Black Suburbanization: Causes and Consequences of a Transformation of American Cities

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Abstract

Since 1970, the share of Black individuals living in suburbs of large cities has risen from 16% to 36%. We first show that Black suburbanization has led to major changes in neighborhoods, accounting for the majority of recent increases in both the average Black individual's neighborhood quality and income segregation within the Black population. We then use an accounting exercise to show that changes in relative suburban amenities and housing prices explain a large share of Black suburbanization, while regional reallocation, changing educational attainment, and gentrification of Black city neighborhoods play only minor roles.

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Introduction

Racial segregation and racial differences in residential locations in the United States are among the most heavily studied areas of social science (Du Bois 1899, Franklin 1956, Schelling 1971, Wilson 1987, Massey and Denton 1993, Card, Mas and Rothstein 2008). An influential stylized fact in this literature is the concentration of Black individuals in large central cities—over 40 percent lived in the 40 most populous cities in 1970. However, the share of the Black population living in these central cities has fallen to 24 percent over the last half century, while the share living in their suburbs has risen from 16 to 36 percent.

This population shift is similar in magnitude to the second wave of the Great Migration. But while that event is widely understood as foundational in American economic history (Collins and Wanamaker, 2014; Boustan, 2016; Derenoncourt, 2022), Black suburbanization has received little attention from economists. It may play an important role in the evolution of Black households' neighborhood quality, schools, and local public services.

This paper conducts the first dedicated economic analysis of Black suburbanization. We first document that Black population growth has been widespread across suburban neighborhoods with different characteristics and in different regions. Meanwhile, population has declined drastically in city neighborhoods that were initially majority Black. We then show that suburbanization plays a major role in rising income segregation within the Black population and has been accompanied by a divergence in neighborhood quality of Black suburbanites and city dwellers. In the second half of the paper, we use a model-based decomposition to explore the causes of Black suburbanization. Changes in relative housing prices explain about 30 percent of the trend, while rising educational attainment and movement across metropolitan areas explain less than 10 percent. Motivated by Wilson (1987), we present evidence that changes in amenities are an important driver of the large component that is unexplained by the model. Finally, we argue that suburbanization has increased within-Black stratification due to a paucity of low-cost suburban housing and relatively low White flight.

We begin by examining aggregate population trends between 1970 and 2016 in Section 2. We focus on a sample of 40 Core-Based Statistical Areas (CBSAs)—the 20 largest in the South and in the remainder of the country, according to total population in 1970. There have been drastic increases in both the share of Black population (16 to 36 percent) and the total Black population (4 million to 13 million) living in the suburbs of these areas. In contrast, Black population in these central cities remained flat until 2000 and then declined significantly, leading their share of the national total to fall from 41 to 24 percent. These trends do not mirror general suburbanization patterns; the Black share of the suburban population nearly tripled, rising from 5 to 13 percent.

A large literature has documented aspects of this shift and shown that racial disparities in neighborhood quality and local services persist within the suburbs (Farley 1970, Logan and Schneider 1984, Frey 1985, Massey and Denton 1988, Logan 2014, Frey 2015).[1] However, the bulk of the literature dates from the 1980s or earlier, and more recent work focuses almost exclusively on Black-White disparities within suburbs (Galster 1991, Schneider and Phelan 1993, Logan 2014). We conclude our section on aggregate trends by bringing the literature up to date on Black suburbanites' neighborhood characteristics. Between 1980 and 1990, there was a sharp upward inflection point in Black population growth in low-poverty and racially-diverse suburban neighborhoods, and these areas have since accounted for most of Black suburbanization. Black suburbanites have also become much less concentrated in aging inner-ring suburbs since 1980. These facts are significant changes to the pessimistic conclusions of the earlier literature.

In Section 3, we explore the role of Black suburbanization in three specific trends in neighborhood composition. First, we illustrate suburbanization's important role in the rapid increase in Black income segregation, which has nearly doubled since 1970 (Bischoff and Reardon 2014). We show that changes within central cities account for less than a quarter of the increase in income segregation indices, while suburbanization and increased sorting within the suburbs explain the vast majority. Second, there has been a divergence in neighborhood conditions between Black

[1] In addition to quantitative work, a number of ethnographies have examined Black suburbanites and the Black middle class more generally (e.g. Pattillo 1999, Lacy 2007).

households in cities and suburbs, with suburbanization accounting for most of the improvement in the average Black household's neighborhood composition. Black city dwellers have even experienced declines in some neighborhood quality indicators, relative to national averages. This mixed progress bears similarities to trends in Black-White gaps in income and education. While the average gaps stagnated after 1980 (Altonji and Blank 1999, Neal 2006), the upper and lower portions of the Black income distribution followed opposite trajectories (Bayer and Charles 2018).

Our final neighborhood trend is severe population decline in city neighborhoods that were majority Black in 1970. Given the suburbanization documented above, it is perhaps unsurprising that there was some Black population decline in central cities. However, the decline in historically-Black neighborhoods has been extremely large, concentrated, and accompanied by large declines in total population. For example, census tracts that were majority Black and had poverty rate above 20% in 1970 have since lost 60% of their Black population and 40% of total population. Population decline on this scale is a policy concern because of its association with school closures, reduced retail or grocery options, and reduced tax revenue and intergovernmental transfers.

In Section 4, we shift focus to the causes of Black suburbanization. We use a model-based accounting exercise to decompose changes in Black residential locations into the components due to changing housing prices, amenities, and educational attainment, as well as migration across regions. Relative prices for suburban housing declined significantly between 1970 and 2016, explaining about 30 percent of suburbanization during this period. In contrast, rising Black educational attainment and regional reallocation together explain only 10 percent. This leaves a large share—roughly 60 percent—that is unexplained by the model. We argue that this component is in part driven by relative improvements in suburban amenities. The model residual is correlated with direct measures of changes in racial animus, school segregation, job suburbanization, and crime. (Unfortunately, we cannot measure suburban housing discrimination, which may be an important non-amenity force that factors into the residual.) The fact that rising relative suburban amenities for Black households were counterintuitively accompanied by falling relative suburban home prices helps explain why the population shift has been so dramatic. This may have occurred

because the U.S. population is only 13% Black and amenities for Black and White households are imperfectly correlated, limiting the effect of Black amenity improvements on prices. For example, Black households are more affected by changes in racial discrimination or emergent homophily in the suburbs.

While the decomposition shows that rising city prices contribute to suburbanization, the data suggests that gentrification in historically-Black city neighborhoods does not play a large role. Very few of these neighborhoods experienced gentrification, and suburbanizers from historically-Black areas are positively selected on income and tend to migrate to more expensive neighborhoods than their origin. If gentrification played a role in suburbanization, it was mostly through discouraging Black people from moving to city neighborhoods with an initially low Black share, not through direct displacement. The results also do not support an important role for general suburban decline, as Black population growth has not been concentrated in poor suburban areas and model estimates of suburban amenities rise for both Black and White households.

Last, in Section 5, we investigate why suburbanization has been associated with rising stratification within the Black population. Motivated by Wilson (1987), we show that the suburbs had very few inexpensive rental units in 1970, implying that high-income Black households were more likely to be able to afford to suburbanize and take advantage of falling discrimination in the wake of the Fair Housing Act. For a lower-middle income renter, only 20% of affordable units were located in the suburbs in 1970, while the figure was 80% for an upper-middle income household looking to buy a home. While the median housing price in cities and suburbs has since converged, this difference in housing availability at the bottom of the distribution has persisted, preventing lower-income Black households from following the middle class as described in other contexts by Pattillo-McCoy (2000).[2] To help explain this persistence, we replicate the empirical specification of Boustan (2010) and find that White flight in our context has been low relative to central cities in earlier time periods (Shertzer and Walsh 2019, Derenoncourt 2022).

[2]Prior work that has shown the importance of differential minimum costs of housing for residential sorting more generally (Hamilton 1975; Fischel 2005; Banzhaf and Mangum 2019).

Overall, the paper makes two main contributions to the connected literatures on segregation, racial disparities, and neighborhood effects. The first is a new characterization of how Black suburbanization has transformed metropolitan America. This provides important context for the growing body of literature on racial disparities in neighborhood socioeconomic status (Bayer, Fang and McMillan 2014, Reardon, Fox and Townsend 2015, Bayer, Charles and Park 2021). In addition, the connection between suburbanization and stratification highlights that improvements in racial discrimination in the housing or labor market may have heterogeneous impacts across subsets of people (Wilson 1987, Aliprantis and Carroll 2018). The second contribution is our study of the causes of Black suburbanization, which add to the literature on the historical determinants of modern racial segregation and spatial inequality (e.g. Massey and Denton 1993, Cutler, Glaeser and Vigdor 1999, Shertzer, Twinam and Walsh 2022) by examining an understudied trend that has played a large role in recent changes to the geography of race in America.

The paper proceeds as follows. Section 1 describes the data and sample, and Section 2 studies aggregate trends in Black suburbanization since 1970. Section 3 examines the role of suburbanization in three specific neighborhood trends. In Section 4, we study the causes of suburbanization, and we then examine potential causes of divergence in Section 5.

1 Data and Sample

Our primary data set is a panel of census tract characteristics spanning 1970 to 2016. We draw tract characteristics from the 1970-2010 decennial censuses and the 2014-2018 American Community Survery (ACS), as standardized by Ruggles et al. (2020). We then map the characteristics into consistent 2010 tract boundaries using code provided by Logan, Xu and Stults (2014). We define metropolitan areas according to the most recent definition of Core-Based Statistical Areas (CBSAs), central cities according to 2010 Census place boundaries, and suburbs as a CBSA less its central city. To classify tracts into 2010 Census place definitions, we use the Missouri Census Data Center's Geocorr tool. We define Black as non-Hispanic Black alone.

Our primary sample consists of 40 populous metropolitan areas, selected based on total CBSA

population in 1970. Since trends could differ between southern cities and cities in other parts of the U.S. because of, for example, differences in exposure to the Great Migration, we choose the 20 largest CBSAs from states that seceded in the Civil War and the 20 largest from the remainder of the country. We loosely refer to this set as the country's 40 largest cities. In total, the metropolitan areas in our sample contained 57% of the national Black population in 1970 and 60% in 2016. Appendix Table A1 shows summary statistics on the 32,000 tracts included in our primary sample, and Appendix Table A2 shows their distribution across CBSAs, cities, and suburbs.

We supplement our primary data set with tract-level measures of intergenerational mobility from Chetty et al. (2018)'s Opportunity Atlas, as well as additional data on migration drawn from individual microdata from the 1980 and 1990 censuses and individual address histories from Infutor Data Solutions. Appendix II.B contains more detail on the migration data.

2 Aggregate Trends in Suburban Black Population

At the conclusion of the Great Migration in 1970, the Black population in the United States was disproportionately concentrated in the central cities of large metropolitan areas (Farley et al. 1978). We begin with a detailed descriptive analysis of how this stylized fact has changed. The top panel of Figure 1 shows the distribution of Black population across different types of places from 1970 to 2016. There has been a large decline in the share living in our 40 sample central cities, from 42 to 24 percent, and a corresponding rise in the share in the suburbs of those cities, while the share living in all other areas has remained roughly constant. The bottom panel of Figure 1 shows that the total Black population in suburban and other areas has increased sharply, while the number in large cities stayed flat through 2000 before beginning to decline. This aggregate pattern does not appear to be driven by any particular region of the country, as we discuss in detail in Appendix II.A. However, the trend does differ from the general population—the Black suburban population increased by a factor of nearly 10, while the non-Black suburban population rose only around 80 percent. As shown in Appendix Figures A1 and A2, the share in each area has remained relatively stable for White population, while Hispanic growth has been rapid everywhere.

