The Changing Spatial Pattern of Metropolitan Racial Segregation, 1900-2020: The Rise of Macro-Segregation

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ABSTRACT

This paper tracks 120 years of Black-white segregation in U.S. metropolitan areas. We draw on comprehensive Census data at consistent small-scale geographies to study segregation trajectories in 219 metropolitan areas since 1900. We update past research to show that total segregation in metropolitan areas peaked around 1960 and has now fallen below its 1930 level. Our major focus is on the spatial components of segregation. We show that two types of macro-segregation – increasing racial disparities between cities and their surrounding areas and rising segregation between communities within suburbia – became substantial only after 1950 and have remained at a similar level since 1960. At that time, micro-segregation (separation between neighborhoods in cities and in suburbia) had begun to fall. Multivariate analyses over time show how suburban fragmentation, socioeconomic differences between Black and white workers, and changes in the size of the Black population were associated with these trends in each component of segregation. The durability of segregation today is largely due to macro-segregation, which by 2020 accounts for nearly half of total metropolitan segregation.

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Racial residential segregation is a longstanding feature of U.S. urban areas, typically separating Americans into large pockets of disadvantage counterposed against areas of privilege. Anti-Black racism has been a central organizing principle of urban development in the United States, especially via the housing market (Dantzler 2021; Hackworth 2019), and Black-white segregation has been exceptionally high (Massey and Tannen 2018). While the demographic separation of racial groups *per se* can be a cause for concern, segregation is particularly important because it is part of a broader "political economy of place" (Logan and Molotch 1987) that uses racialized space to exclude some people from place-based resources and opportunities while enriching others. As Taylor (2019) notes: "The sustenance and spatial integrity of residential segregation, along with its apparent imperviousness to civil rights rules and regulations, stemmed from its profitability," specifically via a "racially bifurcated housing market" (p. 11). These dynamics operate at the micro-level of the neighborhood – where many segregation studies have focused – and through larger geographical units like municipalities (macro-level), which hold greater social and political powers to shape settlement.

Changing demographic patterns shaped by this political economy of place have transformed metropolitan areas over the past century in ways that have been well documented. As Black households moved in large numbers into cities in both the North (through the Great Migration) and South, whites responded with institutional and extra-legal tactics (including violence) to ensure growing racial separation (Massey and Denton 1993; Meyer 2001). By the 1950s whites were abandoning many central city neighborhoods and turning toward the suburbs in what is often called "white flight" (Boustan 2010; Frey 1979). As suburbanization exploded,

segregation grew to a metropolitan scale, and many metros took on a bifurcated "chocolate city, vanilla suburbs" racialized housing structure (Farley et al. 1978). This specific spatial form was disrupted after 1970 when Black households began moving in greater numbers to the suburbs (Clark 1979). By 2010, over half of all people of color resided in the suburbs (Frey 2018). Yet their locational pattern in suburbia tended to replicate the segregation they had experienced in central cities, as Black households were effectively excluded from many suburban neighborhoods, and whole suburban communities remained all-white (Logan and Schneider 1984).

The result is that segregation transitioned from an early 20th Century pattern of separation among central city neighborhoods to one that encompassed whole metropolitan areas. Not only was segregation appearing now in suburban neighborhoods, but it was also transforming its *spatial scale* beyond the neighborhood level. This change in the scale of segregation from micro-segregation to macro-segregation is not well known. Following Lichter, Parisi, and Taquino (2015), "micro-segregation" refers to whether people of different racial groups live in close proximity to one another, such as living in the same neighborhoods. Micro-segregation has been the focus of most segregation research, which has relied mainly on data for blocks and census tracts to estimate various segregation indices. In contrast, "macro-segregation" refers to separation at higher level geographies, such as places, municipalities, or regions. While micro-segregation refers to whether people are segregated *within* places, macro-segregation refers to whether people are segregated *between* them.

Studying the full 120-year period since 1900 enables us to see both the long-term trajectory of segregation and its changing spatial scale. Focusing on Black-white segregation, we construct a novel dataset that uses consistent and highly granular neighborhood geographies for a

comprehensive set of metropolitan areas. Taking advantage of both publicly available and previously restricted 100% Census micro-data, we create neighborhood tabulations at the newly available geography of the enumeration district for the years 1900-1970 for whole metropolitan areas. In subsequent decades through 2020, we use the comparable neighborhood geography of the block group. Locating these neighborhoods within places and metropolitan areas, we then use spatial decomposition methods to identify the relative importance of different scales of segregation. Moreover, we provide the first segregation estimates to account for Hispanic ethnicity in the early decades, allowing us to generate indices specifically for *non-Hispanic* whites and Blacks.

We find that macro-segregation has become a more defining feature of metropolitan areas over the past 70 years. Others have noted the growing importance of macro-segregation in recent decades (Lichter, Parisi, and Taquino 2015), but we can now pinpoint its genesis in the 1950s. While micro-segregation was still rising through 1960 (before its steady decline to the present day), macro-segregation emerged in the years after 1950. In this era of massive suburbanization, two distinct kinds of macro-segregation became more prominent: 1) the divisions between central cities and their surrounding suburbs ("white flight"), and 2) the separation between racialized communities and municipalities within the suburbia, which we will call "enclavization." Nearly all metropolitan segregation during the first half of the 20th century could be attributed to patterns within central city neighborhoods. However, both white flight and enclavization took off after 1950. Both these forms of macro-segregation have been stable since the 1960s even as the suburbs have become much more diverse. The durability of macro-segregation now causes overall metropolitan segregation to remain stubbornly high. Specifically, while neighborhood-level segregation has been falling rapidly, as of 2020 segregation between

suburban places has become nearly as important as central city segregation. Drawing on main theories of segregation, we use multivariate analyses to show how suburban fragmentation, socioeconomic differences between Black and white workers, and changes in the size of the Black population were associated with these trends in each component of segregation over time.

The changing scale and extent of metropolitan segregation

The evolving spatial dynamics of racial residential segregation can be considered through two dimensions, its *extent* – how far segregation penetrates beyond the urban core into the suburbs and rural areas – and its *scale* – the geographic unit of analysis to determine residential separation (e.g. streets, neighborhoods, districts, places, etc.). For many decades, segregation and our knowledge of segregation was mostly confined to central cities, reaching a high-water mark in 1970 (Cutler et al. 1999; Glaeser & Vigdor 2012). Even though cities were indeed where the great majority of urbanized people lived, segregation scholarship had ignored the growing suburbs in part due to a lack of data for whole metropolitan areas (Taeuber and Taeuber 1965: 55). The first metropolitan-level study of segregation (Van Valey et al. 1977) was based on census data from 1960 and 1970.Glaeser & Vigdor (2012) documented metropolitan segregation between 1890-2010, but only for areas for which Census tracts were available in each year, which did not include entire metropolitan counties until 1970 or 1980.

Despite common understandings, suburbanization did include Black families. Douglass (1925, pp. 97-8) recognized that Black suburbs were emerging in the periphery of some Northern cities in the 1920s. Schnore, Andre, and Sharp (1976) tracked Black suburbanization in the 1930-1970 period in a limited number of metropolitan areas. Black suburbanization was beginning to increase at the end of the 1960s, often clustered either in “spillover communities” from adjacent central cities or outlying racial enclaves that may have been longstanding communities with

established black populations. By 1970, segregation within the suburbs was high, but lower than in central cities (Massey & Tannen 2018). A major contribution of the current study is to document these early decades of Black suburbanization and the corresponding levels of segregation.

In addition to the changing extent of segregation, some researchers have examined its changing spatial scale. By "scale," we refer to the *underlying geographic units* used to calculate segregation indices, which in turn show how racial groups are separated from one another. As noted above, most segregation research has used the "neighborhood" as the baseline spatial scale of interest, often proxied through the "census tract." Neighborhoods and even smaller geographic scales (such as measured at the street or next-door level) are important, since they increase the likelihood of interaction between people – neighbors are more likely to go to the same school, the same grocery store, the same place of worship, or see each other on the street. The importance of such scales has changed over time, such as in the early 1900s, when central city segregation was more prominent within neighborhoods, as streets, blocks, and back alleys demarcated where people lived (Grigoryeva and Ruef 2015; Logan and Parman 2017), subsequently growing to encompass entire wards of cities (Logan et al. 2023a).

In contrast, macro-segregation refers to separation into different whole communities by social, economic, or political boundaries. To understand how place shapes macro-segregation, consider the Census definition of a "place": a "concentration of population [which] must have a name, be locally recognized, and not be part of any other place," and which, "may or may not have legally prescribed limits, powers, or functions" (Bureau of the Census 1994: p. 9-1). This definition points to three distinct dimensions of how places can matter for segregation. The first is *boundaries*, which assign resources specifically to the place's own residents while excluding

them from residents of other places. Second, being "locally recognized" means that places have *meaning and identity*, aside from their political rights. Such recognizable places can be used as heuristics in people's mobility decisions, as places that would be desirable or undesirable (Krysan and Crowder 2017), even if it is recognized simply as "not being in the city" (see Kruse 2007). Third, places often – though not always – have *legal status* as municipalities or other government entities. Taken together, these qualities give "places" a comprehensive sociological meaning, distinct from the identity of "neighborhoods."

Research on the scale of segregation has been stimulated in part by the development of decomposition methods that distinguish macro- from micro-segregation. Fischer et al. (2004) decompose the segregation of the entirety of metropolitan tracts from 1960 - 2000 across multiple geographic scales, including between regions, metros, places, and cities versus suburbs. They note that Black-white tract segregation declined steadily after 1970 and that segregation between the cities and suburbs declined by a third between 1960 - 2000, while segregation between suburban places increased slightly. Following a similar methodology, Parisi et al. (2011) decompose segregation between all blocks across the country into various geographic scales between 1990 – 2000, finding exceptionally high segregation between Black individuals and others and increasingly beyond the central city. Lichter et al. (2015) use block data to decompose segregation within individual metropolitan areas between 1990 - 2010, noting the increasing salience of macro-segregation between cities, suburbs, and rural fringe as well as between suburban places – what they call the "new macro-segregation." This is a trend that Logan et al. (2023b) suggests was in progress already between 1940 and 1970. We contribute to this research in part by updating these findings to 2020, but more importantly we now place it

more clearly in a historical perspective, all the way back to the 1900 and during the crucial intermediate years of 1950 and 1960.

Drivers of segregation

In addition to charting the changing spatial scale of segregation over the past 120 years, we also explore the factors that contribute to higher levels of segregation. These factors are well-established in the segregation literature, so we review them briefly here, with a particular focus on why places matter for segregation.

The first factor reflects how whites use a variety of discriminatory tools to preserve and reinforce spatial separation from non-whites. Although this "*place stratification*" perspective (Logan 1978; Logan and Molotch 1987) is often invoked in studies of micro-segregation, it is particularly well suited to the analysis of macro-segregation where the spatial unit of analysis is communities that often have a capacity for collective action (see Hall, Tach, and Lee 2016). Through the ability to establish policy over a given territory, political entities can erect boundaries that exacerbate segregation. Indeed, metropolitan areas became more fragmented over the 1960s and 1970s, as suburban municipalities increased in number (Zimmer 1976). During this period, suburban governments simultaneously consolidated suburban school districts separate from central cities, and increasingly resisted attempts to annex or create governmental structures that included central city residents. Suburban municipal incorporation is associated with less racial diversity, particularly for those suburbs that were incorporated after the initial post-1940 suburban housing boom (Wyndham-Douds 2023).

