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Remaking White Residential Segregation: Metropolitan Diversity and Neighborhood Change in the United States[1]

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Abstract

Between 1990 and 2010, the white population share in US metropolitan areas fell from 73.5 percent to 60.3 percent. This paper explores how this decline affected the number and composition of white census tracts (tracts in which non-Latino whites constitute the largest group). In 1990, white tracts comprised 82 percent of all metropolitan tracts. By 2010, this percentage had fallen to 70 percent, paralleling the percentage point drop in white population share. This loss was concentrated among the most segregated white tracts - those with low diversity. White tracts that were moderately diverse actually doubled in number between 1990 and 2010 although this increase was insufficient to cancel the loss of low diversity white tracts. We model the effects of metropolitan characteristics on white-tract change by metropolitan area. Greater metropolitan-scale diversity increases the probability that low-diversity white tracts transition to moderate-diversity white. Moderately diverse white tracts, however, become more stable with increased diversity. A large metropolitan percentage of blacks or the foreign born, however, reverses this stabilizing effect, increasing the probability that moderately diverse white tracts transition to non-white tracts (i.e. where a non-white group is the largest group). Thus the level and composition of metropolitan diversity matters for the trajectory of moderately diverse white tracts. Overall, the formation of new white tracts, possibly the result of gentrification, coupled with the emergence of moderately diverse white tracts and an increasing share of whites living in such residential environments, suggests a reconfiguration rather than a dissolving of white dominated neighborhood space in response to increased diversity in surrounding metropolitan contexts.

Keywords

neighborhood change; segregation; diversity; gentrification; whites

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Introduction

Racial diversity in the US has increased substantially in the last half century. In 1960, non-Latino whites (hereafter referred to as whites) accounted for 85.3 percent of the US population and blacks were the largest non-white group.[2] By 2010, the white share had fallen to 63.7 percent of the US population and Latinos had become the largest non-white group (16.3 percent of the population), followed by blacks (12.2 percent) and Asians (4.7 percent).[3] This transformation has had an even greater impact in metropolitan areas where the white share of the population fell to 60.3 percent in 2010.[4] The main driver of this diversity transformation and the decline in white population share has been immigration from Asia and Latin America (Lee and Bean 2010).

The rise of diversity in the US has attracted scholarly interest for what it means for a range of outcomes, including the labor market, language usage, patterns of mixed-race marriage, and changes in the dynamics of racial inequality and identity (Bean & Stevens, 2003; Lee & Bean, 2010). A subset of this literature has examined how increased racial diversity has affected the spatial patterning and segregation of groups across urban residential space. One strand of this research scrutinized the residential geographies of new populations of Asians and Latinos (Allen & Turner, 2005). Another has explored the effect of growing Asian and Latino populations on segregation between whites and blacks, finding that the diversity Asians and Latinos add to metropolitan population mixtures acts as a buffering mechanism to reduce traditionally high levels of white-black segregation (Frey & Farley, 1996; Logan & Zhang, 2010; Parisi, Lichter, & Taquino, 2015). Diversity's effect on white segregation, however, appears to depend on how segregation is measured. White segregation from all non-whites increases with metro-scale diversity (Iceland & Sharp, 2013), a result aligning with the argument that segregation is not destined to erode with increased diversity (Holloway, Wright, & Ellis 2011; Pinto-Coelho & Zuberi, 2015).

This article extends inquiry into the effect of diversity on the residential segregation of whites in US metropolitan areas (Iceland & Sharp, 2013; Wright, Ellis, & Holloway, 2014). We approach this issue not by using a conventional segregation index method but by observing decadal changes from 1990 to 2000 and 2000 to 2010 in the number and diversity composition of white tracts (i.e. tracts where whites are the largest group) by metropolitan area. We ask whether and how a metropolitan area's levels of racial diversity and the form of that diversity, particularly the black and immigrant share of the metropolitan area's population, affect change in a metropolitan area's count of these white tracts by decade. The initial expectation is that this count will decline in the presence of greater metropolitan-scale diversity. Other outcomes are possible if whites are willing to absorb modest increases in

[2]Latinos were not identifiable in the Census until 1980 but Gratton and Gutmann (2000) estimate they were 3.2 percent of the US population in 1960. Because Latinos were most likely counted as White in 1960, we estimate the 1960 non-Latino white share by subtracting Gratton and Guttman's Latino share estimate from 88.6 percent, the percentage white in the 1960 census.

[3]Whites (non-Latino whites, blacks, Asians, and Latinos are the four largest racialized groups within the US. The US officially considers Latinos (Hispanics) to be an ethnic group and its members can identify as any race (e.g. white, black, Asian etc.). We follow the common practice of assigning all Latinos to a single racialized group and counting as white, black, Asian, Native American, and other (the five major race categories) only those who do not identify as Latino (Hispanic).

[4]The 2010 percentage shares for the US as a whole and for metropolitan areas referred to in this paragraph are our calculations from the 2010 census.

diversity, perhaps contingent on the composition of that diversity, within their existing neighborhoods. We use log-rate models to measure how the level and form of metropolitan diversity affects the counts of such white to non-white transitions by metropolitan area.

White tracts are not the only ones at risk of transition as a consequence of increased metropolitan diversity. Neighborhood churn in high-diversity contexts may propel some non-white tracts to transition to white tracts, producing new white residential spaces that add to the metropolitan area's pool of white tracts. Given the relative decline in white population share, such transitions are likely to be infrequent, at least relative to transitions from white to non-white tracts, but it is important to explore the factors that contribute to new white neighborhood space formation in diversifying metropolitan contexts. Such formation may occur as a result of white-led gentrification of diverse neighborhoods, for example. Accordingly, we report estimates of a second log-rate model that estimates the effects of the level and form of metropolitan scale diversity on the number of decadal transitions from non-white to white tracts by metropolitan area.

These model estimates and other ancillary descriptive information we report below contribute to our understanding of the relationship between diversity and neighborhood change processes in the US. Our paper also augments two additional related areas of research on these processes. First, within the US, scholars argue that increases in diversity are remaking rather than simply eroding segregation (Holloway, Wright, & Ellis 2011; Pinto-Coelho & Zuberi 2015). Our findings support these claims, showing that increased diversity is not just leading to a decline in white dominated residential space. Rather, diversity is being refashioned, producing neighborhoods where whites can remain in the majority but in conditions of moderate diversity rather than the low diversity that characterized the vast majority of white-dominated neighborhoods in the past. This transformation means that an overwhelming share of the white population continues to live in white-majority residential space.

Second, our project is geared to exploring the particular effects of increased diversity on contemporary US urban residential transformations, a process layered on to distinctive American neighborhood segregation patterns forged through nineteenth and early twentieth century European-sourced immigration and subsequent black internal migration to industrializing US cities. While this history creates different starting points between the US and other countries with respect to the effects of contemporary increases in immigration-led diversity on neighborhood transition processes, scholars in non-US contexts are asking similar questions to those we pose here about how new groups and the diversity they bring affects residential change (e.g. Brama, 2006; Finney & Simpson 2009; Catney, 2016). Thus our work speaks to a broader international interest in the ways that increases in diversity, and the particular forms of that diversity, reshape urban residential geographies.

Before we present our findings we review three pertinent sets of literature relevant for making sense of the relationship between diversity and white neighborhood change. We start with a discussion of the extensive and historical body of scholarship on race and neighborhood change in the US, then outline the more recent research on the effect of immigration-led diversity change on segregation, and end the review with a brief discussion

of work suggestive of the relationship between new white neighborhood formation, gentrification and diversity. Data, methods, and results sections follow in turn.

The Evolution of US Neighborhood-Change Research

Models of neighborhood change in US cities originated with Chicago School sociologists who adopted the ecological metaphors of invasion and succession to describe urban residential dynamics in early twentieth century Chicago (Park, Burgess, & McKenzie, 1925). Their approach described neighborhoods receiving an influx of a new group, typically European-origin immigrants, whose population eventually surpasses that of an existing group. The existing group moves on - suburbanizes in the classic model - to other residential locations, trading upward socio-economic mobility into residential improvements to yield spatial assimilation (Massey, 1985). In-migration - largely by the foreign born - was crucial in this process, supplementing the city's population with newcomers who seed the process of invasion and succession from the city's core to its periphery.

Variations of this formulation persisted after early twentieth-century immigration slowed and European-origin immigrant groups had been absorbed into an enlarged category of whiteness. By the mid-twentieth century, the research focus shifted from immigrant group residential settlement to white-black neighborhood dynamics, examining if, where, and how white neighborhoods, many of which featured the descendants of early-twentieth century immigrants, absorbed black populations (Duncan & Duncan, 1957). This and subsequent work foregrounded the role of the intolerance of whites for even a few blacks in their residential environs as a key driver of neighborhood change (Farley, Schuman, Bianchi, Colasanto, & Hatchett, 1978). Simply put, white neighborhoods quickly transitioned to black majorities after the limited entry of blacks. Stably integrated (i.e. neighborhoods that remain integrated over time) or racially diverse neighborhoods were rare under these conditions.

Segregation research has evolved to measure how the preferences of whites and blacks for neighborhood mixtures of these two groups has changed over time and varies across space (Charles, 2001; Clark, 2002). White acceptance of black neighbors has grown since the 1970s but whites continue to prefer neighborhoods with a minority of blacks. Blacks are comfortable with a more even proportion of the two groups (Charles, 2003). These preferences generally ensure that whites remain segregated in mostly white neighborhoods. Experimental methods show that even when white tolerance for black neighbors increases beyond a minimal percentage the stable integration of whites and blacks in more mixed neighborhoods over time is hard to achieve (Schelling, 1971). That is, most neighborhoods in which whites and blacks mix do not last very long, tending instead to succession to one group or the other. This succession is likely to continue even as racial open-mindedness grows (Clark, 1991).

Racial preferences may not be the only, or even the most important, factor in explaining the turnover of neighborhoods from one group to another. Frey (1979), for example, linked white departure from central city neighborhoods to the taxation and employment advantages of suburban locations, in addition to the influx of black neighbors. Others have proposed that

white aversion to black neighbors is propelled, in part, by the house-price decline that comes from neighbors that tend to be of a lower social class regardless of their race (Harris, 1999). Alternatively, some studies find little evidence that household or neighborhood variables other than minority presence affect white mobility from neighborhoods with increasing minority populations, or reduce white preference for such places (Crowder, 2000; Lewis, Emerson, & Klineberg, 2011). Whether factors other than racial preferences account for some of these dynamics or not, the outcomes will be generally the same: 1) neighborhoods transition from having one dominant group to having another; 2) stable integration or racially diverse neighborhoods that persist over time will be the exceptions; 3) most whites will continue to reside in neighborhoods that are predominantly white rather than racially diverse.

Immigration, Multiracial Cities, and Neighborhood Change

The white-black exclusive focus of most neighborhood-change research persisted into the 1980s, with diverse - or mixed - neighborhoods still defined as those with some, often small, presence of blacks in white census tracts (Lee and Wood, 1991). Analysis of Latino segregation began filtering into the literature just before the inclusion of the Hispanic category on the US Census in 1980 eased the path of such studies (Rosenberg & Lake, 1976; Massey, 1979). Asian residential distributions in specific places and circumstances had been mapped since the early years of the Chicago School (Yu, 2001), but the residential geographies of Asians were not systematically studied across US cities until the 1980s (Massey, 1981). By the mid 1980s, scholars reported consistently lower white-Latino and white-Asian segregation levels compared to white-black segregation, with Asians exhibiting particularly low levels of segregation from whites (Massey and Denton, 1987). Asian and Latino segregation levels have subsequently risen as their populations have increased, but Latinos still remain less segregated from whites than blacks (Iceland, 2004).

