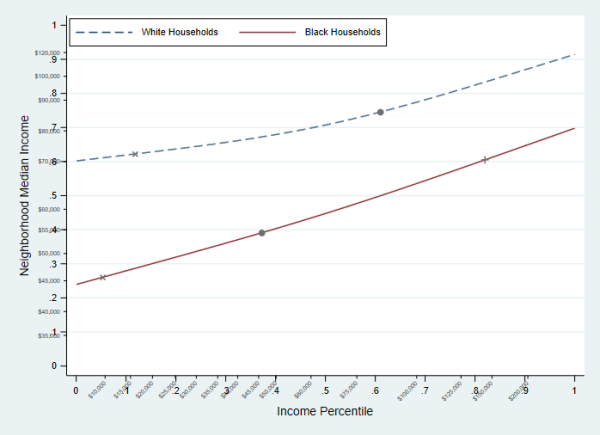
(e) Houston



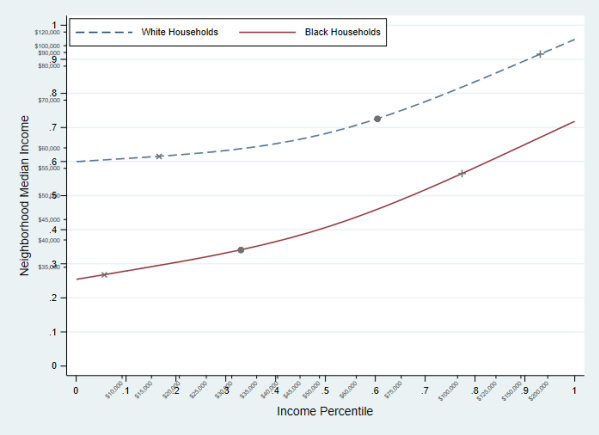
(f) Las Vegas



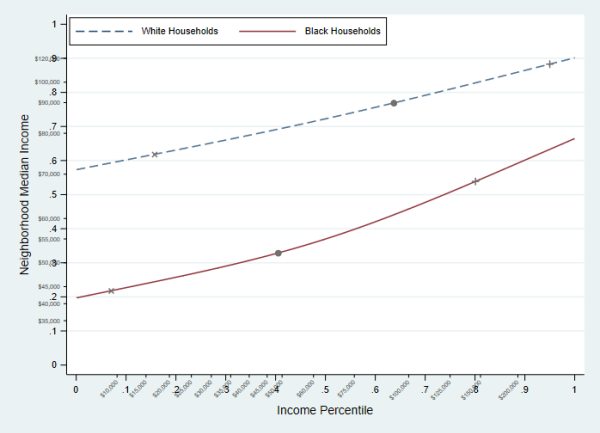
(g) Los Angeles



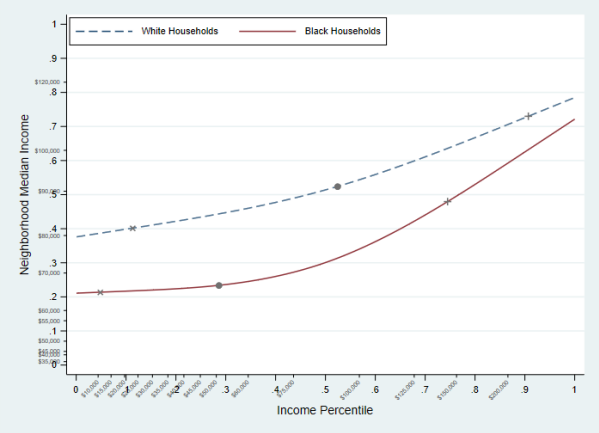
(h) New Orleans



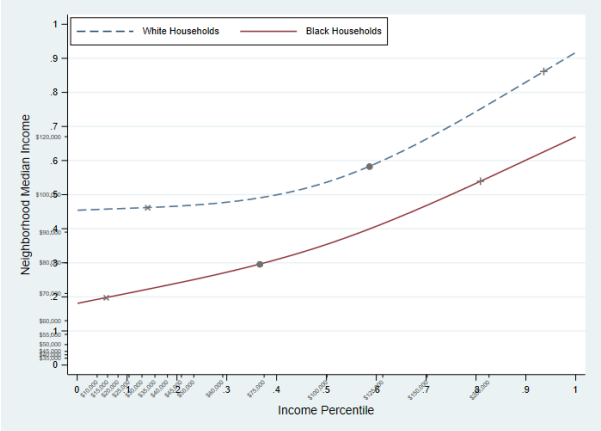
(i) New York



(j) Seattle



(k) Washington DC

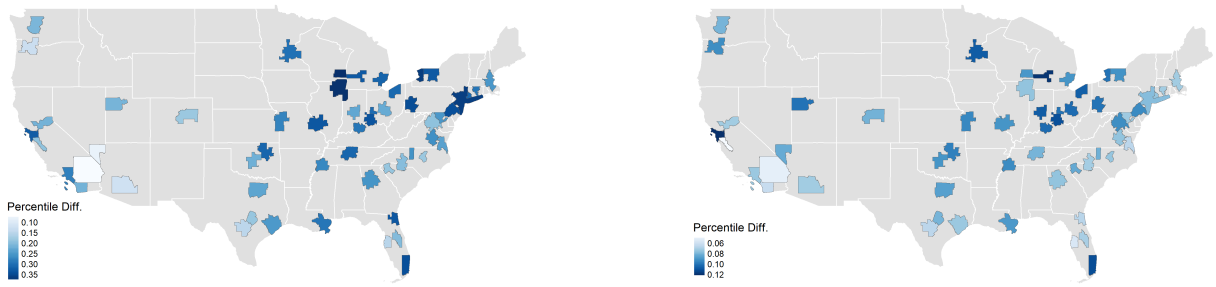


Notes: The figures above plot the average of the median neighborhood household income level for Black and white households against the income percentile for selected metropolitan areas. The points "x", "o", and "+" mark 10th, 50th, and 90th income quantiles within each race's income distribution, respectively. *Source:* American Community Survey 2014-2018

Figure 3: Measures of Neighborhood Racial Disparities

(a) Neighborhood Disparities Conditional on Household Income

(b) Neighborhood Disparities Due to Inequality in Household Income

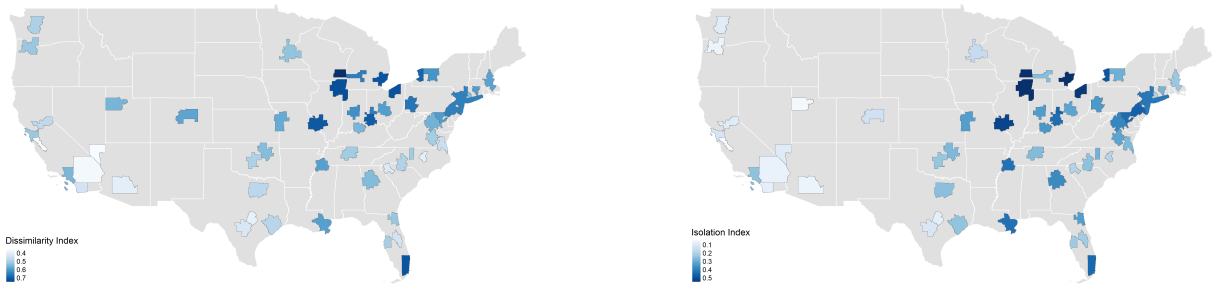


Notes: The figures above show how racial disparities in neighborhood outcomes are distributed across the United States. The left panel plots the differences for households with identical incomes (shown for the median Black income level), whereas the right panel plots the neighborhood disparities due to the difference in household income for the median Black and white household, respectively. *Source:* American Community Survey 2014-2018

Figure 4: Other Segregation Measures

(a) Index of Dissimilarity

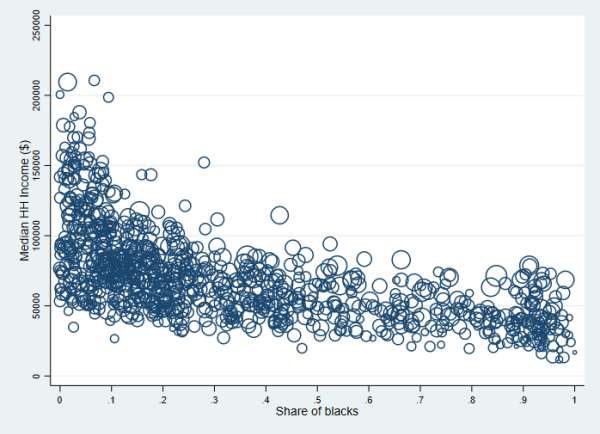
(b) Index of Isolation



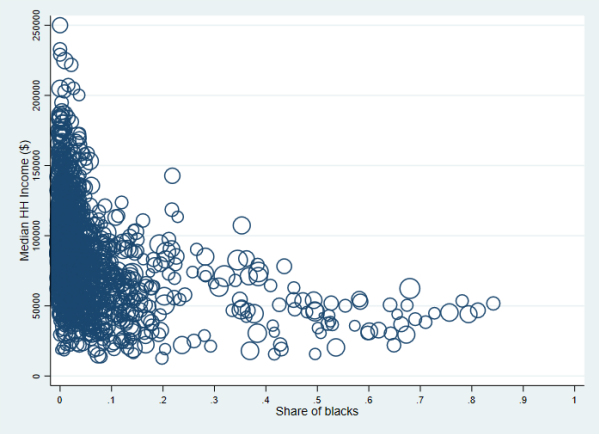
Notes: The figures above show how two measures of racial segregation are distributed across the United States. The left panel shows indices of dissimilarity, whereas the right panel shows indices of isolation. The details on how the measures were constructed can be found in Cutler et al. (1999). *Source:* American Community Survey 2014-2018