Black suburbanization has also been widespread within metropolitan areas. In Figure 2, we plot the Black population in tracts in the Los Angeles CBSA as an example, and Appendix Figures A3 to A5 do the same for Chicago, Houston, and New York. In all cases, Black population was highly concentrated in a small set of neighborhoods within the city proper in 1970 but has since dispersed widely, driven by both a decline in the share of tracts with nearly no Black households and a growth in the number of tracts with moderate or high numbers of Black households. This illustrates suburbanization's role in Cutler, Glaeser and Vigdor (1999)'s finding that Black growth in previously all-White areas has been a major factor in declining residential segregation.

A large literature has noted this aggregate shift and explored the neighborhood-level changes that underlie it (Farley 1970, Frey 2015). Early work documented that suburbs with fast Black population growth in the 1970s and 1980s tended to have small tax bases and be relatively dense and close to the central city (Logan and Schneider 1984, Schneider and Phelan 1993). Racial disparities persisted within the suburbs for variables such as school quality and neighborhood racial composition (Rose 1976, Massey and Denton 1988, Galster 1991, Logan 2014).[3] However, this literature has been sparse since the early 1990s, and the small amount of recent work has focused on racial disparities within the suburbs rather than broader implications or changes within the Black population. We next update this literature by examining neighborhood trends from 1970 to 2016.

First, while White-Black gaps within suburbs remain intact, Black suburban growth has not been concentrated in especially disadvantaged neighborhoods. As shown in Panel A of Figure 3,

[3]These findings led the literature to take a very pessimistic view on Black suburbanization. For example, after discussing the literature from the 1980s, Schneider and Phelan (1993) write: "these studies show that suburban blacks tend to live in highly segregated suburbs which are not only close to the central city, but also are characterized by few jobs, poor governmental services, and high tax rates...Thus, although initial reports of increased black suburbanization in the 1970s generated some optimism that the United States was entering a new era of racial integration with a decline in discrimination, the preponderance of evidence suggests a continuation of limited black access to better-endowed, more desirable communities throughout the metropolis."

Black population growth has been fastest in suburban tracts in the middle three quintiles of their CBSA income distribution.[4] Growth in the top and bottom quintiles has been slower and roughly equal. In 1970, 45% of Black suburbanites lived in bottom income quintile tracts, and only 13% lived in the top two quintiles. By 2016, those numbers had changed to 23% and 28%. Panel B similarly shows that the vast majority of growth has occurred in low-poverty tracts. Notably, these changes began to occur in force in roughly 1990, after the bulk of existing literature was written.

Second, the Black suburban population lives in a racially diverse set of tracts, as shown in Panel C. Growth in majority-White tracts has been similar to majority-Black, and growth in tracts with no racial majority has skyrocketed since 1990. These patterns fit well with recent evidence on stable integration in multiethnic neighborhoods (Logan and Zhang 2010) and run counter to worries that suburban racial integration would be temporary. Finally, Panel D shows Black population growth in some specific categories of interest. The population increase in majority-Black tracts that are above median income has been roughly equal to the increase in high-poverty, majority-Black tracts (about 1 million). However, while these categories attract popular attention, they represent a small share of the overall trend. Both are dwarfed by growth in non-majority Black tracts.

To conclude this section, we consider how physical characteristics of Black suburbanites' neighborhoods have changed over time in Appendix Figure A10. The share that lives in the closest tercile of distance to the central business district (calculated within CBSAs) has decreased from 27 to 21%. Similarly, the share living in tracts in the oldest tercile of housing stock has declined from 43% to 33%, and the share living in the top tercile of population density has fallen sharply. Like with neighborhood composition, these changes began to occur in 1980 and 1990.

3 Consequences of Black Suburbanization

The previous section illustrates that the distribution of Black households across municipalities and neighborhoods has transformed over the past 50 years. In this section, we discuss three trends that stand out as important correlates of Black suburbanization—increased within-Black income

[4] Appendix Figure A9 replicates Figure 3 with population levels instead of growth.

segregation, diverging neighborhood quality for Black households in cities and suburbs, and stark population loss in city neighborhoods that were majority Black in 1970. These changes not only altered the urban geography of cities, but they also may influence racial disparities in individual outcomes through neighborhood effects (Chyn and Katz 2021).

3.1 Income Segregation

In 1970, income segregation within Black households was lower than among the overall population. However, it now scores about 50% higher on common segregation indices than does the population as a whole (Bischoff and Reardon 2014).[5] We show that increased Black income segregation has largely occurred through suburbanization and changes within the suburbs.

The average income of Black suburbanites in 1970 was $50,000, quite similar to the $49,000 average among citydwellers. However, in 2016, the figure had risen to $72,000 in suburbs versus only $54,000 in cities. Unsurprisingly, indices of Black income segregation (across tracts within CBSAs) have increased sharply over this period. The time series of Reardon and O'Sullivan (2004)'s index is shown in Panel A of Figure 4. The overall index, which can be interpreted as the share of income variation that is between tracts, has increased from 0.1 to 0.18.[6] The graph also shows the index within suburbs, which began at a higher level than the within-city index and has also increased more quickly. In Panel B, we freeze income segregation within the suburbs and between cities and suburbs at 1970 levels and recompute the aggregate index in each year. The frozen suburbanization index rises by only about a quarter of the actual increase, suggesting that changes in income segregation within cities have played a relatively small role in the overall trend.[7]

[5]Income segregation indices may be biased upwards in the period since 2000 due to small-sample bias arising from the introduction of the ACS (Logan et al. 2018). Bischoff et al. (2022) argue that this does not meaningfully change the findings in Bischoff and Reardon (2014).

[6]An important caveat is that our results on segregation are measured at the tract level. Logan and Parman (2017) show that within-tract measures of racial segregation can exhibit different patterns than tract or ward measures. This may be of particular importance in large suburban tracts.

[7]Farley (1970) describes several examples of majority-Black suburban enclaves that developed

The same pattern is visible in measures that are easier to interpret than an aggregate index. Appendix Figure A13 shows the share of Black households earning over $100,000 (in 2018 dollars) who live in a tract with over 20 percent poverty. In central cities, this percentage has remained around 40, while it has fallen from 22 to 10 percent for high earners in suburbs. In addition, Black households tend to live in lower-income neighborhoods than White households with a similar income (Bayer, Fang and McMillan 2014, Reardon, Fox and Townsend 2015). Appendix Figure A14 shows that, among Black suburbanites, neighborhood income increases more sharply with household income than it did in 1970, while the slope has not changed much in cities.

3.2 Neighborhood Divergence

Suburbanization has also been associated with significant changes to Black households' neighborhood composition. Neighborhood characteristics of suburbanites and city dwellers have diverged, and a disproportionate share of improvements in the average Black household's neighborhood quality has occurred through suburbanization and improvements in the suburbs.

Figure 5 shows how two important neighborhood characteristics have evolved differently for Black individuals in cities and suburbs. The first is the average adult income (measured at age 31-37) of children who lived in the neighborhood in the 1990s with parents whose income was near the 25th percentile of the national income distribution, as estimated by Chetty et al. (2018). Note that this measure is only available for a single cross-section, which means that changes over time in the average person's neighborhood future income are driven entirely by migration. Panel A shows that the average Black individual's neighborhood future income has gradually increased from the 33rd to the 38th percentile, driven by improvements for both city dwellers and suburbanites as well as an increase in the suburban share. In Panel C, we recompute the average future

prior to World War II. These areas largely suffered from the same discrimination and segregation as majority-Black neighborhoods in cities. This helps explain why city and suburban mean Black incomes were similar in 1970, as well as why the arrival of higher income Black households increased income segregation within the suburbs.

income under the counterfactual assumption that the suburban share and average Black suburbanite's future income remained at their 1970 levels. These two components account for over half of the overall improvement, suggesting that suburbanization is a way that Black households have improved economic opportunity.

Panels B and D of Figure 5 repeat the exercise for the average Black individual's tract median household income. To account for economic changes over time, we normalize by the average neighborhood income of White individuals in each year (always including both cities and suburbs in the denominator). The trend has been modestly upwards overall—from 61% to 66% of mean White neighborhood income—but cities and suburbs have moved in opposite directions. Black relative neighborhood income in the suburbs increased from 72% in 1970 to 78% in 1990 before declining slightly, while cities have steadily declined from 58% to 50%. Suburbanization thus accounts for more than 100% of relative improvements in Black households' neighborhood income.

Finally, growth in high-SES, majority-Black neighborhoods has been disproportionately concentrated in the suburbs. These areas have received scholarly attention because they are both attractive to many high-SES Black households and historically scarce (Lacy 2007, Bayer, Fang and McMillan 2014, Aliprantis, Carroll and Young 2019). Appendix Figure A11 shows that the number of majority-Black tracts in our sample with median income above the sample median has risen from under 200 in 1970 to over 500 in 2016. However, again, the trend is nearly entirely driven by increases in the suburbs, where the number of such tracts grew from 20 in 1970 to 300 today. Meanwhile, the number of high-income, majority-Black tracts in cities has remained the same since 1980. Panel B shows a similar pattern for high-education majority-Black tracts.

3.3 Population Decline in Historically-Black City Neighborhoods

The last consequence we study is population decline in city neighborhoods that were majority-Black in 1970. Given the aggregate rate of Black suburbanization, some Black population decline in cities is to be expected. Indeed, Appendix Figure A12 shows that all of the largest central cities in the sample lost total Black population between 2000 and 2016. However, it does not follow that

decline would be highly concentrated in historically-Black neighborhoods, or that overall population in these neighborhoods would also fall. This decline may have effects beyond demography, such as school closures, reduced retail options, and declining support for churches and other local institutions. Recent work has also linked foreclosures and vacant homes to increased crime (Ellen, Lacoe and Sharygin 2013, Cui and Walsh 2015).

Table 1 shows that city Black population decline has been concentrated in neighborhoods that were initially majority Black, which saw a decrease from 7.5 million in 1970 to 3.7 million today. The percentage drop is even larger in majority-Black areas that also had poverty rates above 20% in 1970, which have since lost 60% of their Black population. Growth in other groups did not offset this loss, as total population in these neighborhoods fell by over 30% (as shown in Panel B). In contrast, Black and total population in city neighborhoods that were not initially majority Black have grown substantially. Interestingly, Black population in initially majority-Black suburban tracts declined from 1.7 to 1.2 million, but total population did not fall.

4 Causes of Black Suburbanization

We now shift attention to the causes of Black suburbanization. We begin with an accounting exercise that decomposes the forces potentially driving Black suburbanization into three broad factors. First, changes in demographic and regional composition, such as the growth of the Black middle class and migration to the South, may have increased suburbanization. Second, relative amenities—broadly defined to include racial discrimination—may have improved in the suburbs. Finally, relative housing prices may have changed due to either gentrification, aging housing stock, or other factors. The exercise combines a Oaxaca-Blinder decomposition, which separates the contribution of changing individual composition and changing suburban shares within types of individuals, with a neighborhood choice model that further decomposes within-type changes in suburban shares into price and amenity components.

