The Role of SES in Shaping the Residential Patterns of Whites in U.S. Metropolitan Areas

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Prepared for presentation at the 2012 annual meeting of the Population Association of America
San Francisco, CA
May 2-5, 2012

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Abstract

Research examining the contribution of racial and ethnic differences in socioeconomic (SES) levels to minority-white segregation has concluded that while class matters, it cannot fully account for the persistently high levels of segregation. In light of increasing racial and ethnic diversity, a racialized foreclosure crisis, and deep economic recession, class arguments remain salient in contemporary discussions of residential segregation. Using data from Census 2000 and the 2006-2010 American Community Survey, we offer new evidence on the role of SES (income, education, poverty) in shaping the residential segregation of whites from blacks, Hispanics, and Asians. We find that white dissimilarity by SES is highest from blacks, but slightly declining, while whites are increasingly segregated from Hispanics and Asians of all SES groups. Cross-sectional and change multivariate models indicate that, consistent with spatial assimilation processes, high-SES whites are more integrated with minority groups as their SES increases, but in line with the place stratification model, SES matters more for the residential integration of Hispanics and Asians than for blacks.

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Introduction

A longstanding research tradition has been devoted to documenting and understanding decades of racial and ethnic residential segregation in metropolitan America (Frey and Farley 1996; Iceland 2009; Iceland et al. 2010; Logan, Stults, and Farley 2004; Massey and Denton 1993). This literature is rich in its explorations of the causes of minority segregation from whites, including racial prejudice and discrimination (Massey and Denton 1993; Turner and Ross 2005), racial residential preferences (Charles 2005; Krysan et al. 2009), and residential sorting along class lines (Adelman 2004; Alba, Logan, and Stults 2000; Clark and Ware 1997; Darden and Kamel 2000; Denton and Massey 1988; Fischer 2003; Iceland and Wilkes 2006; Iceland, Sharpe, and Steinmetz 2005; Massey and Fischer 1999; St. John and Clymer 2000). The latter explanation—racial and ethnic differences in socioeconomic (SES) levels—has received considerable scholarly attention, but results from these studies have concluded that while class matters for all minority groups, it cannot fully account for the persistently high levels of black-white segregation in particular.

In light of increasing diversity fueled by immigration, a racialized foreclosure crisis (Rugh and Massey 2010), and deep economic recession, class arguments remain salient in contemporary discussions of multi-ethnic residential segregation. If socioeconomic disparities among and/or between racial groups, for instance, have widened since 2000, this may be reflective of greater spatial distance between non-Hispanic whites and minorities, and especially high-SES whites from low-SES minorities. Indeed, prior work has suggested that compared to African Americans, income and education seem to matter more for the residential integration of

Hispanics and Asians (Fischer 2003; Iceland and Wilkes 2006; Logan et al. 2004). Whether or not minority groups are experiencing successful spatial outcomes requires an examination of their segregation from whites of multiple SES strata, and particularly from affluent whites. To the extent that advantaged whites inhabit neighborhoods with non-whites of comparable socioeconomic levels is therefore indicative of the residential opportunity structure across the broader urban landscape (Dwyer 2010; Massey 1996).

In this paper, we provide new evidence on the role of SES in shaping the residential patterns of whites in U.S. metropolitan areas. Our analysis is guided by the following four research questions. First, are there differences in the levels and changes in the class segregation of non-Hispanic whites from blacks, Hispanics, and Asians? Second, do these segregation levels from minority groups vary by SES for non-Hispanic whites? Third, are minority groups more integrated with high-SES whites as their SES improves? And finally, have higher SES whites become more segregated from lower SES minorities in the last decade?

To address these questions we use data from the 2000 decennial census and the 2006-2010 American Community Survey (ACS) to assess the importance of SES in determining white residential segregation in metropolitan America. Specifically, we compute segregation measures via the dissimilarity index exploring multiple socioeconomic indicators (income, poverty, education) for whites and minority groups of varying SES groups (Iceland and Wilkes 2006). We are especially concerned with the residential patterns of more educated, affluent whites in comparison to minority groups of similar SES, which will provide insight into the extent that blacks, Hispanics, and Asians are able to translate their socioeconomic mobility into more racially integrated neighborhoods. We also employ race-specific multivariate models to examine

the relationship between minority SES and the segregation of high-SES whites after controlling for a number of metropolitan area characteristics germane to the segregation literature.