The substantial increase in Asian and Latino immigrant populations since the 1960s and their US born progeny have dramatically altered the racial landscapes of many US metropolitan areas. By 2010, the proportion white had dipped below 50 percent of the population in 22 of the 100 largest metros (Frey, 2011). With Asian and Latino populations growing faster than whites, this count will only increase in the near future. In emerging multiracial US metros, and in those which already have a more substantial and established presence of multiple groups, new possibilities for neighborhood racial mixing emerge. Such possibilities are not just being witnessed in the US, of course. New mixtures and geographies of groups are also driving changes in the patterning of urban residential space in other countries experiencing considerable immigration, such as London (e.g. Johnston, Poulsen, & Forrest, 2015; Manley Johnston, Jones & Owen, 2015). However, careful consideration of the particular national origin configurations of this mixing within the US, and recognition of the insertion of these newer groups into an ethno-racial context in which white-black segregation has arguably been the pivotal force shaping US residential dynamics for much of the last century, is essential for anticipating white neighborhood change possibilities in diversifying contemporary US metros.

Given this context, one possible outcome is that Latino and Asian population growth leads to their increasing settlement in white neighborhoods, prompting accelerated white exit as per the response to black entry (Denton & Massey, 1991). In this scenario, white neighborhoods decline in number as racial succession to Latino and Asian neighborhoods occurs and remaining white neighborhoods stay highly segregated. Alternatively, whites may react differently to the presence of Latinos and Asians than to blacks, a possibility supported by the neighborhood preference literature (Charles, 2001; Clark, 2002; Lewis, Emerson, & Klineberg, 2011) and consistent with observed segregation trends for these two groups relative to whites. As such, white neighborhoods might absorb some Latinos and Asians, retaining whites as the largest group but with increased neighborhood diversity (Logan and Zhang, 2010). That said, not all research points to whites being more willing to embrace significant racial diversity in their neighborhoods when living in diversifying metros (Iceland and Sharp, 2013). This aligns with the finding that whites may become more sensitive to the presence of minorities in their neighborhood, and therefore more likely to leave it, if there are higher minority concentrations in the surrounding area (Crowder and South, 2008). There is thus the prospect of enhanced resistance to diversity in white neighborhoods that are embedded in a metropolitan context of high diversity.

Other research suggests that the effect of metropolitan-scale diversity on white neighborhood change will hinge on the composition of that diversity. Immigration may be a pivotal generator of metropolitan diversity but foreign-born Asians and Latinos tend to concentrate in residential enclaves (Iceland and Scopilliti, 2008). Thus diverse metropolitan areas with high percentages of the foreign born will probably generate different pressures on white neighborhoods to change than equivalently diverse metropolitan areas with a lower foreign-born population share. It could be that the expansion of immigrant residential clusters in high percentage foreign-born metropolitan areas will increase the odds that white neighborhoods turnover to non-white neighborhoods; or that metropolitan areas with few immigrants and reduced enclaving pressures will experience more absorption of Asians and Latinos in diversifying white neighborhoods. The settlement of newly arrived immigrants directly into suburbs complicates expectations (Logan, Zhang, & Alba, 2002; Singer, Hardwick, & Brettell, 2008). Some immigrants may find homes in white suburban locations upon arrival. Alternatively, suburbanizing immigrants in high percentage foreign-born metropolitan areas may not automatically seek out white neighborhoods if they can find better housing and good neighborhood amenities in areas where other group members predominate (Wright, Ellis, & Parks, 2005).

The literature suggests that metropolitan areas in which blacks comprise a large share of the population will experience lower rates of black entry into non-black neighborhoods than in metros in which the black percentage is smaller (Crowder, Pais, & South, 2012). The corollary is that high black share metros will have fewer stably integrated neighborhoods and greater levels of white segregation from non-whites (Reibel & Regelson, 2011; Iceland & Sharp, 2013). Logically, white neighborhoods in such metros that are not undergoing racial succession will tend to have low levels of diversity. The dynamics alter in multiracial metros where black populations reside with large Asian and Latino populations. Specifically, a series of papers show that a substantial presence of these other non-white groups acts as a buffer, muting white sensitivity to growing black populations in mixed neighborhoods (Frey

& Farley, 1996; Logan & Zhang, 2010, 2011). In such circumstances, white neighborhoods will become more mixed, including a greater presence of some combination of non-white groups that may include blacks, rather than tipping over as readily to a non-white neighborhood.

We are motivated by the idea that metropolitan-scale diversity is a driver of white neighborhood change. High levels of metropolitan diversity seem likely to increase the potential for white neighborhoods to decline in number through succession to mixed or non-white neighborhoods. The discussion above suggests there is some capacity for white neighborhoods to tolerate modestly increased diversity, which suggests an alternative trajectory to decline. In the presence of higher levels of metropolitan diversity white neighborhoods may persist with a dominant white population share, albeit at lower percentages than before, absorbing modest increases in the populations of other groups (i.e. increased diversity). The literature suggests the potential for such an outcome might be contingent on the metropolitan area's *composition* of diversity (i.e. it would be reduced by higher shares of the foreign born and blacks). We investigate these alternative trajectories in the empirical section of the paper. Evidence for white neighborhood persistence in diversifying metropolitan areas would accord with the more general arguments in the literature about how segregation is being remade in contexts of increasing overall diversity (Holloway, Wright, & Ellis, 2011; Pinto-Coelho & Zuberi, 2015, Bader & Warkentien, 2016).

Gentrification and New White Neighborhoods

In the traditional framing of white neighborhood change, whites leave their neighborhoods when non-white population shares increase. This general account portrays a process of white neighborhood succession where whites either relocate to neighborhoods where whites predominate or live in increasingly mixed environments where they have a reduced share of the neighborhood population. Neighborhood gentrification by disproportionately white populations[5] suggests another possibility for new white neighborhood formation, this time in spaces where poorer populations, largely non-white, had previously been dominant. Gentrifying whites may be attracted to these areas because of their diversity, house prices, location, or other related factors (Zukin, 1987; Freeman, 2009). White neighborhood change is thus not only a story of decline or of adaptation of the remaining white neighborhoods to contexts of higher metropolitan diversity, but also of new white neighborhood creation.

Recent research on racial preferences and gentrification has gone beyond the idea that diverse neighborhoods attract gentrifiers to investigate the racial particularities of neighborhoods that attract gentrifiers (Hwang and Sampson, 2014; Hwang, 2015a, 2015b). The findings illustrate that gentrifiers tend to avoid neighborhoods that are black and poor, gravitating more toward neighborhoods with higher Asian and Latino percentages, and those with more immigrants. These outcomes are, of course, consistent with the more general finding that whites are less segregated from Asian and Latinos than blacks and accord with the results of studies of the hierarchy of white neighborhood racial preferences. There are

[5]Whites, of course, are not the only racial group who gentrify (Moore, 2009).

also indications that buffer effects are in operation in gentrifying neighborhoods, wherein neighborhoods with high shares of blacks are more likely to gentrify if they also have high shares of other non-white groups (Hwang, 2015b). The metropolitan area context also plays a role, with higher rates of gentrification in metros with larger shares of immigrants and of Asians and Latinos, and lower rates when blacks have a large share (Hwang, 2015a). These results inform our expectations in the analysis that follows for the types of neighborhoods that will transition to white neighborhoods and the metropolitan contexts of diversity that are more likely to impel them.

Data and Methods

The data come from the 1990, 2000, and 2010 decennial censuses and we restrict the sample to those residing in the 276 US metropolitan areas defined by the 1999 Office of Budget and Management guidelines. We define neighborhoods in these metropolitan areas using tracts. To facilitate comparisons across the three times periods, we harmonized the 1990 and 2010 census tracts to match 2000 tract boundaries, adjusting populations based on the proportional area of commonality for partially overlapping tracts. Census race categories change over time and starting in 2000 respondents could select more than one of the official racial categories. (e.g. a respondent could identify as white and black). Following other researchers interested in comparing segregation pre and post multiracial identification, we align 2000 and 2010 census multiracial categories with the single-race categories used in 1990. To be precise, we used the whole race assignment method from the Office of Management and Budget that assigns multiracials to the largest single-race group they select other than white (e.g. someone who identifies as white and black is assigned to black, someone who identifies as white and Asian is assigned to Asian, someone who identifies as black and Native American is assigned to black, etc). Multiracials were 2.4 percent of the population in the 2000 census 2.9 percent of the 2010 census, which means the reassigned population is a small fraction of the total.

An analysis of white neighborhood change requires a taxonomy of neighborhoods classified by their racial group composition. A simple version of such a scheme would group all neighborhoods where whites predominate as white. Such an approach, however, would lump together neighborhoods in which whites a) were an overwhelming share of the population with b) those where the white share, though still predominant, was smaller and other groups are present in sufficient numbers to elevate levels of racial diversity. To distinguish these neighborhood types, we deploy a classification that differentiates white neighborhoods with low racial diversity from those with moderate racial diversity, thereby illuminating the dynamics of change and interactions between them.

Low-diversity white neighborhoods represent the type of white-majority neighborhoods that have been typical for decades. They have also anchored the high levels of residential segregation characteristic of many US urban areas (Massey and Denton, 1993). Moderately diverse white majority neighborhoods represent the possibility that the prevalence of white dominated neighborhoods can persist under conditions of greater diversity: i.e., that a rise in metropolitan diversity leads to a remaking rather than displacement of white segregation as

white neighborhoods retain a predominant albeit reduced white share by accommodating moderate levels of diversity.

The scheme's distinction between low and moderate diversity neighborhoods extends to neighborhoods in which non-white groups have the largest share of the population. Thus it identifies low and moderate diversity black, Asian, Latino, Native American, Other (the census category for those who do not identify a named race) and white neighborhoods and we can observe neighborhood transitions between these categories. The only neighborhoods outside the classification's low and moderate diversity dominant group classification are those that are highly racially diverse. These are neighborhoods in which no one group predominates **and** there is a substantial presence of several groups.

To implement this scheme, we sorted tracts into low, medium, and high diversity using a standardized tract-specific entropy measure, E_i:

$$E_i = \frac{\sum_{j=1}^{n} p_{ij} ln\left(1/p_{ij}\right)}{ln(n)} \quad (1)$$

where i indexes tracts, and j indexes n=6 racialized groups: white, black, Asian, Native American, Latino, and Other. Following the process outlined in Holloway, Wright, and Ellis (2011), we define low diversity tracts as those where $E_i \leq .3707$ (almost always this means one one group has 80 percent or more of the tract's population); moderate diversity tracts have a tract entropy score in the range $.3707 < E_i < .7414$; high diversity tracts are where $E_i \geq .7414$, **and** no group has greater than 45 percent of the tract's population and no two groups have greater than 80 percent of the tract's population. The group percentage rules for the high diversity category make the bar high for inclusion in this category; they ensure that the occasional tract with one or two dominant groups and a value of $E_i \geq .7414$ do not qualify as highly diverse because of a disproportionately large one or two group presence. A tract must have non-trivial shares of three groups to be highly diverse in this scheme.

We further categorize low and moderate diversity tracts by the group with the largest population share. This subdivision identifies the segregated forms that tracts possess at these levels of diversity and yields six categories of low diversity (low diversity white, black, Asian, Latino, Native American, and Other) and six categories of moderate diversity tracts (moderate diversity white, black, Asian, Latino, Native American, and Other). High diversity tracts by definition do not have a dominant group and are not subdivided. Thus the taxonomy has 13, in theory, categories. In practice, most US metropolitan areas have no Native American or Other dominated low and moderate diversity tracts. Table 1 summarizes the properties of the nine remaining major tract categories, showing their mean entropy and tract population shares by group for all US metros in 1990, 2000, and 2010.