Figure 5: Neighborhood Availability in Major Metropolitan Areas

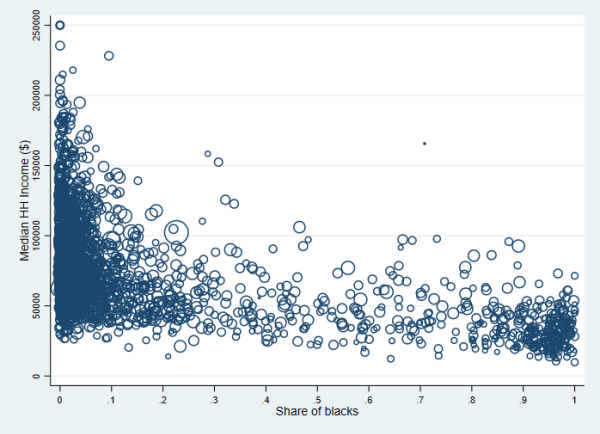
(a) Atlanta



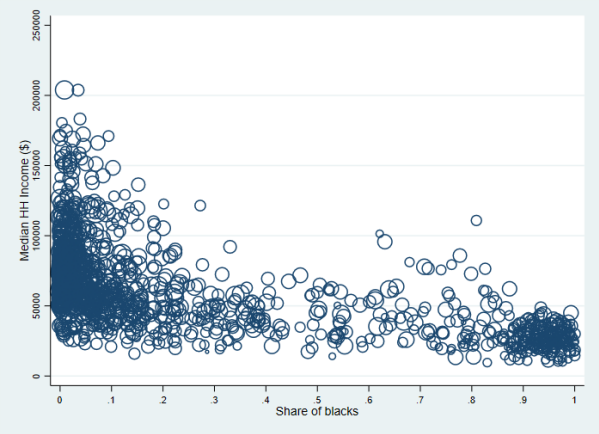
(b) Boston



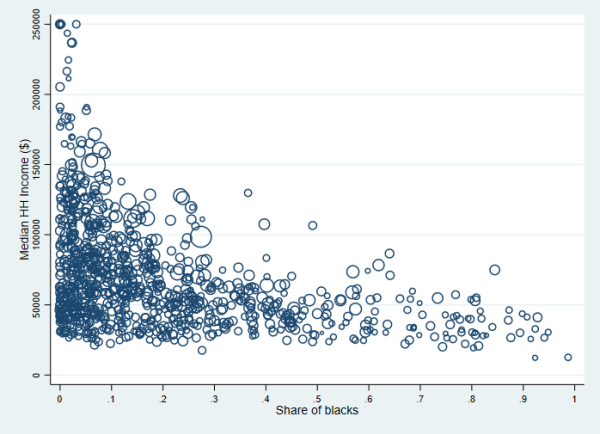
(c) Chicago



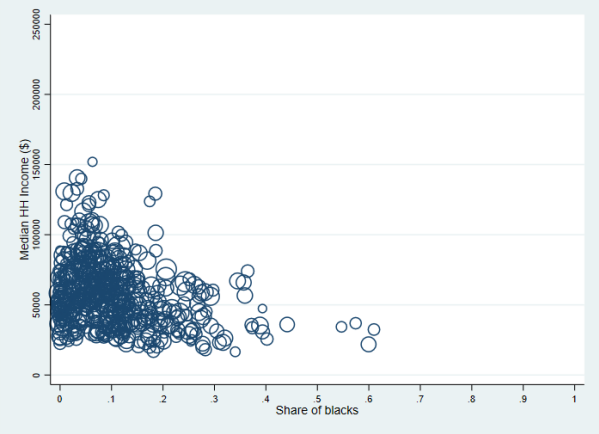
(d) Detroit



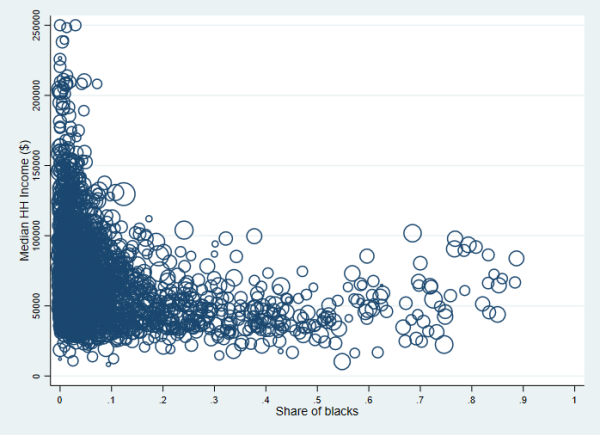
(e) Houston



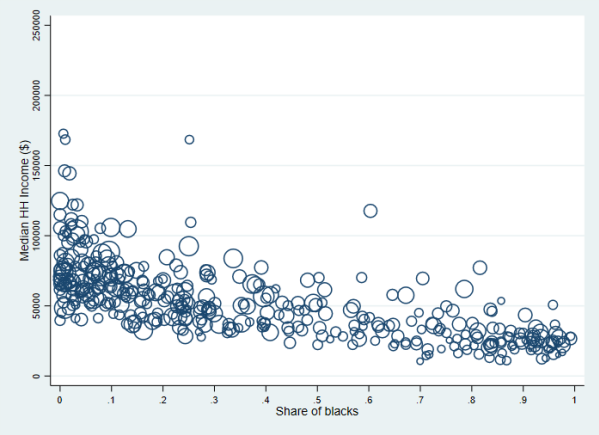
(f) Las Vegas



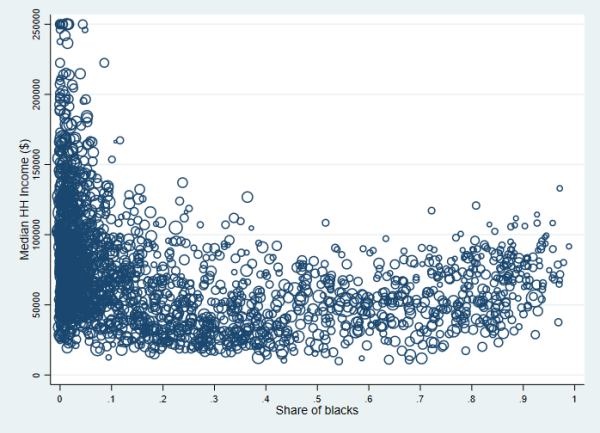
(g) Los Angeles



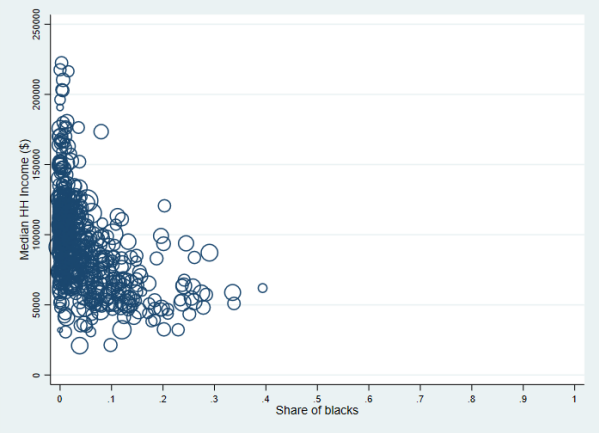
(h) New Orleans



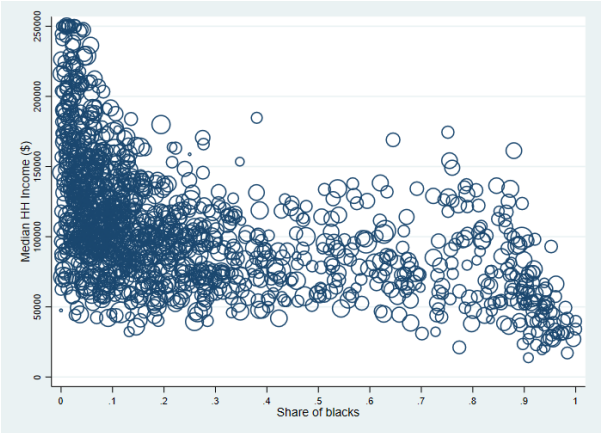
(i) New York



(j) Seattle



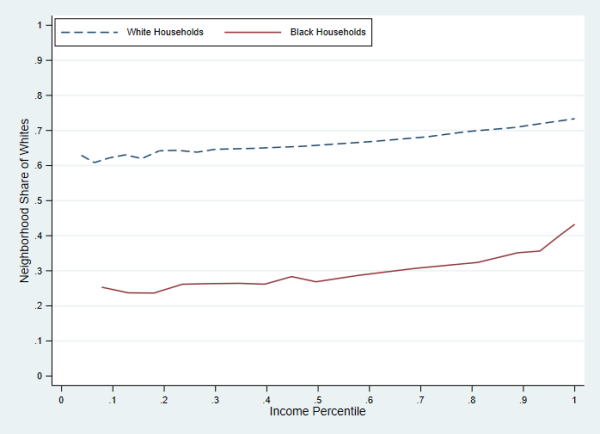
(k) Washington DC



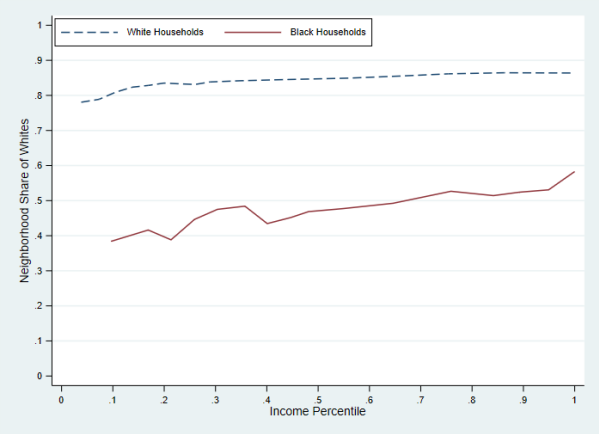
Notes: The figures above show the distributions of neighborhoods (Census tracts) in selected metropolitan areas with respect to median neighborhood income and share of Black residents. Each circle represents a neighborhood within each metropolitan area; the size of the circle represents the relative population of the neighborhood. *Source:* American Community Survey 2014-2018

Figure 6: Average Exposure to White Neighbors in Major Metropolitan Areas

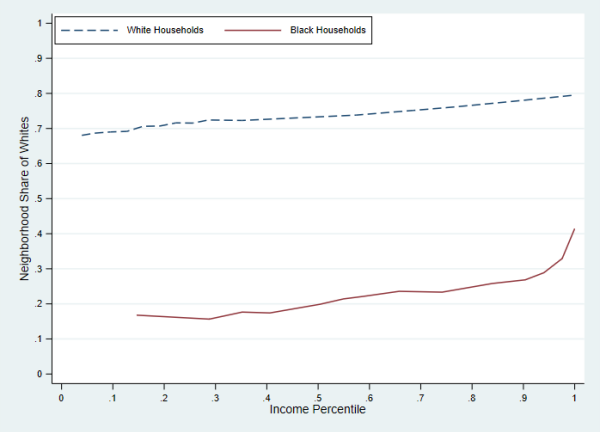
(a) Atlanta



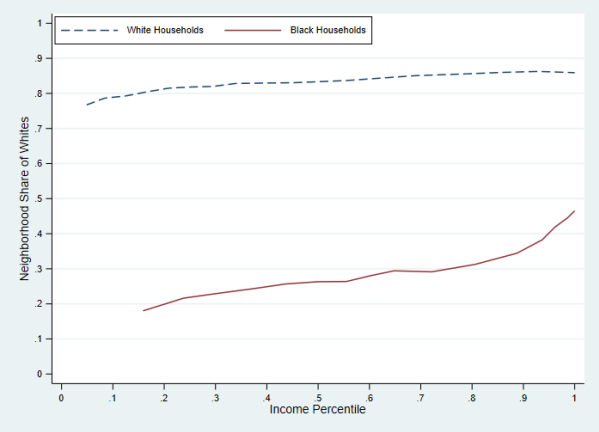
(b) Boston



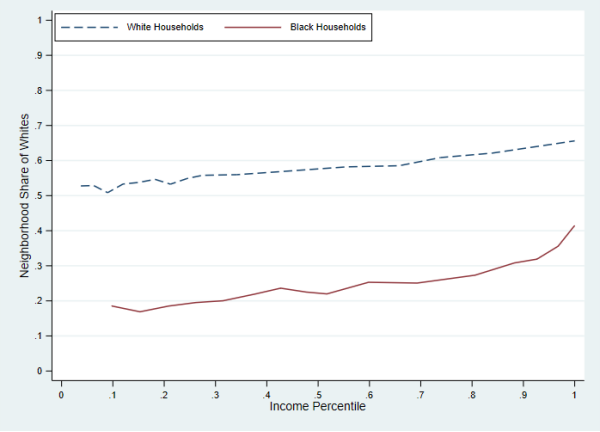
(c) Chicago



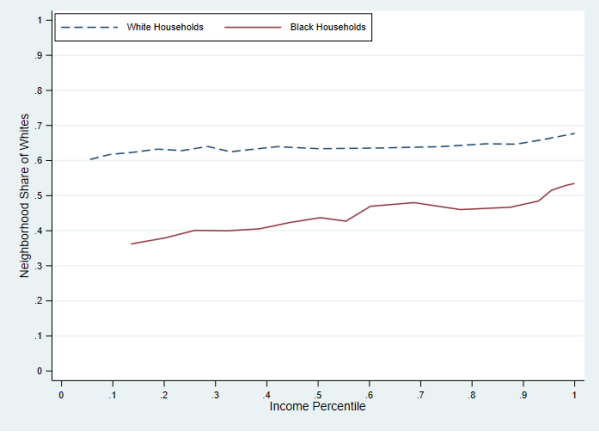
(d) Detroit



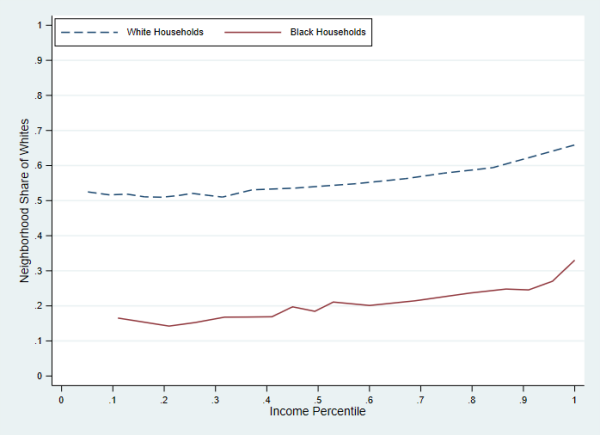
(e) Houston



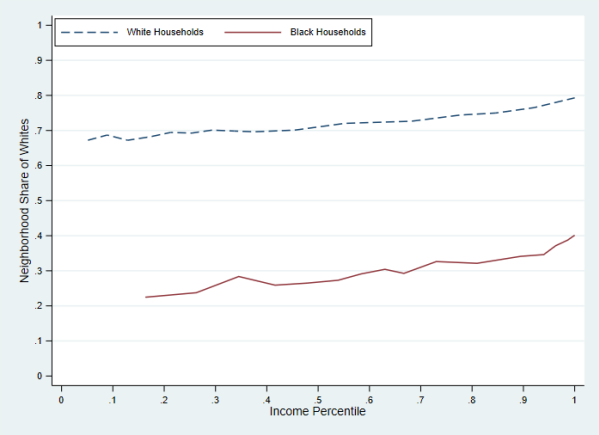
(f) Las Vegas



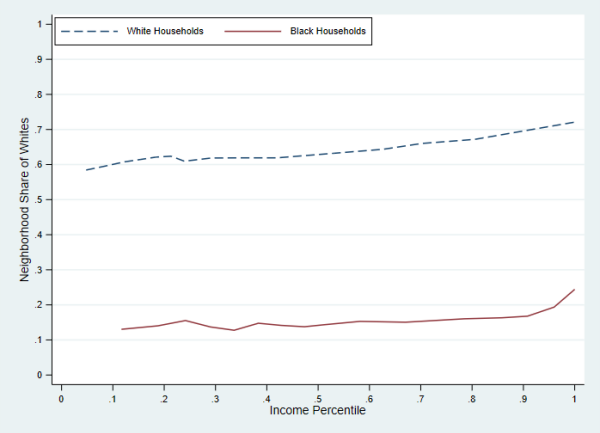
(g) Los Angeles



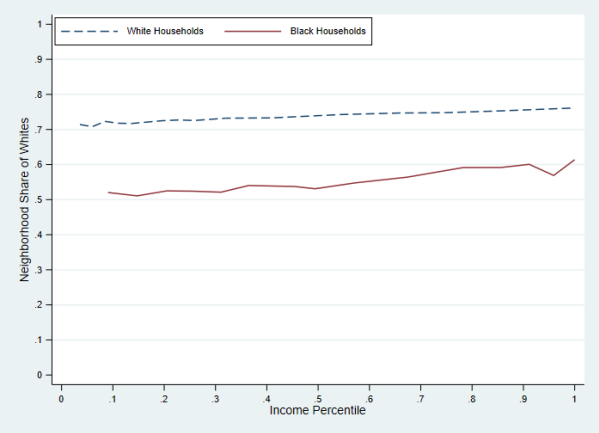
(h) New Orleans



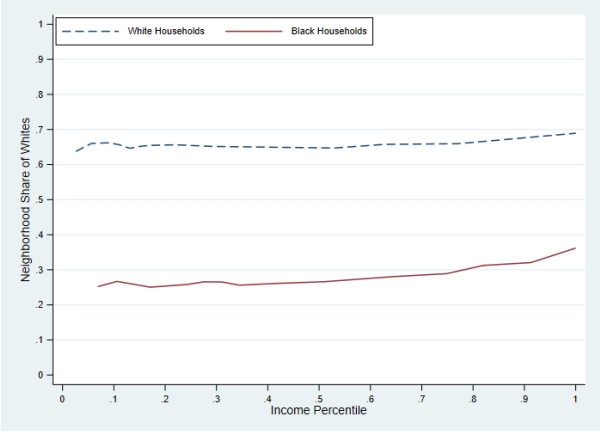
(i) New York



(j) Seattle



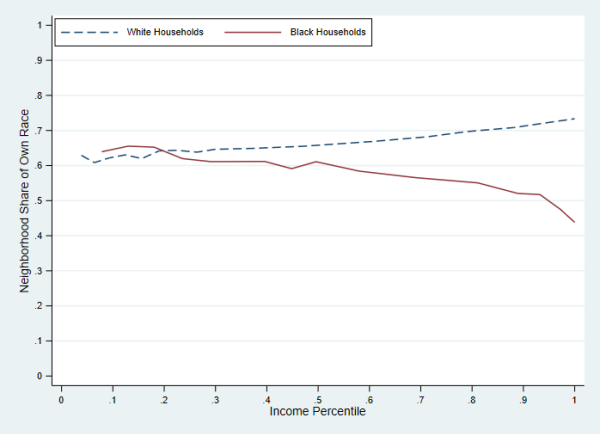
(k) Washington DC



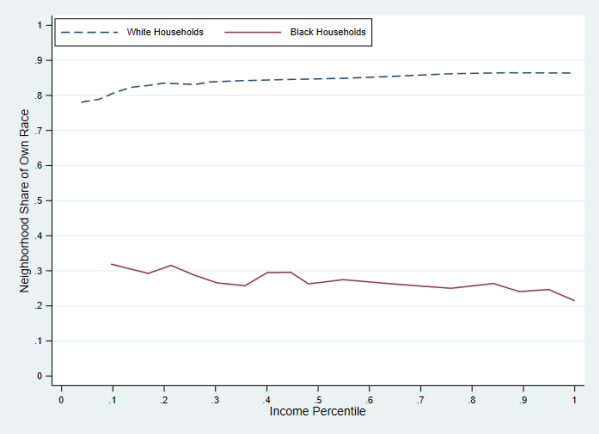
Notes: The figures above plot average exposure to white neighbors in selected metropolitan areas. The dashed blue lines represent the average exposure of white households to other white households, whereas the solid red lines represent the average exposure of Black households to white households within each metropolitan area. *Source:* American Community Survey 2014-2018