The present study adds to our understanding of socioeconomic status and racial/ethnic residential segregation in at least three ways. First, while prior studies have largely compared the residential patterns of minorities to an aggregate count of whites or to whites of the same SES group (Adelman 2004; Alba et al. 2000; Clark and Ware 1997; Darden and Kamel 2000; Iceland and Wilkes 2006), we examine the segregation of non-Hispanic whites demarcated by multiple SES categories, with special attention on those who are more educated and affluent. Theoretically, this approach is advantageous in that it allows for a more thorough and direct test of the spatial assimilation model. Second, we use the most recently released census data from the 2006-2010 ACS for a large number of metropolitan areas to investigate whether the influence of class on white segregation has changed in the past decade. Lastly, we employ a multivariate framework to gauge the explanatory power of assimilation and stratification theories as applied to the residential integration of blacks, Hispanics, and Asians with higher SES whites, while controlling for several metropolitan characteristics.

Background and Theory

Over the years, debates surrounding the precise antecedents of racial residential segregation have yet to be settled. Although research has documented an increasing—albeit slowly—propensity for whites and blacks to live together, blacks continue to be segregated at very high levels across urban areas (Iceland, Sharp, and Timberlake forthcoming; Logan et al. 2004; Timberlake and Iceland 2007). This consistent finding has led many to conclude that the relative influence of social and economic variables on shaping the residential outcomes for blacks is minimal compared to broader stratification forces such as racial prejudice and discrimination in the

housing market (Charles 2003; Massey and Denton 1993; Massey and Fischer 1999). Hispanics and Asians, however, have been shown to be more successful in converting their socioeconomic gains into less segregated, higher-quality neighborhoods (Clark and Ware 1997; Denton and Massey 1988; Fischer 2003; Iceland and Wilkes 2006; Massey and Fischer 1999; Rosenbaum and Friedman 2007). Yet, despite black-white declines, the segregation of whites from Hispanics and Asians has changed little or even increased by some measures (Sharp et al. 2010). The influence of SES on white-minority segregation may be changing and thus requires a closer examination.

The idea that differences in socioeconomic factors explain racial and ethnic residential segregation is best understood from the *spatial assimilation* perspective. This model posits that more affluent and well-educated households are simply able to live in better neighborhoods often located in suburban white communities with superior amenities (Alba and Logan 1993; Massey 1985). Other economic market forces, such as job locations play a role in maintaining SES inequalities that separate whites from minorities (Clark 1986; Wilson 1987). In addition to socioeconomic mobility, acculturation is a vital component to the spatial mobility when immigrant groups are considered (Iceland 2009; Rosenbaum and Friedman 2007). This provides some reasoning as to why segregation may be higher in some immigrant gateways because tight ethnic communities provide important economic and emotional resources for recent immigrants that help ease the adaptation process (Alba and Nee 2003; Clark and Blue 2004).

The *place stratification* model, by contrast, highlights the role of racial prejudice and discrimination by real estate agents, mortgage lenders, and local governments that relegate minorities to segregated neighborhoods (Rosenbaum and Friedman 2007; Rugh and Massey 2010; Turner and Ross 2005). Race trumps other factors, such as class, if minority groups are

unable to convert their human capital resources into better-quality racially integrated neighborhoods. Accordingly, the level of residential integration is reflective of a social hierarchy that places non-Hispanic whites at the top and African Americans at the bottom, which in part explains the incongruence between blacks' locational returns and their socioeconomic gains (Alba and Logan 1991; Charles 2003).

The place stratification model has largely been upheld in a literature devoted to understanding how the residential preferences of whites *and* blacks serve to maintain high levels of white-minority segregation (Charles 2006; Krysan and Bader 2007). Despite recent evidence indicating more liberalized attitudes of whites regarding the residential integration of racial minorities, considerable debate still exists over whites' willingness to share neighborhoods with a sizable black or immigrant presence (Charles 2006; Krysan and Bader 2007). For instance, whites often stereotype neighborhoods based on race by associating negative qualities with black residents, such as high crime, poor schools, and declining property values (Charles 2006; Ellen 2000). Whites have also been shown to have low tolerances for residing with both Hispanics and Asians (Clark 2009). At the same time, strong own-group preferences sustain segregation through blacks' desire to live in neighborhoods that are at least half-black, mainly because of fear of white hostility and discrimination (Adelman 2005; Krysan and Bader 2007), or immigrants who prefer to live among other co-ethnics (Clark and Blue 2004). Overall, whites tend to show greater preference to live with more own group members than other groups (Charles 2006). As will be noted further, though, the spatial assimilation and place stratification models are not entirely contrary to each other, but rather these both emphasize different mechanisms through which residential segregation is maintained.