Trends in Neighborhood Change

Figure 1 charts the percentage of US metropolitan-area tracts differentiated using our taxonomy. Native American, Other, and highly diverse tract shares are small and not shown.

We start by considering the combined sum of low and moderate diversity tracts for each group: i.e. the sum of the red and green bars. White tracts were 81.9 percent of all metropolitan tracts in 1990, falling to 75.2 percent in 2000 and 70.4 percent in 2010. The combined low and moderate diversity tract share for each of the other three major racial groups increased over the same period, but especially for Latinos, By 2010, 12.9 percent of all US metropolitan tracts were Latino, exceeding the equivalent share for black tracts (12.8 percent). Within each group, the share of low-diversity tracts is declining. For white tracts, those with low diversity accounted for just over 62 percent of all metropolitan area tracts in 1990. By 2010 they accounted for only 36 percent of them and their share of all white tracts had fallen from 76 percent in 1990 to barely above 50 percent in 2010. Thus, the overall decline in white tracts disguises a considerably more dramatic drop in the number of low-diversity white tracts.

A similar, though less striking, reversal occurred in the composition of black tracts. Low-diversity black tracts had the largest share of all black tracts in 1990. By 2010, the low diversity black share of all black tracts had declined and was surpassed by the share of black tracts that were moderately diverse. Latino and Asian tracts are different; they have been disproportionately moderately diverse throughout.

Change in the distribution of the white population across tract categories aligns with the trends in Figure 1. In 1990, 78.2 percent of whites in US metropolitan areas lived in white tracts with low diversity (Figure 2). By 2010 that share had fallen to 52.6 percent. The share of whites living in moderately diverse white tracts more than doubled over the same period from 17.6 percent to 38.9 percent. If the trend in Figure 2 continues, by 2020 about 9 in 10 whites in US metros will live in residential neighborhoods where they are the majority or plurality but will do so within a context of increasing neighborhood diversity. Note also the growth in the share of the white population living in moderately diverse Latino tracts and in high diversity tracts. The share of whites in these tracts, however, remains small.

Figure 1 conveys the impression that the decline in the number of white tracts translated into gains in tract share for all other major racial groups, especially Latinos. Tables 2 and 3 help reveal some of the neighborhood transition dynamics that underlie these aggregate distributional changes. They report the 1990–2000 and 2000–2010 transition probabilities *from* and *to* low and moderate-diversity white tracts and the other 11 tract types for all US metropolitan areas. The columns in Table 2 report the probability of a low or moderately diverse white tract transitioning to the set of categories listed in the left-hand column. The low-to-low and moderate-to-moderate transition probabilities measure each white tract type's relative stability in each decade.

In both decades, about three quarters of low diversity white tracts do not transition, a rate that declines slightly from the 1990s to the 2000s (top-row, first two columns). Most transitions from low diversity white are to moderately diverse white. Very few low diversity white tracts transition to a non-white tract type. There is more change across the decades in transitions from moderate-diversity white tracts. In the 1990–2000 period, 65 percent of moderate-diversity white tracts did not transition (second row, third column); in the 2000s this rose to 79 percent. Moderate-diversity white tracts became more stable over time,

meaning they were less likely to transition to a non-white state in the 2000s than the 1990s. In fact, they are slightly more stable than low-diversity white tracts in the 2000s. This suggests that increased racial diversity in white tracts does not destabilize them. The largest declines in transition probabilities from moderately diverse white tracts between the 1990s and 2000s were to moderate diverse black, moderately diverse Latino, and high diversity tracts. Succession from moderately diverse white tracts, aggregated across all metropolitan areas, slowed in the 2000s despite aggregate metropolitan area declines in white population share and increased diversity.

Turning next to transitions *to* white tracts, the columns in Table 3 are the transition probabilities from the categories listed in the rightmost column to low diversity white and moderate-diversity white tracts in each decade. These probabilities are a partial reporting of each category's transition probability, showing only those to each white tract type and excluding those to any of the other 11 categories. Thus the probabilities do not sum to one down the columns or across the rows within each decade. For example, in 1990–2000 the probability of transitioning from moderately diverse black to low-diversity white was 0.001, and to moderately diverse white it was 0.05. The remaining transitions not shown have a probability of 0.949.

Necessarily, the top two rows of Table 3 repeat the top two rows of Table 3. Because the focus is now on transition from the categories in the rightmost column, the probabilities in columns three and four in row 1 are swapped with those in columns one and two in row 2. Very few tracts transitioned from non-white to low diversity white tracts in either decade. There were, however, meaningful probabilities of transition into moderately diverse white, and in three cases there was a marked increase in these probabilities from the 1990s to the 2000s. Five percent of moderately diverse black tracts transitioned to moderately diverse white in the 1990s. This rose to 7.4 percent in the subsequent decade. For moderately diverse Latino tracts the probabilities of transition to moderately diverse white increased from 2.2 percent to 3.6 percent from the 1990s to the 2000s. The biggest increase was from highly diverse tracts; one percent of them transitioned to moderately diverse white in the 1990s; in the 2000s 9 percent of them did. One possible interpretation of these increases is gentrification by whites of previously non-white or high-diversity neighborhoods. At the very least, the increasing probabilities of these transitions mean that neighborhood succession, even in an era of increasing multiraciality and declining white population share, is not a one-way process from white to non-white neighborhoods.

Modeling Metropolitan Area Variation in White Neighborhood Change

The transition probabilities in Tables 2 and 3 summarize tract changes for the combined set of all US metropolitan areas. This section investigates how these probabilities vary across metropolitan areas using models that estimate the effect of selected metropolitan area covariates on metropolitan area white tract transition probabilities. The key variable of interest is metropolitan-level racial diversity, higher levels of which seem likely to generate an increase in the rate of transition from low diversity white to moderate diversity white, and from both of these white tract types to a non-white tract type. It also seems likely that greater metropolitan diversity will reduce the probability of transition from non-white to

white tracts, but the reverse could happen. It may be that the residential resorting of whites in the most diverse metros not only leads to the loss of existing white tracts but also propels new white tract formation, such as through white-led gentrification. We calculate the metropolitan-scale diversity covariate using the entropy formula in equation 1 applied to metropolitan areas as opposed to tracts (cf. Wright, Ellis, Holloway, & Wong, 2014).

The composition of diversity may also affect white neighborhood change. The buffer hypothesis holds that whites are more willing to share neighborhoods with blacks if other groups are present to "buffer" these populations (Frey & Farley, 1996; Iceland, 2004). An alternative hypothesis is that whites are more sensitive to a large presence of blacks than to other non-white groups: i.e., whites perceive a greater "group threat" from blacks than from other groups at a given group size (Blalock, 1957; Taylor, 1998). Both hypotheses suggest that the share of blacks in a metropolitan area will condition the process of white neighborhood change, with higher black percentages most likely reducing the rate of transition from white tracts. Immigration also changes the context of diversity by introducing populations with less experience of the US racial hierarchy and with fewer network contacts to the US born. Many form new residential enclaves, including in neighborhoods where whites are the largest group, rather than disperse across a city, and thus metros with a high percentage of the foreign born may see higher rates of white neighborhood transition. If true, we expect higher percentages of the foreign born to generate higher rates of transition from white to Latino and Asian tracts because most US immigrants identify with these latter two racial categories. In addition, population size may mediate the process of white neighborhood change. Specifically, large metropolitan areas may experience proportionately more white to non-white tract transitions than small ones. This could have a behavioral cause related to the classic idea that urbanism enhances tolerance by elevating contact (Stouffer, 1955). Or it could have a structural basis in that larger cities have more tracts of different types rendering the possibility of observing a transition between them greater than in smaller cities.

We measure the effects of metropolitan-area characteristics on transitions from and to white tracts using two sets of models. The first set estimates these effects on transitions from white to other tract types using two models, one for transitions from low diversity white tracts and the other from moderate-diversity white tracts; the second set parallels the two model structure of the first set but estimates the effect of metropolitan covariates on transitions to each white tract type. The dependent variable in the first set of models is the count of transitions from low or moderate-diversity white tracts in year t to each of the other potential "outcome" tract types, such as to low diversity black or moderate diversity Latino or moderate diversity white, in year t+10 (i.e. over a decade) in each metropolitan area. In the second set of models, the dependent variable is the count of transitions to low or moderate-diversity white tracts in year t + 10 from each of the other potential "source" tract types, such as from low diversity black or moderate diversity Latino or moderate diversity white, in year t in each metropolitan area.

Each metropolitan area has 13 tract types as potential outcomes of a transition from white tracts or as sources of transition to white tracts, and each of these generates a decadal tract transition count for the dependent variable in the models. For example, in the model of

transitions from moderate-diversity white tracts to other tract types there will be 13 decadal tract transition counts from each metropolitan area per decade. These will record the number of moderately diverse white tracts that transition to each of the following: low diversity white, moderate diversity white (i.e. a count of tracts that do not transition), low diversity black, moderate diversity black, low diversity Latino, moderate diversity Latino, low diversity Asian, moderate diversity Asian, low diversity Native American, moderate diversity Native American, low diversity Other, moderate diversity Other, and high diversity. This means each model has a potential N of 2 (decades) x 13 (tract types) x 276 (metropolitan areas) = 7176. In actuality, the number of observations used to estimate each model is less than 7176 because we exclude tract types for which no transition is observed in any of the 276 metropolitan areas in either decade; no estimation is possible for these unobserved white tract-transition configurations.

To specify the first set of models - the transitions from low or moderately diversity white tracts to other categories - more precisely, let $m^{i}_{j,t+10\mid w,t}$ be the number of tracts in metropolitan area i and tract category w (where w is either low diversity white or moderate diversity white) in year t that transition to category j at t+10. The count of type w tracts in metropolitan area i in year t is then:

$$M^{i}_{w,t} = \sum_{j=1}^{P} m^{i}_{j,t+10\mid w,t} \qquad (2)$$

where P is the number of tract categories including w (i.e., 13). Using these quantities, we can specify a model of the count of transitions from tracts of type w (where w is either low-diversity white or moderate-diversity white) to other tracts by metropolitan area as a count model:

$$m^{i}_{j,t+10\mid w,t} = M^{i}_{w,t} exp\left(\gamma_j D_{j,t+10} + \delta_j D_{j,t+10} Y + \beta_j D_{j,t+10} X_{i,t}\right) \qquad (3)$$

where $D_{j,t+10}$ is a factor variable representing the observed tract types that low or moderate-diversity white tracts transition to by $t + 10$, Y is a dummy variable to represent the decade in which the transition takes place (1990–2000=0, 2000–2010=1), and $X_{i,t}$ is a set of mean-centered metropolitan predictor variables measured in year t. The $X_{i,t}$ interact with the tract-type factors to measure how they condition each of the observed types of transition from white tract types.

The number of potential transitions from w to j over a 10 year period is measured by $M^{i}_{w,t}$, which enters the model as an offset. The inclusion of this term converts the model's estimates into transition probabilities. Consequently, the exponentiated γ_j are estimates of the transition probability from w (either low diversity white or moderate diversity white, depending on the model) to j (the 13 potential tract type outcomes) at mean-centered values of the metropolitan predictors, the exponentiated δ_t estimate how much these probabilities change over the two decades, and the exponentiated β_j measure how metropolitan predictor variables condition them.