There are many reasons why place-based distinctions would be salient for segregation. One key political motivation for suburban separation is the preservation of privileged school districts, which are often determined by municipal jurisdictions. Schools and school districts are

persistently segregated both between cities and suburbs as well as across suburban communities (Owens and Rich 2023). Households may purchase homes at great cost in suburbs "for the schools," though often based on vague, racialized ideas of school district prestige, and information they acquired through their social networks (Holme 2002). Research has found that whites may leave suburban neighborhoods as they become more diverse (Kye 2018), and others may arrange for their children to attend more distant, whiter schools as Schachner (2022) found in the case of Los Angeles County. Distinctions between school districts account for an increasing amount of the total school segregation, rather than segregation within districts (Reardon, Yun, and Eitle 2000). The fragmentation of school districts in metropolitan areas also contributes to broader racial residential segregation (Bischoff 2008), as well as income segregation among families with children (Owens 2016).

Another important factor is the use of land development and zoning controls to incentivize or deter new housing construction, in turn leading to racial exclusion (Pendall 2000). These often take the form of density restrictions, often established to prohibit certain kinds of dense or multifamily housing – especially affordable housing – that might increase access to suburban communities (see Crowder, Pais, and South 2012). This kind of opposition to housing construction in suburban communities has been characterized as a "not in my backyard" or "NIMBY" issue, where middle class (and often white) households refuse to share the burden of housing a growing and diverse metropolitan population (Simms 2023), especially in regions that had substantial Black populations (LaBriola 2022). In this way, the use of land regulation can be a tool to reinforce boundaries of racial separation, such that "the maintenance of a white community can be, in and of itself, an amenity to be valued" (Trounstine 2020: 446).

Based on this rationale, we operationalize our first multivariate hypothesis in terms of suburban fragmentation: *the larger the number of recognized places the metropolis is divided into (i.e., the greater the fragmentation), the greater the segregation between Blacks and whites, especially for macro-segregation*.

Another potential driver of segregation derives from the human ecology approach that emphasizes differences in human capital that lead groups to be sorted in space by market processes. This perspective proposed that disadvantaged minorities and immigrants would become "spatially assimilated" into dominant white neighborhoods as they experienced upward mobility in the labor market (Massey and Denton 1985; Alba and Nee 2003). Following this rationale, our second hypothesis is that Black-white segregation will be associated with *larger differences in socioeconomic status between Blacks and whites, regardless of the spatial scale*.

Our third hypothesis is related to the *size and growth of the Black population*. One influential view is that Black presence is "threatening" to whites, who feel their status is threatened by the residential and social mobility of a subordinate group, and they protect themselves by strengthening spatial barriers between groups. Group threat is a core notion in Massey and Denton's (1993) account of rising segregation in the early 20th Century. In the North, "as the size of the urban black population rose steadily after 1900, white racial views hardened and the relative fluid and open period of race relations in the North drew to a close" (ibid 1993: 30). Even in the South, where many cities had Black population shares in the range of 30-40% after the Civil War, "whites similarly became alarmed at the influx of black migrants" (ibid: 41). Alternatively, the effect of Black population size could instead be due to how Black residential growth was typically steered. It is well known that very limited areas of cities were accessible for Black settlement, and Black growth was accommodated by greatly increasing

density in existing areas and gradual expansion to larger sections of the central city (Logan et al. 2023a) Whether or not this process depends on whites' sense of Black threat or more simply an unwillingness to concede urban space to Black newcomers, it would result in an association between Black population size and segregation.

Regardless of the mechanism, there is mixed evidence of this association. An early test was reported in an analysis of central city block data in 1940-1960 by Taeuber and Taeuber (1965). They found that white population growth was positively related to increases in segregation, but the association with nonwhite population growth was negative, a result that they note "is contrary to that usually assumed" (ibid: 77). More recently, Logan et al. (2023a) found no association between Black population size and segregation within cities in 1900-1940, and Logan et al. 2023b) found no association in 1940-1970, whether across neighborhoods in cities or suburbs, or between cities and its suburbs. Nonetheless, because this factor is often invoked in segregation studies, our third hypothesis is that Black-white segregation is affected by the changing *size of the Black population, regardless of the spatial scale*.

Lastly, it is essential to distinguish *regional differences* in segregation patterns. There is evidence that historically segregation was lower in the South than in the North but had converged by the 1940s (Logan et al. 2023a; Taeuber and Taeuber 1965). Logan et al (2023b) similarly found that segregation between the central city and suburbs was considerably higher in the North than in the South in 1940, but that the differential had diminished by 1970. Many have noted the effect of the Great Migration on various socioeconomic transformations in Northern cities (Boustan 2010; Derenoncourt 2022; Massey & Denton 1993). Much of the post-World War II literature on suburban political fragmentation and racial exclusion features the North (Wood 1958), while higher rates of annexation by Southern cities weakened the city-suburb

divide (Logan et al. 2023b, pp. 293-4). While this is often studied as a North-South divide, there are important differences in the West, where urban settlement is a more recent phenomenon. Hence, we will separately analyze the four primary regions defined by the Census (Northeast, Midwest, South, West), with the expectation of finding regional differences in all components of metropolitan segregation.

Research Design

Data sources

This study estimates segregation indices and their components for metropolitan areas based on Census data from 1900 to 2020. To enable reliable comparison across the decades, we have created a novel dataset of comparably sized neighborhoods, which are nested within a set of complete metropolitan areas. For the years 1900-1950, we use 100% individual level Census microdata from the Minnesota Population Center (Ruggles et al. 2021), aggregated to the level of the enumeration district (ED). EDs were small geographies, smaller than tracts but larger than blocks and comparable to today's block groups. 1960 and 1970 data come from original, confidential 100% microdata in a Federal Statistical Research Data Center (FSRDC), aggregated to enumeration districts that have been disclosed for public use through our project. Data for 1980-2020 were acquired from the Minnesota Population Center's NHGIS project (Manson et al. 2021). In 1980, the Census used a combination of enumeration districts and block groups. For 1990-2020, we use the standard Census block groups. For simplicity, we will refer to all these neighborhood units across all time periods as EDs.

Earlier studies of segregation included white Hispanics in the white category, and they treated Black Hispanics as Black. Because Black residents are generally less segregated from Hispanics than from non-Hispanic whites, segregation measures using the white-Black

dichotomy are biased downwards, compared to what the values would be if Hispanics were removed from the white category (Taeuber and Taeuber 1958:64-68). For 1900 - 1950, we use the methodology of Gratton and Guttman (2000, now adopted by IPUMS for pre-1980 decades) to identify Hispanics. Their method draws on a variety of indicators such as whether the respondent, their spouse, or parents were born in Latin America and whether they spoke Spanish at home during childhood. When combined with race identifiers, we can isolate both non-Hispanic whites and non-Hispanic Blacks. For 1960 and 1970, we used the confidential, 20% sample data in the FSRDC to identify Hispanics as persons who spoke Spanish in their household during childhood, using this to reweight our population estimates for EDs to account for Hispanic status (additional details in the Online Supplement). For 1980 and later decades we rely on the Census' Hispanic question.

Metropolitan sample

We examine segregation over a 120-year time period in urbanized areas around the country, including both central cities and suburbs, excluding territory defined by the Census as "rural". Given that some present-day metropolitan areas were small or non-existent earlier in the century, we use metropolitan areas that the Census had already identified in 1970, which is near the mid-point of our study period. These areas are based on counties, and they can be consistently applied across all study years. To encompass the territorial expansion over time of urban growth, we use all the 2020 counties assigned to those metros as bounding areas, including counties that were not considered metropolitan in 1970. Much of that territory was rural in the earlier decades, but we only deal with population in the *urbanized* territory for a given year. This means that the analyzed territory for a given metro can expand from year to year as residential development proceeds, even though the maximum geographic container for that metro stays fixed.[1] Within

this sample, we include only metros that have at least 50,000 people and at least 500 metropolitan Black residents in a given decade. We additionally assign metros to four regions: Northeast, Midwest, West, and South.

For the spatial decomposition we must designate neighborhoods as central city or suburban in every decade. To make designations that are consistent and meaningful throughout the whole period, we use the 1970 identification of central cities, while also adding Niagara Falls, NY, Council Bluffs, IA, and Elizabeth, NJ, which had been classified as central cities in prior decades.[2] Suburban neighborhoods are "urban" EDs and/or block groups, as defined by the Census, that lie outside the boundaries of central cities in a given decade. Suburban neighborhoods must additionally be assigned to distinct suburban places (typically incorporated cities and towns within the suburban ring, as well as unincorporated named areas), which are identified via non-central-city *place identifiers* provided by the Census. For suburban EDs with missing place identifiers, we aggregate them to their respective township or county subdivision. For simplicity, we refer to all these geographic units as "places."

Measuring and decomposing segregation

We measure segregation with Theil's H, which reflects the unevenness of the distribution of different racial groups. H has several desirable properties, most important of which here is that it is additively decomposable into contributions from different geographic scales (Reardon and O'Sullivan 2004). H ranges from 0 to 1, with 0 representing perfect integration and 1 representing total segregation. It is built from a measure of entropy (E), which reflects racial heterogeneity:

$$E = -\sum_{r=1}^{N} \pi_r \, log(\pi_r)$$

where for a given geography, π_r is the proportion of the total population represented by racial group r. For an area comprised of M subunits, the summary index H then compares the E of the total geography to the E_i of the sub-unit:

$$H = \sum_{i=1}^{M} \frac{t_i(E - E_i)}{ET}$$

where T is the total population of the higher geography and t_i is the population of the sub-unit. This study is only focused on the segregation between non-Hispanic whites and non-Hispanic Blacks. To facilitate comparisons with prior studies that mostly relied on the Dissimilarity Index (D), we also report results for D in Supplementary Tables A2 and A3, which altogether mirror our estimates using H.

We then decompose total metropolitan segregation (H_{total}) across multiple spatial scales. This involves calculating H at every one of the relevant spatial scales and then re-weighting these components by their relative populations and entropy values. The calculation is as follows:

$$H_{total} = H_{CxS} + \frac{T_S E_S}{TE} H_{SP} + \sum_{p \in S} \frac{T_p E_p}{TE} H_p + \frac{T_C E_C}{TE} H_C$$

Here H_{total} is the total segregation across EDs for a given metropolitan area, and T and E are the population and entropy for that metro. H_{CxS} is the segregation between the two geographies of the central cities and suburbs. H_{SP} is the segregation between suburban places, and T_S and E_S are the population and entropy of all suburbs. For each suburban place p, T E, and H are the population, entropy, and segregation, which when aggregated accounts for suburban micro-segregation. T_C, E_C, and H_C are, respectively, the population, entropy, and segregation for central cities.

Dividing each term in the equation by H_{total} reflects the share of total segregation attributable to that specific geographic scale. The first and second terms combined reflect the

total macro-segregation, while the latter 2 terms represent the components of micro (or neighborhood-level) segregation. For a given metro, the sum of the four components is the metropolitan total. Table 1 summarizes each component and how it contributes to a decomposition of total segregation.