Figure 7: Average Exposure to Own Race in Major Metropolitan Areas

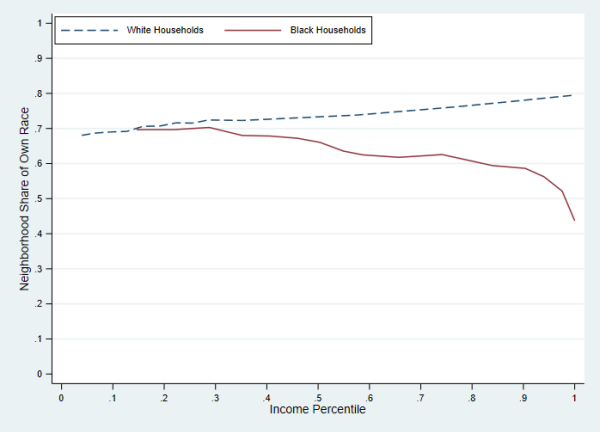
(a) Atlanta



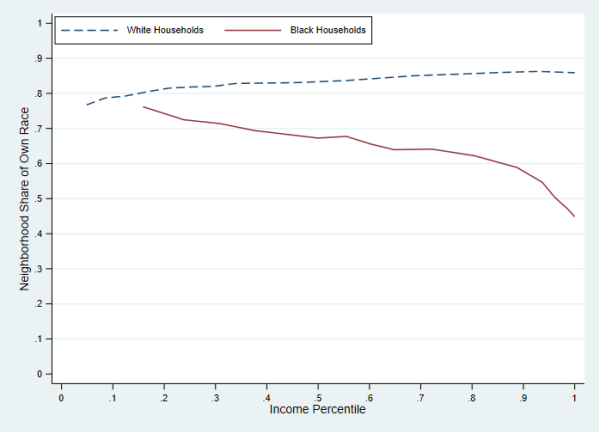
(b) Boston



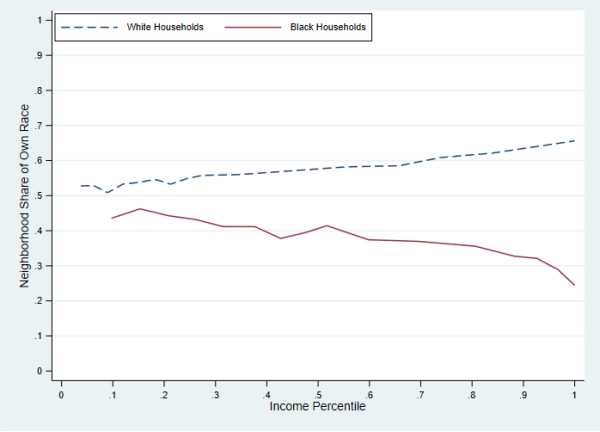
(c) Chicago



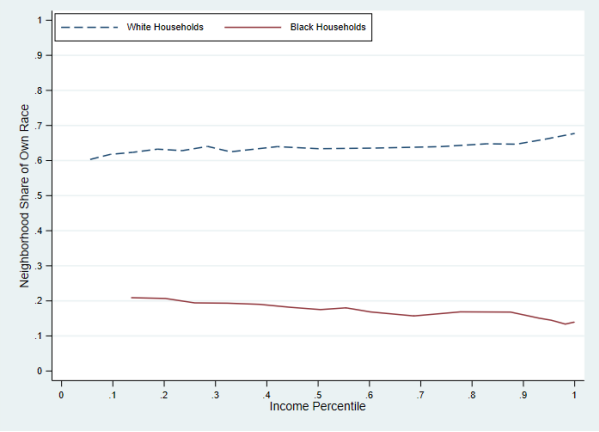
(d) Detroit



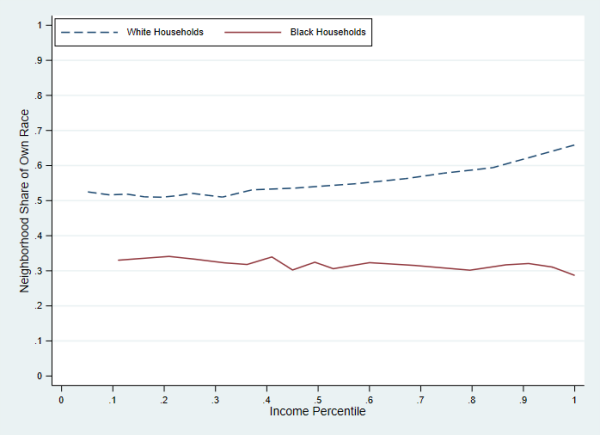
(e) Houston



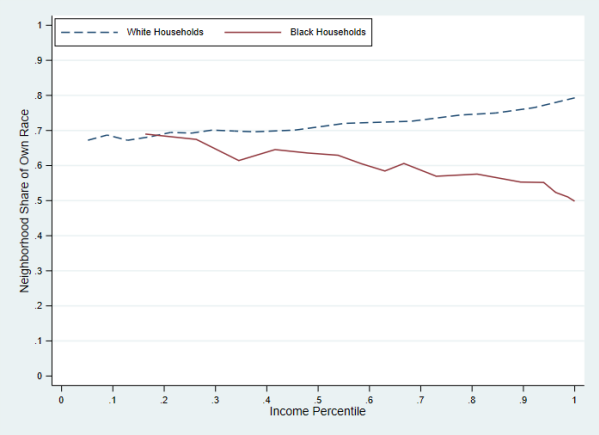
(f) Las Vegas



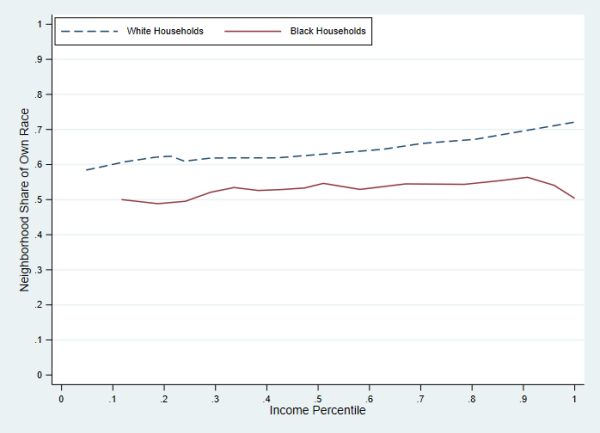
(g) Los Angeles



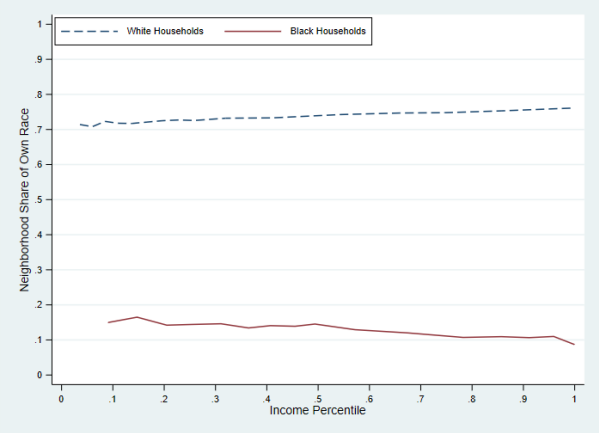
(h) New Orleans



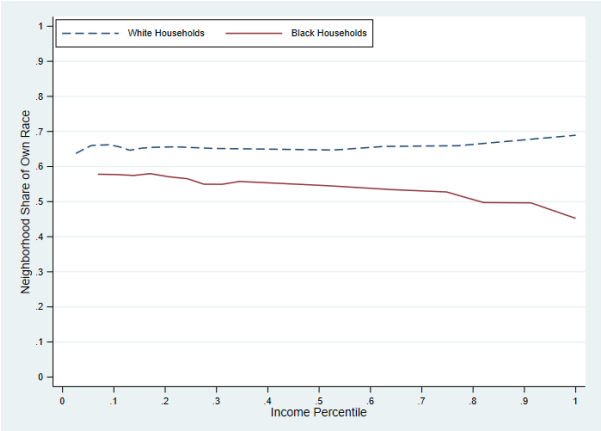
(i) New York



(j) Seattle



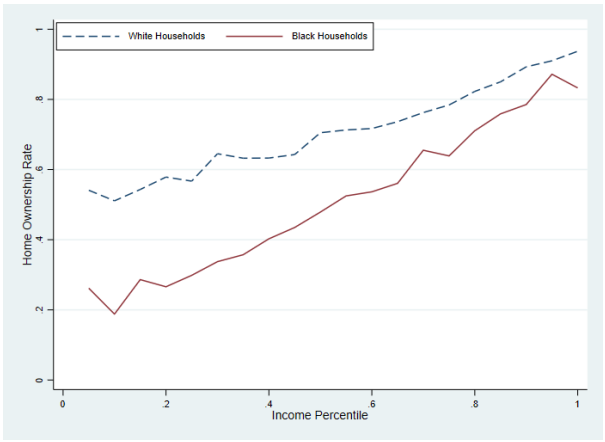
(k) Washington DC



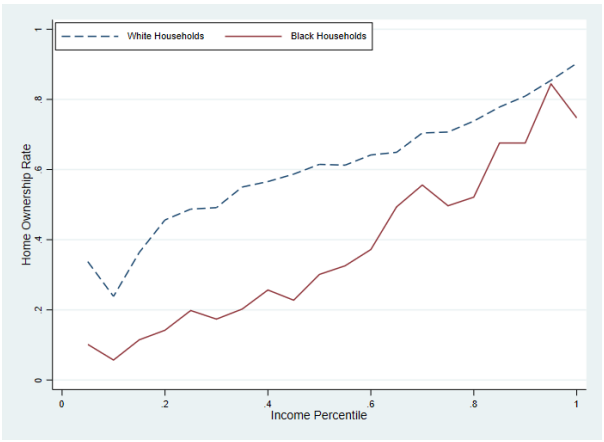
Notes: The figures above plot average exposure to own race in selected metropolitan areas. The dashed blue lines represent the average exposure of white households to other white households, whereas the solid red lines represent the average exposure of Black households to other Black households within each metropolitan area. *Source:* American Community Survey 2014-2018