We caution that the exercise is descriptive and does not incorporate, for example, feedback between amenity changes and house price adjustments. The goal is to describe which factors have

changed by enough that they could plausibly explain a significant share of Black suburbanization. A fully micro-founded model would allow for counterfactual simulations that incorporate equilibrium effects and generate more precise conclusions. However, this would come at the cost of strong assumptions on many poorly understood quantities, such as the strength of homophily effects, household expectations about amenity changes over a fifty-year time period, and the interaction of amenity changes and housing supply. Moreover, the data from the early part of the period is insufficient to apply state-of-the-art methodology.

After presenting the decomposition estimates, we consider four specific causal explanations for the increase in Black suburbanization—rising education and changing migration across regions, falling socioeconomic status and housing prices in some formerly middle-class suburbs, gentrification in central cities, and rising relative suburban amenities.

4.1 Decomposition Methodology

We want to decompose the change in the share of Black households living in the suburbs into the components explained by compositional changes, price changes, and amenity changes. Let k index an individual's demographic group and region, g index neighborhood type, μ_{kt} be the share of people that are type k at time t, and P_{kgt} be the probability that a type k person chooses neighborhood g in time t. We can then write the change in Black suburban share from t to t' as:

$$\Delta \frac{N_S}{N} = \underbrace{\sum_k \Delta\mu_{kt} \times \sum_{g \in \mathrm{S}} P_{kgt}}_{\text{Term A: Suburbanization due to change in composition}} + \underbrace{\sum_k \mu_{kt'} \times \sum_{g \in \mathrm{S}} \Delta P_{kgt}}_{\text{Term B: Suburbanization due to change in choice probabilities}} \tag{1}$$

where $\Delta x = x_{t'} - x_t$ and S is the set of suburban neighborhoods.To further decompose Term B into changes due to prices and amenities, we model neighborhood choice. We write indirect utility for individual i of type k as:

$$v^k_{igt} = A^k_{gt} - \beta^k r_{gt} + \epsilon_{igt} \tag{2}$$

where r_{gt} and A^k_{gt} are housing costs and type-specific amenities in neighborhood g at time t and $\epsilon_{igt} \sim$ EV-1. Denoting the choice probabilities that arise from this model as $P_{kgt}(\mathbf{A^k_t}, \mathbf{r_t}, \beta^k)$, we can break Term B in Equation 1 into a price component and an amenity component:

$$\sum_k \mu_{kt'} \times \sum_{g \in \text{Suburbs}} \Delta P_{kgt} = \underbrace{\sum_k \mu_{kt'} \times \left[P_{kgt}(\mathbf{A^k_{t'}}, \mathbf{r_{t'}}, \beta^k) - P_{kgt}(\mathbf{A^k_t}, \mathbf{r_t}, \beta^k) \right]}_{\text{Term B1: Change in suburban choice probability due to changing price distribution}} + \underbrace{\sum_k \mu_{kt'} \times \left[P_{kgt}(\mathbf{A^k_{t'}}, \mathbf{r_{t'}}, \beta^k) - P_{kgt}(\mathbf{A^k_t}, \mathbf{r_{t'}}, \beta^k) \right]}_{\text{Term B2: Change in suburban choice probability due to changing amenities}} \quad (3)$$

Our final decomposition results will be estimates of Term A in Equation 1 (the compositional change contribution), Term B1 in Equation 3 (the price change contribution), and Term B2 in Equation 3 (the amenity change contribution). To arrive at these estimates, we directly measure μ_{kt} and P_{kgt}, estimate Equation (3), and then plug these parameters into Equations (2) and (5). Note that in this decomposition, changes in amenities include any factor that changes the relative attractiveness of suburbs conditional on prices within demographic group and region. In practice this includes both standard amenities like crime and school quality and changes in racial animus that may affect how Black households value living in different types of neighborhoods.

A number of specification choices are required to implement this approach empirically. First, due to coarse price data and a substantial number of tracts with virtually no Black population, particularly at the beginning of the period, we allow individuals to choose between aggregated neighborhood types rather than specific tracts. We define neighborhood type g to be {suburban tracts with over 15% poverty in 1970, other suburban tracts, city tracts that were majority-Black in 1970, other city tracts}, separately within each CBSA. We divide suburban tracts based on poverty because there were few majority-Black suburban tracts in 1970. (We report alternative Black share thresholds, finer poverty categories, and incorporating distance to the CBD in robustness tests.) Second, we define an individual's type k according to college education status and CBSA of residence, so the model reflects the city/suburb decision conditional on CBSA location. (In an

alternative specification, we stratify individuals based on income rather than education.) Third, we define the relevant housing price r_{gt} for a neighborhood type as the tract median owner-occupied housing value of the median Black person living in the neighborhood type. We use housing values rather than rents because early years of the rent data are top-coded at a low value and incompletely populated. Finally, we use the Black population in our sample CBSAs as the primary sample.

To estimate Equation (3), we first calibrate β^k to match estimates of the elasticity of population to housing prices from Albouy, Ehrlich and Liu (2016) and Calder-Wang (2021). Because the literature does not provide group-specific estimates of this parameter, we set β^k equal in all types and calibrate so that the implied aggregate elasticity in 1970 matches the target value. We assume that this elasticity is constant over time and consider both higher and lower values in robustness. To estimate neighborhood amenities A^k_{gt}, we include neighborhood-type fixed effects, so that the model infers amenity improvements in places where price and demographic changes are not large enough to explain the observed increase in population.

4.2 Decomposition Results

Figure 6 shows the decomposition results for each year of the sample period. The lower two lines show the predicted suburban share when incorporating only reallocation across CBSAs and changes in education—these factors together explain only 10% of the observed increase from 1970 to 2016. (With both factors included, this represents Term A in Equation 1.) Put differently, if the suburban share within CBSA x education cells had remained constant from 1970 to today but the trends of increasing education and migration to the South had followed their observed course, the Black suburban share would not have increased by very much.

When we change the neighborhood choice probabilities to reflect the observed change in housing prices (adding Term B1 in Equation 3), the predicted increase in the suburban share rises to 42% of the observed change. This implies that 58% of suburbanization cannot be explained by the factors included in the model. In our model, this residual component represents suburbanization driven by changes in amenities (Term B2 in Equation 3).

We interpret the model residual as capturing amenities broadly construed, but it is worth both acknowledging the limitations of this interpretation and providing some evidence in support of it. The main shortcoming is that the model residual includes not only unobservable quality of life factors, but also non-amenity factors that affect the probability of choosing to live in the suburbs. An important example is declining racial animus, which may have affected choices not only by improving suburban quality of life, but also by reducing discrimination during the search process. On the other hand, there is substantial evidence that many amenities changed differentially in cities and suburbs during the sample period: job availability (Wilson 1997, Miller 2020); school quality (Baum-Snow and Lutz 2011, Boustan 2012); housing discrimination (Bostic and Martin 2005, Turner et al. 2013); and crime (Evans, Garthwaite and Moore 2016). In Section II.C of the Appendix, we validate our interpretation by showing that the CBSA-level model amenity estimates are correlated in the expected ways with several direct measures of these factors. Due to the difficulty of measuring the city-suburb amenity differential, especially early in the sample period, and collinearity in changes in the amenity measures, we use this exercise to support our interpretation of the residual rather than to emphasize any particular factor.

With this discussion in mind, we next examine the changes in prices and estimated amenities (measured as Term B2 in Equation 3) in each neighborhood type. Panel A of Figure 7 shows that amenities relative to initially majority-Black city neighborhoods rapidly rose in all other neighborhood types from 1970 to 2000, explaining most of suburbanization in this period. The increase was largest in low-poverty suburban neighborhoods, but amenities in minority-Black city neighborhoods went up by nearly as much. This early increase in amenities is required to rationalize the data because, as shown in Panel C, relative suburban housing prices increased from 1970 to 1990 before beginning a steady fall. While a full analysis of why relative suburban house prices rose after 1990 is outside the scope of this paper, suburbs' high housing supply elasticities likely play a role. For reference, Panel B shows the amenity estimates when we estimate the model for White households, while Panel D shows changes in median housing costs weighted by total population.

4.3 Robustness of Decomposition Results

Table 2 shows how the share of suburbanization explained by each factor varies across a number of alternative specifications. First, we explore the parameterization of prices. Doubling the price sensitivity increases the explanatory power of prices, so that amenities explain only 49 percent of suburbanization rather than the baseline of 57 percent, while halving the sensitivity increases the amenity share to 70 percent. Using alternative price metrics, such as the median among White households rather than Black households, moves estimates within a similar range.

Second, we consider alternative neighborhood type definitions. Moving the Black share threshold in cities to 20 percent has almost no effect on results, in part because there were few tracts in the 20 to 50 percent Black range in the extreme segregation of 1970. Defining suburban poverty categories by quintiles of the CBSA distribution, rather than a uniform threshold, slightly decreases the amenity share to 53 percent, and stratifying suburban tracts based on distance to the CBD increases it to 64 percent. The latter result may occur because tracts at similar distances can be very heterogeneous socioeconomically, so a wider range of price and amenity levels is compressed within the type. Finally, defining individual types using income bins rather than education decreases the explanatory power of observables. This may be because college better reflects permanent income than does income in a single cross section, or because preferences over neighborhoods are more strongly correlated within education groups than income groups.

Our takeaway from this section is that amenities and prices both play major roles in Black suburbanization, while compositional changes are less important. This story consistently emerges across a range of specifications.

4.4 Specific Causal Explanations

Next, we present four a priori plausible causal explanations for Black suburbanization and consider whether their implications for neighborhood composition, amenities, and prices match the decomposition results and other moments in the data.

4.4.1 Rising Education Levels and Southern Migration of Black Households

Over the last fifty years, educational attainment and incomes of Black Americans have risen, particularly in the right-tail of the earnings distribution (Altonji and Blank 1999, Neal 2006, Bayer and Charles 2018). If living in the suburbs is a normal good or college-educated households have a higher preference for suburban living, these changes may drive suburbanization. In addition, Frey (2015) points to rising Black migration to the South as a potential cause.

As discussed above, the lower two lines in Figure 6 show the predicted level of Black suburbanization from freezing prices and amenities at their 1970 levels and allowing educational and regional composition to evolve on their observed trajectory. These compositional changes predict a modest increase of two percentage points in Black suburbanization, which represents only 10 percent of the observed increase. Of course, the decomposition does not incorporate general equilibrium effects of the compositional change, such as price changes or homophily effects from the implied growth in the suburban Black population. However, these forces do not necessarily point in the same direction, and homophily effects would have to be extremely large for such a small initial change to ultimately have a large effect.

4.4.2 Declining Suburbs May Attract Price-Sensitive Black Households

Recent literature has highlighted the rapid growth of suburban poverty (e.g. Allard 2017), as well as quick depreciation of some suburban housing stock (Rolheiser 2021). In our specific context, Howell and Timberlake (2014) show that increased housing affordability in suburbs is associated with future Black population growth. This literature suggests that price-sensitive Black households may be drawn to declining suburbs in a self-reinforcing cycle of decreasing amenities, White flight, and decreasing housing prices. For example, aging housing stock may create price decreases in an initially middle-class suburb, attracting price-sensitive Black households, which in turn may generate White flight and result in a high-poverty, majority-Black suburban neighborhood.