The second set of models estimate the determinants of transition to white tract types at $t + 10$ from any other tract categories at t. These models are similar to those specified in equation (3) except for two quantities: the dependent variable and the offset. The dependent variable in this model is $m^i_{w,t+10\mid j,t}$, which is the number of tracts in metropolitan area i that transition from tract category j in year t to category w in year $t + 10$. The offset is the count of type j tracts in metropolitan area i n year t, defined as:

$$M^i_{j,t} = \sum_{k=1}^{P} m^i_{k,t+10\mid j,t} \quad (4)$$

It is a measure of the maximum potential number of transitions to white tracts from type j tracts (i.e. from the 13 potential tract type sources) in metropolitan area i.

The count model for transitions to a white tract type from category j is then

$$m^i_{w,t+10\mid j,t} = M^i_{j,t} exp\left(\gamma_j D_{j,t} + \delta_j D_{j,t} Y + \beta_j D_{j,t} X_{it}\right) \quad (5)$$

with all quantities other than the dependent variable and offset defined as in the model for transitions from white tracts in equation 3. The exponentiated γ_j in equation 5 are estimates of the probability of each category j transitioning to w at mean-centered values of the metropolitan variables. The exponentiated δ_t estimate whether these probabilities of transition to w change over the two decades. The exponentiated β_j measure the effect of metropolitan predictor variables on these probabilities. While the model in (equation 5) can be estimated with category w set to either low diversity white or moderate diversity white, we only report estimates of it for the latter category. Table 2 shows that transitions to low diversity white tracts are too rare to make estimates of (equation 5) for this category stable or meaningful.

We estimated all models as negative binomial regressions to allow for over dispersion in the dependent variables. Table 4 lists descriptive statistics for the metropolitan area variables predictors, X_{kt}, used in all models: (population size, entropy, percent black and percent foreign-born). The metropolitan area entropy measure is computed using the formula in equation 1 but with subscript i now referring to metropolitan areas instead of tracts. The black population is counted using the same whole-race assignment rules described in the Data and Methods section. The foreign-born population includes those born outside the US to non-citizen parents. Population size is expressed in units of one million to aid interpretation. Metropolitan diversity, measured by entropy, increases from 1990 to 2000 as measured by its metropolitan area mean, maximum and minimum. In line with this, the same is true for percent black and percent foreign-born.

Model Results

Table 5 reports exponentiated estimates of the first set of models, those measuring the determinants of transitions from low diversity white (Col. 1: LDWOut) and moderate-

diversity white tracts (Col. 2: MDWOut). In addition to mean-centering all metropolitan variables, the entropy, percent black, and percent foreign-born variables are scaled to have a standard deviation of one to ease comparisons of their effects. The LDW model has fewer estimates than the MDW model because each model is estimated using observed transition types and there are fewer of these from low-diversity white tracts than from moderate-diversity white. For example, there are observed transitions from moderate diversity white to high diversity (HD) tracts but not from low diversity white to HD. This and other unobserved transition types in the low diversity white case account for the smaller N (3240 observed transitions) in this model than in the moderate diversity white model (3992 observed transitions). We used robust standard errors clustered on metropolitan areas to calculate the significance of the estimates in all models.

The excluded category in the LDW model is low diversity white; in the MDW model it is moderate-diversity white. Thus the constant measures the probability of no transition, or persistence, in each model at mean centered values of the metropolitan variables in the 1990s: 0.753 for low diversity white and 0.707 for moderate diversity white. Because the constant measures the low diversity white effect in column 1 there is no low diversity white estimate in this model (i.e. the cell is empty); for similar reasons there is no moderate diversity white estimate in column 2

The eight category predictors after the constant are estimates of the relative shift in the probability of transition from low- and moderate-diversity white tracts to other tract types, again at mean-centered metropolitan characteristics in the 1990s. Accordingly, the product of these estimates and the constant yields estimate of transition probabilities to these categories. The probability of transition from low diversity white to moderate diversity white, for example, is 0.753 0.244 =0.184. In the moderate diversity white model, the probability of transition to moderately diverse black is 0.707 0.157 = 0.111.

The probabilities for the other effects are calculated similarly as the product of all applicable main effects and interactions. For example, the probability of a tract remaining moderate diversity white between 2000–2010 is the product of the constant in model 2 and the 2000s main effect (0.707 1.177 = 0.832). This translates into an increase in the probability of a tract remaining moderate-diversity white of 0.125 in the 2000s (0.832 – 0.707). The probability that a moderate-diversity white tract transitions to moderate-diversity black between 2000–2010 is the product of the constant, the moderate-diversity black main effect, the 2000s main effect, and the interaction between the 2000s main effect and moderate diversity black. This product equals 0.05, meaning that the probability that moderate-diversity white tracts transitioned to moderate diversity black fell by 0.061 (0.111–0.05) from the 1990s to the 2000s.

To ease interpretation of the model output, we have charted these probabilities for all variables in the LDW model (Figure 3) and the MDW model (Figure 4), restricting our computation of these displayed quantities to only include coefficients in Table 4 where $p \leq 0.05$. The top left chart in each figure shows the base probabilities computed using the constant and category main effects (blue bars); the remaining five charts show changes (red bars) in these probabilities due to the 2000 period effect, an increase in the population of one

million, a standard deviation increase in entropy, a standard deviation increase in percentage black, and a standard deviation increase in percentage foreign-born.

For transitions from low-diversity white there are small secular changes in transition probability in the 2000s (Figure 3, middle chart top-row): a slight decline in remaining low-diversity white and a small increase in becoming moderate-diversity white. Low diversity white tracts appear to be marginally more likely to remain as low diversity white in larger cities (Figure 3, upper right chart) but slightly less likely to do so as the percent foreign born increases (Figure 3, lower right chart). The percentage black has no meaningful effect on low diversity white transition probabilities (Figure 3, middle chart, bottom-row). Diversity has the most substantial effect of any metropolitan variable on low-diversity white tract transition (Figure 3, lower left chart): a one standard deviation increase in entropy reduces the probability that low-diversity white tracts remain low diversity white by 0.115 and increase the probability they transition to moderate-diversity white by 0.189. This increase more than doubles the probability of transition from low- to moderate-diversity white evaluated at metropolitan area means (as charted in the upper left).

The moderate-diversity white transition models suggest different dynamics (Figure 4). The secular changes are more dramatic (Figure 4 middle chart, top-row): moderate-diversity white tracts are more likely to persist - i.e. not transition - in the 2000 (an increase of 0.125) and their transition rate to any non-white tract category shrinks, especially to moderate diversity black tracts. Population size (Figure 4, upper right chart) has no bearing on moderate diversity white tract transitions but diversity level and composition do matter (Figure 4, bottom-row) and in a manner that is more complex than in the low diversity white case.

Moderate-diversity white tracts are more likely to remain moderate diversity white in more diverse metros (Figure 4, lower left chart): a one standard deviation increase in entropy raises the probability of moderate-diversity white tracts remaining as such over a decade by 0.04. The same entropy increase raises the transition probability of moderate-diversity white tracts to Latino (especially moderate-diversity Latino) and highly diverse tracts but reduces it substantially to moderate-diversity black tracts. The diversity composition variables suggest high percentages of blacks and/or the foreign born reverse the effect of higher diversity levels on moderate-diversity white tract persistence (Figure 4, middle and right chart, bottom-row). Thus moderate-diversity white tracts appear to be less likely to transition to non-white tracts in diverse metropolitan areas with low percentages of blacks and high fractions of the US born.

Taken together, the entropy effects for transitions from low- and moderate-diversity white tracts show that higher levels of metropolitan-scale diversity accelerate low diversity white tract transitions to a moderate-diversity white status but at the same time are associated with a strengthening of the stability of moderate-diversity white tracts. This outcome accords with Logan and Zhang’s (2010, 2011) finding that diversity increases the willingness of whites to live in mixed residential settings with non-whites. It also nuances Iceland and Sharp’s (2013) discovery of increased white segregation in diverse metropolitan areas,

showing that such segregation occurs in these places through the remaking and expansion of white neighborhoods as sites of moderate instead of low diversity.

There is a caveat, however. The positive effect of diversity on the stability of moderate-diversity white tracts is neutralized in metros with high percentages of blacks and the foreign-born. The percentage black effect could be a signal that whites are less willing to live in moderate-diversity white tracts in metros where blacks have a higher chance of being their neighbors. Figure 4, shows this unwillingness dramatically increases the rate these tracts undergo succession to moderate-diversity black tracts, which is consistent with the idea that whites react negatively to a substantial presence of blacks in their immediate residential environment. The negative foreign-born share effect on moderate-diversity white tract persistence could be the outcome of growing immigrant populations clustering together in these neighborhoods. Unlike the black percentage effect, however, such shares only modestly elevate moderate diversity white tract succession rates to tracts dominated by groups with large immigrant populations, such as Latinos and Asians. The succession dynamic for white tracts is different in high percentage foreign-born metros from those with high percentages of blacks.

We switch now to the exponentiated estimates of transitions to moderate diversity white (Table 6). As expected, the estimates of the constant and the year and metropolitan-area variable main effects are close in value to those in the MDWOut (col 2) estimates in Table 5. This is because they are measuring the same outcome - moderate diversity white tract persistence - and the small differences between them are due to the fact that they do so with different samples. As the N's indicate, the sample in Table 6 is smaller than in Table 5 (col 2) because fewer metropolitan areas have observed transitions to than from moderate diversity white. Using the same procedure used to construct Figures 3 and 4, Figure 5 charts the probabilities derived from these estimates and the changes in these probabilities due to covariates.

Unsurprisingly, the highest rate of transition to moderate-diversity white tracts is from low diversity white tracts (Figure 5, upper left chart). This panel also shows reasonably high rates of transition to moderate diversity white from moderately diverse Asian and black tracts, and at a somewhat lower rate from moderate-diversity Latino tracts. Aside from the increased persistence of moderate-diversity white tracts, the biggest change in these probabilities in the 2000–2010 decade is the increase of 0.116 in the probability of transition to moderate-diversity white from high-diversity tracts (Figure 5, middle chart top-row). This translates into a predicted increase in the high diversity to moderately diverse white transition rate of approximately 700 percent, reproducing the equivalent substantial increase found in the observed transition data (Table 3). Thus in the 2000–2010 period the model finds statistically significant white population growth in high-diversity tracts, a trend that aligns with claims that white gentrifiers are drawn to diversity. Admittedly, high-diversity tracts are rare - just 1.7 percent of all metropolitan-area tracts in 2000 were thus categorized - which means this transition rate increase only affects a small number of tracts. It does suggest, however, that high-diversity tracts are more vulnerable to whitening than other non-white tracts. It is important to note that all types of non-white tract types other than high-diversity tracts show small but statistically significant increases in their rate of their

transition to moderate diversity white in the 2000s. In the 2000s, whites appear to creating new residential spaces at a greater rate than in the previous decade and are doing so in tracts in which blacks, Latinos, and Asians had previously dominated.

Population size has minimal effect on the rate of transition to moderate-diversity white tracts (Figure 5, upper right chart). Metropolitan diversity, however, substantially boosts the transition rate from low diversity white to moderate-diversity white tracts and increases the probability that moderate-diversity white tracts remain unchanged over a decade (Figure 5, lower left chart). These results are expected because they are capture the same relationships charted using the estimates of the first set of models, albeit measured with a different sample (i.e. in Figure 3 and 4). Surprisingly, metropolitan entropy has no effect on the rate of transition from any non-white tract type to moderate-diversity white tracts. Thus metropolitan diversity appears to play no role in the formation of new white residential spaces from non-white spaces. This stands in contrast to the effect of metropolitan diversity on transitions *from* moderate-diversity white tracts. Specifically, recall that Figure 4, lower left chart, shows metropolitan-scale entropy increasing the probability of transition from moderate diversity white to moderate diversity Latino tracts, and reducing it to moderately diverse black tracts. On balance, the combined effects of the moderately diverse white models in Figure 4 and 5 suggest that higher levels of metropolitan-area diversity enhance the stability of existing moderately diverse white tracts but do not lead to their formation.