Research investigating the relationship between SES and residential segregation has been abundant, but due to varying methodological approaches, such as different segregation measures and samples of metropolitan areas, the conclusions have been mixed. While much of the literature has found that SES has significantly contributed to the persistently high levels of black-white segregation, factors related to race (i.e., prejudice, discrimination) seem to play a more prominent role (Darden and Kamel 2000; Denton and Massey 1988; Farley 1995; Iceland et al. 2005; Massey and Fischer 1999). Some studies, for instance, showed that while middle-class blacks tended to be more integrated with whites than poorer blacks, the communities in which they reside were less affluent and more exposed to crime than their middle-class white counterparts (Adelman 2004; Alba et al. 2000). Iceland and others (2005) also reported little difference in the segregation of whites and blacks of the same SES, but they did find that high SES blacks were more integrated with all whites compared to their low SES counterparts.

When analyses expanded beyond whites and blacks to those including Hispanics and Asians, researchers not only found blacks of all SES levels to be highly segregated from whites, but they also noted that, compared to blacks, Hispanics and Asians were much more integrated with whites as their SES increased (Denton and Massey 1988; Iceland and Wilkes 2006; Massey and Fischer 1999). Iceland and Wilkes (2006), for instance, found that while racial and ethnic segregation was higher than class segregation when blacks were considered, socioeconomic differences played a larger role for Hispanics and Asians. The authors (2006) further reported, however, that the effect of SES on black-white segregation increased during the 1990s, thus signaling a potential increase in the spatial assimilation of urban blacks. In another study employing a decomposition of the entropy index, Fischer (2003) showed that from 1970 to 2000

the relative importance of income in determining residential patterns increased substantially, but at the same time poor blacks in particular were the most segregated minority group.

Other studies have touted SES as being crucial to our understanding of the residential patterns of whites and minorities. For example, Clark and his associates (Clark 2007; Clark and Blue 2004; Clark and Ware 1997) have concluded that not only are income and education the critical variables in determining the residential integration of racial and ethnic minorities with whites, but that these have been the dominant patterns witnessed across U.S. metropolitan areas since 1970. However, their results varied by the location of urban areas; specifically, the returns to socioeconomic advancement for minorities were much greater in the highly diverse Western region (Clark and Blue 2004; Clark and Ware 1997). Consistent with the spatial assimilation theme in Clark's research, his recent study on black suburbanization indicated that increases in human capital (income, education, homeownership) were associated with a greater propensity to live in suburban communities that were more integrated with whites (Clark 2007). It is noteworthy, however, that when compared with Hispanics and Asians, the translation of socioeconomic mobility to spatial mobility is still less likely for blacks (Clark and Ware 1997; Clark and Blue 2004).

As seen in a number of the aforementioned studies, there appears to be support for both spatial assimilation and place stratification models, and this contention frequently depends on the methodological approach employed. In an innovative study of residential inequality over the 1970-2000 timeframe, Timberlake and Iceland (2007) computed several segregation measures and tested theories within a linear growth curve framework, and indeed discovered a nuanced picture of race and class in determining residential segregation. Specifically, they found that both blacks and Hispanics are experiencing increased spatial assimilation as a result of their rising

incomes relative whites, however, the declining levels of black residential inequality are converging with those of Hispanics (Timberlake and Iceland 2007). The authors (2007) caution that historical assimilation trends experienced by Hispanics may in fact be reversing, particularly given the growing number of high-poverty barrios in urban areas with rising white-Hispanic segregation (Jargowsky 2005). Another recent study by Reardon and Bischoff (2011) used fixed-effects models to detect a significant and robust relationship between the level of a metropolitan area's income inequality and residential segregation by income. More precisely, rising income inequality accounted for up to 80% of the changes in income segregation over the 1970 to 2000 period (Reardon and Bischoff 2011). Massey and colleagues (2009) also documented the rising importance of SES segregation during this timeframe, using multiple indexes for both income and education.

In summary, the literature suggests that while the role of race may have declined in recent decades, particularly for blacks, socioeconomic differences in American society have both increased and become more salient in explaining residential patterns. These trends suggest that a re-evaluation of the roles of race and class in shaping patterns of white segregation from other groups is warranted.