The decomposition provides little support for this dynamic. Returning to Figure 7, we see that relative amenities for Black households improve in all suburban neighborhoods relative to initially-

Black city neighborhoods, and prices in high-poverty suburbs remained roughly flat. For White households, amenities in low-poverty suburbs rose markedly relative to all other types of neighborhoods, while amenities in high-poverty suburbs did not change much relative to city neighborhoods. These estimates are inconsistent with dramatic declines in suburban quality of life.

A limitation of the decomposition is that it does not allow neighborhoods to change categories over time—some initially low-poverty neighborhoods may have become much poorer. However, as shown earlier in Figure 3, the Black suburban population in high-poverty (measured contemporaneously) tracts has grown much more slowly than in low-poverty tracts. Only about 7% of the total growth has been in tracts with over 30% poverty, which increases to only 15% using a 20% poverty threshold. While a cycle of decline occurred in some specific places, this dynamic does not explain a large share of Black suburbanization.

4.4.3 Gentrification Displacing Black Households from Historically-Black Neighborhoods

The decomposition showed that relative price increases in central cities explain about a third of Black suburbanization. While this implies that price increases in cities mattered broadly, the typical notion of gentrification and displacement is more narrow—rising prices in a neighborhood displacing incumbent residents (McKinnish, Walsh and White 2010, Brummet and Reed 2019). A commonly discussed causal chain is that prices in historically-Black neighborhoods may have risen in response to highly-educated households' increasing demand to live in central cities, pushing Black incumbents to the suburbs.

Beginning with our estimates of the change in White households' amenity valuations in Panel B of Figure 7, we see no marked rise for historically-Black central city neighborhoods. Their valuation has not changed much relative to other city neighborhoods or high-poverty suburban neighborhoods, and they decline relative to low-poverty suburban neighborhoods. This is inconsistent with in-migration of White households displacing Black residents in these areas at a large scale. Conversely, there is a large increase in relative amenity valuations of minority-Black city neighborhoods between 2000 and 2016, particularly relative to low-poverty suburbs, consistent

with these areas being more likely to gentrify after the onset of urban revival.

More directly, we next compare the time series of Black population in two categories of historically-Black city neighborhoods: those that moved up more than one decile in the CBSA income distribution between 1970 and 2016 and those that did not. This very broad characterization of income growth encompasses many definitions of gentrification. Panel A of Appendix Figure A15 shows that Black population declined by 3.1 million in historically-Black neighborhoods that did not see significant income increases, versus only 700,000 in areas where income improved. This implies that non-gentrified neighborhoods account for over 80% of the total decline. However, this result does not occur because income-improving neighborhoods lost a smaller percentage of their Black population—the decline was between 50% and 55% in both categories, as shown in Panel B. Instead, the low baseline Black population in tracts that later saw income improvements leads similar percentage changes to have very different implications for the aggregate total. Even in “superstar" cities (Boston, Los Angeles, New York, Seattle, and San Francisco) where gentrification may be stronger, the decline in tracts where income improved still only accounts for 31% of the total.

Next, we look at housing prices and migration. Appendix Figure A16 shows that the tract of the average Black city dweller in 1970 did not see large increases (relative to the rest of the CBSA) over the following 50 years in either median housing value or rent. In addition, two exercises show migration patterns that are inconsistent with gentrification driving displacement to the suburbs. Appendix Figure A17 shows that Black suburbanizers were positively selected from cities in late 1970s and late 1980s (the time periods in which Census microdata enables us to identify suburbanizers for a subset of our sample). Appendix Figure A18 uses data from Infutor Data Solutions to show that, during the 2010-2016 time period, suburbanizers from majority-Black neighborhoods tended to move to higher-cost, higher-income areas. Additional details on these exercises and the underlying samples are included in Appendix II.B.

These results cast doubt on the idea that direct gentrification and displacement in majority-Black neighborhoods has been a major cause of suburbanization or central city Black population

decline. While it can have large effects within a neighborhood, gentrification is not common enough, at least in majority-Black neighborhoods, to have a major aggregate effect. If gentrification played a role, it was likely by causing Black households who otherwise would have located in non-Black city neighborhoods to instead locate in the suburbs. This potential force can be seen in Figure 7, Panel D, which shows that median home prices in initially minority-Black city neighborhoods rose by nearly $100,000 relative to those of majority-Black neighborhoods. This roughly tripled the 1970 gap between majority-Black and other city neighborhoods. It also opened up a $50,000 gap between minority-Black city neighborhoods and low-poverty suburbs, where almost no gap existed initially.

4.4.4 Relative Suburban Amenities Improved Without Increasing Prices

The decomposition results suggest that observable factors like housing prices and demographic change can explain only about 40 percent of Black suburbanization. This large residual suggests an important role for improvements in relative amenities in the suburbs. In this section, we discuss some specific changes that may generate this amenity trend, as well as some unobservable factors that may have increased the attractiveness of suburbs but are not typically considered amenities. We also highlight that these amenity improvements were not paired with suburban price increases.

Past literature points to several reasons that the suburbs may have become more attractive to Black households over the sample period. First, Wilson (1987) argues that the Civil Rights Movement and Fair Housing Act made the suburbs more appealing to the Black middle class, due to declines in both explicit discrimination and general racial animus. Due to racial homophily, this initial growth in the suburban Black population may have made the suburbs yet more attractive. While these forces are difficult to measure, Black population grew across all suburban neighborhood types, which is consistent with a widespread decline in discrimination rather than a trend concentrated in a particular type of place. We note that discrimination in housing search is bundled into our broad amenity metric, but is different than other elements of animus because it may not affect quality of life once the search is complete. Our model is not well-suited for disentangling

these forces, but this could be an interesting area for future research.

Second, majority-Black city neighborhoods may have seen amenities decline due to decreasing quality of public services, closing retail establishments (Meltzer and Schuetz 2012), shifts in job opportunities (Wilson 1997, Miller 2020, Bunten et al. 2023), and rising crime (Evans, Garthwaite and Moore 2016). If these amenity changes create Black flight, that may amplify the initial change, again as discussed in Wilson (1987). The rapid population decline and relative amenity decline we see in these areas is consistent with this story. Third, amenities in the suburbs may have improved for all households, continuing the trend in the post-war period. The decomposition also provides support for this theory, as relative amenities for low-poverty suburban neighborhoods rose substantially for both races.

Crucially, this rise in relative suburban amenities was paired with relative price declines in suburbs after 2000. This means that the general equilibrium price increase which one would have expected to moderate improvements in Black amenities did not occur consistently over the full sample period. This lack of price feedback helps explain the extent and speed of suburbanization. Several factors may explain this somewhat surprising pattern. First, the U.S. population is only 13% Black, so changes in Black preferences for different neighborhood types represent relatively small shifts in demand, limiting their impact on prices. Second, the amenity trends we highlight differentially affect Black and White valuations. For example, discrimination and homophily effects of an increasing Black suburban share primarily affect Black households. This means that overall demand may not even change in the same direction as demand from Black households. Finally, suburban neighborhoods in many metro areas have relatively high housing supply elasticities, muting the effect of the demand increase that does occur (Baum-Snow and Han 2019).

5 Causes of the Association Between Suburbanization and Stratification

In this section, we shift our focus from why suburbanization has occurred in the aggregate to why it has been associated with increased income segregation and neighborhood divergence. Our analysis is informed by two arguments from prior literature. First, Wilson (1987) noted that higher-status

Black households were better positioned to take advantage of the improvements that followed the Civil Rights Movement and that this implied, counterintuitively, that reduced constraints on employment or residence could increase stratification within the Black community. He pointed to the out-migration of the Black middle class from majority-Black city neighborhoods following the Fair Housing Act as one example. Second, Pattillo-McCoy (2000) observed that the exit of the Black middle class from historical ghettos predates the Civil Rights Movement by decades, as evidenced by Du Bois (1899) and Frazier (1932).[8] She argued that recent increases in stratification did not result from new middle-class flight, but rather because the lower classes had stopped following the middle class to new locations.

5.1 Housing Affordability in Cities and Suburbs

To motivate our exercise, consider the extreme case of a strict minimum cost of suburban housing. Households below some income threshold would be unable to afford any suburban unit, so any increase in Black suburbanization would generate stratification. Reality is of course more complicated—some suburbs have good public transit and very cheap housing, and even expensive suburbs may have some cheap rental units. To assess the role of housing costs in differential suburbanization across incomes, we thus examine the share of the units that are affordable at a given income that are located in the suburbs. If this share is low, then a non-price shock that makes the suburbs more appealing (e.g. reduced suburban housing discrimination following the Fair Housing Act) does not affect many options in the consumer's choice set, and it is unlikely that they will move as a result. If the share is high, then they are more likely to suburbanize in response to the

[8]Pattillo highlights the following quote from DuBois (1899, page 305-306): "the best classes move to the west and leave the dregs behind. The parents and grandparents of some of the best families of Philadelphia Negroes were born in the neighborhood of Sixth and Lombard at a time when all Negroes, good, bad and indifferent, were confined to that and a few other localities. With the greater freedom of domicile which has since come, these slum districts have sent a stream of emigrants westward."

shock. Note that this explanation, especially at low incomes, largely concerns the availability of cheap housing stock in the suburbs, while the city-suburb price convergence shown in the previous section was based on the median price.

Ideally, we would observe the full distribution of housing prices and rents in each tract and use these data to estimate the suburban share of housing units that are affordable at difference incomes. Unfortunately, the best available data for our sample period contains only median values for each tract. To approximate the suburban share of the affordable set, we first identify the tracts in which a household with a given income would be able to afford the median unit according to common rules of thumb: rent below 40% of income for rental units and home price below 2.5x income for owner-occupied units. We then weight each tract by the number of rental or owner-occupied units, depending on which cost we are considering, and compute the share that are located in the suburbs. In addition, we incorporate the added cost of car dependence in the suburbs by increasing the income requirement to afford a given housing cost by $5,000 for suburban tracts.[9]

Results for 1970 and 2016 are shown in Figure 8. As income increases, a larger and larger share of a household's affordable set lies in the suburbs. For a renting household in 1970 with income of $20,000 (about $20,000 below the median Black family income at the time), only 20% of affordable units were located in the suburbs. In contrast, for a household earning $60,000 and looking for owner-occupied housing, almost 80% of affordable units were located in the suburbs. This pattern could lead high-income households to respond more strongly to suburban improvements, creating the divergence we documented earlier. Trends are similar in 2016, illustrating that this differential has persisted despite changes in city and suburban median prices.

The difference between the suburban shares for rental and owner-occupied housing highlights that the paucity of rental units in the suburbs may be another barrier for low-income households. Even if their income meets our rule of thumb for a given home price, saving a down payment and qualifying for a mortgage may still be prohibitive. This points to a reason that suburbanization may

[9]In 2021, the American Automobile Association estimated it at $10,000 for a new car. We halve this estimate to approximate the difference between owning a car and using public transportation.

be an especially important mediator of within-race income segregation for Black households—their relatively low wealth (Derenoncourt et al. 2022).

5.2 Suburban White Flight

Next, we study the equilibrium response of other races to shed light on why stratification between the cities and suburbs has been maintained over time, rather than following the course of the Great Migration, in which White flight reduced housing prices and resulted in extreme racial segregation (Boustan 2010, Shertzer and Walsh 2019, Derenoncourt 2022). We find that White flight is significantly lower in our context, which may prevent suburban neighborhoods from becoming affordable for lower-income Black households and help sustain income segregation.