Diversity composition effects suggest large black- and foreign-born shares reduce the stability of moderate-diversity white tracts (i.e. remain as moderate diversity white over 10 years - see Figure 5, middle and right chart, bottom-row). As above, this is unsurprising because the estimates charted here are using a different sample to measure the same relationships charted in Figure 4. What is new here is the increased probability of transition from moderate- diversity Latino tracts to moderate-diversity white tracts in high black percentage metropolitan areas. One interpretation is that whites are more eager to move into – gentrify? - Latino tracts than black tracts in metropolitan areas with high black shares, a result that aligns with studies of the racial ordering of preferences of gentrifiers (Hwang, 2015b). There are minimal negative effects of increased foreign-born share on transition probabilities from non-white tracts to moderate-diversity white tracts. This result contradicts the claim that cities with high foreign-born percentages are more likely to experience gentrification (cf. Hwang, 2015a, 2015b).

Conclusions

Racial diversity is increasing and the white population share is declining in US metropolitan areas. This paper examined how these trends are affecting the number and composition of census tracts where whites are the most numerous group. White tracts are declining in numbers through neighborhood succession to growing populations of non-white groups, mostly becoming black and Latino tracts. While most white tracts in 1990 had low levels of diversity, only a little over half of white tracts fit this definition by 2010. During this period, the number of moderately diverse white tracts increased substantially even as low diversity white tracts were declining. By 2010, moderate-diversity white tracts were home to 38.9 percent of the white population in metropolitan areas, more than double the share of whites

such tracts held in 1990. Thus as white neighborhood space gradually shrinks, remaining white neighborhoods are adapting to the context of increased metropolitan-scale diversity by accommodating a greater presence of other groups (Logan & Zhang, 2011; Glaeser & Vigdor, 2012). While this is undoubtedly a positive change from the days of all-white neighborhoods, a point Glaeser and Vigdor (2012) emphasize, it does also suggest that whites can retain significant degrees of neighborhood spatial separation from other groups despite considerable diversification of their surrounding metropolitan contexts (Holloway, Wright, & Ellis, 2011).

Metropolitan area characteristics condition the pace and orientation of these transitions in several ways. Higher levels of metropolitan-level diversity accelerate the loss of low diversity white tracts, mostly through transitions to moderate-diversity white tracts. Moderate-diversity white tracts in turn are more stable – less likely to transition to another dominant group – when that metro-level diversity is high. The composition of diversity complicates this story, however. Higher shares of blacks and immigrants reduce the stability of moderately diverse white tracts, presumably because whites are less tolerant of diversity in their residential midst if it's likely to contain a higher percentage of blacks, and because immigrants, at least on arrival, tend to cluster rather than disperse residentially. A greater black share substantially increases white tract transition probabilities to black tracts, a sign of much greater white neighborhood succession when metropolitan areas have high black percentages; a larger immigrant share, by contrast, only marginally increases transition probabilities to Asian and Latino tracts.

Increasing diversity is not just driving the transformation of existing white neighborhoods but also appears to seed the formation of new white residential spaces. Our findings reveal that non-white tracts are transitioning to white-dominated tracts in a pattern that suggests white residential space attraction is greatest for the most diverse neighborhoods. But it is not just in the most diverse spaces that moderate-diversity white tracts are forming. They are also being created in tracts that were moderately diverse Asian, Latinos, or black and at higher rates in the 2000s than the 1990s. These transitions are suggestive of white-led gentrification, though more research is needed to support a definitive claim along these lines.

Thus not only are existing white neighborhoods being refashioned, new ones are being created in formerly non-white tracts and in both cases the composition has whites numerically dominant but with moderate as opposed to the low levels of diversity that prevailed in white majority neighborhoods of the past. This specific outcome aligns with the general claim that increases in metropolitan diversity are leading to the formation of new configurations of neighborhood segregation (Holloway, Wright, & Ellis, 2011; Pinto-Coelho and Zuberi, 2015). For whites, this means that while they are now much less likely to live in low-diversity white neighborhoods than two decades ago they still overwhelmingly live in neighborhoods in which they retain numerical dominance. Going forward in time, the crucial question for research will be whether this reconfiguration persists.

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References

Allen James P, & Eugene Turner. (2005). Ethnic Residential Concentrations in United States Metropolitan Areas. Geographical Review, 95 (2), 267–285.

Bader Michael, & Warkentien Siri. (2016). The Fragmented Evolution of Racial Integration since the Civil Rights Movement. Sociological Science, 3, 135–164.

Bean Frank D, & Gillian Stevens. (2003). America's Newcomers and the Dynamics of Diversity. Russell Sage Foundation.

Blalock Hubert M. (1957). Per Cent Non-White and Discrimination in the South. American Sociological Review, 22 (6), 677–682.

Bråmå Åsa. (2006). "White Flight"? The Production and Reproduction of Immigrant Concentration Areas in Swedish Cities, 1990–2000. Urban Studies, 43 (7), 1127–1146.

Catney Gemma. (2016). Exploring a decade of small area ethnic (de-)segregation in England and Wales. Urban Studies, 53 (8), 1691–1709.

Charles Camille Z. (2001). Processes of residential segregation In Urban Inequality: Evidence From Four Cities, eds. O'Connor A, Tilly C, and Bobo L, 217–271. New York: Russell Sage Foundation.

Charles Camille, Z. (2003). The Dynamics of Racial Residential Segregation. Annual Review of Sociology, 29 (1), 167–207.

Clark William A. V. (1991). Residential preferences and neighborhood racial segregation: A test of the Schelling segregation model. Demography, 28 (1), 1–19. [PubMed: 2015937]

Clark William A. V. (2002). Ethnic Preferences and Ethnic Perceptions in Multi-Ethnic Settings. Urban Geography, 23 (3), 237–256.

Crowder Kyle. (2000). The Racial Context of White Mobility: An Individual-Level Assessment of the White Flight Hypothesis. Social Science Research, 29 (2), 223–257.

Crowder Kyle, & South Scott J. (2008). Spatial Dynamics of White Flight: The Effects of Local and Extralocal Racial Conditions on Neighborhood Out-Migration. American Sociological Review, 73 (5), 792–812. [PubMed: 20221414]

Crowder K, Jeremy Pais, & South Scott J. (2012). Neighborhood Diversity, Metropolitan Constraints, and Household Migration. American Sociological Review, 77 (3), 325–353. [PubMed: 22753955]

Denton Nancy A, & Massey Douglas S. (1991). Patterns of Neighborhood Transition in a Multiethnic World: U.S. Metropolitan Areas, 1970–1980. Demography, 28 (1, 41–63. [PubMed: 2015944]

Duncan Otis D, & Beverly Duncan. (1957). The Negro population of Chicago: A study of residential succession. University of Chicago Press.

Farley Reynolds, Schuman Howard, Bianchi Suzanne, Colasanto Diane, & Hatchett Shirley. (1978). Chocolate city, vanilla suburbs: Will the trend toward racially separate communities continue? Social Science Research, 7 (4, 319–344.

Finney Nissa, & Simpson Ludi. (2009). Sleepwalking to Segregation?: Challenging Myths About Race and Migration Policy Press.

Freeman Lance. (2009). Neighbourhood Diversity, Metropolitan Segregation and Gentrification: What Are the Links in the US? Urban Studies, 46 (10, 2079–2101.

Frey William H. (1979). Central City White Flight: Racial and Nonracial Causes. American Sociological Review, 44 (3, 425–448.

Frey William H. (2011). The New Metropolitan Minority Map: Regional Shifts in Hispanics, Asians, and Blacks from Census 2010. Metropolitan Policy Program at Brookings.

Frey William H, & Reynolds Farley. (1996). Latino, Asian, and Black Segregation in U.S. Metropolitan Areas: Are Multi-ethnic Metros Different? Demography, 33 (1, 35–50. [PubMed: 8690139]

Gratton Brian, & Gutmann Myron P. (2000). Hispanics in the United States, 1850–1990: Estimates of population size and national origin. Historical Methods: A Journal of Quantitative and Interdisciplinary History, 33 (3, 137–153.

Grieco Elizabeth M, Acosta Yesenia D, de la Cruz G Patricia, Christine Gambino, Thomas Gryn, Larsen Luke J, Trevelyan Edward N, & Walters Nathan P (2012). The Foreign-Born Population in

the United States: 2010. Washington DC: US Census Bureau http://www.census.gov/content/dam/Census/library/publications/2012/acs/acs-19.pdf (last accessed 1 March 2016).

Harris David R. (1999). "Property Values Drop When Blacks Move in, Because.": Racial and Socioeconomic Determinants of Neighborhood Desirability. American Sociological Review, 64 (3, 461–479.

Holloway Steven R, Richard Wright, & Mark Ellis. (2011). The Racially Fragmented City? Neighborhood Racial Segregation and Diversity Jointly Considered. The Professional Geographer, 64 (1, 63–82.

Hwang Jackelyn. (2015a). Gentrification in Changing Cities Immigration, New Diversity, and Racial Inequality in Neighborhood Renewal. The Annals of the American Academy of Political and Social Science, 660 (1, 319–340.

Hwang Jackelyn. (2015b). Pioneers of Gentrification: Transformation in Global Neighborhoods in Urban America in the Late Twentieth Century. Demography, 53 (1, 189–213.

Hwang Jackelyn, & Sampson Robert J. (2014). Divergent Pathways of Gentrification Racial Inequality and the Social Order of Renewal in Chicago Neighborhoods. American Sociological Review, 79 (4, 726–751.

Iceland John. (2004). Beyond Black and White Metropolitan residential segregation in multi-ethnic America. Social Science Research, 33 (2, 248–271.

Iceland John, & Scopilliti Melissa. (2008). Immigrant residential segregation in U.S. metropolitan areas, 1990–2000. Demography, 45 (1, 79–94. [PubMed: 18390292]

Iceland John & Sharp Gregory. (2013). White Residential Segregation in U.S. Metropolitan Areas: Conceptual Issues, Patterns, and Trends from the U.S. Census, 1980 to 2010. Population Research and Policy Review, 32 (5, 663–686.

Johnston Ron, Poulsen Michael, & Forrest James. (2015). Increasing Diversity Within Increasing Diversity: the Changing Ethnic Composition of London's Neighbourhoods, 2001–2011. Population, Space and Place, 21 (1), 38–53.

Lee Barrett A, Wood Peter B. (1991). Is Neighborhood Racial Succession Place-Specific? Demography, 28 (1, 21–40. [PubMed: 2015943]

Lee Jennifer, & Bean Frank D. (2010). The Diversity Paradox: Immigration and the Color Line in Twenty-First Century America. Russell Sage Foundation.

Lewis Valerie A, Emerson Michael O, & Klineberg Stephen L. (2011). Who We'll Live With: Neighborhood Racial Composition Preferences of Whites, Blacks and Latinos. Social Forces, 89 (4, 1385–1407.

Logan John R, & Charles Zhang. 2010 Global Neighborhoods: New Pathways to Diversity and Separation. American Journal of Sociology, 115 (4, 1069–1109.

Logan John R, & Zhang Wenquan. (2011). Global neighborhoods: New evidence from Census 2010. http://www.s4.brown.edu/us2010/Data/Report/globalfinal2.pdf (last accessed 20 February 2016).