Data and Methods

The data in this analysis are drawn from the 2000 decennial census and the 2006-2010 American Community Survey. Because the ACS is a smaller survey than the decennial census, five years of summary file data are needed to produce estimates of the composition of all neighborhoods in the U.S. We present segregation indexes averaged across all metropolitan areas because they approximate the housing and labor markets in which racial and ethnic groups reside and work. To ensure comparability over the two time points, we use constant 2009 metropolitan area

boundaries, as defined by the Office of Management and Budget. By these definitions, our sample consists of 366 metropolitan areas in the U.S.—each with a population of at least 50,000 people. We restrict our analysis to only those metropolitan areas with at least 10,000 members of the minority reference group in question because segregation indexes are less reliable when computed with relatively small minority populations.[1] The geographic unit of analysis used to measure neighborhoods is the census tract. Census tracts generally have a population between 2,500 and 8,000, and are by far the unit most used in research on residential segregation (e.g., Logan et al. 2004; Massey and Denton 1993).

To measure residential segregation we use the dissimilarity index (*D*). A measure of evenness, dissimilarity captures the differential distribution of the subject population vis-à-vis a reference group across neighborhoods in a metropolitan area. Dissimilarity is computed as:

$$D = \frac{1}{2}\left(\sum_{i=1}^{n}\left|x_i/X - y_i/Y\right|\right),$$

where n is the number of tracts in a metropolitan area, x_i is the population of the white SES group of interest in tract i, X is the total metropolitan population of the white SES group of interest, y_i is the population of the minority reference group in tract i, and Y is the total metropolitan population of the minority reference group. The index ranges from 0 (complete integration) to 1 (complete segregation), and indicates the percentage of a group's population that would have to change residence (and be replaced by the other group) for each neighborhood to have the same percentage of that group as the total metropolitan area. By convention, indexes less than .30 indicate low segregation levels, scores within .30 and .60 are moderate, and those over .60 indicate a high level of segregation (Massey and Denton 1993).[2]

This study is principally concerned with the residential patterns of non-Hispanic whites of varying SES levels. Our reference groups used in all segregation calculations are broader

panethnic categories of black, Hispanic, and Asian. While there is slight overlap in panethnic groups (e.g., black Hispanics are in both blacks and Hispanics), our segregation indexes are pair-wise comparisons in which these will always be mutually exclusive. We examine three indicators of socioeconomic status: income, education, and poverty. Income and education have been the most commonly evaluated markers of class in segregation studies tat intersect race and SES (e.g., Clark and Ware 1997; Darden and Kamel 2000; Fischer 2003; Iceland and Wilkes 2006; Iceland et al. 2005; St. John and Clymer 2000). We split income groups into four categories, represented by approximate household income quartiles in 2000 and 2006-2010 (Iceland and Wilkes 2006).[3] Educational attainment is grouped into four categories: less than high school, high school graduate, some college, and college graduate. We also include poverty, which is simply categorized by the population who are poor and those who are not (Fischer 2003; Iceland and Wilkes 2006). These SES groups are crosstabulated with each racial and ethnic group to be used as inputs into our segregation indexes.[4]

Our analysis begins with a descriptive account of the residential patterns of whites and minority groups by SES over the last decade. Specifically, we calculate and present mean dissimilarity indexes for whites and minorities at all SES levels. This approach is unique in that it puts the SES of whites at the forefront and examines multiple white-minority SES comparisons, while past studies have used either all whites or whites of the same SES as the reference group (Clark and Ware 1997; Iceland and Wilkes 2006; Massey and Fischer 1999). While we highlight the segregation of affluent whites in this analysis, this type of multi-SES comparative view also provides a more thorough look into white segregation, such as by examining the segregation of low-status whites from high-status minorities. With whites as our group of interest, we weight segregation scores by the size of the metropolitan white population

of the socioeconomic group being examined, so that smaller metropolitan areas are not counted too heavily in our overall indexes (Iceland and Wilkes 2006; Iceland et al. 2005).

To assess differences across metropolitan areas in the relative contribution of SES to white segregation levels, we employ race-specific generalized linear regression models for 2006-2010. From this strategy, the dependent variable is the segregation index of the highest SES white group from each SES minority group, where each comparison is captured by dummy variables. Take white-black income segregation as an example; in each metropolitan area there are dissimilarity scores for affluent whites with each of the four income quartiles for blacks, resulting in 4 scores. In this fashion, we can directly test the basic tenets of spatial assimilation and if supported, we should witness a significant and linear reduction in white segregation as minority household income increases. Because the same metropolitan areas are included several times in the model, we violate the assumption of non-independence and therefore produce robust standard errors that account for the correlated error structure.