We examine the flight response by replicating Boustan (2010)'s main specification in our setting. Boustan studies the White response to Black population increases in central cities between 1940 and 1970 and finds that one Black arrival led to 2.7 White departures. We replace central cities with the set of suburban tracts that were over 90% White in 1970.[10] The most direct analogue of Boustan's specification is:

$$\text{white\_sub}_{mrt} = \alpha_m + \beta_1 \text{black\_sub}_{mrt} + \gamma_1 \text{cbsa\_pop}_{mrt} + \nu_{rt} + \epsilon_{mrt}, \tag{4}$$

where m indexes metropolitan areas, r indexes northern or southern states, t indexes time, and, for example, white_sub is the White population in our suburban tracts of interest.

However, the exercise is complicated by the rapid growth of the Hispanic population in our sample period. This may moderate the effect of Black population changes on White population, and changes in Hispanic population could also independently drive changes in both Black and White population. We use three different versions of the specification that account for Hispanic

[10]We focus on this set of tracts because suburbs were mostly White at the outset of the sample period. We also restrict to tracts with population over 1,000 in 1970 because an existing population is necessary for a flight response. The results are not very sensitive to either of these choices.

growth in different ways. First, we replace Black population with minority (Hispanic and Black) population on the right-hand side. Second, we replace White population with non-Black population on the left-hand side. Third, we keep Black population on the right-hand side and White population as the dependent variable, but we also add a control for Hispanic population in the tracts of interest. In addition to the differential importance of Hispanics, we also cannot directly apply Boustan's instrumental variable strategy—we instead use a coefficient stability approach.

Results are shown in Table 3. Column 1 shows the OLS estimates without control variables, and the different panels contain the different combinations of dependent and right-hand side variables. The coefficient of interest ranges from -0.3 to -0.8, implying that a unit increase in Black (or minority) population is associated with less than a one unit decrease in White (or non-Black) population. This is substantially smaller than Boustan's baseline OLS estimate of -2.1, which lies outside the 95% confidence interval of all of our estimates.

Column 2 shows results controlling for 10-year lags of Black percent, Hispanic percent, median household income, poverty rate, owner-occupancy rate, and vacancy rate. The estimates shrink toward zero in all specifications. Under the typical coefficient stability argument that the remaining omitted variables have a similar relationship to the dependent and right-hand side variables, this suggests the OLS results are biased away from zero, rather than towards it. To further investigate what the change in coefficients and R^2 imply about the magnitude of the bias, we employ techniques from Oster (2019).

The Oster estimator requires assumptions on the relative degree of selection on unobserved and unobserved variables and on the R^2 that would result from a hypothetical regression of the outcome on treatment and both the observed and unobserved control variables (denoted R_{max}). We implement two versions of the restricted estimator from Oster (2019). In both, we assume that selection on observed and unobserved variables is equal. In column 3, we assume that the R_{max} is equal to the controlled R^2 plus the difference between the controlled and uncontrolled R^2. That is, adding the omitted variables would increase R^2 by the same amount as adding the observed control variables did. This shifts the estimate for the White/minority specification (the

largest OLS estimate) from -0.78 to -0.76. In column 4, we instead assume that R_{max} is equal to the controlled R^2 plus three times the difference between the controlled and uncontrolled R^2. The resulting estimate for White/minority falls to -0.72. Although this approach has limitations, these results suggest that our OLS estimates do not suffer from a large bias towards zero.

This exercise suggests that the suburban White response to Black arrivals is muted relative to the response in cities during earlier time periods, consistent with previous work on stable integration and heterogeneity in tipping points (Ellen 1998, Card, Mas and Rothstein 2008, and Ellen, Horn and O'Regan 2012). This acts to preserve stratification between Black households in cities and suburbs by preventing drastic decreases in suburban housing prices. The difference from earlier settings could occur because the suburbs were generally a growing area during this time period, particularly in Southern cities that saw rapid Black population growth, because racial attitudes have changed, or because Black arrivals to the suburbs were of a higher social class than the earlier arrivals from the rural South.[11]

6 Conclusion

We study how Black suburbanization has reshaped the geography of race in America. Black households have rapidly shifted to the suburbs and located in a wide variety of suburban neighborhoods. We use a model-based decomposition and a collection of related evidence to argue that they have

[11] In a related study in the current time period, Bayer et al. (2022) find that the arrival of a person of one race to a house increases the probability that next-door neighbors of a different race move away by about 4% of the baseline migration rate. While this estimate is difficult to compare to ours directly, it is consistent under some plausible assumptions. For example, suppose that all White households that move in response to a Black household moving in next door relocate to a different census tract, and that this next-door-neighbor effect is 20 times larger than the average effect on other households in the tract. In a typical tract with about 1,600 households, the aggregate effect of an additional Black household would then be a White population decline around 0.21, which is within the range of our estimates.

been drawn largely by improving relative amenities and falling relative housing costs in the suburbs. In addition, Black suburbanizers are positively selected, in part due to the expensive suburban housing stock, and White flight in response to their arrival has been relatively muted. Meanwhile, these same amenity changes have led to slow or negative Black population growth in central cities, particularly in neighborhoods that were majority Black in 1970. Together, Black suburbanization has not only reduced residential segregation as documented in Cutler, Glaeser and Vigdor (1999), but has also led to a divergence in which higher-income Black suburbanites increasingly live in more integrated neighborhoods with higher quality indicators and lower-income Black city dwellers have seen their neighborhoods stagnate.

Our results illustrate an important feature of the evolution of urban geography and racial inequality in America—uneven progress. Similar patterns appear in the labor market: for example, Bayer and Charles (2018) show that the racial wage gap has closed more quickly at higher quantiles of the distribution. More broadly, Wilson (1987) argued that reductions in discrimination and other civil rights progress could disproportionately benefit the Black middle class, enabling them to separate from low-income Black households in a variety of ways.

Our findings lay the groundwork for a number of important research questions. First and most importantly, how has suburbanization affected the economic and social outcomes of Black individuals? In addition to changes in neighborhood composition and public services for movers, equilibrium effects on both sending and receiving neighborhoods may be important. Second, further research could sharpen our results on amenities by identifying the importance of specific factors. Separating the effects of amenity changes and changes in housing discrimination would be particularly interesting. Third, several factors outside of our analysis may have influenced suburbanization rates. Mortgage finance policy, foreclosure rates, and the housing market generally have fluctuated during our sample period, especially around the Great Recession, and there have also been large secular trends in marriage, fertility, and immigration rates. Last, what implications does changing racial composition in suburban jurisdictions and electoral districts have for municipal finances and political representation?

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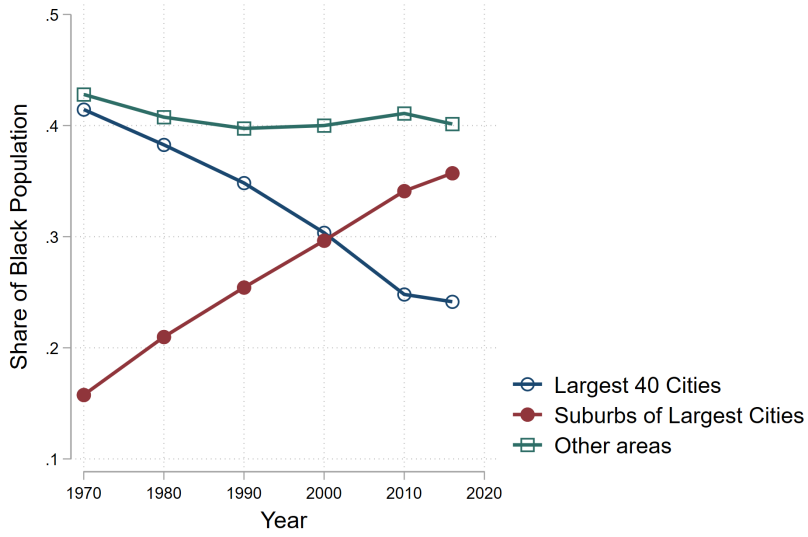
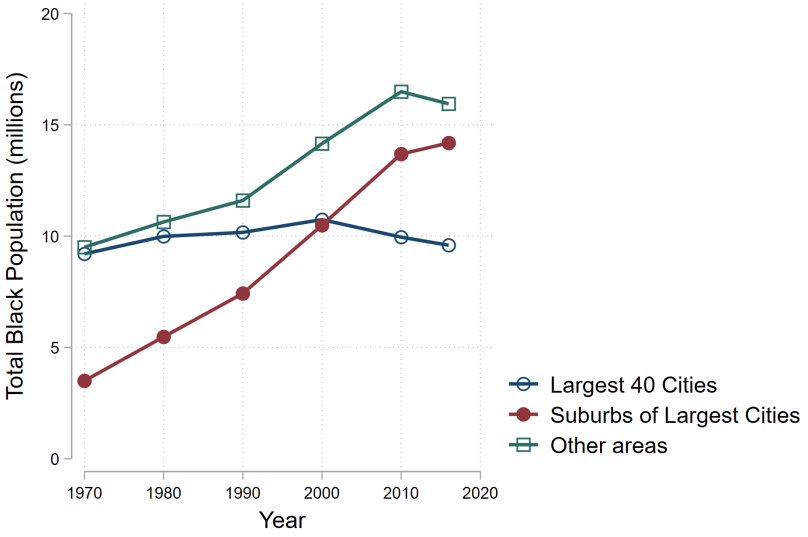
Figures and Tables

Figure 1: Change in Black Residential Locations Since 1970

Panel A: Share of Black Population



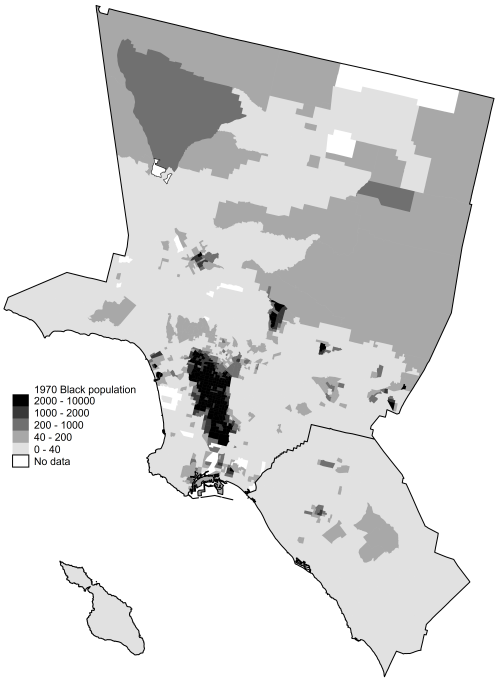
Panel B: Total Black Population



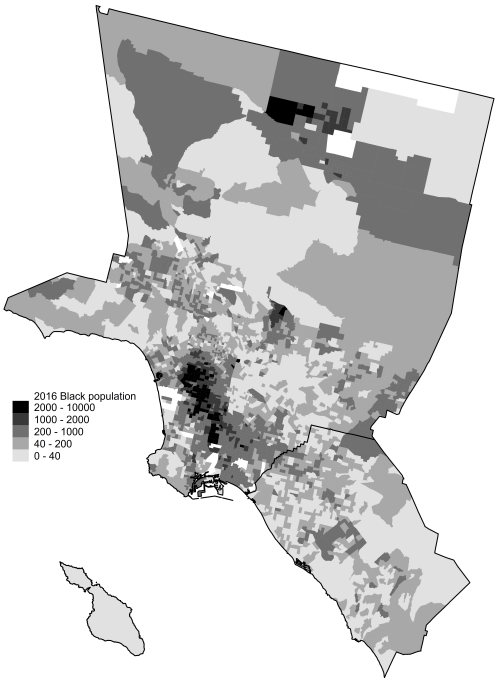
Notes: Total and share of Black population in large central cities, their suburbs, and other areas. Largest 40 cities is defined as the central cities of the most populous 20 CBSAs in southern states and in all other states, as measured in 1970. Suburbs are defined as the CBSAs containing these cities, less the principal city itself. Municipalities and CBSAs are consistently defined according to 2010 boundaries. We assign areas that had not been assigned to a census tract in 1970 or 1980 to the other areas category, inferring their population from the national Black population.