Logan John. R, Wenquan Zhang, & Alba Richard D. (2002). Immigrant Enclaves and Ethnic Communities in New York and Los Angeles. American Sociological Review, 67 (2, 299–322.

Manley David, Johnston Ron, Jones Kelvyn, & Owen Dewi. (2015). Macro-, Meso- and Microscale Segregation: Modeling Changing Ethnic Residential Patterns in Auckland, New Zealand, 2001–2013. Annals of the Association of American Geographers, 105 (5, 951–967.

Massey Douglas. S. (1979). Residential Segregation of Spanish Americans in United States Urbanized Areas. Demography, 16 (4, 553–563. [PubMed: 520640]

Massey Douglas. S. (1981). Dimensions of the New Immigration to the United States and the Prospects for Assimilation. Annual Review of Sociology, 7:57–85.

Massey Douglas. S. (1985). Ethnic residential segregation: A theoretical synthesis and empirical review. Sociology and Social Research, 69 (3, 315–50.

Massey Douglas. S. (Ed.). (2008). New faces in new places: The changing geography of American immigration. New York: Russell Sage Foundation.

Massey Douglas. S. & Denton Nancy A. (1987). Trends in the residential segregation of Blacks, Hispanics, and Asians: 1970–1980. American Sociological Review, 52:802–825.

Moore Kesha S. (2009). Gentrification in Black Face?: The Return of the Black Middle Class to Urban Neighborhoods. Urban Geography, 30: 118–142

Park Robert E, Burgess Ernest W, & McKenzie Roderick D. (1925). The City. Chicago: The University of Chicago Press.

Parisi Domenico, Lichter Daniel T. & Taquino Michael C.(2015). The Buffering Hypothesis: Growing Diversity and Declining Black-White Segregation in America's Cities, Suburbs, and Small Towns? Sociological Science, 2: 125–157

Pinto-Coelho Joanna M, & Tukufu Zuberi. (2015). Segregated Diversity. Sociology of Race and Ethnicity, 1 (4, 475–489.

Reibel M, Moira Regelson. (2011). Neighborhood Racial and Ethnic Change: The Time Dimension in Segregation. Urban Geography, 32 (3, 360–382.

Rosenberg Terry J, & Lake Robert W. (1976). Toward a Revised Model of Residential Segregation and Succession: Puerto Ricans in New York, 1960–1970. American Journal of Sociology, 81 (5, 1142–1150.

Schelling Thomas C. (1971). Dynamic Models of Segregation. Journal of Mathematical Sociology, 1:143–186.

Singer Audrey, Hardwick Susan W, & Brettell Caroline B. (Eds.). (2008). Twenty-First Century Gateways: Immigrant Incorporation in Suburban America. Washington DC: Brookings Institution Press.

Stouffer Samuel A. (1955). Communism, Conformity, and Civil Liberties: A Cross-section of the Nation Speaks Its Mind. New Brunswick, N.J: Transaction Publishers.

Taylor Marylee C. (1998). How White Attitudes Vary with the Racial Composition of Local Populations: Numbers Count. American Sociological Review, 63 (4, 512–535.

Vigdor Jacob L, & Glaeser Edward L. (2012). The End of the Segregated Century: Racial Separation in America's Neighborhoods, 1890–2010. Manhattan Institute, Civic Report No. 66.

Waldinger Roger. (1989). Immigration and Urban Change. Annual Review of Sociology, 15:211–232.

Wright Richard, Ellis Mark, Holloway Steven R, & Wong Sandy. (2014). Patterns of Racial Segregation and Diversity in the United States: 1990–2010. The Professional Geographer, 66(2), 173–182. [PubMed: 25083001]

Wright Richard, Ellis Mark, & Holloway Steven R. (2014). Neighbourhood racial diversity and White residential segregation in the United States In Socio-Spatial Segregation: Concepts, Processes and Outcomes, eds. Lloyd C, Shuttleworth I, and Wong D, 111–134. Polity Press.

Wright Richard, Ellis Mark & Parks Virginia. (2005). Re-Placing Whiteness in Spatial Assimilation Research. City and Community, 4 (2, 111–135.

Yu Henry. (2001). Thinking Orientals: Migration, Contact, and Exoticism in Modern America. Oxford University Press.

Zukin Sharon. (1987). Gentrification: Culture and Capital in the Urban Core. Annual Review of Sociology, 13:129–147.