Table 1: Decomposition of H

	Geographic scale of segregation	Decomposed share	Abbreviation for decomposed share
Micro-segregation			
Total segregation	Across all EDs within a metro	H_{total}	
Central city segregation	Across all EDs within a central city	$\frac{\frac{T_C E_C}{TE} H_C}{H_{total}}$	pH_C
Suburban segregation	Across all EDs within a suburban place, aggregated with weights for all suburban places in a given metro	$\frac{\sum_{p \in S} \frac{T_p E_p}{TE} H_p}{H_{total}}$	pH_S
Macro-segregation			
City-Suburb segregation (White flight)	Between the city and suburbs	$\frac{H_{CxS}}{H_{total}}$	pH_{CxS}
Suburban place segregation (Enclavization)	Between suburban places	$\frac{\frac{T_S E_S}{TE} H_{SP}}{H_{total}}$	pH_{SP}

We are especially interested in the two components of macro-segregation that are not routinely examined in most segregation research. While Lichter et al. (2015) reported these two components of macro-segregation, they did not theorize them as distinct morphologies of racial exclusion. Macro-segregation between cities and suburbs (H_{CxS}) reflects the classic bifurcation of metros into white suburbs and minority central cities, what is often attributed to "white flight." Macro-segregation between suburban places (H_{SP}) reflects racial separation at the place level, which we call "enclavization." While the former represents the concentration of whites in the suburban periphery as a whole, the latter reflects their concentration in specific suburban communities that offer little access to Black suburbanites. We will show that as Black

populations moved increasingly into the suburban periphery, segregation at the place level became more important. That is, as suburbia became more diverse, suburban places became more racially homogeneous. Many new suburban places were established in the postwar years, and 85% of places that were formed between 1980 and 2010 were predominantly or overwhelmingly white (Fowler, Lee, and Matthews 2016: 1972).

Modeling approach

To understand what is driving changes in the pattern of segregation, we report models for the each of the spatial components of segregation. To simplify the analyses over the lengthy time frame under study, we draw on Massey and Denton's (1993) three phases of segregation, which we use to estimate separate models for three distinct time periods. The first period is 1900-1950, when urbanization and migration created growing metropolitan Black populations in the North and South, and residential segregation in central cities was rising. The second period is 1950 to 1980, a phase of consolidation where levels of segregation had generally peaked at a high level but continued Black population growth was still accumulating mainly in existing Black neighborhoods, and suburbanization gave segregation a metropolitan character. The final period is the remaining years of 1980 to 2020, when Black-white segregation began to decline steadily but slowly (Logan, Stults and Farley 2004), while suburbs became more diverse and differences between suburban places became increasingly important (Lichter, Parisi, and Taquino 2015).

We estimate longitudinal models separately for each of three historical periods and by region, to account for the different trajectories of segregation across the country. In addition to the time dummy variables, the models include the following predictors, all computed for the metropolitan area. The first predictors are the total population and the total Black population for each respective geographic area. For the central city model, these are the city populations; for the

suburban micro-segregation and place segregation models, these are the suburban populations; and for the metropolitan total and city-suburb component they are the metropolitan populations. Next, we include the number of identified suburban places (municipalities, towns, and census-designated places) in a metro, as an indicator for suburban fragmentation. We then include variables for the ratio of white to Black class standing. We use an index variable called "occscore" that was created by IPUMS to measure one's estimated income based on their occupation. We separately calculated the average occscores for white and Black residents of a given metro in each year, and then used the ratio between the two, such that a value above one indicates the degree to which whites have a higher class status than Blacks.

Findings

We begin with a descriptive analysis of trends in metropolitan population growth over 120 years. We describe changes in segregation at both the neighborhood and macro scales, presenting measures for the nation, and by region. We then carry out a spatial decomposition to show how the contribution of each component of segregation evolved over time. Finally, we report the multivariate analyses.

Trends in urbanization

Table 2 summarizes metropolitan population changes since 1900 distinguishing between cities and suburbs. Because there are such large differences in the racial composition of the population across the country, we also report these figures by region in Supplementary Table 1.

Table 2: Metropolitan, city, and suburban population (millions), 1900-2020

Year	Metro population	City population	Suburban population	Black share of city	Black share of suburbs	Share of population in suburbs	Share of Black population in suburbs
1900	20.8	17.2	3.6	0.054	0.047	0.175	0.155
1910	31.6	25.1	6.4	0.058	0.039	0.204	0.148
1920	42	33	9	0.064	0.042	0.214	0.151
1930	54.8	41.9	13	0.083	0.041	0.237	0.132
1940	57.2	44.4	12.8	0.094	0.048	0.224	0.13
1950	69.3	52.8	16.5	0.123	0.045	0.238	0.102
1960	103.7	58.8	44.9	0.166	0.047	0.433	0.178
1970	123.3	62.6	60.7	0.208	0.052	0.493	0.194
1980	138.4	62.1	76.3	0.234	0.069	0.551	0.265
1990	155.2	64.9	90.3	0.236	0.08	0.582	0.321
2000	184.1	71	113.1	0.231	0.091	0.614	0.386
2010	206.2	74.7	131.5	0.218	0.105	0.638	0.458
2020	222.7	80.2	142.5	0.201	0.112	0.64	0.498

The table shows substantial growth in the total metropolitan population, adding over ten million each decade from 1900 to 1950, with a temporary stall in the 1930s. The largest growth was in the 1950s, with a 50% increase (34.4 million) in the total metropolitan population. The vast majority of metropolitan growth was in the suburbs, which increased by 272% in this one decade. In the first fifty years of the century, only about 20% of metropolitan residents lived in the suburbs, by 1980 most of them did. These trends were largely mirrored across regions of the Northeast, Midwest, South, and West (see Supplementary Table 1), in each of which the 1950s was a key decade of metropolitan growth, particularly in the suburbs. While each region added between 6 – 8 million suburbanites, the growth rate was most pronounced in the South, which more than quadrupled its suburban population, growing from 2 to 9 million suburban residents over ten years. The Northeast and West became majority suburban by 1970, one decade earlier than the South and Midwest. By 2020, suburbanization rates were still growing, except for the Northeast, which in the 2010s experienced faster growth rates in central cities for the first time since the 1930s.

Table 2 also provides information on metropolitan racial composition over time. Nationally, the Black share of central cities rose from 5.4% in 1900 to 20.1% in 2020. The suburbs also became more diverse, but at much lower levels. Only 4.7% of the suburban population was Black in 1900, and this grew to 11.2% Black by 2020. While Black population in the suburbs did grow throughout the century, Black growth in cities was much more rapid in the earlier decades. As a result, 15.5% of Black metropolitan residents lived in the suburbs in 1900 but this share declined to 10.2% by 1950.

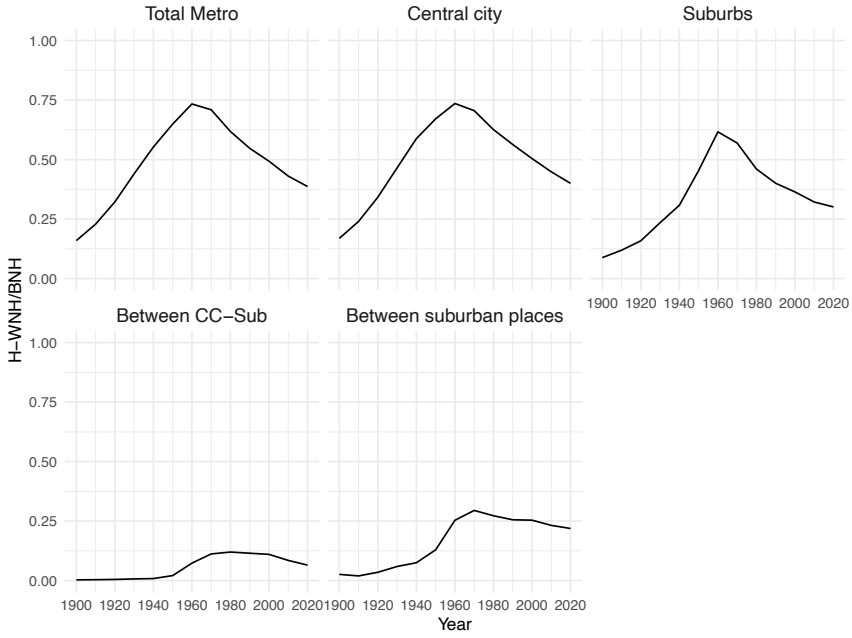
There were regional differences in these patterns (see Supplementary Table 1). In 1900, 22.9% of metropolitan Blacks in the Northeast already lived in suburbs, while only 6.7% of those in the West did. From 1920-1950, the share of the metropolitan Black population living in the suburbs decreased in both the Northeast and the Midwest, as their presence in central cities grew faster. Meanwhile, the South and the West saw steady increases in the share of Blacks living in suburbs during this period. Eventually Black suburbanization accelerated in all regions – in the 1970s for the Midwest and Northeast, the 1950s for the South, and the 1940s for the West. Now, as is true for whites, most of the metropolitan Black population lives in the suburbs.

Trends in segregation

Figure 1 reports the average values of H, weighted by the size of the metropolitan Black population, for each spatial component of segregation (provided in table form in the Online Supplement). Results for neighborhood segregation for the whole metro or for the cities or suburbs separately show a familiar pattern. In all these components, micro-segregation was in the low/moderate range in 1900, then rose substantially through 1960 to peak well above .70, after which it began to rapidly decline. By 2020, the average value for metros and cities was about the

same as in 1920 (around .40). The same trend of rise and decline is found for suburban neighborhoods, though always at a lower level.

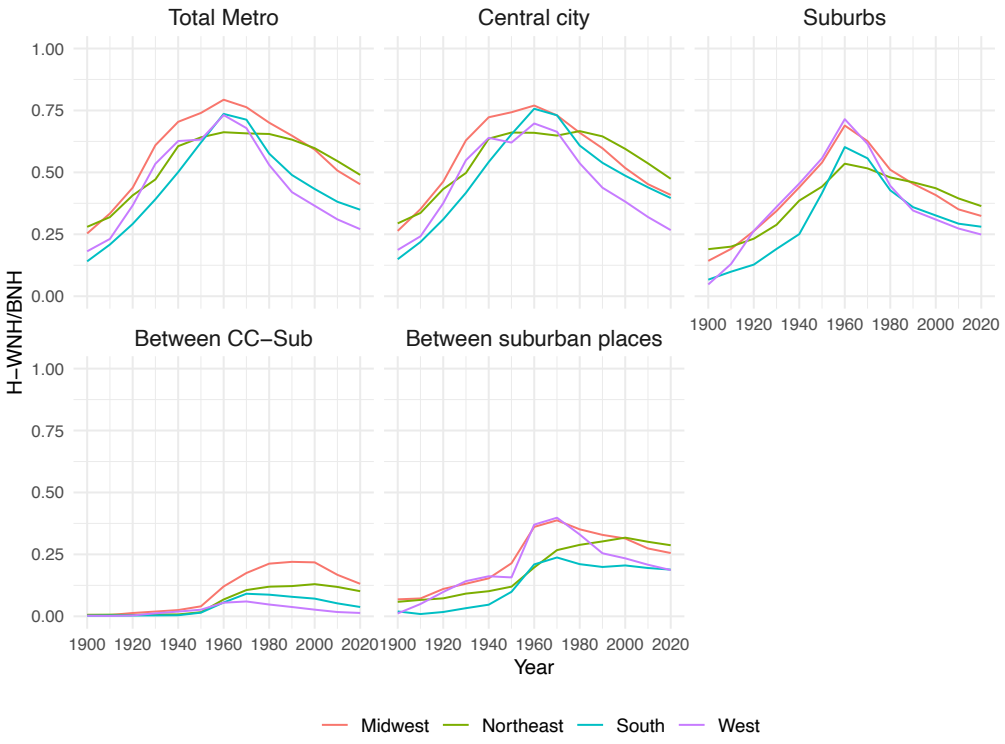
Figure 1: Mean segregation (H) at various spatial scales, 1900-2020



Measures of macro-segregation have not previously been reported for this whole period. These values are much lower than found for neighborhood-level segregation, due in large part to the reduction in variance that comes when fewer geographic units are used (Carrington & Troske 1997). The key finding is that macro-segregation began in 1900 at an extremely low average level – .003 for cities versus suburbs and .038 for suburban places (enclavization). But as suburbia grew in the 1950s, macro-segregation jumped. Both city-suburb and suburban place segregation were still rising in the 1960s, then in the next two decades modestly declined. Today they are still near their 1960 levels. The decline in segregation among suburban places is barely perceptible.