Figure 2: Spatial Distribution of Black Population in Los Angeles Metro Area

Panel A: Census Tract Black Population in 1970

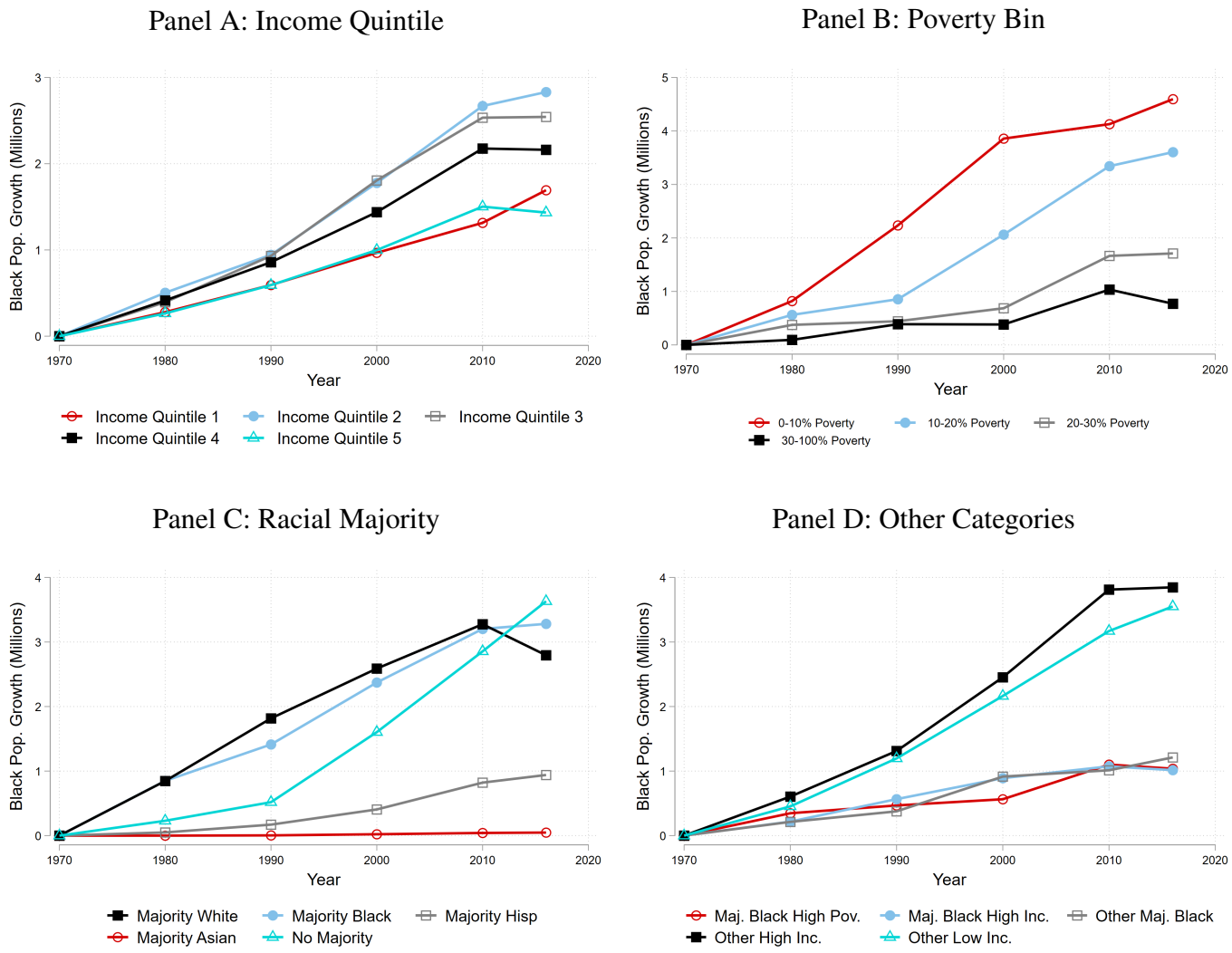


Panel B: Census Tract Black Population in 2016



Notes: Total Black population by census tract in the Los Angeles CBSA in 1970 (Panel A) and 2016 (Panel B). Data are drawn from the 1970 census and the 2014-2018 ACS. Census tract boundaries are from 2010. Black lines represent county boundaries. Similar maps for Chicago, Houston, and New York City are in Appendix Figures A3, A4, and A5.

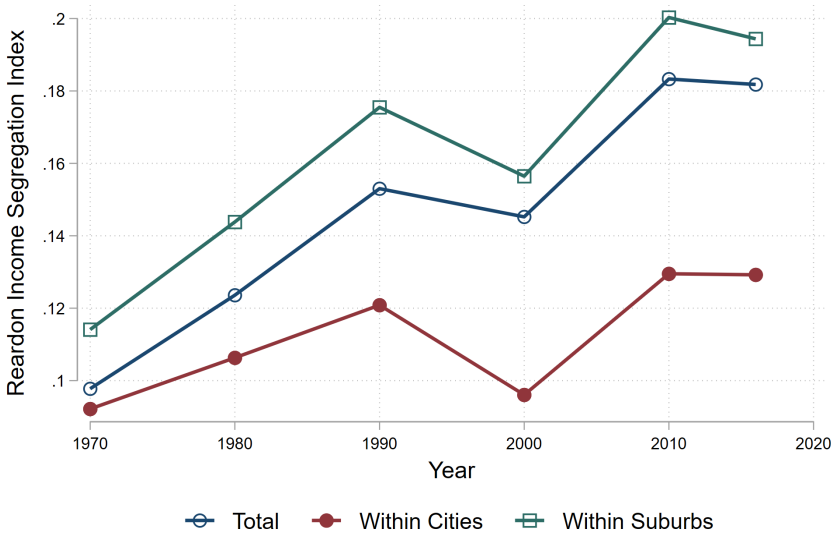
Figure 3: Black Population Growth Since 1970 in Suburban Neighborhood Categories



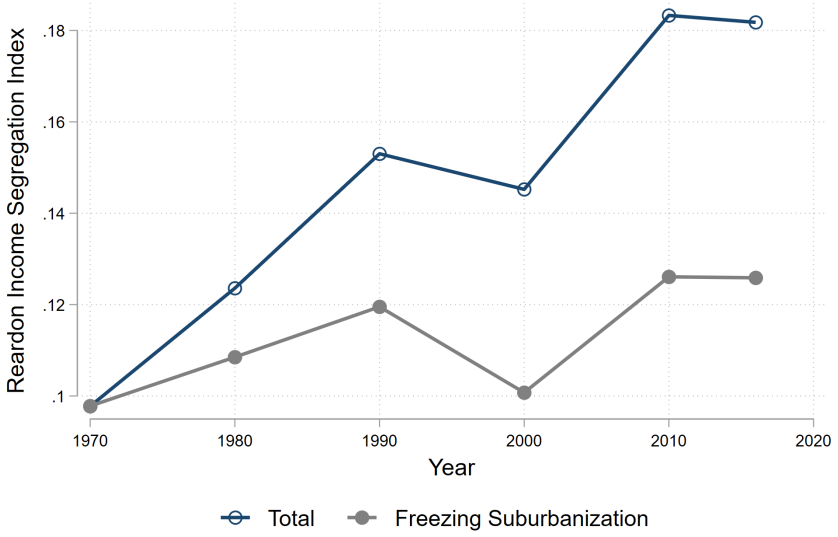
Notes: This figure shows Black population growth since 1970 in different types of suburban neighborhoods. All neighborhood characteristics are measured contemporaneously in each year. Panel A shows quintiles of median household income, computed within CBSAs. Panels B and C categorize tracts based on poverty rate and racial majority, respectively. Panel D focuses on growth in majority-Black neighborhoods with different socioeconomic status, defining high poverty as above 20% and high income as above the CBSA median. The Other Majority Black category consists of majority-Black tracts that are not high poverty or high income, and the Other High Income and Other Low Income categories consist of minority-Black tracts in the high- and low-income range. Data come from the 1970 to 2010 decennial censuses and the 2008-2012 and 2014-2018 ACS. This exercise uses our primary sample of 40 large cities and their suburbs.