Figure 8: Household Home-Ownership Rate in Major Metropolitan Areas

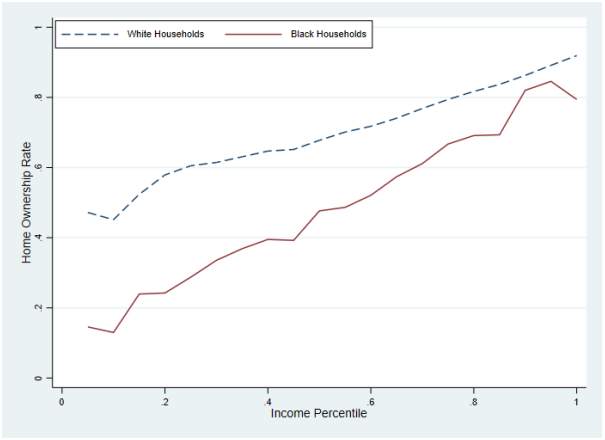
(a) Atlanta



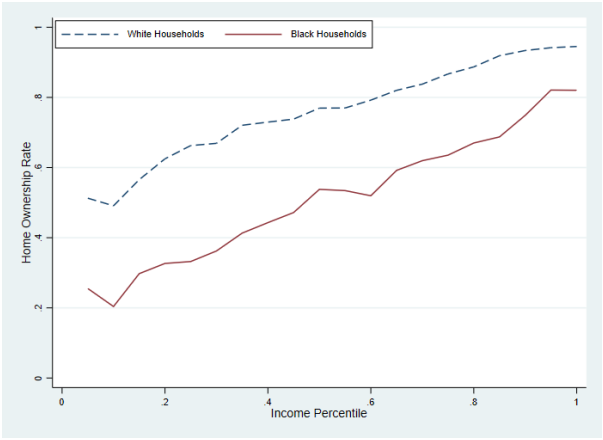
(b) Boston



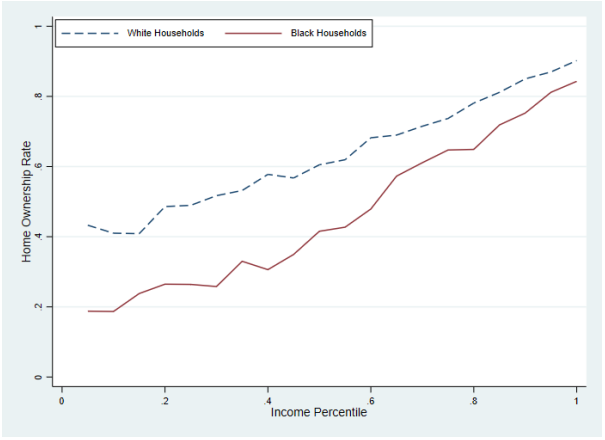
(c) Chicago



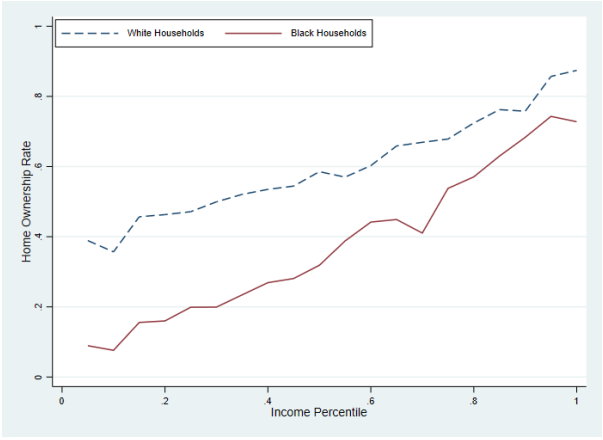
(d) Detroit



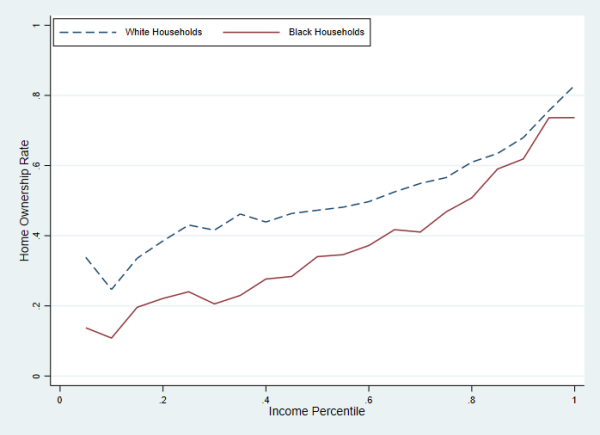
(e) Houston



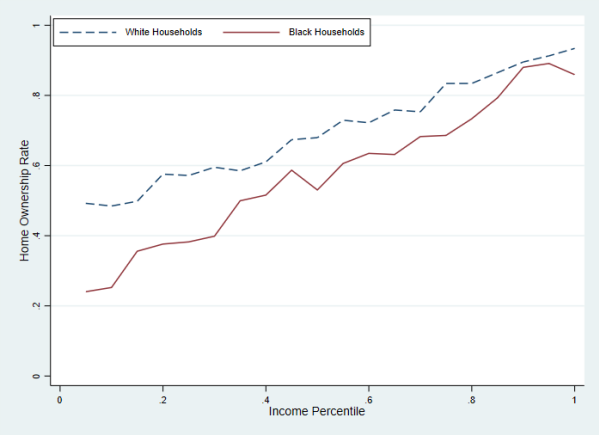
(f) Las Vegas



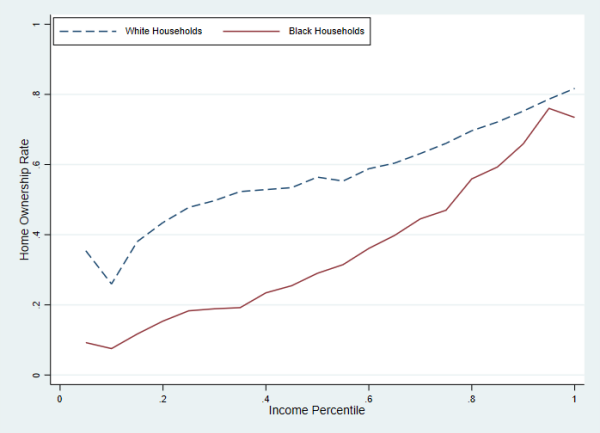
(g) Los Angeles



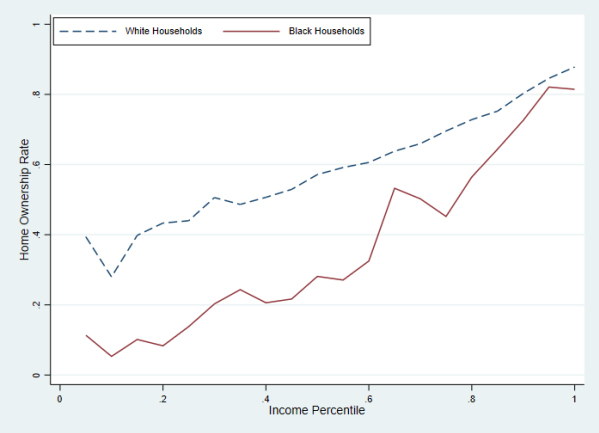
(h) New Orleans



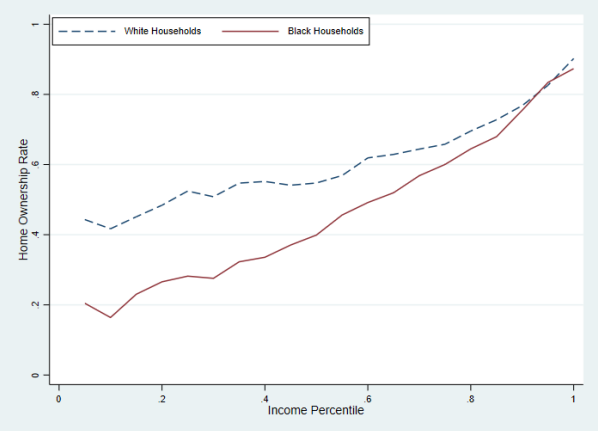
(i) New York



(j) Seattle



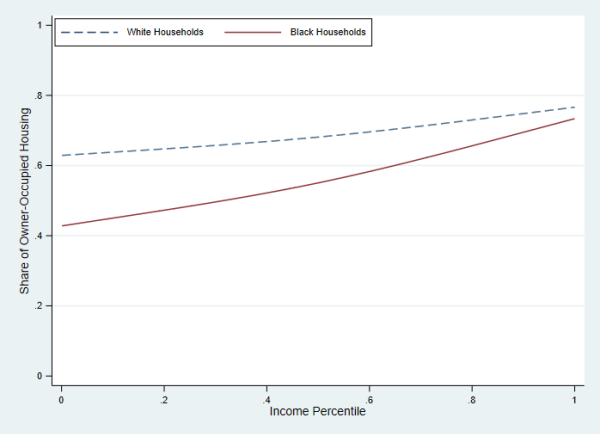
(k) Washington DC



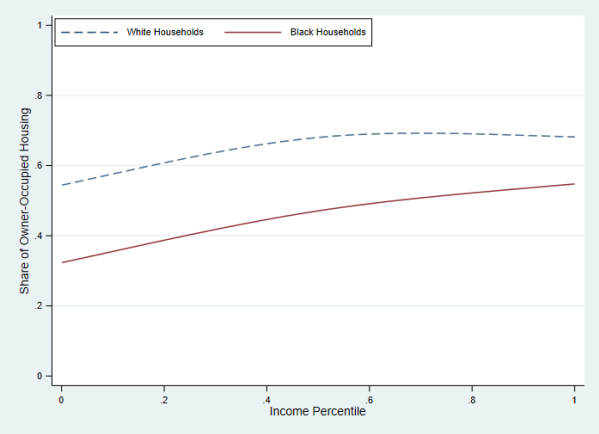
Notes: The figures above plot household home-ownership rate by race in selected metropolitan areas. The dashed blue line represents the average home-ownership rate of white households within each metropolitan area, whereas the solid red line represents the average home-ownership rate of Black households. *Source:* IPUMS 2014-2018