Figure 2 reports these trends separately for metros in four separate regions. In terms of neighborhood-level segregation, the average value of H was highest in the Midwest for metros and cities, and effectively tied with the West for suburban micro-segregation. While this micro-segregation was lowest in the South in 1900, it quickly caught up with the Midwest with high levels of segregation by 1960. Conversely, macro-segregation was likewise highest in the Midwest, both as white flight and enclavization. The South has consistently had the lowest levels of suburban place segregation, while the West has had the lowest levels of separation between cities and suburbs. These results suggest that the processes promoting a decline in segregation at the neighborhood scale were converging in the post-World War II era, but the forces leading to disparities at a macro scale were stronger and remained stronger outside the South.

Figure 2: Mean segregation (H) at various spatial scales, 1900-2020 by region



Spatial decomposition of segregation

These findings confirm that macro-segregation has taken on a more important role in maintaining segregation in recent decades. This change can be shown more explicitly through a formal spatial decomposition. Table 3 reports the weighted mean values of H for all metropolitan regions over time in the first column. The other columns report the percentage of that metro total that is uniquely attributable to each geographic scale.

Table 3: Decompositions of segregation (H), 1900-2020

		Micro-segregation shares		Macro-segregation shares	
	Metro H	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
1900	0.217	89%	6%	2%	4%
1910	0.28	88%	7%	2%	3%
1920	0.378	88%	7%	2%	3%
1930	0.494	89%	7%	2%	3%
1940	0.602	89%	7%	2%	3%
1950	0.68	86%	7%	3%	3%
1960	0.739	69%	12%	11%	8%
1970	0.712	62%	10%	16%	11%
1980	0.623	54%	11%	19%	16%
1990	0.552	49%	11%	20%	20%
2000	0.497	42%	11%	21%	25%
2010	0.434	39%	13%	19%	30%
2020	0.389	38%	14%	16%	33%

During 1900-1950, segregation within cities accounted for over 85% of metropolitan segregation, but this share then fell quickly – to 69% in 1960, below 50% by 1990, and only 38% in 2020. This major realignment has two sources. One is that levels of macro-segregation were increasing from initially very low levels. Another is that the balance of population shifted after 1950, as was shown in Table 2. The contribution to total segregation depends on the

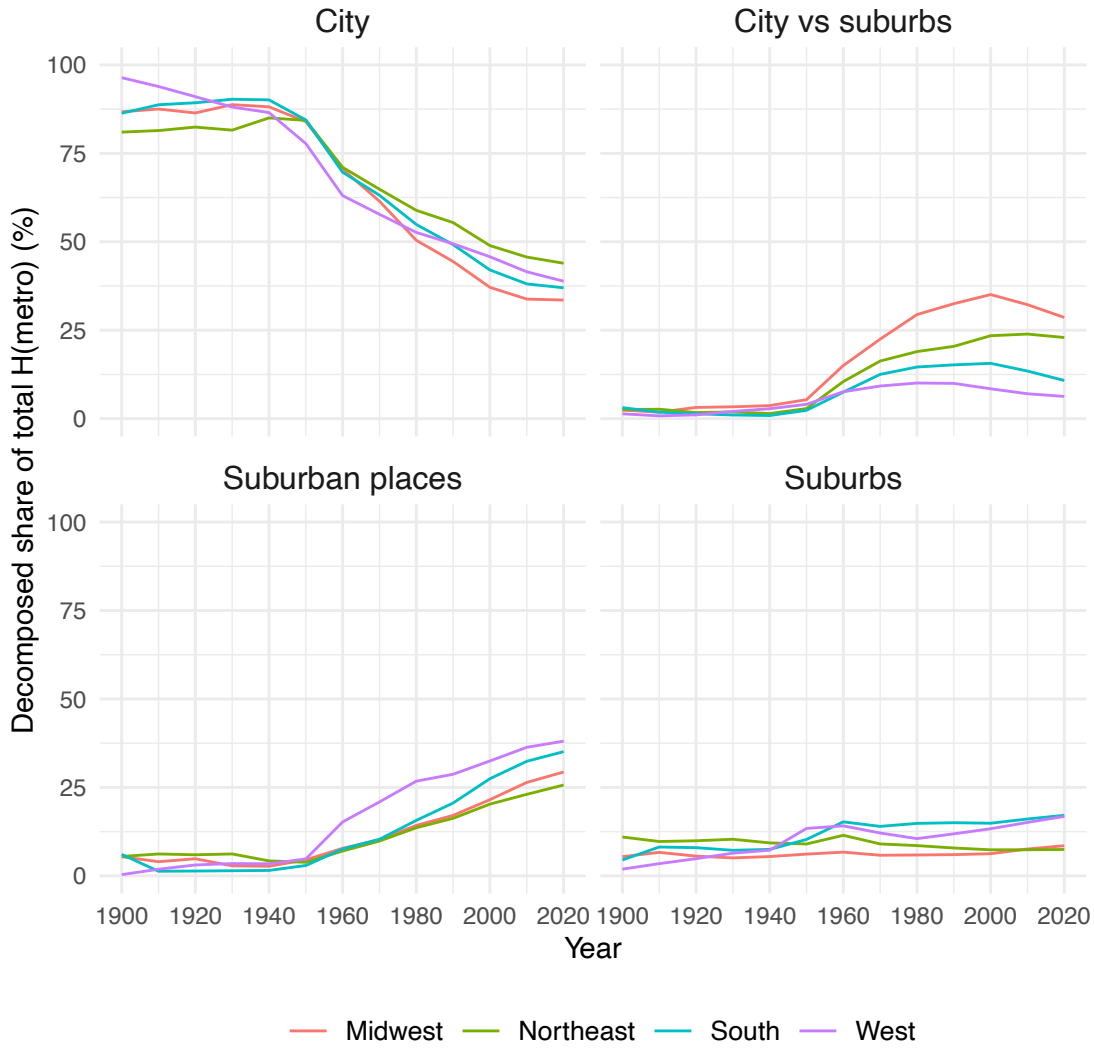
component's population size, and as cities lost population in relation to suburbs, their relative weight also fell.

As the contribution of segregation in the city fell, others rose. After 1950, segregation between cities and suburbs grew rapidly, consistent with a pattern of white flight. Suburban place segregation also grew, initially at a slower pace. But by 1990, city-suburb and suburban place segregation were equally important in their contributions to total segregation, each at 20%. Since 2000, the relative contribution of city-suburb segregation has declined slightly, while the relative contribution of suburban place segregation has continued to grow in importance, accounting for 33% of all metropolitan segregation by 2020 – approaching the share attributable to neighborhood segregation in cities.

Figure 3 repeats this decomposition separately for the four different regions (provided as a table in the Online Supplement). All regions showed a declining significance of central city segregation starting in 1960. The contribution of suburban micro-segregation did not substantially change in the Northeast and Midwest throughout the entire study period, it grew only slightly in the South starting in 1960 and in the West ten years earlier in 1950. Macro-segregation grew in importance after 1950 across all regions, yet relative contributions differed. In the Northeast and Midwest, both city-suburb and suburban place segregations grew in their importance in tandem, such that they are now at roughly equal contributions by 2020 (respectively, 23% and 26% in the Northeast and 29% and 29% in the Midwest). However, in the other regions, suburban place segregation drastically outpaced city-suburb segregation in importance. Enclavization accounted for 36% and 38% of total segregation in the South and West, respectively, in contrast to white flight, which accounted for 11% and 6%. Neighborhood segregation in central cities, which used to be almost the sole determinant of metropolitan

segregation, is steadily being replaced by segregation across other parts of the metro, especially segregation among suburban places. In the Midwest, the combined contribution of macro-segregation (58%) has now outpaced the combined effect of micro-segregation (42%).

Figure 3: Decompositions of segregation (H), 1900-2020 by region



Accounting for variation over time and across metros

The final part of the analysis reports the predictors of each component of segregation. Full results are reported in Supplementary Tables 4-8. Table 7 summarizes results for the full national

sample, and Table 8 presents results of models run separately by region. The tables include predictors for Black population size, suburban fragmentation, and white/Black socioeconomic disparity, omitting coefficients for time, since the time trends align well with the descriptive results reported above. In this table, we show for each model whether the coefficient was significant and positive (+), significant and negative (-), or non-significant (o). There are separate models for metros across the four regions and for each of the three time periods.

Table 4: Regression coefficient summary table, national

	1900-1950	**1950-1980**	**1980-2020**
Metro total			
Black population	+	+	+
Fragmentation	**-**	**o**	+
White/Black SES	**o**	+	**o**
City			
Black population	+	+	+
Fragmentation	**o**	**o**	+
White/Black SES	**o**	+	+
Suburbs			
Black population	+	+	+
Fragmentation	**-**	**o**	+
White/Black SES	**o**	+	**o**
City/Suburb			
Black population	**-**	+	+
Fragmentation	+	+	+
White/Black SES	**-**	**-**	**-**
Suburban places			
Black population	**-**	+	+
Fragmentation	**o**	+	+
White/Black SES	**o**	**o**	**o**

Note: + is significant positive, o is non-significant, - is significant negative

Table 5: Regression coefficient summary table, by region

	Northeast			Midwest			South			West		
	1900-1950	**1950-1980**	**1980-2020**	**1900-1950**	**1950-1980**	**1980-2020**	**1900-1950**	**1950-1980**	**1980-2020**	**1900-1950**	**1950-1980**	**1980-2020**
Metro total												
Black population	+	+	+	+	+	+	o	+	+	+	+	+
Fragmentation	-	o	o	o	o	o	-	-	-	+	+	+
White/Black SES	-	o	o	-	o	+	+	+	+	+	o	o
City												
Black population	+	+	+	+	+	o	o	o	+	+	+	+
Fragmentation	-	+	o	o	o	+	+	o	+	o	o	+
White/Black SES	-	o	o	-	o	+	+	+	o	o	+	o
Suburbs												
Black population	o	+	+	+	+	+	o	o	+	+	+	+
Fragmentation	o	o	+	o	-	+	-	-	+	o	o	+
White/Black SES	o	o	+	-	o	o	o	+	-	o	o	-
City/Suburb												
Black population	o	+	+	o	+	+	o	+	+	o	+	+
Fragmentation	+	-	-	+	o	-	+	+	o	+	o	o
White/Black SES	o	o	o	o	o	o	o	-	o	o	-	-
Suburban places												
Black population	-	o	+	+	+	+	-	o	o	o	+	+
Fragmentation	o	o	+	o	o	+	o	o	+	o	+	+
White/Black SES	o	o	o	o	o	o	o	+	+	o	o	o

Note: + is significant positive, o is non-significant, - is significant negative

Black population size does generally predict metropolitan segregation. Nationally, its coefficient is positive and significant across all time periods and scales, except for both forms of macro-segregation during 1900-1950. This makes sense, since as seen above, there was not much macro-segregation to speak of at the time. But as suburbanization grew, a positive relationship

emerged between Black population size and macro-segregation, that persisted in the following decades. The Northeast, Midwest, and West generally follow the national patterns, except Black population size has no effect on central city segregation in the Midwest between 1980-2020. The main exceptions are found in the South. First, there was never a relationship between Black population size and suburban place segregation. This is possibly because Black suburban residence much more prevalent in the South from an early time, and possibly, therefore, it was more "routine." Second, there is not a significant effect in the South on micro-segregation at either the metropolitan, central city, or suburban levels in 1900-1950, or separately in cities or suburbs from 1950-1980. If Black population's effect reflects white sense of threat, this could indicate that Southern whites did not feel threatened in that period, with an increasingly harsh Jim Crow regime serving as a substitute. Because H is sensitive to group size (Martin & Fowler 2018), this could affect segregation indices in places with small Black populations. As a robustness check, we ran our models with the dissimilarity index, which does not have this quality. The main difference was that in the 1900-1950 period, the three types of micro-segregation became negatively associated with the size of the Black population in all areas except the West, where the effect remained positive. Moreover, city-suburb segregation then had a null effect in every region but the Midwest during the 1950-1980 period, and suburban place segregation no longer had an effect nationally or in the South during that period. The associations for the 1980-2020 period remained mostly positive.