Figure 4: Change in Income Segregation Within Black Households

Panel A: Segregation Index in City, Suburbs, and Overall

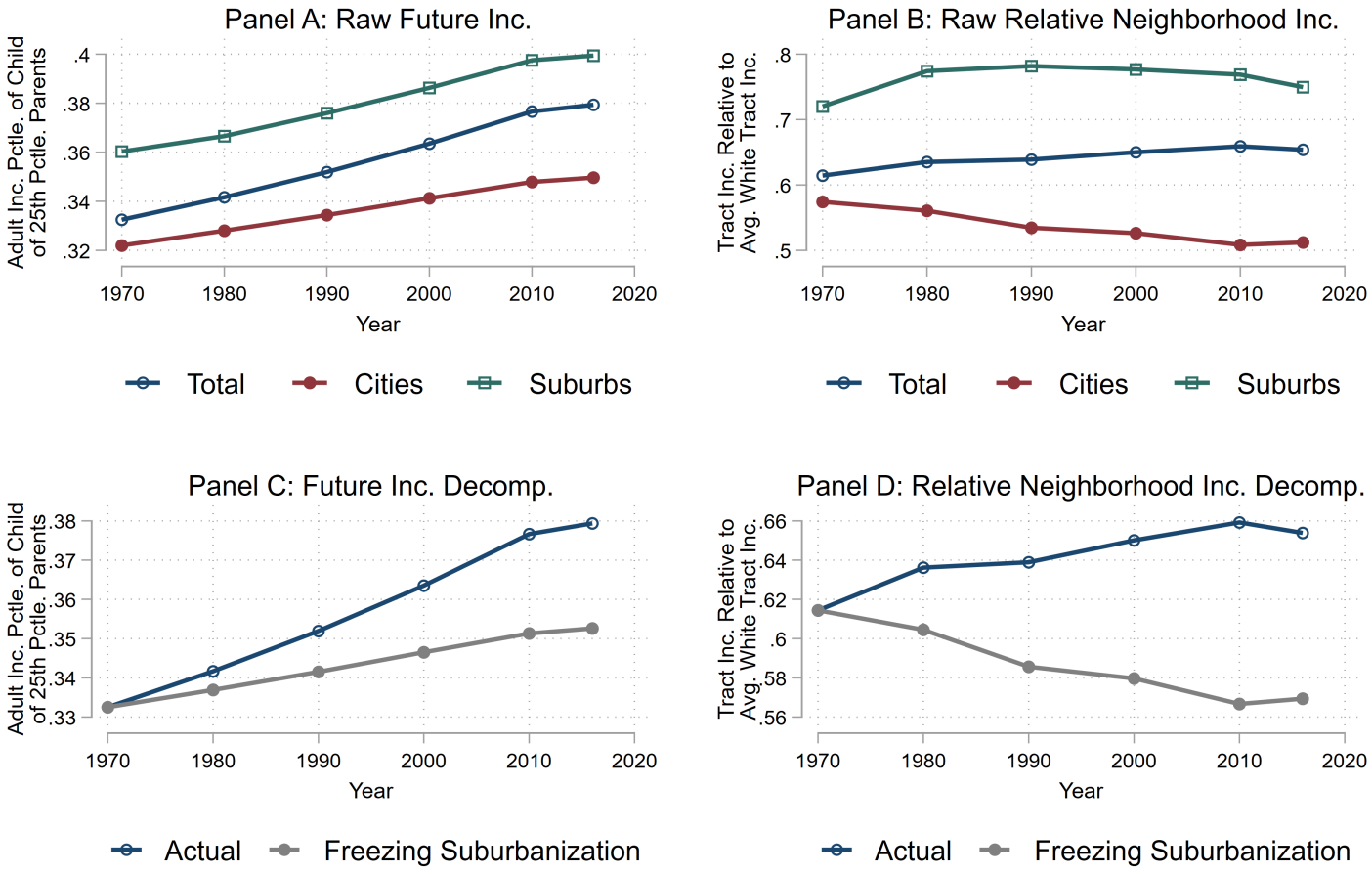


Panel B: Decomposition of Contribution of Suburbanization



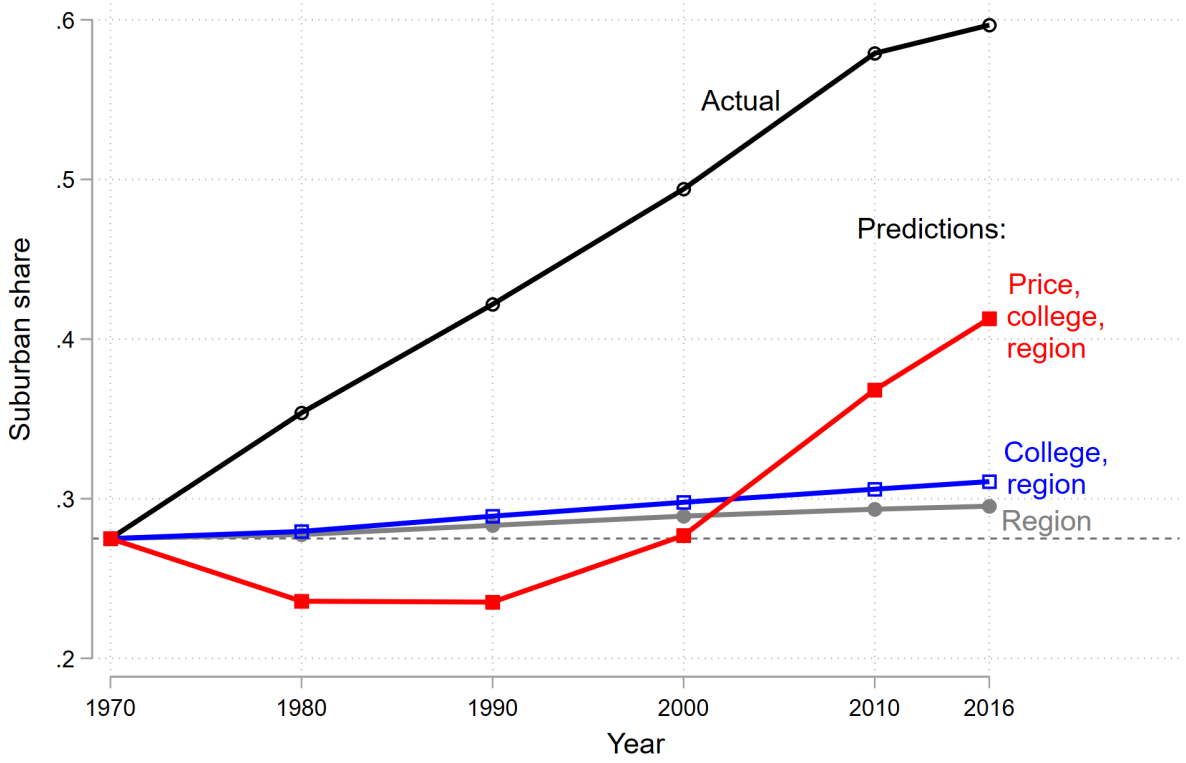
Notes: This figure shows the evolution of the Reardon and O'Sullivan (2004) income segregation index within Black households from 1970 to 2016. The index can be interpreted as the share of the variation in household income that is between census tracts. In Panel A, the blue line shows the time series of the index in the full sample, while the other lines show the evolution of the index within cities and suburbs. In Panel B, the blue line again shows the overall values, while the gray line shows the evolution under the counterfactual assumption that the share of Black households living in the suburbs and the income segregation of Black households in suburban tracts both remained frozen at their 1970 values. The index is computed using Census and ACS data on the distribution of Black households across income bins within census tracts, as detailed in Appendix I. The exercise uses our primary sample of 40 large cities and their suburbs.

Figure 5: Divergence in Neighborhood Characteristics



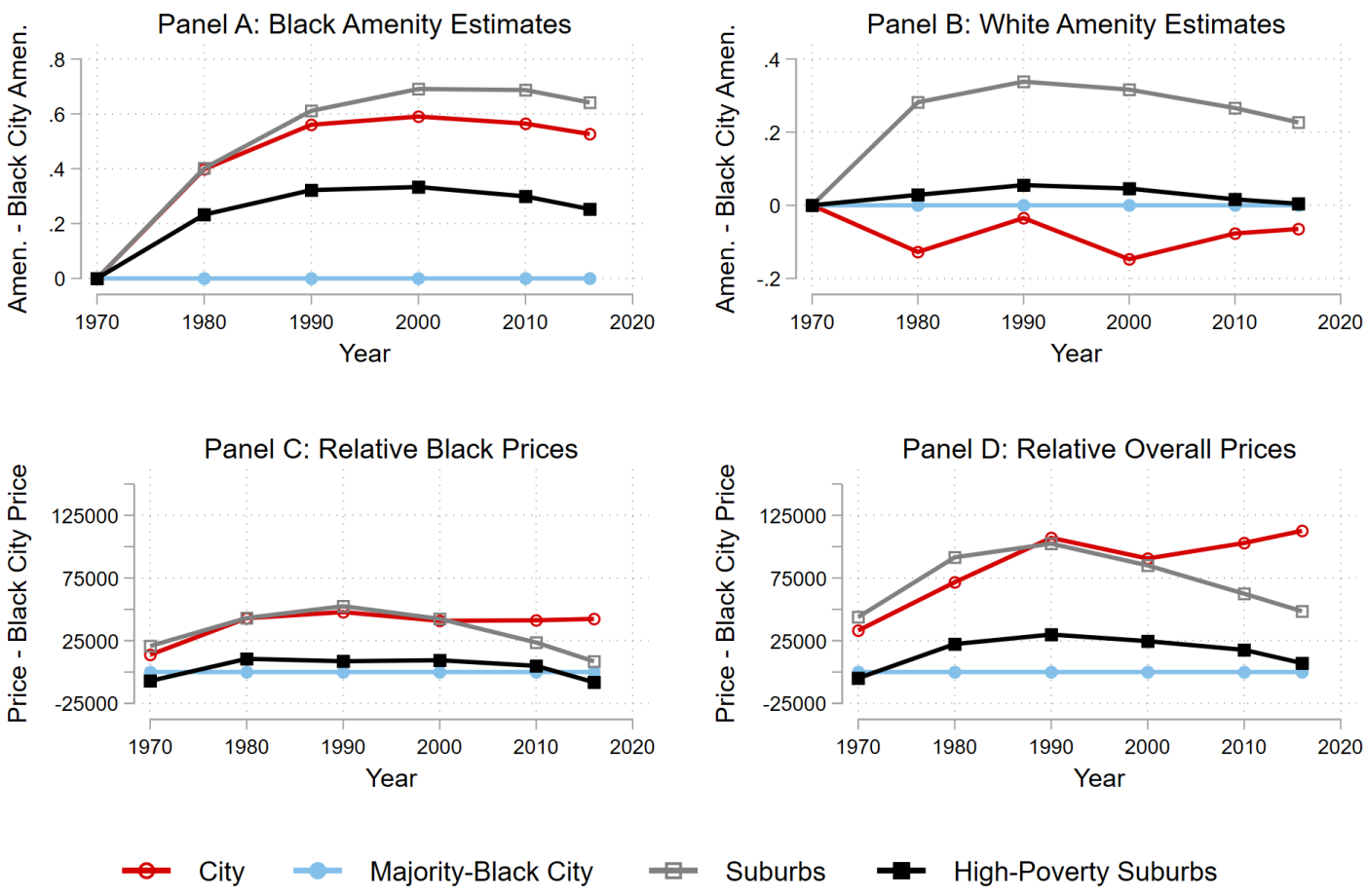
Notes: This figure illustrates how two neighborhood characteristics have changed differentially for Black individuals in cities and suburbs. In Panels A and C, the characteristic is the average adult income (measured at age 31-37) of children who lived in the neighborhood in the 1990s with parents whose income was near the 25th percentile of the national income distribution, as estimated by Chetty et al. (2018). In Panels B and D, the characteristic is neighborhood median household income, normalized by the neighborhood income of the average White household in the same year. The upper two panels show the mean values of these characteristics for Black individuals living in cities, suburbs, and the full sample. In the lower panels, the blue line shows the observed time series for the full sample, and the gray line shows the predicted value under the counterfactual assumption that the share of Black households living in the suburbs and neighborhood characteristics of suburban tracts both remained frozen at their 1970 values.