Figure 9: Neighborhood Owner-Occupied Housing Shares in Major Metropolitan Areas

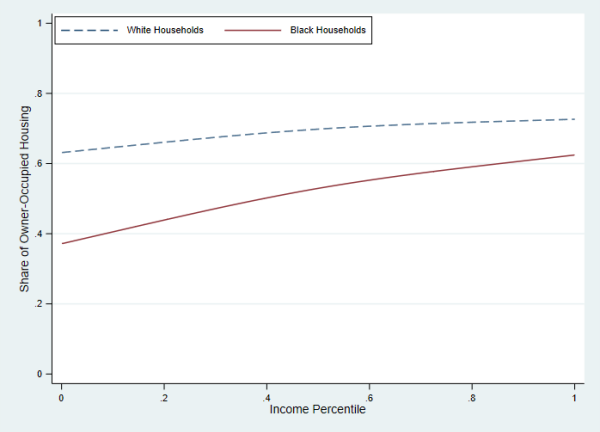
(a) Atlanta



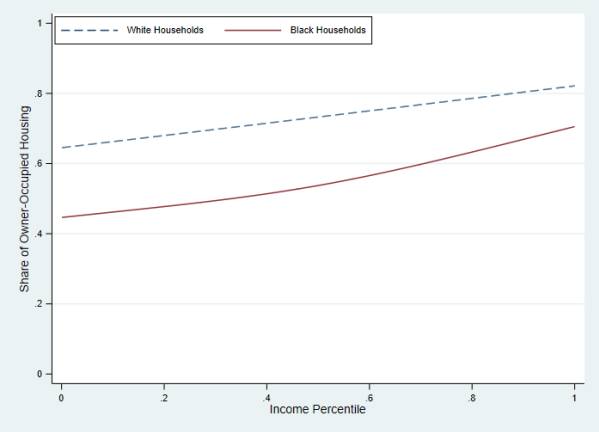
(b) Boston



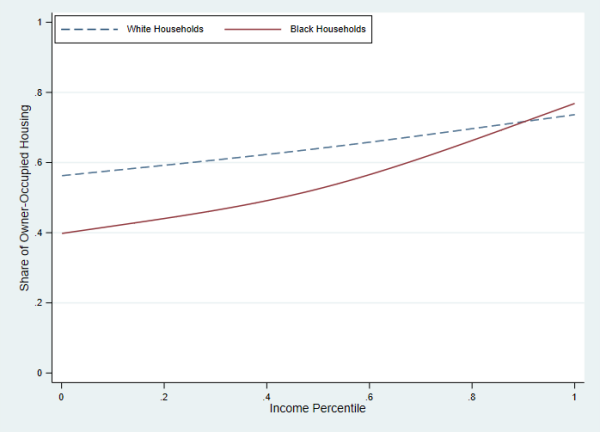
(c) Chicago



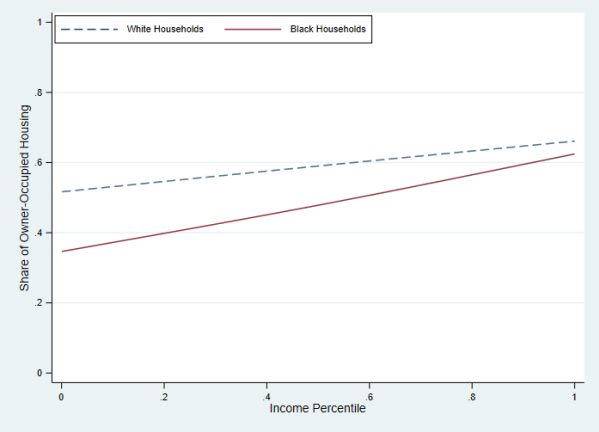
(d) Detroit



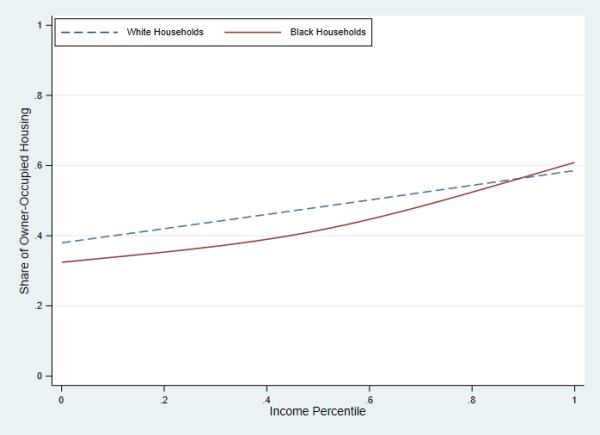
(e) Houston



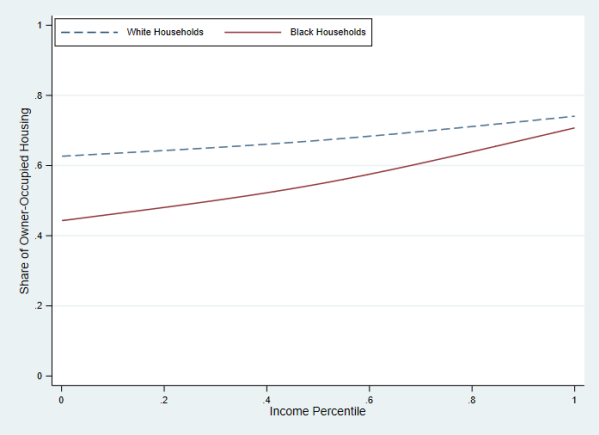
(f) Las Vegas



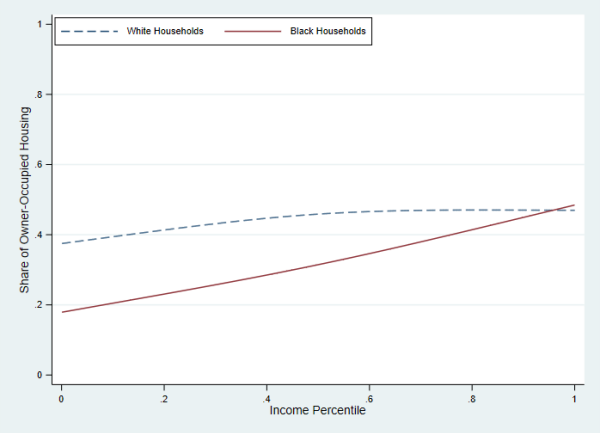
(g) Los Angeles



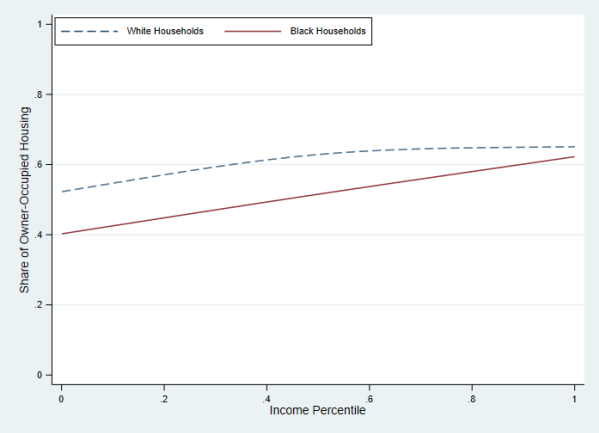
(h) New Orleans



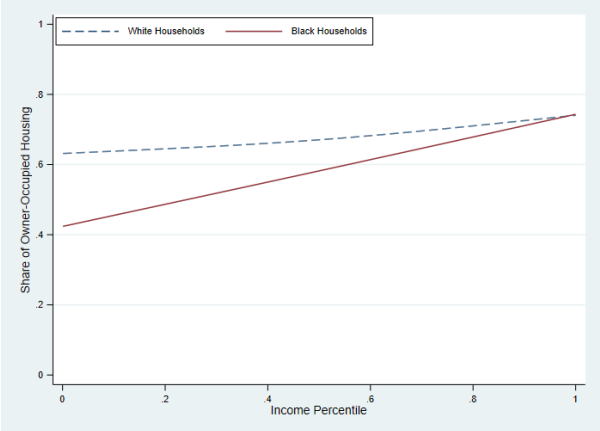
(i) New York



(j) Seattle



(k) Washington DC

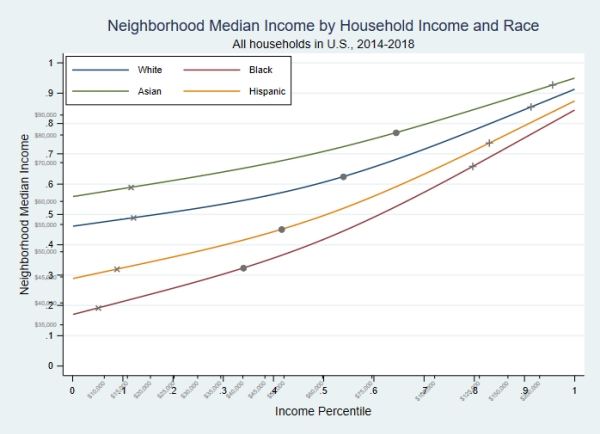


Notes: The figures above plot the average shares of owner-occupied housing in selected metropolitan areas. The dashed blue lines represent the average shares of owner-occupied housing for white households, whereas the solid red lines represent the average shares of owner-occupied housing for Black households within each metropolitan area. *Source:* American Community Survey 2014-2018

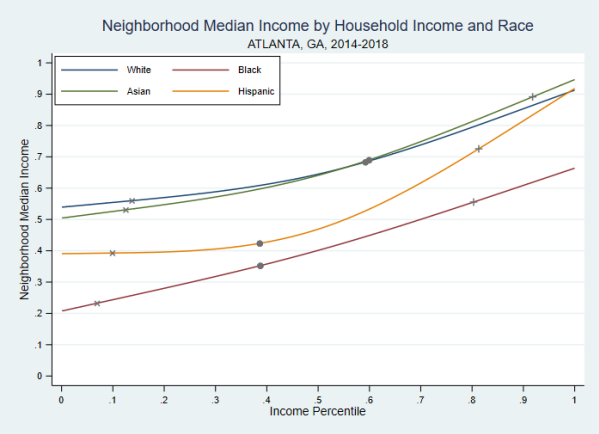
A Figures

Figure A.1: Neighborhood Median Income by Household Income

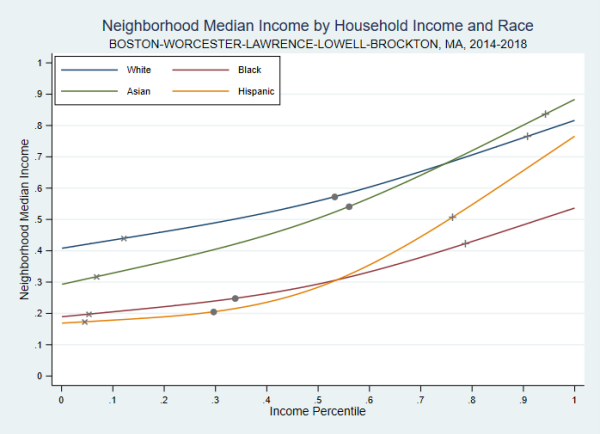
(a) United States



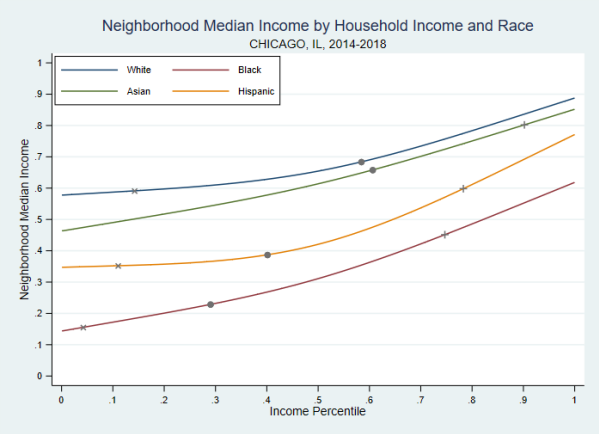
(b) Atlanta



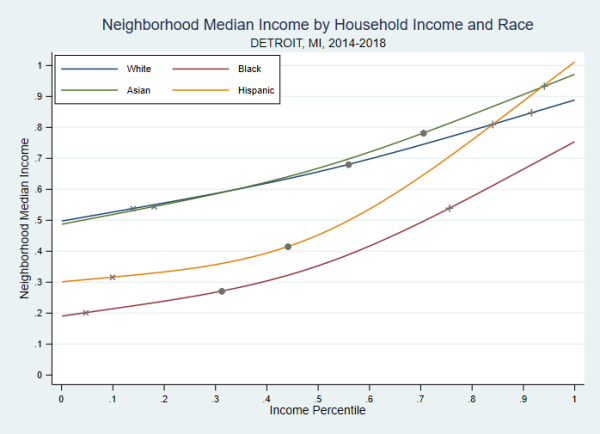
(c) Boston



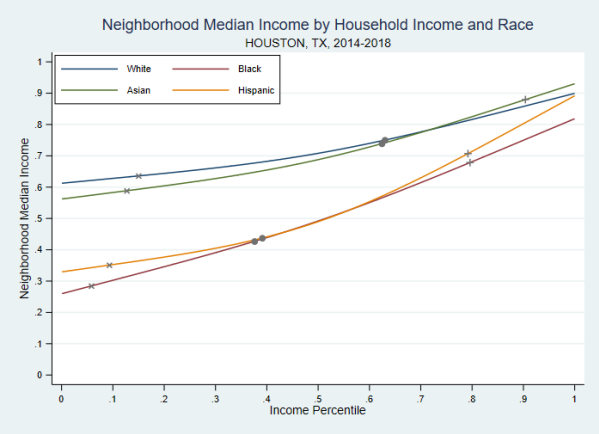
(d) Chicago



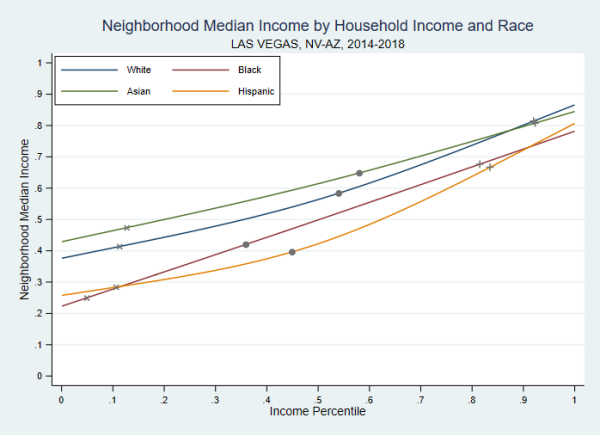
(e) Detroit



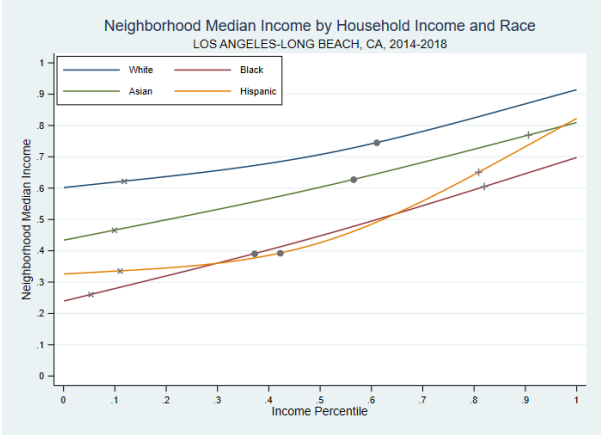
(f) Houston



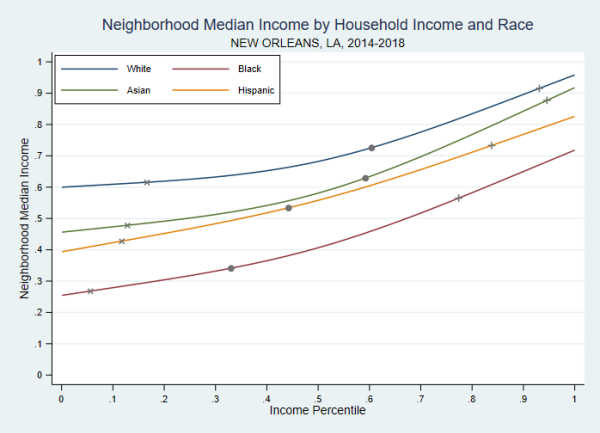
(g) Las Vegas



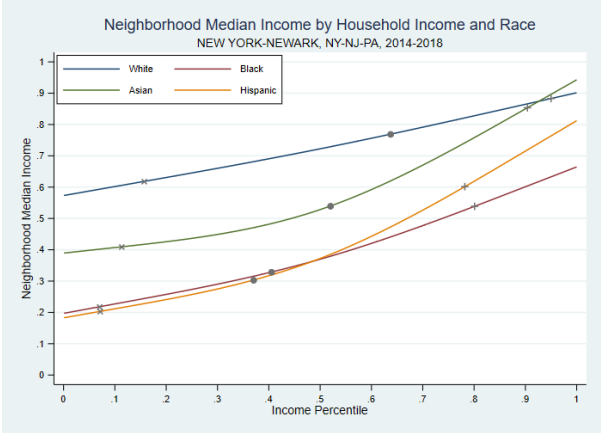
(h) Los Angeles



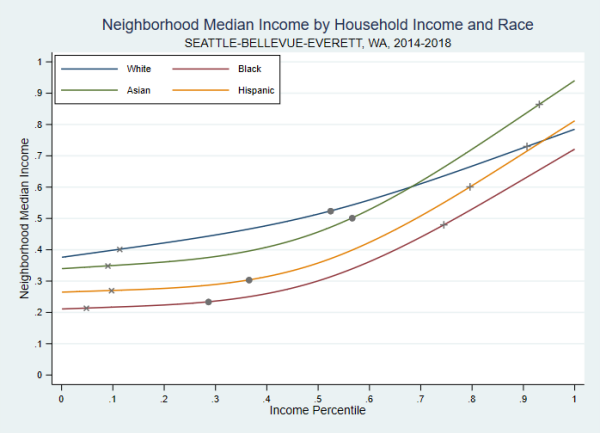
(i) New Orleans



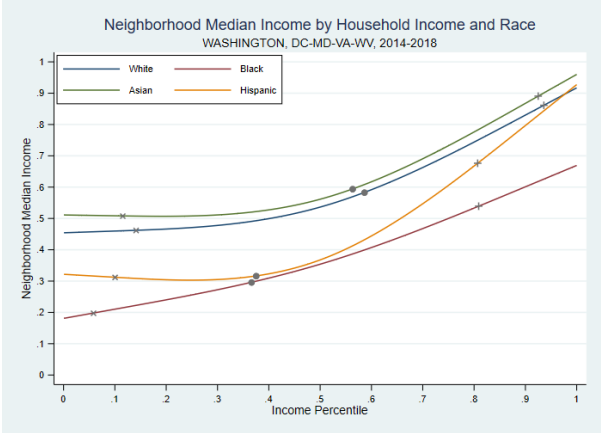
(j) New York



(k) Seattle



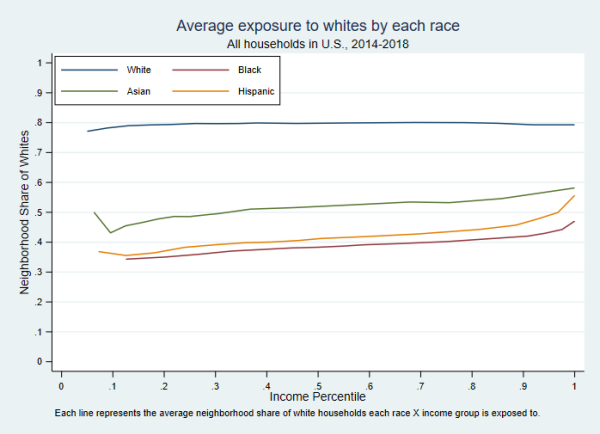
(l) Washington DC



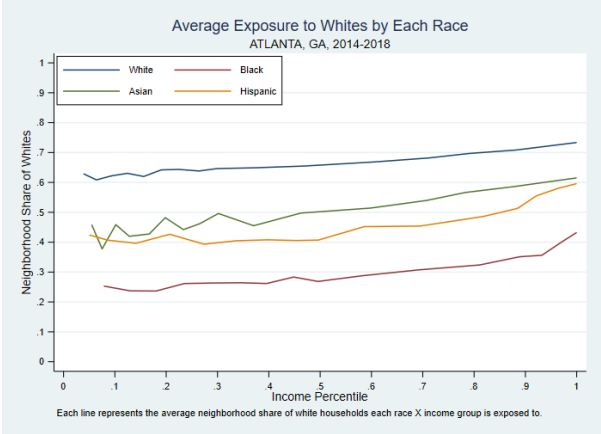
Notes: The figures above plot the average of the median neighborhood household income level for Black and white households against the income percentile for the United States as a whole and selected metropolitan areas. The points "x", "o", and "+" mark 10th, 50th, and 90th income quantiles within each race's income distribution, respectively. *Source:* American Community Survey 2014-2018