Suburban fragmentation was hypothesized to primarily influence suburban place segregation through the exclusionary policies of suburban local governments. Nationally, we find a significant positive effect in the years after 1950, once suburbanization began to grow rapidly. But in the period of 1950-1980, this was mostly driven by the West, since in all other

regions, there was surprisingly no effect despite the great suburban growth happening. However, by 1980-2020 fragmentation is positively related to suburban place segregation in all regions. This delayed effect of fragmentation could be because as the suburbs were first growing and more racially homogeneous, there was less motivation to create exclusionary boundaries within the suburbs. Then, as the suburbs became more diverse, people re-sorted into more racially exclusive enclaves across suburbia. To better understand such processes, future research could examine how these individual suburban places emerged and how their racial compositions changed over time. As a test of the importance of the political economy of place hypothesis, two considerations are noteworthy. On the one hand, we would mathematically expect as a baseline for fragmentation to be correlated with higher segregation, since smaller spatial units tend to increase variance across those units, thereby increasing segregation (Carrington & Troske 1997). The mixed findings for the fragmentation variable are thus noteworthy, given the propensity for them to be positive. On the other hand, the measure of suburban place segregation by itself reflects the political economy of place, as racial stratification increasingly occurs at the place level. This segregation was growing in importance, regardless of the additional correlation with the fragmentation variable.

The class disparity between whites and Blacks was expected to affect segregation via standard market mechanisms. Overall, there are mixed effects across scale, time period, and region. We find significant positive effects nationally at all three scales of micro-segregation during 1950-1980, which persisted only at the city level through 1980-2020. Regionally, there was a positive effect on total metropolitan and city micro-segregation in the South. There was little to no effect on micro-segregation in the Northeast, and positive effects in the Midwest during 1980-2020. Class disparity had no effect on suburban place segregation and had a

negative association with city-suburb segregation. These mixed findings align with a common critique of the ecological model of assimilation: that socioeconomic advancement generally has smaller impact on where Blacks live than is found for other groups, due to the especially strong racial boundary between Blacks and whites.

Discussion and conclusion

This study provides a systematic account of the trends in Black-white segregation in the last 120 years. It breaks new empirical ground by studying changes not only for cities but for whole metropolitan regions for a long time series. By treating the metropolis as the unit of analysis, we can study separately the changes in each of its spatial components. These include micro-segregation across neighborhoods (enumeration districts and block groups) within cities and suburban areas, and also macro-segregation between the city and suburbia and between suburban places. Moreover, this study provides the first segregation estimates in the early decades to account for Hispanic identity.

Micro-segregation of neighborhoods peaked at a near-apartheid level in 1960, after which it began a slow but persistent decline. But as the nation transitioned from predominantly rural to majority urban, it was also shifting toward a new metropolitan form. Suburbia was already growing faster than central cities by the 1920s, and the suburban population surpassed that of the cities by 1980. Neighborhoods within suburbia also became more segregated, but a new spatial scale of segregation emerged after 1950. Suburban growth was racially selective, and while the Black population was becoming more concentrated in cities, suburbia was becoming more predominantly white. To the extent that Blacks also found homes in the suburbs, they were becoming increasingly concentrated in a few suburban places but excluded from many others.

As overall metropolitan segregation has decreased, its durability is due increasingly to macro-segregation. This macro-segregation took two forms, segregation between cities and suburbs and between suburban places. While decompositions show that the relative importance of city-suburb segregation rose and then plateaued after 1980, suburban place segregation has steadily increased in its explanatory share of metropolitan segregation. Today, this suburban place segregation accounts for almost the same share of total segregation as micro-segregation in central cities, and nearly half of the total segregation in metropolitan areas is now attributable to the two macro components. To state this more concretely, even if there were no longer any segregation between neighborhoods in cities and suburban areas, total segregation would still remain close to half of what it is now.

We emphasize the importance of disaggregating these two types of macro-segregation. Lichter et al. (2015) estimate both components of segregation, but in their discussion and regression models they consolidate city-suburb and suburban place segregation under the single measure of "macro-segregation." Yet these are different phenomena. City-suburb segregation reflects the racial bifurcation of cities versus suburbs associated with white flight. But suburban place segregation describes how suburban municipalities and communities are separated into racial enclaves. While the former expresses the wholesale exclusion of black households from the suburbs, the latter captures how when, black suburbanization occurs, it is often accompanied by a new process of enclavization as whites cluster into more homogeneous communities from which Blacks tend to be excluded. The relative predominance of these different kinds of macro-segregation can reflect different metropolitan morphologies. We can think of a metropolitan area like Detroit, where 67% of total segregation in 2000 was due to the separation between the city and its suburbs, as Black households were heavily excluded from the suburbs. In contrast, the

effect of suburban place segregation in Atlanta has steadily grown as Black families have moved to suburbs like East Point and Stone Mountain, while whites have coalesced into exclusive enclaves like Alpharetta and Sandy Springs. In 2020, 66% of all segregation in the Atlanta metro occurs between suburban communities. Both cases point in different ways to the exclusionary nature of suburban communities, who often resist new affordable housing construction and erect barriers to suburban school access (Dougherty 2020; Holme 2002).

In addition to charting these trends in segregation, this study has examined what characteristics of metropolitan areas are associated with levels of segregation, and how these relationships have changed over time. We found some support for the hypothesis that segregation – especially macro-segregation (city versus suburb and between suburbs) – is associated with suburban political fragmentation. This finding, combined with the growing relative importance of macro-segregation on its own, reinforces the emphasis we have given (following a political economy approach) to a place stratification interpretation of suburban segregation. Black population size is significant for almost all time periods and for all components of segregation, though in the South this only holds for certain time periods and scales. Lastly, because where people can live is tied to their financial resources in a market society, we expected to find strong effects of the white/Black socioeconomic ratio on all components of segregation. The results were mixed, finding a positive effect for Micro-segregation from 1950-1980, and limited effects at other scales and time periods. Given the importance of suburban places in driving metropolitan segregation, future research could examine when and how such communities emerged throughout history.

Lichter et al. (2015) documented a “new macro-segregation” in the years 1990-2010. This paper argues that macro-segregation was not new in 1990 but was emerging 50 years

earlier. Why is 1950 the turning point in the growth of macro-segregation? The years after World War II kicked off a massive housing construction boom that rapidly expanded the suburbs. By 1953, half of all new housing starts were in rural areas, creating the foundation of new suburban communities (Snowden 2006: Table Dc 510-530). Government programs helped accelerate this, particularly the Federal Housing Administration (FHA) and the Home Loan Guarantee (HLG) program under the G.I. Bill of 1944. Even though they had existed for many years before, by 1960, the FHA and the HLG had cumulatively backed 5.3 million and 5.4 million homes, respectively (Snowden 2006: Table Dc 1105-1121). Both the FHA and the HLG systematically encouraged segregation through their underwriting and administration, denying loans to Black borrowers and prioritizing racially homogeneous communities, especially in the suburbs (Agbai Forthcoming; Kimble 2007).

By 2020, macro-segregation collectively accounts for 48% of total metropolitan segregation, a share that has been growing since the 1950s. This is because as absolute levels of neighborhood segregation have declined rapidly, macro-segregation has only slightly diminished, making it a core factor in the persistence of segregation. Certainly, segregation at the neighborhood scale remains important. At the same time, many important institutional structures, such as school access, social services, tax policy, and zoning are determined by higher geographic and political scales. The exclusiveness of some suburban communities has become a prominent political issue. Fair housing advocates are pushing for more affordable housing and the relaxation of single-family zoning codes that exclude rental apartments for families. However, people who already live in a suburban community, particularly white homeowners, often resist these efforts. These white households in many cases left central cities and see the in-migration of racialized others as a threat to their property values as well as an incursion of the

city they “escaped” (Farley and Frey 1994). This attitude reflects what Kruse (2007, p. 234) calls a “politics of suburban secession”, in which suburbanites “severed all local ties with the city, [and ensured] that the isolation they now enjoyed in the suburbs would never be disturbed.” Meanwhile, the increased suburban diversity is primarily concentrated in suburban communities that already were more diverse (Fowler et al. 2016). Efforts to further reduce racial separation therefore need to contend with the political economy of place at the metropolitan scale, and the ways that the suburbs continue to serve as a primary space of exclusion.

Data Availability

The data underlying this article will be available on Brown University’s Spatial Structures in the Social Sciences (S4) website at https://s4.ad.brown.edu/Projects/Diversity/Data/Data.htm. Most of the datasets were derived from sources in the public domain, specifically IPUMS at the Minnesota Population Center at https://www.ipums.org/.

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Endnotes

1. This means that our areal units are changing across time. While this has been described as the “modifiable areal unit problem”, we do not see it as a problem for our study. The alternative, to create fixed geographical areas, would either include large swaths of rural areas in the early decades for which segregation was not applicable in the same way, or it would exclude much of the real suburban growth in later decades. Relatedly, the fact that our enumeration districts and block groups change between years is not a concern, since our main focus is on the aggregate segregation of a metropolitan area, rather than changes in any specific neighborhood.

2. Our metropolitan areas can have multiple central cities, which is one point of differentiation from Lichter et al. (2015), who use only the first-listed city in the metropolitan area name as the central city. For example, we would count both Minneapolis and St. Paul as central cities, while Lichter et al. would only count Minneapolis. As a result, Lichter et al. find higher between-suburban-place segregation and lower city-suburb-fringe segregation than we do, since they classify some larger diverse cities in metros as suburbs, while we count them as central cities.

The Changing Spatial Pattern of Metropolitan Racial Segregation, 1900-2020: The Rise of Macro-segregation

ONLINE SUPPLEMENTARY MATERIAL

H. Jacob Carlson, John R. Logan, and Jongho Won

Imputing Hispanic status in 1960 and 1970

A contribution of this study is estimates of Hispanic status for the years of 1960 and 1970. In those years, the Census asked 20% of respondents whether they spoke Spanish in their household during childhood. This is our main operational definition of Hispanic for those years, which is comparable with definitions used in other years where Hispanic status is not directly asked of respondents. We can then combine Hispanic status with race identifiers to distinguish non-Hispanic Whites and non-Hispanic Blacks.