Figure 6: Decomposition of Change in the Black Suburban Share



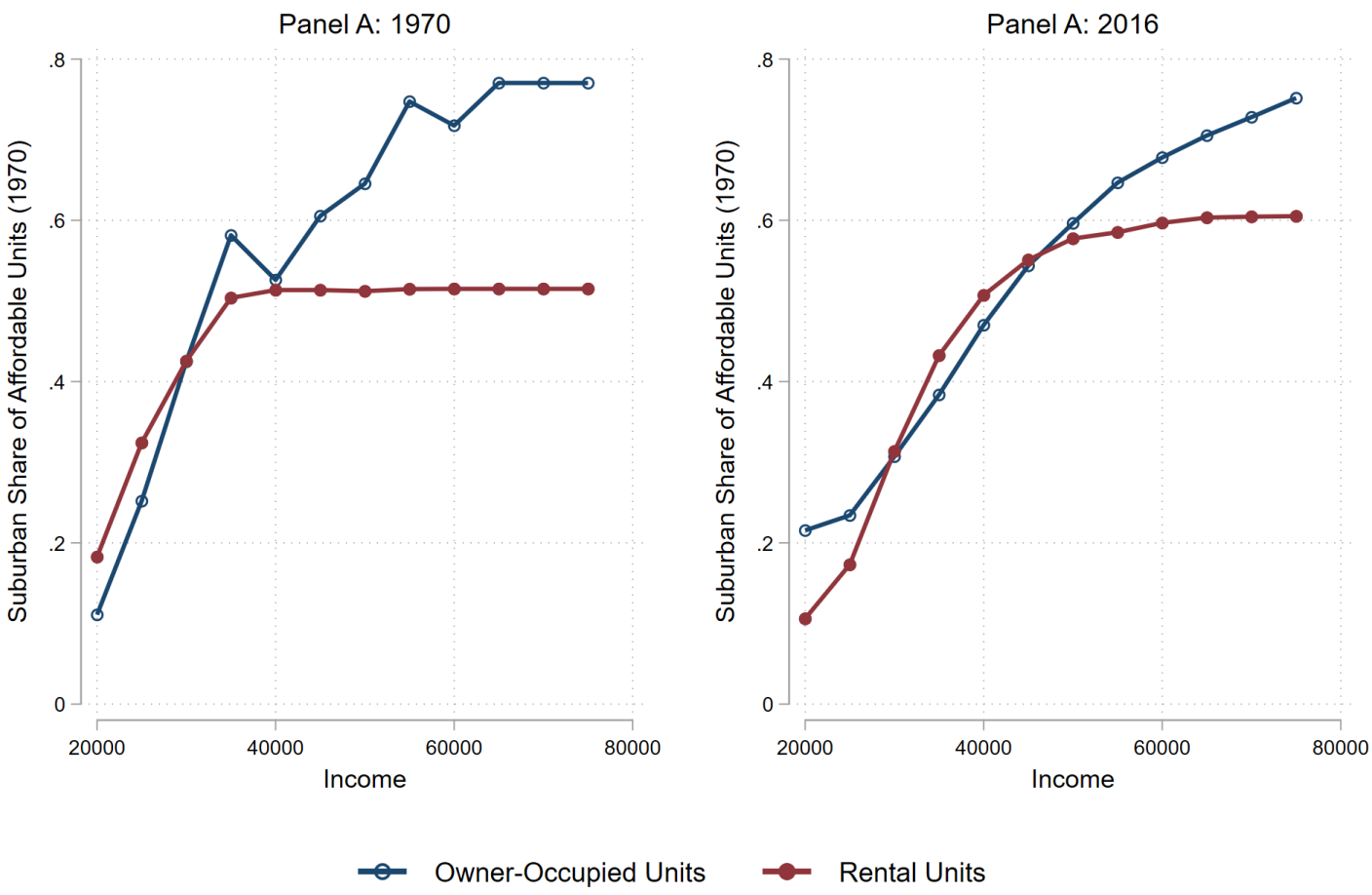
Notes: Model predictions of the suburban share among the Black population in our sample CBSAs. The top, black line shows the observed suburban share. The gray line labeled "Region" shows the prediction from holding the share of the population in each neighborhood type fixed at its 1970 value within CBSAs, but allowing the population to follow the observed reallocation across CBSAs. The blue line labeled "College, region" holds the share of each neighborhood type fixed within each CBSA $\times$ {college educated, not college educated} cell and allows the population in each cell to follow the observed path. (This is Term A in Equation 1.) Finally, the red line labeled "Price, college, region" incorporates a calibrated response to the change in prices in each neighborhood type. (This adds Term B1 from Equation 3 to the blue line.) The contribution of amenities to suburbanization (Term B2 in Equation 3) is equal to the gap between the observed change and the prediction incorporating prices. Note that while the model estimation includes four neighborhood types, we aggregate those to suburban and not suburban for this figure. Further details on the model specification and estimation are in Section 4.1.

Figure 7: Relative Housing Prices and Amenity Estimates by Neighborhood Type



Notes: This figure shows the time series of relative amenities and housing prices by neighborhood type. Amenities are measured as the residual of the model prediction with prices included (Term B2 in Equation 3), and we normalize by subtracting the estimate in initially-Black city neighborhoods from each neighborhood type. Panel A shows implied amenities from estimating the model for Black individuals, while Panel B shows results from estimating the model for White individuals. The units in Panel A and Panel B are choice probabilities. In Panel C, home prices in a neighborhood type are the tract median owner-occupied housing value of the median Black person living in that neighborhood type (the price measure used to estimate the model for Black individuals). In Panel D, we take the same value for the median person in the neighborhood type (the measure used in the model with White individuals). In both cases, we normalize by subtracting the price in initially-Black city neighborhoods from all neighborhood types. Further details on the model specification and estimation are in Section 4.1.

Figure 8: Share of Affordable Units in Cities and Suburbs



Notes: The approximate share of "affordable" rental and owner-occupied housing units that are in the suburbs for people with different incomes. To construct this estimate, we identify the census tracts in which a person with a given income would be able to afford the median unit according to two common rules of thumb: rent below 40% of income for rental units and home price below annual income multiplied by 2.5 for owner-occupied units. We then weight tracts by the number of rental or owner-occupied units that they contain and compute the share of the set of affordable tracts that are located in the suburbs. To incorporate greater car dependence in the suburbs, we further increase the income requirement to afford each housing cost by $5,000 for suburban tracts. Rent values in 1970 are top-coded at a relatively low level, leading the suburban share of rental units to level off at a lower income than in 2016.

Table 1: Black and Total Population By Tract Type (in millions)

Urban Status	*Racial majority in 1970*	*Poverty status in 1970*	*1970*	*1980*	*1990*	*2000*	*2010*	*2016*
Panel A: Black population								
City	Other	Low	1.01	2.97	4.06	5.22	5.27	5.19
City	Other	High	0.71	0.72	0.75	0.79	0.75	0.72
City	Black	Low	2.45	2.42	2.18	2.04	1.73	1.65
City	Black	High	5.03	3.87	3.18	2.69	2.20	2.03
Suburb	Other	Low	1.52	3.53	5.59	8.70	11.88	12.41
Suburb	Other	High	0.31	0.33	0.36	0.44	0.58	0.62
Suburb	Black	Low	0.64	0.67	0.62	0.58	0.51	0.48
Suburb	Black	High	1.03	0.94	0.83	0.76	0.71	0.67
Panel B: Total population								
City	Other	Low	22.7	22.9	24.2	26.3	26.6	28.0
City	Other	High	3.85	3.22	3.36	3.53	3.72	3.91
City	Black	Low	3.02	2.69	2.48	2.38	2.20	2.27
City	Black	High	5.93	4.43	3.91	3.64	3.50	3.66
Suburb	Other	Low	52.6	64.0	76.0	88.1	98.2	103.6
Suburb	Other	High	1.71	2.03	2.56	3.25	4.19	4.69
Suburb	Black	Low	0.87	0.84	0.82	0.82	0.83	0.87
Suburb	Black	High	1.32	1.20	1.15	1.19	1.29	1.37

Notes: This table reports the evolution of Black and total population in different types of neighborhoods. Panel A shows Black population, and Panel B shows total population (both in millions). High-poverty is defined as above 20 percent. Neighborhoods are categorized according to their 1970 characteristics. The exercise uses our primary sample of 40 large cities and their suburbs.

Table 2: Decomposition Model Robustness

Neighborhood and Individual Types	Elasticity of Housing Demand	House Price Measurement	Regional Reallocation	Regional Reallocation + Demographic Change	Regional Reallocation + Demographic Change + Prices	Amenities
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Base Specification						
Base	Base	Median Black HHs	0.063	0.111	0.428	0.572
Panel B. Alternative Elasticity & Housing Costs (Regional Reallocation and Demographic Change Unaffected)						
Base	Base	Mean Black HHs	0.063	0.111	0.454	0.546
Base	Base	Mean Overall	0.063	0.111	0.379	0.621
Base	Base	Median Overall	0.063	0.111	0.305	0.695
Base	Low	Median Black HHs	0.063	0.111	0.300	0.700
Base	Low	Mean Black HHs	0.063	0.111	0.331	0.669
Base	Low	Mean Overall	0.063	0.111	0.259	0.741
Base	Low	Median Overall	0.063	0.111	0.219	0.781
Base	High	Median Black HHs	0.063	0.111	0.510	0.490
Base	High	Mean Black HHs	0.063	0.111	0.567	0.433
Base	High	Mean Overall	0.063	0.111	0.484	0.516
Base	High	Median Overall	0.063	0.111	0.358	0.642
Panel C. Alternative Neighborhood Categorizations (Regional Reallocation and Demographic Change Unaffected)						
High Black $\geq 20\%$	Base	Median Black HHs	0.063	0.111	0.422	0.578
Sub. poverty quintiles	Base	Median Black HHs	0.063	0.111	0.475	0.525
Sub. distance to CBD	Base	Median Black HHs	0.063	0.111	0.361	0.639
Panel D. Alternative HH Categorizations						
Fine HH Inc Categories	Base	Median Black HHs	0.055	0.086	0.430	0.570

Notes: This table shows how the share of Black suburbanization between 1970 and 2016 explained by each factor varies across a number of alternative specifications. Columns (1) - (3) reports model specification choices in the particular row, including the definitions of neighborhood and household types, housing demand elasticities, and the measure of housing prices. Columns (4)-(7) report the share of Black suburbanization between 1970 and 2016 that is explained regional reallocation, regional reallocation and demographic change, regional reallocation, demographic change, and changing relative house prices, and by amenities respectively given the specification choices in Columns (1) - (3). Panel A reports our base specification, Panel B reports results using alternative housing demand elasticities and housing price measures, Panel C reports results using alternative definitions of neighborhood types, and Panel D reports results using an alternative definition of household types.

Table 3: Suburban Population Response to Increased Black Population

	(1) *OLS*	(2) *OLS w/controls*	(3) *Oster 1x*	(4) *Oster 3x*
Panel A: DV=White pop.				
Minority population	-0.802	-0.780	-0.759	-0.716
(S.E.)	(0.239)	(0.250)		
MSA population	0.042	0.057		
(S.E.)	(0.045)	(0.045)		
R^2	0.773	0.795		
N	156	156		
Panel B: DV=non-Black pop.				
Black population	-0.296	-0.025	0.246	0.789
(S.E.)	(0.336)	(0.436)		
MSA population	0.119	0.123		
(S.E.)	(0.019)	(0.030)		
R^2	0.644	0.694		
N	156	156		
Panel C: DV=White pop.				
Black population	-0.390	-0.261	-0.131	0.128
(S.E.)	(0.264)	(0.384)		
MSA population	0.059	0.063		
(S.E.)	(0.046)	(0.045)		
Hispanic population	-1.081	-1.060		
(S.E.)	(0.298)	(0.295)		
R^2	0.799	0.815		
N	156	156		

Notes: This table examines the population response to increased Black or minority populations in suburban census tracts that were over 90% White in 1970. Panel A considers the White population response to increased minority (Black and Hispanic) population, and Panel B shows the non-Black response to increased Black population. Finally, Panel C considers the White response to increased Black population, controlling for Hispanic population. Within a panel, Column 1 simply estimates Equation 1 using OLS. Column 2 adds controls for ten-year lags of Black percent, Hispanic percent, median household income, poverty rate, owner-occupancy rate, and vacancy rate. Columns 3 and 4 employ the restricted estimator from Oster (2019). The Oster 1x specification assumes that adding the unobservable controls to the regression would increase the R^2 by the same amount as did adding the observed controls, while the Oster 3x specification assumes that this would increase the R^2 by three times that amount. One CBSA (El Paso, TX) did not have any suburban tracts that were over 90% White in 1970 and is not included in the sample.