Figure A.2: Exposure to White Neighbors by Household Income and Race

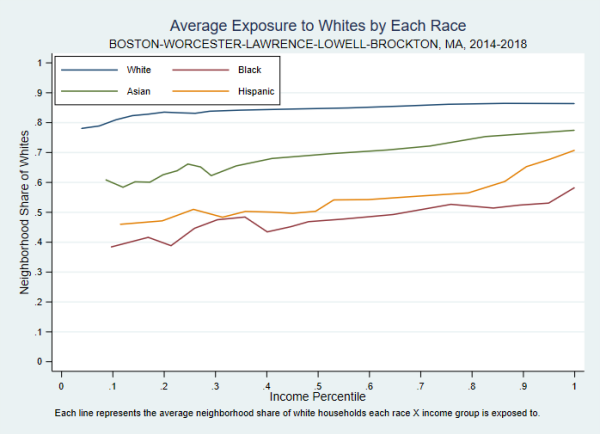
(a) United States



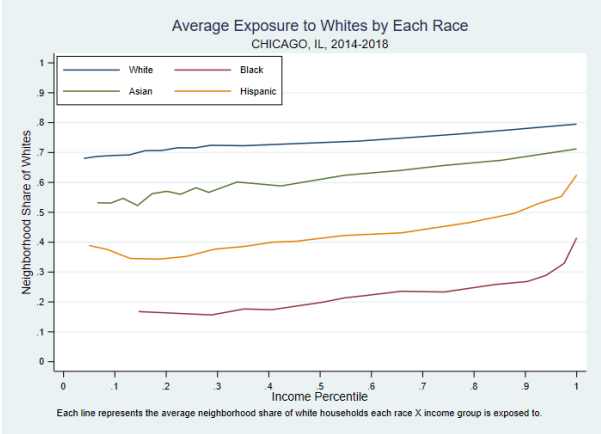
(b) Atlanta



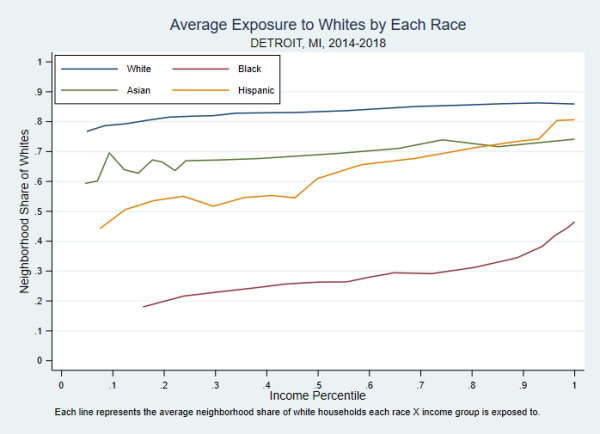
(c) Boston



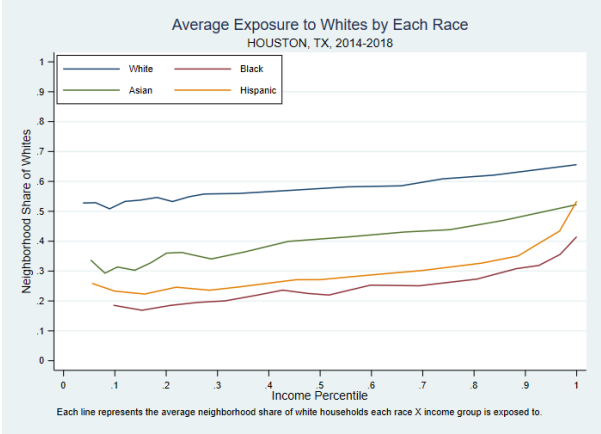
(d) Chicago



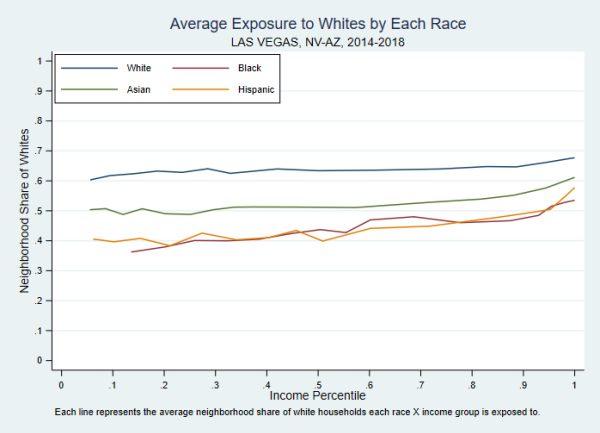
(e) Detroit



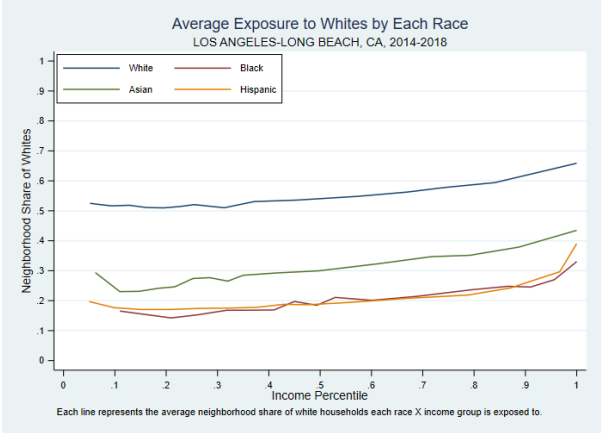
(f) Houston



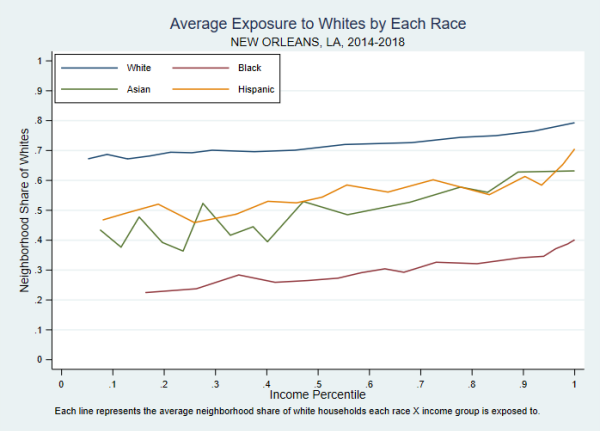
(g) Los Angeles



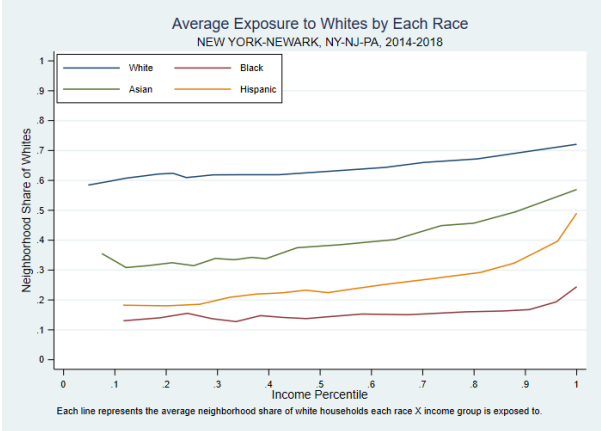
(h) Los Angeles



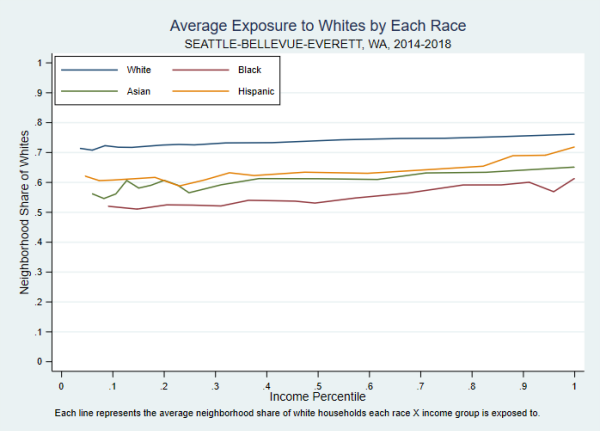
(i) New Orleans



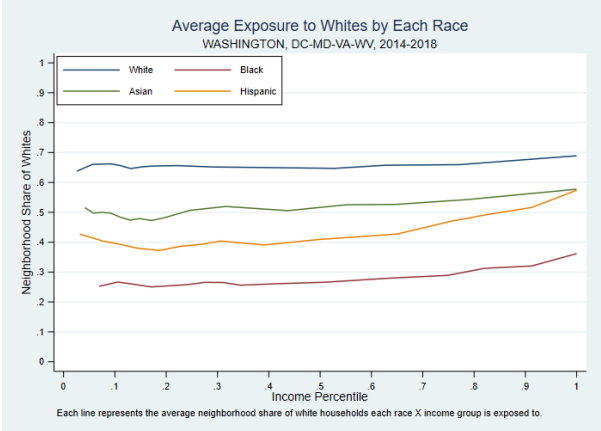
(j) New York



(k) Seattle



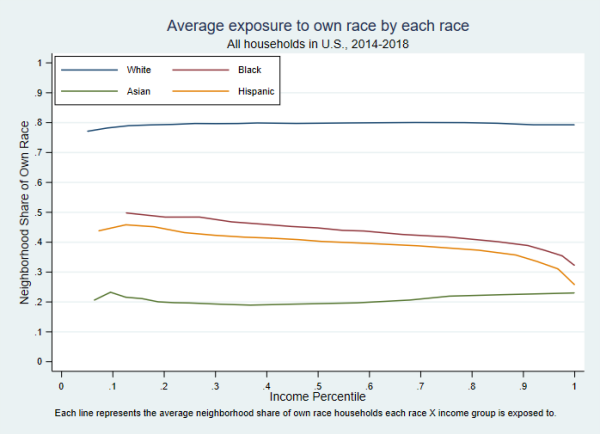
(l) Washington DC



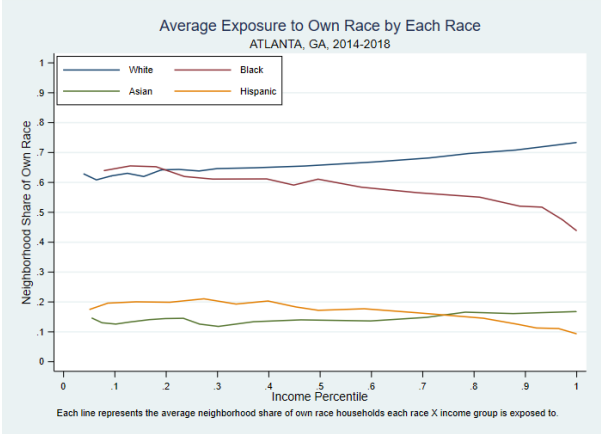
Notes: The figures above plot average exposure to white neighbors in the United States as a whole and selected metropolitan areas. Each line represents the average exposure of respective races to white households in the neighborhood. *Source:* American Community Survey 2014-2018