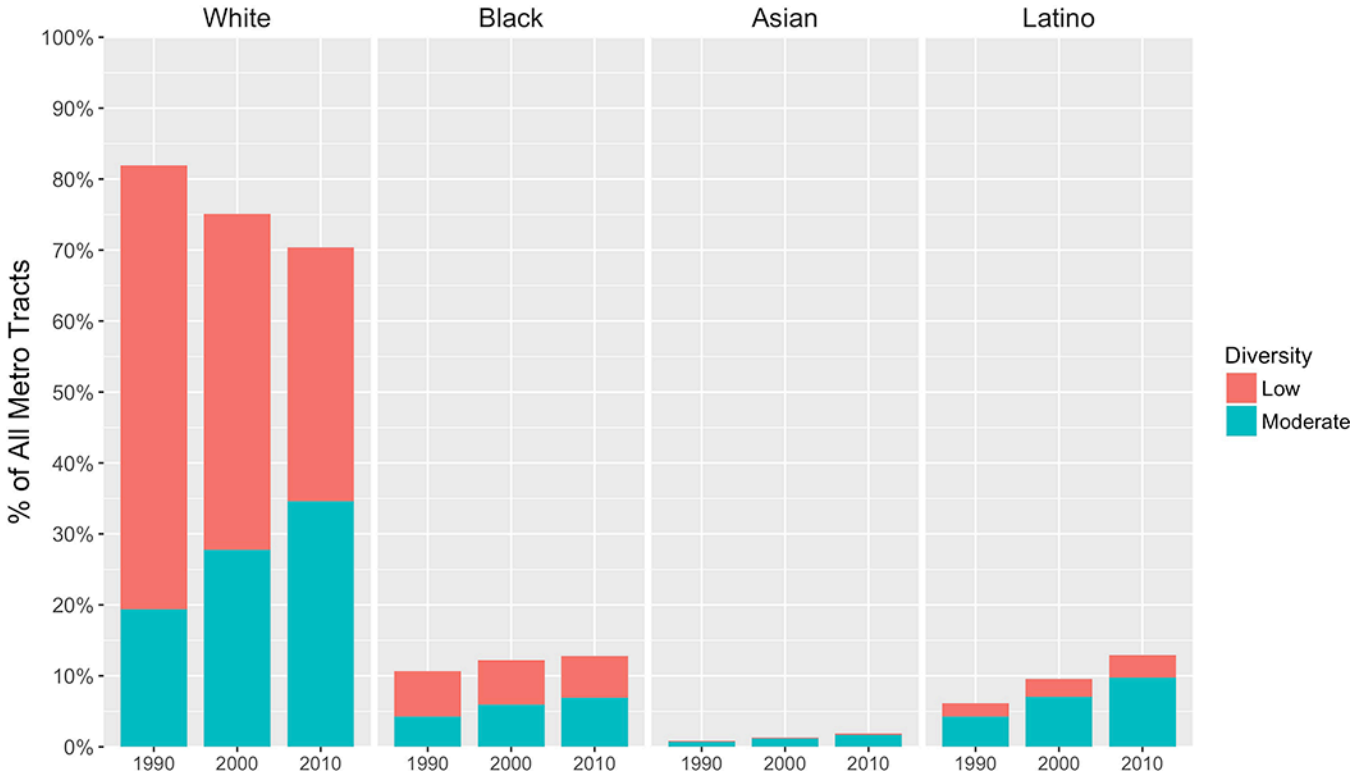

Figure 1:
Percentage of Tracts by Dominant Group and Diversity Level

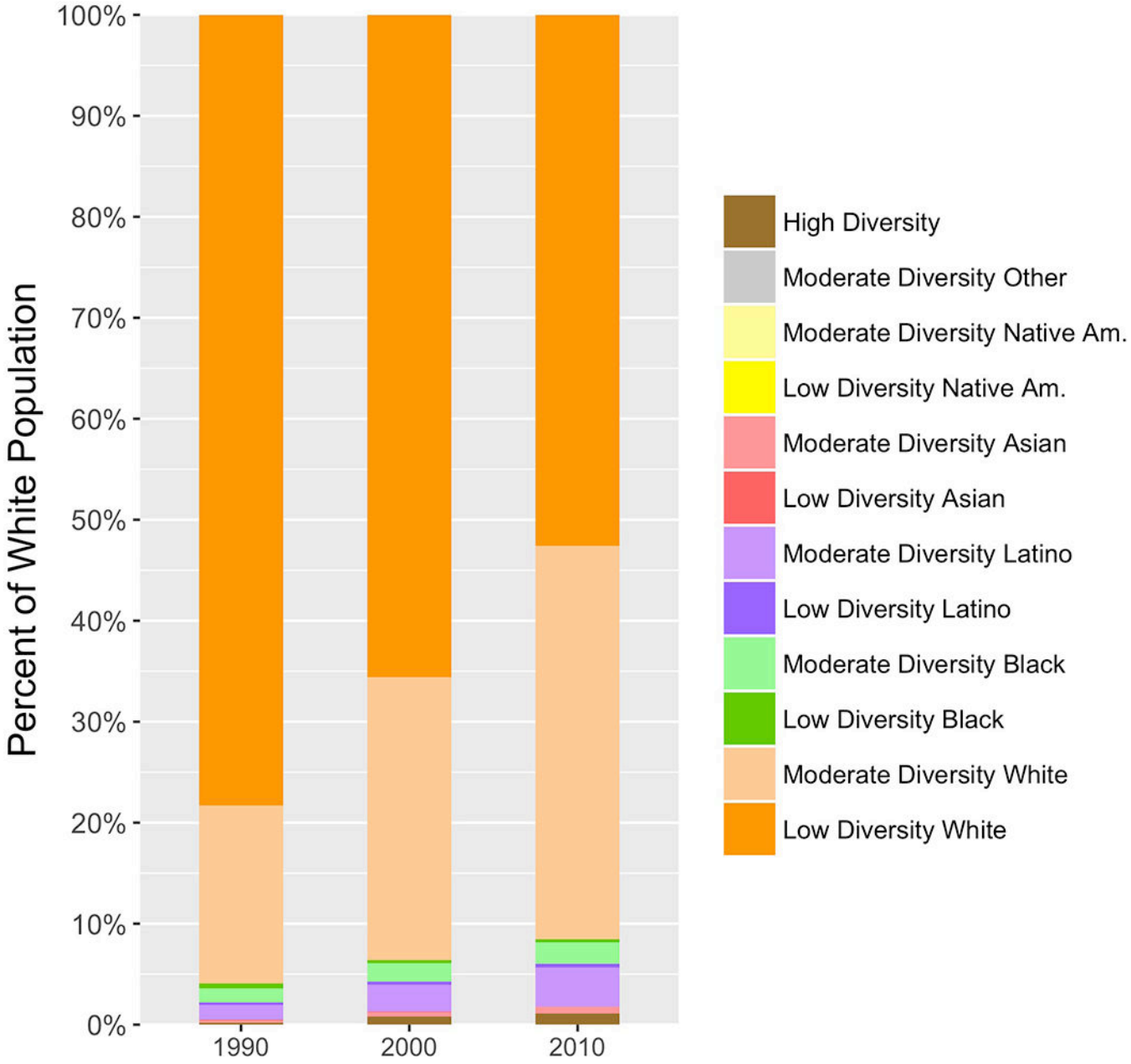

Figure 2:
Distribution of the White Population Across Tract Categories

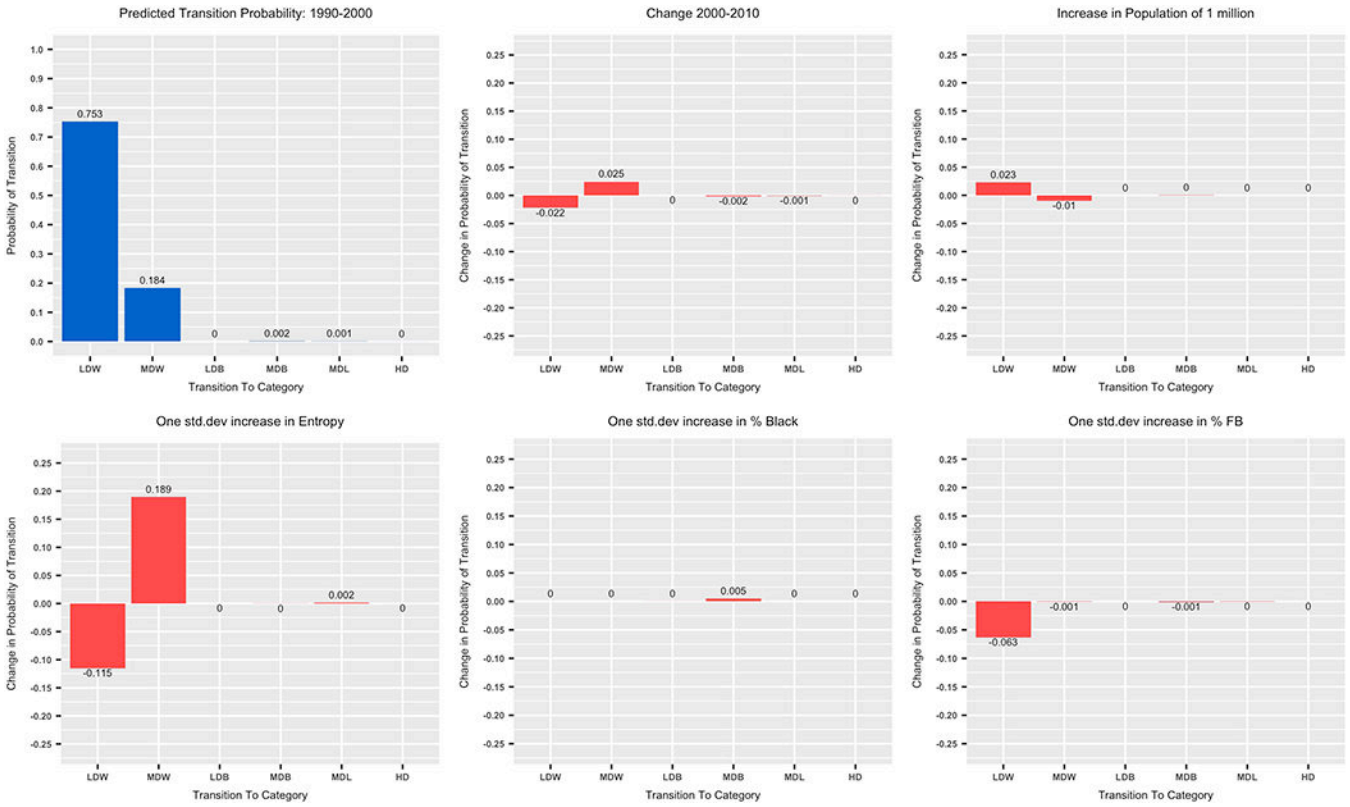

Figure 3: Predicted Probabilities of Transition from Low Diversity White Tracts.

The top left chart (blue bars) shows the predicted transition probabilities from Low Diversity White Tracts between 1990 and 2000 at mean values of the metro level variables. The other five charts (red bars) show predicted changes in these probabilities. These predicted probabilities and changes in probabilities are calculated using significant coefficients ($p \leq 0.05$) in column 1 of Table 5. See table 1 for translation of the category abbreviations on the X axis.

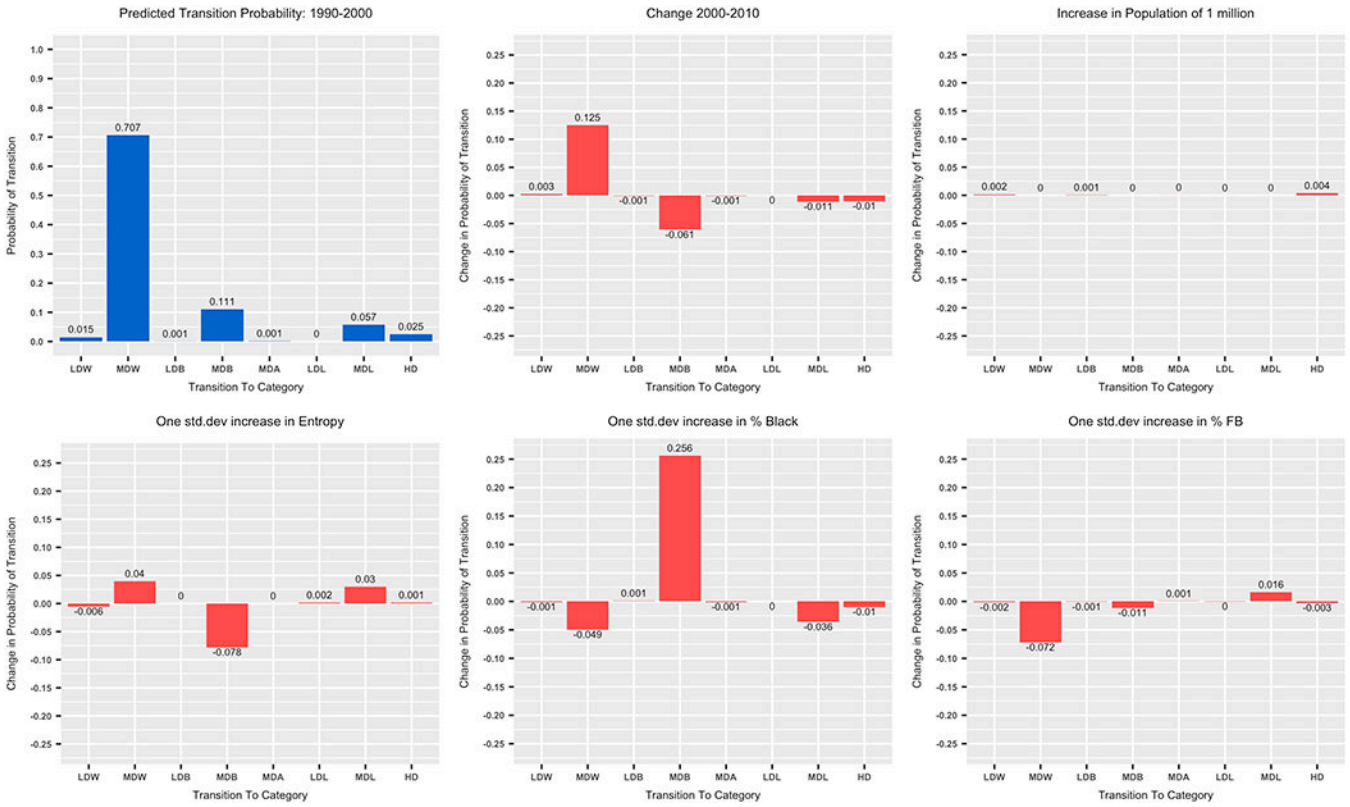

Figure 4: Predicted Probabilities of Transition from Moderate Diversity White Tracts.

The top left chart (blue bars) shows the predicted transition probabilities from Moderate Diversity White Tracts between 1990 and 2000 at mean values of the metro level variables. The other five charts (red bars) show predicted changes in these probabilities. These predicted probabilities and changes in probabilities are calculated using significant coefficients ($p \leq 0.05$) in column 2 of Table 5. See table 1 for translation of the category abbreviations on the X axis.

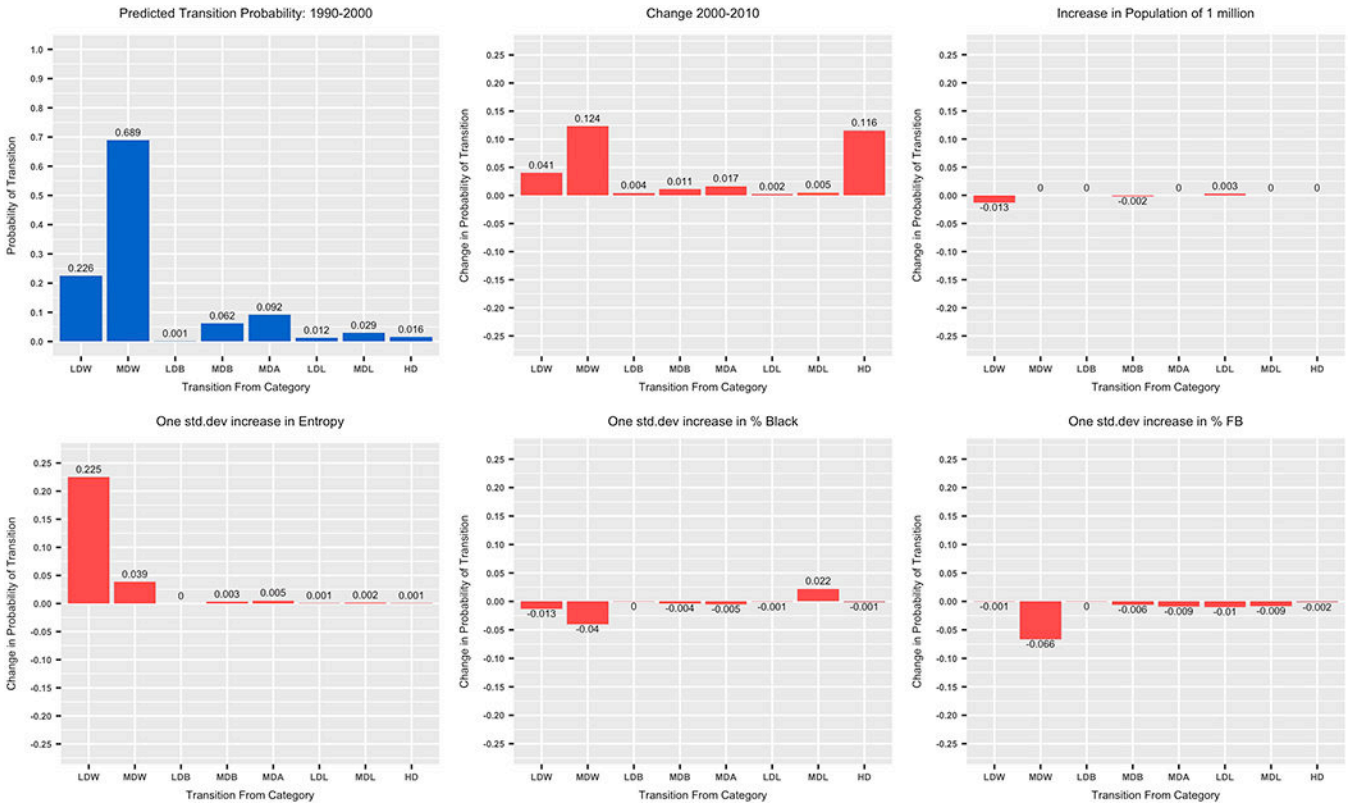

Figure 5: Predicted Probabilities of Transition to Moderate Diversity White Tracts

The top left chart (blue bars) shows the predicted transition probabilities to Moderate Diversity White Tracts between 1990 and 2000 at mean values of the metro level variables. The other five charts (red bars) show predicted changes in these probabilities. These predicted probabilities and changes in probabilities are calculated using significant coefficients ($p \leq 0.05$) in Table 6. See table 1 for translation of the category abbreviations on the X axis.