To apply these sample measure to the full population, we created Hispanic weights by race, using restricted data in the FSRDC. For example, if 30% of Black respondents in the 20% sample were Hispanic in the sample data, then we assumed that 30% of Black respondents in the full count data would also be Hispanic. These weights were calculated separately for enumeration districts, since weights based on higher-level geographies could be unreliable in metros with large Hispanic populations.

Supplementary Tables

This online supplement provides a series of tables for more detailed examinations of segregation trends under different specifications. Their explanations are described in the main text.

Supplementary Table 1: Metropolitan, city, and suburban population (millions) by region, 1900-2020

Year	Metro population	City population	Suburban population	Black share of city	Black share of suburbs	Share of population in suburbs	Share of Black population in suburbs
Northeast							
1900	11.4	9	2.4	0.022	0.025	0.209	0.229
1910	16.5	12.3	4.2	0.025	0.02	0.257	0.221
1920	20.1	14.6	5.5	0.03	0.022	0.272	0.209
1930	24.1	16.7	7.4	0.046	0.026	0.306	0.198
1940	23.2	17.1	6.1	0.055	0.031	0.262	0.164
1950	25	18.2	6.9	0.085	0.035	0.274	0.133
1960	32.6	17.6	15	0.131	0.031	0.46	0.168
1970	35.2	17.2	18.1	0.193	0.038	0.513	0.172
1980	35.1	15.4	19.7	0.227	0.05	0.561	0.22
1990	35.9	15.4	20.5	0.24	0.059	0.57	0.247
2000	39.9	16	24	0.245	0.066	0.601	0.287
2010	41.5	16.2	25.3	0.238	0.074	0.61	0.327
2020	43	17.2	25.8	0.218	0.081	0.599	0.358
Midwest							
1900	6.3	5.4	0.9	0.031	0.036	0.146	0.166
1910	9.1	7.6	1.5	0.033	0.031	0.162	0.152
1920	13	10.8	2.3	0.043	0.04	0.173	0.161
1930	17.2	13.8	3.4	0.066	0.028	0.199	0.095
1940	17.8	14	3.8	0.073	0.027	0.213	0.09
1950	20.7	16	4.8	0.11	0.037	0.23	0.09
1960	28.7	16.6	12.1	0.169	0.027	0.421	0.105
1970	32.6	16.8	15.8	0.222	0.032	0.486	0.121
1980	33.9	15.2	18.7	0.268	0.047	0.551	0.176
1990	35.3	14.7	20.6	0.281	0.056	0.584	0.219
2000	39.7	15.1	24.5	0.287	0.068	0.619	0.277
2010	42	14.8	27.2	0.273	0.085	0.648	0.364
2020	43.2	15.2	28	0.254	0.095	0.648	0.408

South							
1900	2.3	2	0.3	0.275	0.292	0.116	0.122
1910	3.7	3.2	0.5	0.27	0.241	0.131	0.119
1920	5.7	4.8	0.8	0.243	0.2	0.148	0.125
1930	8.4	7.2	1.2	0.242	0.2	0.142	0.12
1940	10.1	8.5	1.6	0.246	0.197	0.161	0.133
1950	13.5	11.5	2	0.243	0.123	0.151	0.083
1960	24.1	15.2	9	0.258	0.122	0.372	0.219
1970	31	17.5	13.5	0.277	0.109	0.435	0.233
1980	38.8	18.7	20.1	0.302	0.128	0.517	0.312
1990	45.5	19.5	25.9	0.311	0.145	0.571	0.383
2000	57.3	22	35.3	0.308	0.162	0.616	0.458
2010	68.7	24.4	44.3	0.29	0.18	0.645	0.53
2020	77.5	26.9	50.5	0.265	0.187	0.652	0.569
West							
1900	0.8	0.7	0.1	0.013	0.009	0.096	0.067
1910	2.3	2	0.2	0.013	0.01	0.11	0.084
1920	3.2	2.8	0.4	0.014	0.009	0.137	0.092
1930	5.2	4.2	1	0.018	0.009	0.191	0.107
1940	6.1	4.8	1.3	0.022	0.01	0.217	0.109
1950	10	7.2	2.8	0.054	0.027	0.283	0.162
1960	18.3	9.4	8.9	0.077	0.025	0.485	0.233
1970	24.5	11.2	13.4	0.099	0.035	0.545	0.295
1980	30.7	12.8	17.9	0.101	0.045	0.584	0.385
1990	38.5	15.3	23.2	0.092	0.047	0.603	0.44
2000	47.2	17.9	29.3	0.078	0.046	0.62	0.492
2010	54.1	19.3	34.8	0.07	0.047	0.643	0.548
2020	59.1	20.8	38.2	0.066	0.048	0.647	0.57

Supplementary Table 2: Mean segregation (H) at various spatial scales, 1900-2020

	Micro-segregation			Macro-segregation	
	Metro	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
1900	0.217	0.228	0.125	0.004	0.043
1910	0.28	0.293	0.162	0.004	0.041
1920	0.378	0.398	0.201	0.007	0.059
1930	0.494	0.517	0.271	0.009	0.082
1940	0.602	0.632	0.348	0.01	0.095
1950	0.669	0.686	0.473	0.023	0.142
1960	0.739	0.736	0.628	0.079	0.266
1970	0.712	0.704	0.574	0.117	0.303
1980	0.623	0.629	0.465	0.124	0.278
1990	0.552	0.567	0.405	0.118	0.26
2000	0.497	0.508	0.369	0.112	0.257
2010	0.434	0.451	0.327	0.086	0.235
2020	0.389	0.402	0.306	0.065	0.222

Supplementary Table 3: Mean segregation (D) at various spatial scales, 1900-2020

	Micro-segregation			Macro-segregation	
	Metro	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
1900	0.478	0.493	0.369	0.041	0.205
1910	0.546	0.56	0.413	0.046	0.188
1920	0.631	0.649	0.449	0.061	0.231
1930	0.711	0.73	0.54	0.074	0.3
1940	0.782	0.804	0.609	0.08	0.326
1950	0.827	0.836	0.721	0.134	0.409
1960	0.872	0.862	0.836	0.297	0.564
1970	0.851	0.838	0.799	0.368	0.59
1980	0.783	0.784	0.695	0.376	0.542
1990	0.728	0.738	0.639	0.36	0.514
2000	0.69	0.696	0.607	0.338	0.501
2010	0.642	0.656	0.564	0.285	0.468
2020	0.608	0.619	0.541	0.24	0.451

Supplementary Table 4: Mean segregation (H) at various spatial scales, 1900-2020 by region

	Micro-segregation			Macro-segregation	
	Metro	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
Northeast					
1900	0.285	0.299	0.192	0.006	0.062
1910	0.323	0.339	0.201	0.007	0.069
1920	0.41	0.435	0.234	0.005	0.075
1930	0.477	0.503	0.29	0.008	0.093
1940	0.611	0.64	0.387	0.008	0.103
1950	0.645	0.664	0.443	0.016	0.119
1960	0.663	0.661	0.535	0.068	0.198
1970	0.659	0.65	0.518	0.106	0.269
1980	0.656	0.668	0.483	0.119	0.29
1990	0.634	0.648	0.463	0.122	0.304
2000	0.599	0.597	0.439	0.13	0.318
2010	0.547	0.538	0.398	0.118	0.301
2020	0.491	0.476	0.368	0.101	0.288
Midwest					
1900	0.265	0.276	0.145	0.006	0.076
1910	0.336	0.354	0.187	0.005	0.075
1920	0.437	0.462	0.261	0.014	0.114
1930	0.61	0.63	0.344	0.019	0.134
1940	0.705	0.724	0.438	0.025	0.156
1950	0.741	0.744	0.54	0.041	0.218
1960	0.794	0.771	0.689	0.121	0.362
1970	0.763	0.731	0.626	0.175	0.388
1980	0.701	0.661	0.511	0.213	0.352
1990	0.649	0.598	0.456	0.22	0.33
2000	0.592	0.518	0.41	0.218	0.314
2010	0.508	0.453	0.353	0.168	0.274
2020	0.453	0.41	0.327	0.132	0.256
South					
1900	0.174	0.184	0.08	0.002	0.018
1910	0.249	0.258	0.136	0.003	0.017
1920	0.341	0.358	0.161	0.004	0.027
1930	0.442	0.467	0.219	0.003	0.046
1940	0.549	0.586	0.28	0.004	0.059
1950	0.645	0.674	0.439	0.017	0.109
1960	0.749	0.763	0.623	0.063	0.223

1970	0.72	0.731	0.563	0.1	0.244
1980	0.582	0.613	0.431	0.093	0.214
1990	0.493	0.542	0.363	0.082	0.202
2000	0.436	0.492	0.331	0.073	0.208
2010	0.384	0.444	0.299	0.052	0.198
2020	0.351	0.399	0.286	0.037	0.191
West					
1900	0.224	0.229	0.075	0.004	0.018
1910	0.217	0.226	0.117	0.002	0.044
1920	0.34	0.348	0.232	0.004	0.087
1930	0.511	0.524	0.355	0.012	0.138
1940	0.613	0.625	0.455	0.019	0.161
1950	0.632	0.62	0.56	0.026	0.158
1960	0.733	0.698	0.721	0.055	0.375
1970	0.68	0.665	0.617	0.06	0.4
1980	0.53	0.537	0.448	0.048	0.331
1990	0.421	0.439	0.347	0.038	0.255
2000	0.365	0.382	0.314	0.027	0.234
2010	0.311	0.321	0.278	0.017	0.209
2020	0.271	0.268	0.253	0.013	0.188

Supplementary Table 4: Mean segregation (D) at various spatial scales, 1900-2020 by region

	Micro-segregation			Macro-segregation	
	Metro	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
Northeast					
1900	0.62	0.638	0.5	0.074	0.28
1910	0.646	0.663	0.517	0.081	0.303
1920	0.693	0.716	0.547	0.066	0.319
1930	0.73	0.749	0.602	0.087	0.357
1940	0.815	0.833	0.681	0.081	0.372
1950	0.827	0.836	0.722	0.128	0.413
1960	0.837	0.823	0.803	0.305	0.526
1970	0.825	0.808	0.773	0.379	0.571
1980	0.813	0.815	0.72	0.404	0.567
1990	0.796	0.801	0.696	0.402	0.571
2000	0.773	0.764	0.674	0.405	0.578
2010	0.738	0.724	0.633	0.379	0.556
2020	0.696	0.679	0.603	0.343	0.536
Midwest					
1900	0.562	0.577	0.455	0.06	0.332
1910	0.63	0.649	0.497	0.061	0.323
1920	0.72	0.734	0.585	0.113	0.397
1930	0.81	0.823	0.664	0.132	0.447
1940	0.865	0.876	0.742	0.154	0.478
1950	0.881	0.882	0.791	0.201	0.53
1960	0.916	0.892	0.902	0.402	0.699
1970	0.89	0.857	0.86	0.485	0.714
1980	0.84	0.804	0.75	0.524	0.642
1990	0.803	0.758	0.702	0.522	0.613
2000	0.767	0.706	0.657	0.505	0.576
2010	0.704	0.661	0.601	0.431	0.516
2020	0.663	0.628	0.57	0.374	0.49
South					
1900	0.392	0.406	0.262	0.022	0.11
1910	0.481	0.492	0.336	0.028	0.088
1920	0.568	0.586	0.344	0.038	0.119
1930	0.648	0.671	0.433	0.037	0.183
1940	0.725	0.755	0.502	0.042	0.218
1950	0.792	0.811	0.665	0.093	0.32
1960	0.858	0.863	0.798	0.224	0.472