Figure A.3: Exposure to Same Race Neighbors by Household Income and Race

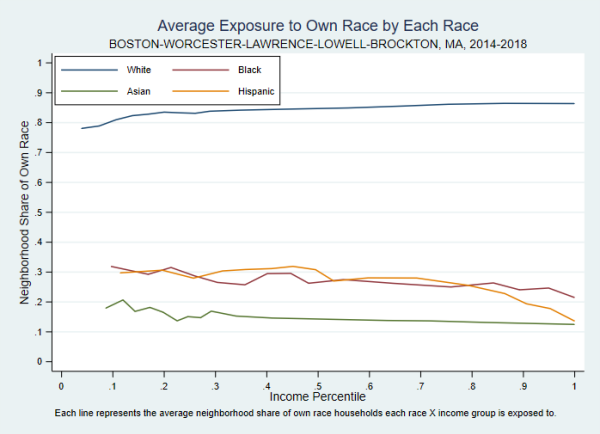
(a) United States



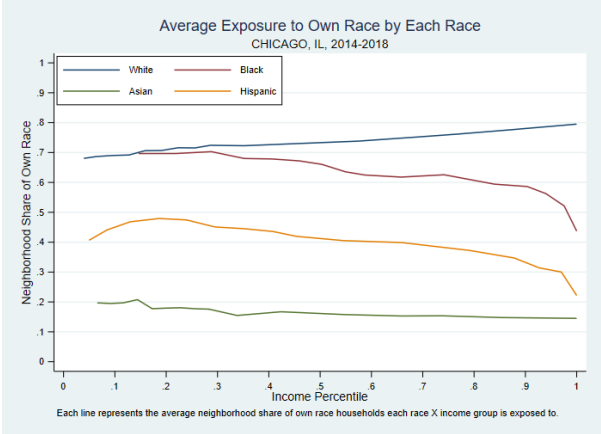
(b) Atlanta



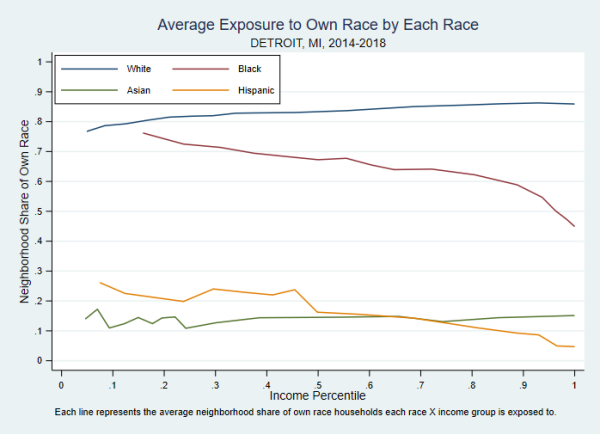
(c) Boston



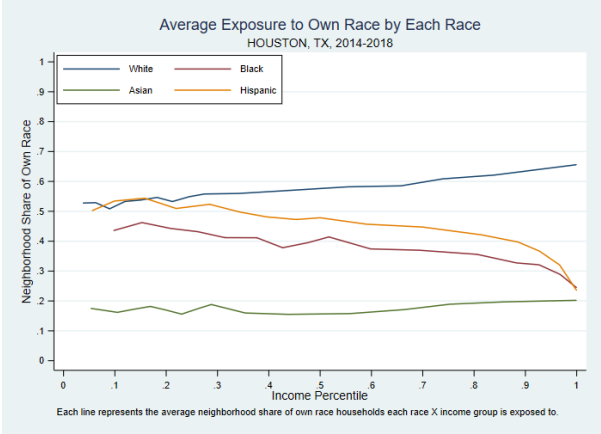
(d) Chicago



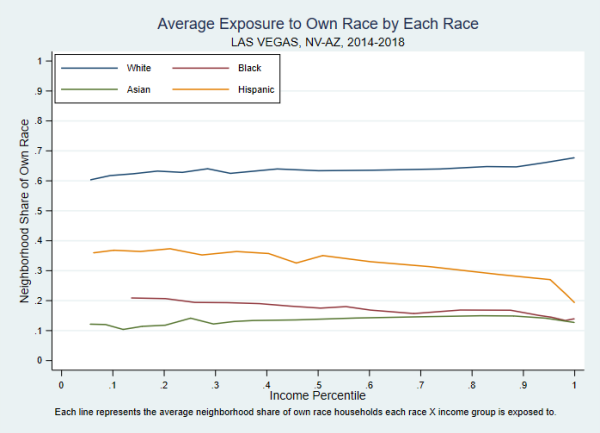
(e) Detroit



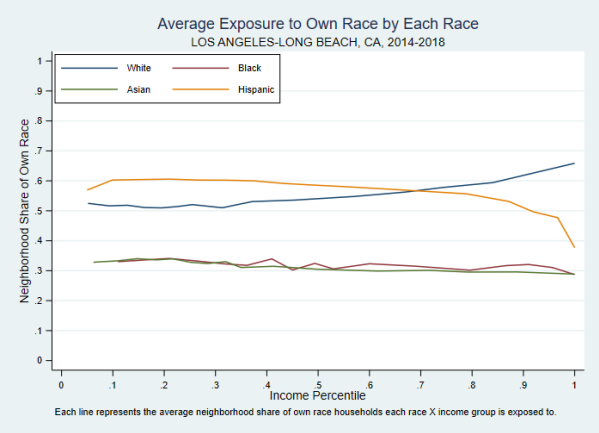
(f) Houston



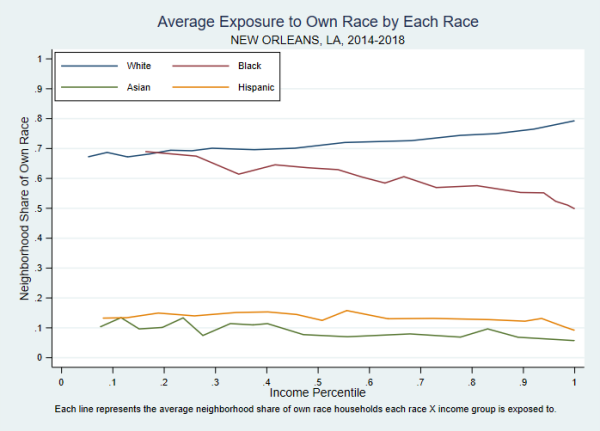
(g) Las Vegas



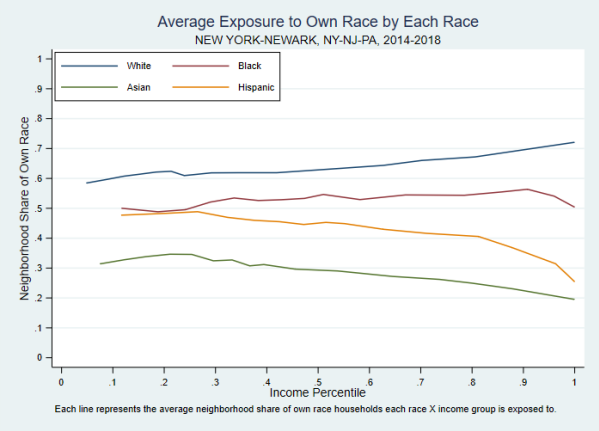
(h) Los Angeles



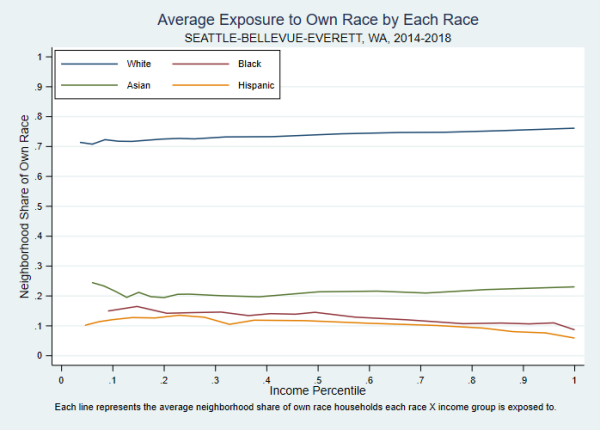
(i) New Orleans



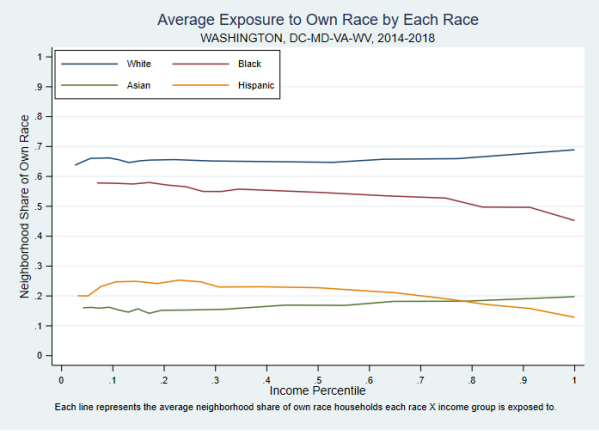
(j) New York



(k) Seattle



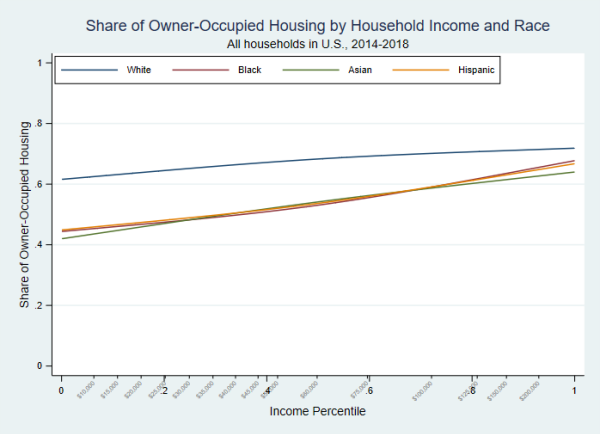
(l) Washington DC



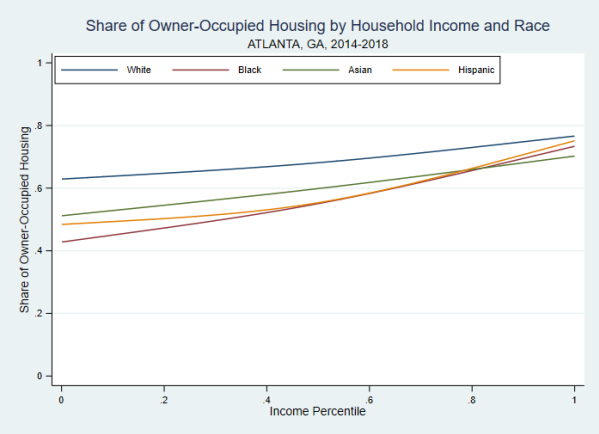
Notes: The figures above plot average exposure to own race in the United States as a whole and selected metropolitan areas. Each line represents the average exposure of respective races to other households of the same race. *Source:* American Community Survey 2014-2018

Figure A.4: Neighborhood Owner-Occupied Housing Shares by Household Income and Race