Table 1:

Mean Entropy and Group Share of Major Tract Categories in US Metro Areas, 1990–2010

Category	Year	N	Entropy	White	Black	Latino	Asian	NatAm	Other
LDW	1990	21,538	0.183	0.918	0.027	0.031	0.019	0.004	0.001
LDW	2000	15,553	0.229	0.904	0.027	0.034	0.026	0.006	0.004
LDW	2010	11,287	0.257	0.889	0.03	0.042	0.031	0.006	0.002
LDB	1990	2,697	0.163	0.051	0.917	0.026	0.004	0.002	0.001
LDB	2000	2,668	0.189	0.038	0.917	0.03	0.006	0.004	0.004
LDB	2010	2,480	0.211	0.039	0.907	0.039	0.007	0.005	0.003
LDL	1990	672	0.248	0.083	0.03	0.867	0.016	0.002	0.002
LDL	2000	932	0.256	0.069	0.031	0.877	0.017	0.003	0.003
LDL	2010	1,175	0.249	0.059	0.034	0.882	0.02	0.003	0.002
LDA	1990	9	0.272	0.087	0.021	0.031	0.861	0	0
LDA	2000	12	0.293	0.07	0.02	0.045	0.86	0.002	0.003
LDA	2010	31	0.324	0.074	0.012	0.078	0.832	0.002	0.002
MDW	1990	7,846	0.506	0.646	0.127	0.15	0.068	0.007	0.002
MDW	2000	10,901	0.54	0.644	0.115	0.143	0.079	0.01	0.01
MDW	2010	13,202	0.546	0.635	0.112	0.151	0.089	0.009	0.004
MDB	1990	1,735	0.503	0.241	0.591	0.135	0.027	0.004	0.002
MDB	2000	2,329	0.538	0.218	0.597	0.137	0.031	0.007	0.01
MDB	2010	2,702	0.547	0.204	0.592	0.156	0.035	0.007	0.005
MDL	1990	1,815	0.539	0.227	0.123	0.575	0.067	0.005	0.003
MDL	2000	3,053	0.567	0.212	0.122	0.58	0.068	0.007	0.01
MDL	2010	4,216	0.569	0.208	0.129	0.579	0.073	0.007	0.005
MDA	1990	240	0.628	0.251	0.075	0.184	0.484	0.003	0.002
MDA	2000	481	0.619	0.227	0.05	0.184	0.523	0.005	0.011
MDA	2010	746	0.601	0.22	0.048	0.186	0.537	0.004	0.005
HD	1990	190	0.768	0.283	0.226	0.265	0.201	0.014	0.011
HD	2000	816	0.786	0.299	0.209	0.255	0.194	0.013	0.031
HD	2010	906	0.774	0.29	0.224	0.254	0.202	0.012	0.017

Notes: LDW:Low Diversity White; MDW:Moderate Diversity White; LDB: Low Diversity Black; MDB:Moderate Diversity Black; LDA: Low Diversity Asian; MDA: Moderate Diversity Asian;

LDNA: Low Diversity Native American; MDNA: Moderate Diversity Native American; LDO: Low Diversity Other; MDO: Moderate Diversity Other; LDL: Low Diversity Latino; MDL: Moderate Diversity Latino; HD: High Diversity.

Table 2:

Transition Probabilities from Low Diversity White and Moderate Diversity White Tracts, all US Metro Areas

Transition to:	From LDW: 1990–2000	From LDW: 2000–2010	From MDW: 1990–2000	From MDW: 2000–2010
LDW	0.754	0.748	0.012	0.013
MDW	0.238	0.25	0.649	0.787
LDB	0.0002	0.00004	0.004	0.0005
MDB	0.006	0.001	0.095	0.054
LDA	0	0	0	0
MDA	0.00003	0	0.025	0.016
LDNA	0	0	0	0.0001
MDNA	0.00003	0	0.0001	0
LDO	0	0	0	0
MDO	0	0	0	0
LDL	0	0	0.002	0.0001
MDL	0.002	0.0003	0.149	0.101
HD	0.001	0.0001	0.065	0.029

Notes: See Table 1 for translation of the category acronyms

Table 3:

Transition Probabilities to Low Diversity White and Moderate Diversity White Tracts, all US Metro Areas

Transition from:	To LDW: 1990–2000	To LDW: 2000–2010	To MDW: 1990–2000	To MDW: 2000–2010
LDW	0.754	0.748	0.238	0.25
MDW	0.012	0.013	0.649	0.787
LDB	0	0.0003	0.001	0.006
MDB	0.001	0.001	0.05	0.074
LDA	0	0	0	0
MDA	0	0	0.017	0.01
LDNA	0	0	0.038	0.04
MDNA	0	0	0.111	0
LDO	0	0	0	0
MDO	0	0	0	0
LDL	0	0	0.002	0.003
MDL	0.0005	0.001	0.022	0.036
HD	0	0	0.01	0.089

Notes: See Table 1 for translation of the category acronym

Table 4:

Summary Statistics for Metropolitan Variables

Statistic	N	Mean	St. Dev.	Min	Max
1990: Population (1,000,000s)	276	0.73	1.78	0.06	19.78
2000: Population (1,000,000s)	276	0.82	1.96	0.06	21.1
1990: Entropy	276	0.3	0.14	0.05	0.65
2000: Entropy	276	0.38	0.14	0.09	0.71
1990: Percent Black	276	10.24	10.52	0.03	45.5
2000: Percent Black	276	11.17	11.1	0.17	51.01
1990: Percent Foreign-Born	276	4.4	5.1	0.39	33.6
2000: Percent Foreign-Born	276	6.28	6.37	0.85	40.2

Table 5:

Metro Area Determinants of the Probability of Transition from White Tracts

	(1) LDWOut	(2) MDWOut
Constant	0.753***	0.707***
LDW		0.021***
LDB	0.000***	0.001***
MDW	0.244***	
LDL		0.000***
MDB	0.003***	0.157***
MDA		0.002***
MDL	0.001***	0.081***
HD	0.000***	0.035***
2000	0.971***	1.177***
Metro_Pop(1m)	1.031***	1.001
Metro_Entropy	0.847***	1.056***
Metro_Percent_Black	0.974	0.930***
Metro_Percent_FB	0.916***	0.898***
LDW:2000		0.958
LDB:2000	0.202	0.086***
MDW:2000	1.168***	
LDL:2000		0.048***
MDB:2000	0.217***	0.383***
MDA:2000		0.495**
MDL:2000	0.164***	0.686***
HD:2000	0.150**	0.502***
LDW:Metro_Pop(1m)		1.121***
LDB:Metro_Pop(1m)	1.159	1.704**
MDW:Metro_Pop(1m)	0.918***	
LDL:Metro_Pop(1m)		1.260**
MDB:Metro_Pop(1m)	1.212***	1.081*
MDA:Metro_Pop(1m)		1.124***
MDL:Metro_Pop(1m)	0.966	1.001
HD:Metro_Pop(1m)	1.092*	1.148***
LDW:Metro_Entropy		0.582***
LDB:Metro_Entropy	0.459	1.148
MDW:Metro_Entropy	2.399***	

	(1) LDWOut	(2) MDWOut
LDL:Metro_Entropy		13.056***
MDB:Metro_Entropy	0.824	0.277***
MDA:Metro_Entropy		1.752*
MDL:Metro_Entropy	2.979**	1.441***
HD:Metro_Entropy	1.196	1.14
LDW:Metro_Percent_Black		1.286
LDB:Metro_Percent_Black	12.047***	2.776***
MDW:Metro_Percent_Black	1.02	
LDL:Metro_Percent_Black		1.16
MDB:Metro_Percent_Black	3.636***	3.562***
MDA:Metro_Percent_Black		0.333**
MDL:Metro_Percent_Black	0.932	0.401***
HD:Metro_Percent_Black	1.23	0.642**
LDW:Metro_Percent_FB		0.8
LDB:Metro_Percent_FB	0.746	0.046**
MDW:Metro_Percent_FB	1.087**	
LDL:Metro_Percent_FB		0.182***
MDB:Metro_Percent_FB	0.454**	1.393
MDA:Metro_Percent_FB		1.573***
MDL:Metro_Percent_FB	1.087	1.428***
HD:Metro_Percent_FB	1.142	1.126
N	3240	3992
Deg. of Freedom	3204	3944
Resid., Deviance	1760.14	2343.93

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Notes: These are the exponentiated estimates from the model in equation 3. See table 1 for translation of the category abbreviations. A : separating two variable names indicates an interaction effect. LDW is the excluded category in the LDW model, and MDW is the excluded category in the MDW model. Thus, these categories and interactions with them are missing from their respective models. In addition, each model excludes categories for which there are 0 transitions from LDW (MDW) in either the 1990s or 2000s. This is a different set of exclusions for LDW than MDW (e.g. there are no transitions from LDW to LDL or MDA, but there are from MDW). The significance levels of estimates were calculated using robust standard errors clustered on metropolitan areas.

Table 6:

Metro Area Determinants of the Probability of Transition to White Tracts

	MDWIn
Constant	0.689***
LDW	0.328***
LDB	0.002***
LDL	0.018***
MDB	0.090***
MDA	0.133***
MDL	0.042***
HD	0.023***
2000	1.180***
Metro_Pop(1m)	1.001
Metro_Entropy	1.056***
Metro_Percent_Black	0.942***
Metro_Percent_FB	0.904***
LDW:2000	0.956
LDB:2000	3.955**
LDL:2000	1.577
MDB:2000	1.164
MDA:2000	0.554
MDL:2000	1.329
HD:2000	6.926***
LDW:Metro_Pop(1m)	0.944***
LDB:Metro_Pop(1m)	1.058
LDL:Metro_Pop(1m)	1.217***
MDB:Metro_Pop(1m)	0.975**
MDA:Metro_Pop(1m)	1.036
MDL:Metro_Pop(1m)	1.019
HD:Metro_Pop(1m)	1.069*
LDW:Metro_Entropy	1.890***
LDB:Metro_Entropy	0.326
LDL:Metro_Entropy	0.65
MDB:Metro_Entropy	0.906
MDA:Metro_Entropy	0.667
MDL:Metro_Entropy	1.175
HD:Metro_Entropy	0.937
LDW:Metro_Percent_Black	1.067*
LDB:Metro_Percent_Black	1.574

	MDWIn
LDL:Metro_Percent_Black	3.648
MDB:Metro_Percent_Black	1.125
MDA:Metro_Percent_Black	1.859
MDL:Metro_Percent_Black	1.873**
HD:Metro_Percent_Black	0.896
LDW:Metro_Percent_FB	1.104**
LDB:Metro_Percent_FB	1.097
LDL:Metro_Percent_FB	0.220***
MDB:Metro_Percent_FB	0.937
MDA:Metro_Percent_FB	0.589
MDL:Metro_Percent_FB	0.782**
HD:Metro_Percent_FB	0.642
N	1533
Deg. of Freedom	1509
Resid., Deviance	959.15

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Notes: These are the exponentiated estimates from the model in equation 5. See table 1 for translation of the category abbreviations. A : separating two variable names indicates an interaction. MDW is the excluded category. Thus, this category and interactions with it are missing from the model. In addition, the model excludes categories for which there are 0 transitions to MDW in either the 1990s or 2000s. The significance levels of estimates were calculated using robust standard errors clustered on metropolitan areas.