1970	0.842	0.846	0.767	0.297	0.497
1980	0.746	0.77	0.653	0.304	0.457
1990	0.678	0.718	0.589	0.288	0.435
2000	0.639	0.683	0.564	0.265	0.437
2010	0.598	0.649	0.528	0.218	0.418
2020	0.572	0.616	0.514	0.176	0.409
West					
1900	0.571	0.58	0.337	0.036	0.185
1910	0.561	0.571	0.463	0.041	0.262
1920	0.685	0.693	0.601	0.065	0.348
1930	0.792	0.799	0.756	0.112	0.543
1940	0.843	0.847	0.811	0.149	0.591
1950	0.844	0.832	0.825	0.173	0.537
1960	0.9	0.869	0.92	0.307	0.711
1970	0.849	0.835	0.831	0.307	0.675
1980	0.725	0.728	0.673	0.251	0.585
1990	0.638	0.644	0.588	0.217	0.504
2000	0.597	0.603	0.563	0.177	0.477
2010	0.556	0.551	0.533	0.131	0.451
2020	0.524	0.508	0.51	0.103	0.431

Supplementary Table 5: Decompositions of segregation (H), 1900-2020, by region

		Micro-segregation shares		Macro-segregation shares	
	Metro H	**City**	**Suburbs**	**City vs suburbs**	**Suburban places**
Northeast					
1900	0.285	81%	11%	3%	6%
1910	0.323	81%	10%	3%	6%
1920	0.41	82%	10%	2%	6%
1930	0.477	82%	10%	2%	6%
1940	0.611	85%	9%	1%	4%
1950	0.645	85%	9%	3%	4%
1960	0.663	71%	11%	10%	7%
1970	0.659	65%	9%	16%	10%
1980	0.656	59%	9%	19%	14%
1990	0.634	56%	8%	20%	16%
2000	0.599	49%	7%	23%	20%
2010	0.547	46%	7%	24%	23%
2020	0.491	44%	7%	23%	26%
Midwest					
1900	0.265	87%	5%	3%	5%
1910	0.336	88%	6%	2%	4%
1920	0.437	86%	5%	3%	5%
1930	0.61	89%	5%	3%	3%
1940	0.705	89%	5%	4%	3%
1950	0.741	84%	6%	5%	4%
1960	0.794	71%	7%	15%	8%
1970	0.763	62%	6%	22%	10%
1980	0.701	50%	6%	29%	14%
1990	0.649	44%	6%	33%	17%
2000	0.592	37%	6%	35%	22%
2010	0.508	34%	8%	32%	26%
2020	0.453	33%	9%	29%	29%
South					
1900	0.174	93%	4%	1%	2%
1910	0.249	91%	7%	1%	1%
1920	0.341	91%	6%	1%	1%
1930	0.442	92%	6%	1%	1%
1940	0.549	91%	7%	1%	2%
1950	0.645	85%	10%	3%	3%

1960	0.749	69%	15%	8%	8%
1970	0.72	63%	13%	14%	10%
1980	0.582	54%	14%	15%	16%
1990	0.493	49%	15%	16%	21%
2000	0.436	41%	15%	16%	28%
2010	0.384	38%	16%	13%	33%
2020	0.351	37%	17%	11%	36%
West					
1900	0.224	95%	2%	1%	1%
1910	0.217	94%	3%	1%	2%
1920	0.34	91%	4%	2%	3%
1930	0.511	88%	6%	2%	3%
1940	0.613	87%	7%	3%	3%
1950	0.632	78%	13%	4%	5%
1960	0.733	63%	14%	8%	15%
1970	0.68	58%	12%	9%	21%
1980	0.53	53%	10%	10%	27%
1990	0.421	50%	12%	10%	29%
2000	0.365	46%	13%	8%	32%
2010	0.311	42%	15%	7%	36%
2020	0.271	39%	17%	6%	38%

Supplementary Table 5: Models of total metropolitan segregation (H_{total}), by period and region

	National			Northeast			Midwest			South			West		
	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020
Metropolitan population (log)	0.042***	-0.027**	-0.063***	0.029**	-0.038*	-0.051**	0.069***	-0.01	-0.049***	0.073***	0.057**	-0.013	-0.074***	-0.079**	-0.069***
Metro Black population (log)	0.039***	0.076***	0.084***	0.038***	0.079***	0.107***	0.045***	0.086***	0.110***	0.004	0.009	0.035***	0.111***	0.113***	0.076***
Suburban places	-0.001***	0.00002	0.001***	-0.001***	-0.00001	-0.00004	-0.001	-0.0002	0.0001	-0.003	-0.0004	0.0003*	0.002	0.0004	0.001***
White-Black SEI ratio	-0.034	0.140**	0.098	-0.140**	-0.014	0.111	-0.200**	-0.062	0.269*	0.081	0.344***	0.403*	0.15	0.121	-0.233**
Observations	781	670	936	201	133	169	240	190	266	256	239	340	84	108	161
Adjusted R^2	0.662	0.6	0.659	0.694	0.676	0.778	0.795	0.718	0.771	0.644	0.476	0.589	0.704	0.674	0.716

Note: *p<0.05; **p<0.01; ***p<0.001

Supplementary Table 6: Models of central city segregation (H_C), by period and region

	National			Northeast			Midwest			South			West		
	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020
Central city population (log)	0.032***	-0.027**	-0.044***	0.024	-0.042*	-0.018	0.074***	-0.016	-0.044***	0.052***	0.031	-0.031**	-0.077***	-0.073***	-0.046**
Central city Black population (log)	0.045***	0.084***	0.090***	0.047***	0.082***	0.094***	0.053***	0.089***	0.095***	0.003	0.021	0.050***	0.114***	0.123***	0.080***
Suburban places	-0.0003	-0.0002	0.0004***	-0.001**	0.0003*	0.0001	-0.001	-0.0002	0.0004**	0.004*	0.0001	0.001***	0.003	-0.001	0.001**
White-Black SEI ratio	0.006	0.298***	0.270***	-0.143**	-0.046	0.308	-0.182*	0.001	0.384**	0.082	0.372***	0.292	0.132	0.236*	-0.132
Observations	769	665	931	193	130	168	238	189	264	255	238	339	83	108	160
Adjusted R^2	0.647	0.61	0.726	0.667	0.648	0.76	0.798	0.684	0.743	0.623	0.429	0.666	0.69	0.689	0.722

Note: *p<0.05; **p<0.01; ***p<0.001

Supplementary Table 7: Models of suburban segregation (H_S), by period and region

	National			Northeast			Midwest			South			West		
	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020
Suburban population (log)	0.048***	0.005	-0.054***	0.022**	-0.021	-0.117***	-0.01	-0.033	-0.079***	0.125***	0.088***	-0.079***	0.093	-0.054*	-0.079***
Suburban Black population (log)	0.020***	0.059***	0.061***	0.023*	0.059***	0.105***	0.078***	0.118***	0.093***	-0.025*	-0.004	0.066***	0.122**	0.100***	0.066***
Suburban places	-0.001**	-0.0001	0.001***	-0.001	0.0001	0.0005***	0.0001	-0.0005	0.001***	-0.008***	-0.001**	0.002***	-0.009	0.0005	0.002***
White-Black SEI ratio	-0.039	0.157*	0.089	-0.091	0.105	0.382*	-0.389**	-0.288	-0.012	0.121*	0.445***	-0.284**	0.366	-0.007	-0.284**
Observations	424	502	839	103	91	156	88	113	220	215	222	148	18	76	148
Adjusted R^2	0.531	0.484	0.486	0.562	0.598	0.621	0.533	0.674	0.542	0.6	0.482	0.579	0.841	0.603	0.579

Note: $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

Supplementary Table 8: Models of city-suburb segregation (H_{CxS}), by period and region

	National			Northeast			Midwest			South			West		
	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020
Metropolitan population (log)	-0.0005	-0.002	-0.018***	-0.001	-0.024*	-0.029	-0.005*	0.006	-0.002	-0.001	-0.009	-0.011*	-0.009**	-0.015*	-0.008
Metropolitan Black population (log)	-0.002**	0.010***	0.021***	-0.003	0.027***	0.043***	0.002	0.017***	0.046***	-0.001	0.006**	0.014***	0.002	0.010**	0.009**
Suburban places	0.0003***	0.0004***	0.0002***	0.0002*	-0.0002**	-0.0003***	0.0004*	0.0002	-0.0003*	0.001*	0.002***	0.0001	0.001*	0.0004	0.00002
White-Black SEI ratio	-0.014**	-0.120***	-0.152***	-0.007	0.002	-0.085	-0.022	-0.068	-0.09	0.005	-0.058**	-0.031	0.012	-0.065*	-0.077*
Observations	712	659	934	199	133	169	208	183	266	228	236	338	77	107	161
Adjusted R^2	0.113	0.334	0.115	0.048	0.583	0.239	0.117	0.505	0.466	0.095	0.463	0.064	0.215	0.185	0.132

Note: $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

Supplementary Table 9: Models of suburban place segregation (H_{SP}), by period and region

	National			Northeast			Midwest			South			West		
	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020	1900 - 1950	1950 - 1980	1980 - 2020
Metropolitan population (log)	0.025***	0.01	-0.033***	0.015	-0.013	-0.120***	-0.018	-0.031*	-0.071***	0.052***	0.056***	0.008	-0.057	-0.080**	-0.071***
Metropolitan Black population (log)	-0.010**	0.023***	0.037***	-0.015	0.022	0.085***	0.026**	0.076***	0.076***	-0.024**	-0.011	0.009	0.021	0.069***	0.050***
Suburban places	0.0003	0.0004*	0.001***	0.0003	0.0004	0.001***	0.002	0.0003	0.001***	-0.001	0.00003	0.001***	0.005	0.002*	0.002***
White-Black SEI ratio	-0.019	0.001	0.01	0.005	0.031	0.286	-0.061	0.017	0.127	0.05	0.206*	0.461***	0.26	-0.017	-0.097
Observations	400	499	839	101	91	156	87	113	220	194	219	315	18	76	148
Adjusted R^2	0.247	0.278	0.388	0.07	0.204	0.514	0.346	0.538	0.594	0.221	0.336	0.265	0.568	0.425	0.607

Note: $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

Below is a table containing the metropolitan areas included in our sample. Each year, a metropolitan area was only part of the analysis if it had a total metropolitan population of at least 50,000 and a metropolitan Black population of at least 2,500. The table also includes cities we designated as "central cities," per 1970 Census definitions. To provide a sense of how many suburban places there were, we also provide the total number of suburban places in 1900 and in 2020. Places with "--" recorded for 1900 indicates that there was no available data for that metropolitan area for that year.