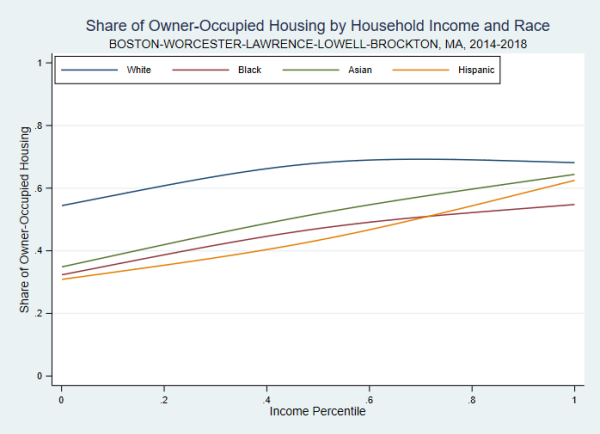
(a) United States



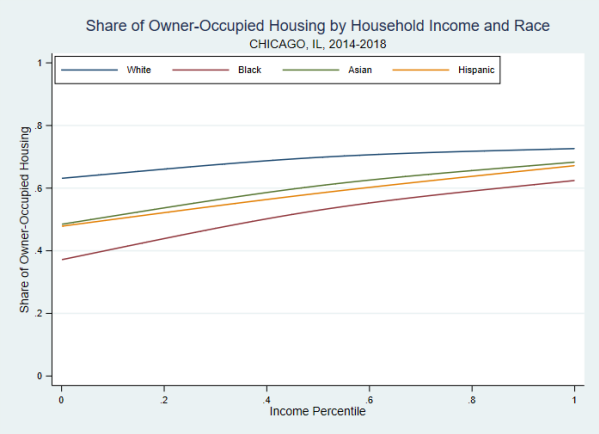
(b) Atlanta



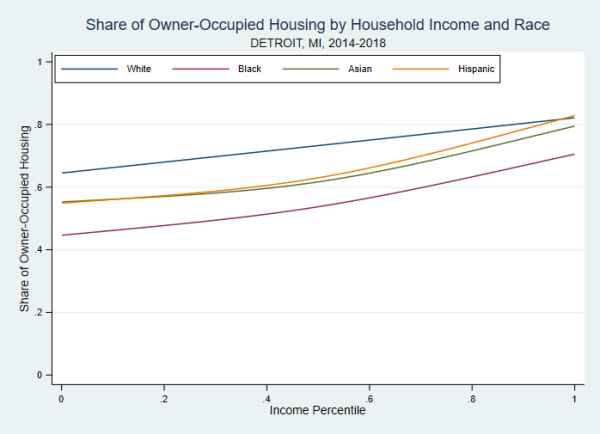
(c) Boston



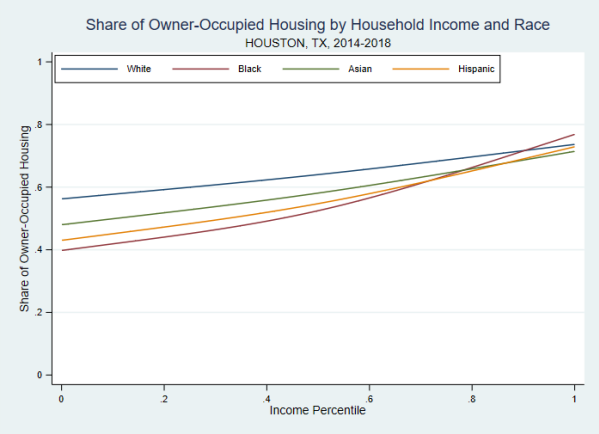
(d) Chicago



(e) Detroit

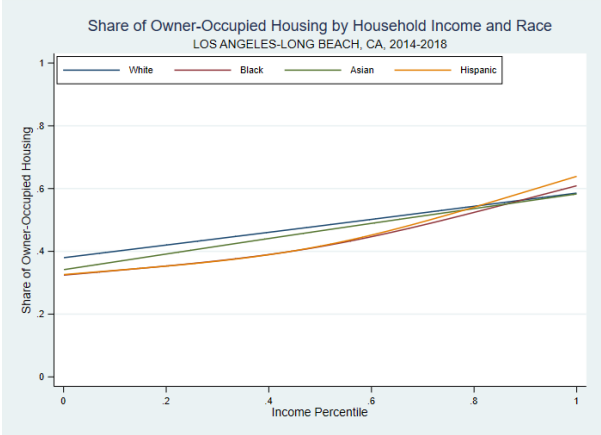


(f) Houston

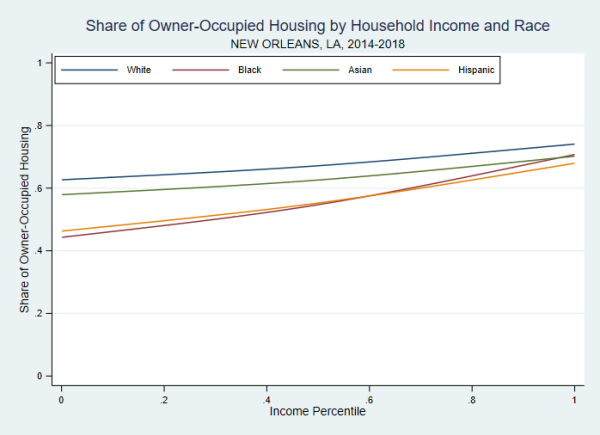


(g) Las Vegas

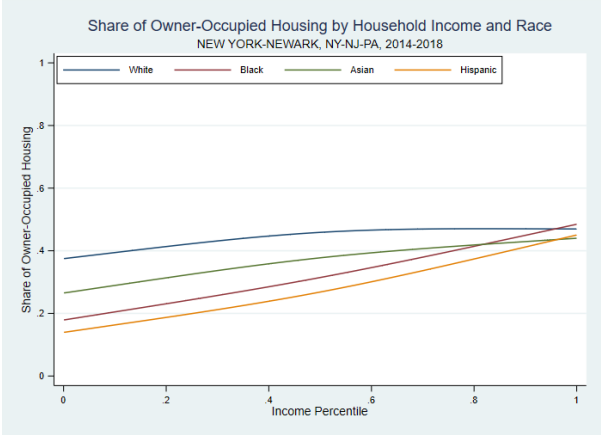
(h) Los Angeles



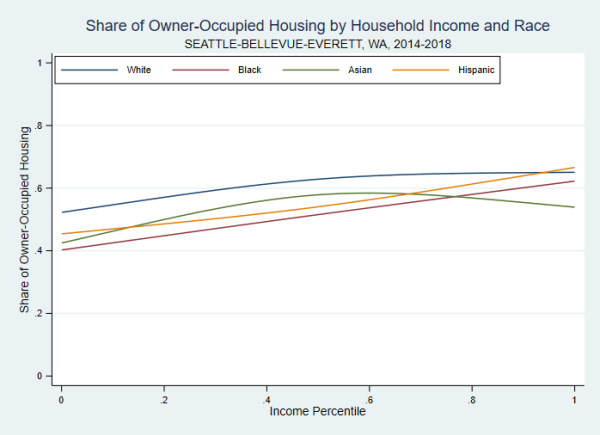
(i) New Orleans



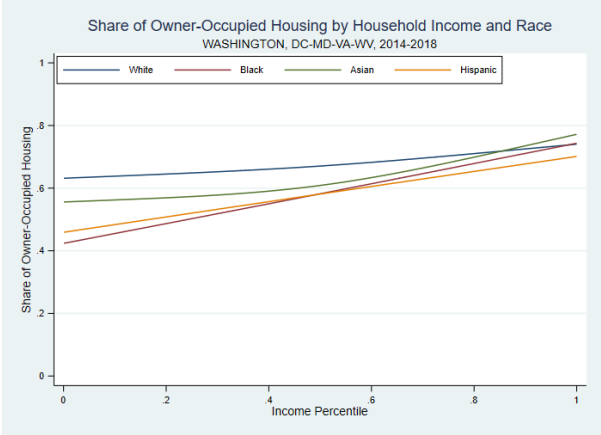
(j) New York



(k) Seattle



(l) Washington DC



Notes: The figures above plot the average shares of owner-occupied housing in the United States as a whole and selected metropolitan areas. Each line represents the average shares of owner-occupied housing for households of each respective race. *Source:* American Community Survey 2014-2018

B Tables

Table B.1: Differences in Neighborhood Outcomes by Income Quantiles

Rank	Average	10th	90th
1	MILWAUKEE-WAUKESHA, WI (0.373)	CHICAGO, IL (0.426)	BUFFALO-NIAGARA FALLS, NY (0.391)
2	CHICAGO, IL (0.371)	MIAMI, FL (0.410)	MILWAUKEE-WAUKESHA, WI (0.355)
3	BUFFALO-NIAGARA FALLS, NY (0.364)	NEWARK, NJ (0.404)	GRAND RAPIDS-MUSKEGON-HOLLAND, MI (0.340)
4	NEWARK, NJ (0.355)	JACKSONVILLE, FL (0.378)	ROCHESTER, NY (0.329)
5	MIAMI, FL (0.351)	NEW YORK-NEWARK, NY-NJ-PA (0.375)	MIAMI, FL (0.314)
6	NEW YORK-NEWARK, NY-NJ-PA (0.347)	NORFOLK-VIRGINIA BEACH-NEWPORT NEWS, VA-NC (0.369)	NEWARK, NJ (0.314)
7	PHILADELPHIA, PA-NJ (0.331)	BERGEN-PASSAIC, NJ (0.358)	NASSAU-SUFFOLK, NY (0.309)
8	ROCHESTER, NY (0.330)	NEW HAVEN-BRIDGEPORT-STAMFORD-WATERBURY-DANBU (0.353)	CHICAGO, IL (0.305)
9	PITTSBURGH, PA (0.323)	LOS ANGELES-LONG BEACH, CA (0.351)	PHILADELPHIA, PA-NJ (0.299)
10	GRAND RAPIDS-MUSKEGON-HOLLAND, MI (0.322)	MILWAUKEE-WAUKESHA, WI (0.348)	CLEVELAND-LORAIN-ELYRIA, OH (0.297)
11	ST. LOUIS, MO-IL (0.322)	ST. LOUIS, MO-IL (0.339)	NEW YORK-NEWARK, NY-NJ-PA (0.289)
12	SAN FRANCISCO, CA (0.319)	MEMPHIS, TN-AR-MS (0.338)	NEW HAVEN-BRIDGEPORT-STAMFORD-WATERBURY-DANBU (0.285)
13	NEW HAVEN-BRIDGEPORT-STAMFORD-WATERBURY-DANBU (0.315)	SAN FRANCISCO, CA (0.337)	SAN FRANCISCO, CA (0.283)
14	CINCINNATI, OH-KY-IN (0.313)	HOUSTON, TX (0.337)	ST. LOUIS, MO-IL (0.279)
15	JACKSONVILLE, FL (0.312)	NEW ORLEANS, LA (0.337)	BOSTON-WORCESTER-LAWRENCE-LOWELL-BROCKTON, MA (0.276)
16	CLEVELAND-LORAIN-ELYRIA, OH (0.308)	RICHMOND-PETERSBURG, VA (0.332)	PITTSBURGH, PA (0.263)
17	BERGEN-PASSAIC, NJ (0.298)	MINNEAPOLIS-ST. PAUL, MN-WI (0.331)	HARTFORD, CT (0.254)
18	DETROIT, MI (0.296)	PHILADELPHIA, PA-NJ (0.329)	NEW ORLEANS, LA (0.254)
19	NEW ORLEANS, LA (0.294)	BALTIMORE, MD (0.327)	CINCINNATI, OH-KY-IN (0.249)
20	NASSAU-SUFFOLK, NY (0.291)	DALLAS, TX (0.325)	ATLANTA, GA (0.241)
21	MINNEAPOLIS-ST. PAUL, MN-WI (0.288)	ROCHESTER, NY (0.324)	BALTIMORE, MD (0.231)
22	DAYTON-SPRINGFIELD, OH (0.285)	BUFFALO-NIAGARA FALLS, NY (0.323)	DETROIT, MI (0.230)
23	LOS ANGELES-LONG BEACH, CA (0.284)	FORT WORTH-ARLINGTON, TX (0.318)	MIDDLESEX-SOMERSET-HUNTERDON, N (0.229)
24	TULSA, OK (0.279)	ATLANTA, GA (0.317)	LOS ANGELES-LONG BEACH, CA (0.228)
25	HARTFORD, CT (0.276)	OAKLAND, CA (0.317)	BERGEN-PASSAIC, NJ (0.226)
26	OAKLAND, CA (0.272)	CLEVELAND-LORAIN-ELYRIA, OH (0.315)	DAYTON-SPRINGFIELD, OH (0.224)
27	NASHVILLE, TN (0.272)	PITTSBURGH, PA (0.314)	RICHMOND-PETERSBURG, VA (0.220)
28	MEMPHIS, TN-AR-MS (0.270)	NASSAU-SUFFOLK, NY (0.311)	NORFOLK-VIRGINIA BEACH-NEWPORT NEWS, VA-NC (0.219)
29	RICHMOND-PETERSBURG, VA (0.267)	DETROIT, MI (0.310)	MINNEAPOLIS-ST. PAUL, MN-WI (0.214)
30	ATLANTA, GA (0.266)	CINCINNATI, OH-KY-IN (0.304)	WASHINGTON, DC-MD-VA-WV (0.212)
31	LOUISVILLE, KY-IN (0.265)	WEST PALM BEACH-BOCA RATON, FL (0.303)	JACKSONVILLE, FL (0.206)
32	BALTIMORE, MD (0.264)	TULSA, OK (0.299)	MEMPHIS, TN-AR-MS (0.206)
33	KANSAS CITY, MO-KS (0.262)	KANSAS CITY, MO-KS (0.297)	OAKLAND, CA (0.200)
34	NORFOLK-VIRGINIA BEACH-NEWPORT NEWS, VA-NC (0.261)	NASHVILLE, TN (0.297)	KANSAS CITY, MO-KS (0.192)
35	BOSTON-WORCESTER-LAWRENCE-LOWELL-BROCKTON, MA (0.253)	GREENSBORO–WINSTON-SALEM–HIGH POINT, NC (0.291)	TULSA, OK (0.175)
36	HOUSTON, TX (0.240)	LOUISVILLE, KY-IN (0.290)	LOUISVILLE, KY-IN (0.173)
37	GREENSBORO–WINSTON-SALEM–HIGH POINT, NC (0.235)	DAYTON-SPRINGFIELD, OH (0.288)	DENVER, CO (0.170)
38	WEST PALM BEACH-BOCA RATON, FL (0.230)	TAMPA-ST. PETERSBURG-CLEARWATER, FL (0.285)	COLUMBUS, OH (0.164)
39	DALLAS, TX (0.229)	SAN ANTONIO, TX (0.284)	INDIANAPOLIS, IN (0.164)
40	INDIANAPOLIS, IN (0.214)	OKLAHOMA CITY, OK (0.280)	WEST PALM BEACH-BOCA RATON, FL (0.161)
41	WASHINGTON, DC-MD-VA-WV (0.213)	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC (0.265)	SEATTLE-BELLEVUE-EVERETT, WA (0.156)
42	OKLAHOMA CITY, OK (0.212)	GRAND RAPIDS-MUSKEGON-HOLLAND, MI (0.264)	MONMOUTH-OCEAN, NJ (0.155)
43	COLUMBUS, OH (0.209)	WASHINGTON, DC-MD-VA-WV (0.260)	SAN DIEGO, CA (0.154)
44	SAN DIEGO, CA (0.209)	ORLANDO, FL (0.257)	SAN JOSE, CA (0.151)
45	FORT WORTH-ARLINGTON, TX (0.207)	HARTFORD, CT (0.256)	NASHVILLE, TN (0.150)
46	ORLANDO, FL (0.202)	SACRAMENTO, CA (0.255)	ORLANDO, FL (0.149)
47	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC (0.198)	SAN DIEGO, CA (0.255)	GREENSBORO–WINSTON-SALEM–HIGH POINT, NC (0.141)
48	SEATTLE-BELLEVUE-EVERETT, WA (0.191)	DENVER, CO (0.236)	OKLAHOMA CITY, OK (0.138)
49	SAN JOSE, CA (0.190)	INDIANAPOLIS, IN (0.233)	DALLAS, TX (0.137)
50	DENVER, CO (0.190)	RALEIGH-DURHAM-CHAPEL HILL, NC (0.232)	HOUSTON, TX (0.136)
51	SACRAMENTO, CA (0.189)	COLUMBUS, OH (0.231)	CHARLOTTE-GASTONIA-ROCK HILL, NC-SC (0.130)
52	SALT LAKE CITY-OGDEN, UT (0.187)	SAN JOSE, CA (0.227)	RALEIGH-DURHAM-CHAPEL HILL, NC (0.130)
53	MIDDLESEX-SOMERSET-HUNTERDON, N (0.186)	GREENVILLE-SPARTANBURG-ANDERSON, SC (0.225)	TAMPA-ST. PETERSBURG-CLEARWATER, FL (0.117)
54	RALEIGH-DURHAM-CHAPEL HILL, NC (0.181)	BOSTON-WORCESTER-LAWRENCE-LOWELL-BROCKTON, MA (0.224)	FORT WORTH-ARLINGTON, TX (0.114)
55	FORT LAUDERDALE, FL (0.180)	AUSTIN-SAN MARCOS, TX (0.221)	FORT LAUDERDALE, FL (0.111)
56	TAMPA-ST. PETERSBURG-CLEARWATER, FL (0.174)	FORT LAUDERDALE, FL (0.219)	SALT LAKE CITY-OGDEN, UT (0.106)
57	GREENVILLE-SPARTANBURG-ANDERSON, SC (0.170)	SALT LAKE CITY-OGDEN, UT (0.218)	PORTLAND-VANCOUVER,OR-WA (0.105)
58	AUSTIN-SAN MARCOS, TX (0.170)	MIDDLESEX-SOMERSET-HUNTERDON, N (0.216)	AUSTIN-SAN MARCOS, TX (0.090)
59	SAN ANTONIO, TX (0.165)	ORANGE COUNTY, CA (0.179)	GREENVILLE-SPARTANBURG-ANDERSON, SC (0.090)
60	MONMOUTH-OCEAN, NJ (0.158)	SEATTLE-BELLEVUE-EVERETT, WA (0.173)	SAN ANTONIO, TX (0.084)
61	ORANGE COUNTY, CA (0.145)	PORTLAND-VANCOUVER,OR-WA (0.169)	PHOENIX-MESA, AZ (0.081)
62	PORTLAND-VANCOUVER,OR-WA (0.131)	PHOENIX-MESA, AZ (0.159)	ORANGE COUNTY, CA (0.075)
63	PHOENIX-MESA, AZ (0.120)	MONMOUTH-OCEAN, NJ (0.159)	SACRAMENTO, CA (0.074)
64	LAS VEGAS, NV-AZ (0.092)	LAS VEGAS, NV-AZ (0.143)	LAS VEGAS, NV-AZ (0.070)
65	RIVERSIDE-SAN BERNADINO, CA (0.069)	RIVERSIDE-SAN BERNADINO, CA (0.133)	RIVERSIDE-SAN BERNADINO, CA (0.031)

Notes: The first column ranks metropolitan areas based on the average of neighborhood outcome differences between Black and white calculated at 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, and 90th quantiles of the income distribution. The second column ranks metropolitan areas based on the neighborhood outcome differences calculated at the 10th quantiles; the third column ranks them based on the same measure calculated at 90th quantiles. The vertical difference measures are given in parentheses as percentile points. *Source:* American Community Survey 2014-2018