Supplementary Table 10: List of included metropolitan areas, their central cities, and counts of suburban places

Metropolitan Area	Central Cities	Suburban Places in 1900	Suburban Places in 2020
Abilene, TX	Abilene	0	1
Akron, OH	Akron	4	44
Albany, GA	Albany	0	3
Albany-Schenectady-Troy, NY	Albany, Schenectady, Troy	11	61
Albuquerque, NM	Albuquerque	1	26
Allentown-Bethlehem-Easton, PA-NJ	Allentown, Bethlehem, Easton	7	87
Altoona, PA	Altoona	2	19
Amarillo, TX	Amarillo	0	2
Anaheim-Santa Ana-Garden Grove, CA	Anaheim, Santa Ana, Garden Grove	0	42
Anderson, IN	Anderson	2	12
Ann Arbor, MI	Ann Arbor	1	17
Asheville, NC	Asheville	0	47
Atlanta, GA	Atlanta	1	175
Atlantic City, NJ	Atlantic	1	21
Augusta, GA-SC	Augusta	2	21
Austin, TX	Austin	0	49
Bakersfield, CA	Bakersfield	0	36
Baltimore, MD	Baltimore	3	111
Baton Rouge, LA	Baton Rouge	0	44
Bay City, MI	Bay	1	8
Beaumont-Port Arthur-Orange, TX	Beaumont, Port Arthur, Orange	0	19
Billings, MT	Billings	0	5

Biloxi-Gulfport, MS	Biloxi, Gulfport	0	21
Binghamton, NY-PA	Binghamton	5	19
Birmingham, AL	Birmingham	4	57
Bloomington-Normal, IL	Bloomington, Normal	0	1
Boise City, ID	Boise	0	13
Boston-Lowell-Lawrence, MA	Boston, Lowell, Lawrence, Haverhill	17	132
Bridgeport-Stamford-Norwalk, CT	Bridgeport, Stamford, Norwalk	4	70
Brockton, MA	Brockton	0	48
Brownsville-Harlingen-San Benito, TX	Brownsville, Harlingen, San Benito	0	19
Buffalo, NY	Buffalo, Niagara Falls	5	47
Canton, OH	Canton	2	24
Cedar Rapids, IA	Cedar Rapids	1	9
Champaign-Urbana, IL	Champaign, Urbana	0	8
Charleston, SC	Charleston	0	23
Charleston, WV	Charleston	0	21
Charlotte, NC	Charlotte	0	102
Chattanooga, TN-GA	Chattanooga	0	34
Chicago, IL	Chicago	20	333
Cincinnati, OH-KY-IN	Cincinnati	16	153
Cleveland, OH	Cleveland	7	85
Colorado Springs, CO	Colorado Springs	1	18
Columbia, SC	Columbia	0	41
Columbus, GA-AL	Columbus	1	5
Columbus, OH	Columbus	2	74
Corpus Christi, TX	Corpus Christi	0	12
Dallas, TX	Dallas	6	102
Davenport-Rock Island-Moline, IA-IL	Davenport, Moline, Rock Island	3	14
Dayton, OH	Dayton	5	39
Decatur, IL	Decatur	0	7
Denver, CO	Denver	1	79
Des Moines, IA	Des Moines	0	24
Detroit, MI	Detroit	4	145
Dubuque, IA	Dubuque	0	3
Duluth-Superior, MN-WI	Duluth, Superior	3	10

Durham, NC	Durham	0	25
El Paso, TX	El Paso	0	15
Erie, PA	Erie	2	18
Eugene, OR	Eugene	0	12
Evansville, IN-KY	Evansville	2	12
Fall River-New Bedford, MA	New Bedford, Fall River	1	25
Fargo-Moorhead, ND-MN	Fargo, Moorhead	0	3
Fayetteville, NC	Fayetteville	0	23
Flint, MI	Flint	1	26
Fort Lauderdale-Hollywood, FL	Fort Lauderdale, Hollywood	--	33
Fort Smith, AR-OK	Fort Smith	2	6
Fort Wayne, IN	Fort Wayne	0	11
Fort Worth, TX	Fort Worth	1	49
Fresno, CA	Fresno	1	21
Gadsden, AL	Gadsden	0	5
Galveston-Texas City, TX	Galveston, Texas	0	15
Gary-Hammond-East Chicago, IN	Gary, Hammond, East Chicago	2	36
Grand Rapids, MI	Grand Rapids	2	50
Great Falls, MT	Great Falls	0	3
Green Bay, WI	Green Bay	1	10
Greensboro--Winston-Salem--High Point, NC	Winston-Salem, High Point, Greensboro	0	56
Greenville, SC	Greenville	0	55
Hamilton-Middletown, OH	Hamilton, Middletown	0	19
Harrisburg, PA	Harrisburg	7	58
Hartford-New Britain-Bristol, CT	Hartford, New Britain, Bristol	1	71
Honolulu, HI	Honolulu	--	52
Houston, TX	Houston	0	98
Huntington-Ashland, WV-KY-OH	Huntington, Ashland	2	49
Huntsville, AL	Huntsville	0	11
Indianapolis, IN	Indianapolis	7	46
Jackson, MI	Jackson	0	5
Jackson, MS	Jackson	0	16

Jacksonville, FL	Jacksonville	0	39
Jersey City, NJ	Jersey	10	11
Johnstown, PA	Johnstown	5	28
Kalamazoo, MI	Kalamazoo	0	13
Kansas City, MO-KS	Kansas	4	66
Kenosha, WI	Kenosha	0	6
Knoxville, TN	Knoxville	0	36
Lafayette, LA	Lafayette	0	40
Lafayette-West Lafayette, IN	Lafayette, West Lafayette	0	6
Lake Charles, LA	Lake Charles	0	14
Lancaster, PA	Lancaster	1	49
Lansing, MI	Lansing	2	29
Laredo, TX	Laredo	0	1
Las Vegas, NV	Las Vegas	--	14
Lawton, OK	Lawton	--	1
Lexington, KY	Lexington	0	12
Lima, OH	Lima	2	6
Lincoln, NE	Lincoln	0	2
Little Rock-North Little Rock, AR	Little Rock, North Little Rock	0	24
Lorain-Elyria, OH	Lorain, Elyria	1	16
Los Angeles-Long Beach, CA	Los Angeles, Long Beach	4	143
Louisville, KY-IN	Louisville	2	71
Lubbock, TX	Lubbock	--	4
Lynchburg, VA	Lynchburg	0	9
Macon, GA	Macon	0	10
Madison, WI	Madison	1	25
Manchester, NH	Manchester	1	14
Mansfield, OH	Mansfield	1	7
McAllen-Pharr-Edinburg, TX	Mcallen, Pharr, Edinburg	--	43
Memphis, TN-AR	Memphis	0	28
Miami, FL	Miami	--	76
Midland, TX	Midland	--	3
Milwaukee, WI	Milwaukee	5	62
Minneapolis-St. Paul, MN	Minneapolis, St Paul	3	136
Mobile, AL	Mobile	0	24

Monroe, LA	Monroe	0	15
Montgomery, AL	Montgomery	0	7
Muncie, IN	Muncie	0	6
Muskegon-Muskegon Heights, MI	Muskegon, Muskegon Heights	0	14
Nashville-Davidson, TN	Nashville	0	45
New Haven-Waterbury, CT	New Haven, Waterbury, Meriden	5	32
New Orleans, LA	New Orleans	0	60
New York, NY	New York	15	384
Newark, NJ	Newark, Elizabeth	15	146
Newport News-Hampton, VA	Newport News, Hampton	0	14
Norfolk-Portsmouth, VA	Norfolk, Portsmouth	1	9
Odessa, TX	Odessa	--	2
Ogden, UT	Ogden	0	20
Oklahoma City, OK	Oklahoma	1	26
Omaha, NE-IA	Omaha, Council Bluffs	1	30
Orlando, FL	Orlando	0	98
Oxnard-Ventura, CA	Oxnard, Ventura	0	24
Paterson-Clifton-Passaic, NJ	Paterson, Clifton, Passaic	7	90
Pensacola, FL	Pensacola	0	28
Peoria, IL	Peoria	2	23
Philadelphia, PA-NJ	Philadelphia	23	412
Phoenix, AZ	Phoenix	0	50
Pine Bluff, AR	Pine Bluff	0	1
Pittsburgh, PA	Pittsburgh	37	301
Pittsfield, MA	Pittsfield	1	15
Portland, ME	Portland	3	37
Portland, OR-WA	Portland	2	88
Providence, RI	Providence, Pawtucket, Warwick	2	46
Provo-Orem, UT	Provo, Orem	5	20
Pueblo, CO	Pueblo	0	5
Racine, WI	Racine	1	14
Raleigh, NC	Raleigh	0	36
Reading, PA	Reading	0	62
Reno, NV	Reno	0	14

Richmond, VA	Richmond	0	50
Roanoke, VA	Roanoke	1	15
Rochester, NY	Rochester	8	57
Rockford, IL	Rockford	1	16
Sacramento, CA	Sacramento	1	60
Saginaw, MI	Saginaw	0	10
St. Joseph, MO	St Joseph	0	6
St. Louis, MO-IL	St Louis	10	206
Salem, OR	Salem	0	15
Salinas-Monterey, CA	Salinas, Monterey	0	17
Salt Lake City, UT	Salt Lake	0	40
San Angelo, TX	San Angelo	--	0
San Antonio, TX	San Antonio	0	42
San Bernardino-Riverside-Ontario, CA	San Bernardino, Riverside, Ontario	1	102
San Diego, CA	San Diego	0	45
San Francisco-Oakland, CA	San Francisco, Oakland	4	118
San Jose, CA	San Jose	2	25
Santa Barbara, CA	Santa Barbara	0	19
Savannah, GA	Savannah	0	23
Scranton, PA	Scranton	10	23
Seattle-Everett, WA	Seattle, Everett	1	96
Sherman-Denison, TX	Sherman, Denison	0	1
Shreveport, LA	Shreveport	0	14
Sioux City, IA-NE	Sioux	0	5
Sioux Falls, SD	Sioux Falls	0	3
South Bend, IN	South Bend	2	16
Spokane, WA	Spokane	0	16
Springfield, IL	Springfield	0	12
Springfield, MO	Springfield	0	27
Springfield, OH	Springfield	0	13
Springfield-Holyoke, MA	Springfield, Holyoke, Chicopee	1	27
Steubenville-Weirton, OH-WV	Weirton, Steubenville	3	14
Stockton, CA	Stockton	0	20
Syracuse, NY	Syracuse	8	43
Tacoma, WA	Tacoma	0	51

Tallahassee, FL	Tallahassee	0	11
Tampa-St. Petersburg, FL	Tampa, St Petersburg	0	117
Terre Haute, IN	Terre Haute	3	12
Texarkana, TX-Texarkana, AR	Texarkana	0	5
Toledo, OH-MI	Toledo	3	48
Topeka, KS	Topeka	0	4
Trenton, NJ	Trenton	1	21
Tucson, AZ	Tucson	0	20
Tulsa, OK	Tulsa	--	24
Tuscaloosa, AL	Tuscaloosa	0	5
Tyler, TX	Tyler	0	7
Utica-Rome, NY	Utica, Rome	4	28
Vallejo-Napa, CA	Vallejo, Napa	2	13
Vineland-Millville-Bridgeton, NJ	Vineland, Millville, Bridgeton	0	5
Waco, TX	Waco	1	8
Washington, DC-MD-VA	Washington	1	335
Waterloo, IA	Waterloo	1	6
West Palm Beach, FL	West Palm Beach	--	56
Wheeling, WV-OH	Wheeling	6	18
Wichita, KS	Wichita	1	22
Wichita Falls, TX	Wichita Falls	0	3
Wilkes-Barre--Hazleton, PA	Wilkes-Barre, Hazleton	12	54
Wilmington, DE-NJ-MD	Wilmington	2	42
Wilmington, NC	Wilmington	0	52
Worcester, MA	Worcester, Fitchburg, Leominster	0	64
York, PA	York	3	63
Youngstown-Warren, OH	Warren, Youngstown	2	53