Our regression models also control for several metropolitan area characteristics that have been shown to influence residential segregation (Iceland and Wilkes 2006; Logan et al. 2004). Our metropolitan controls include: the minority group's proportion of the population, proportion of the minority group that is foreign-born, minority group population growth, white-to-minority income ratio, white and minority group educational compositions, white and minority group poverty rates, proportion of minority group households female-headed, logged population size, average household income (in 1000s), occupational composition, proportion of the population aged 65 and over, proportion of the population under 18, proportion of housing built since 2000, and binary indicators for the four census regions.

In addition, we execute change regression models where the dependent variable is the absolute change in affluent white segregation from 2000 to 2010, controlling for changes in metropolitan characteristics over the decade. This type of analysis allows us to gauge the extent to which changes in high-SES white segregation has been more or less severe for particular racial and ethnic minorities, and whether the residential integration of higher-status minorities with high-status whites has significantly increased since 2000. This sort of detailed descriptive and analytical accounting of white-minority segregation patterns by class will provide additional insight into the relative applicability of the spatial assimilation and place stratification models, and if there have been recent changes in the predictive power of these perspectives.

Results

Table 1 presents the distribution of the U.S. metropolitan population by SES and race/ethnicity for 2000 and 2006-2010. There are, unsurprisingly, several striking class differences across racial and ethnic groups. First, blacks and Hispanics are substantially more likely to be in the lowest socioeconomic categories by every indicator compared to non-Hispanic whites and Asians. For example, the share of black households in the lowest income quartile in 2006-2010 (35.4%) is roughly twice as high as the percentage of whites (18.7%) and Asians (17.7%). There is a stark contrast in the level of affluence (quartile 4) as well; compared to black and Hispanic households, the affluent shares of Asians and whites are three times and twice as high, respectively. Blacks and Hispanics also have much higher rates of poverty and much less education than whites and Asians. Since 2000, there have been minimal changes in the income and poverty distributions of all racial and ethnic groups. However, metropolitan America has decidedly become more educated, as evidenced by significant declines in the percentage of the population without a high school education, coupled with substantial increases in the percentage

of college degrees. One should be cautiously optimistic, though, considering that currently half of all Asians hold at least a bachelor's degree compared to only 18.9 percent of blacks and 13.4 percent of Hispanics. These figures highlight the how SES delineates the advantaged (whites and Asians) and the disadvantaged (blacks and Hispanics), and these disparities may therefore be indicative of levels of residential separation between whites and minority groups.

[Table 1 about here]

To evaluate segregation patterns by household income, we present white dissimilarity indexes from minority reference groups for 2006-2010 and the percentage change over the last decade in Table 2. From the multiple racial and SES comparisons we glean four key findings. First, consistent with decades of research, whites are most segregated from blacks, and this is largely seen for all income group comparisons. For example, the dissimilarity index for affluent whites (quartile 4) is .704 for blacks, .596 for Hispanics, and .497 for Asians—a finding in line with the place stratification thesis for blacks in particular. Compared to all minorities, whites average segregation increases as they become more affluent, with the exception of Asians where the levels remained steady. This is in line with results from prior work that minority segregation from *all* whites *declined* with higher minority income (Clark and Ware 1997; Iceland and Wilkes 2006; Iceland et al. 2005). A second important finding is that when we focus on affluent whites, minorities of higher income are more integrated, suggesting that (to some degree) all minority groups are converting their monetary gains into ostensibly better neighborhoods, which is consistent with a spatial assimilation prediction.

[Table 2 about here]

Third, income seems to matter more for Asians, and to a lesser extent Hispanics, than for black households. Our multiple comparisons flesh out this finding: first, the difference between

affluent white and the poorest (quartile 1) minority group is .139 (.805 – .667) for blacks, while it is .204 and .226 for Hispanics and Asians, respectively. Additionally, when affluent minorities are considered, the difference in segregation between affluent whites and poor whites is only .030 (.697 – .667) for blacks, but it is .092 and .166 for Hispanics and Asians, respectively. Again, this evidence suggests stratification processes are operating for white-black segregation, and assimilation patterns for Asians and Hispanics. A final takeaway from Table 2 concerns changes in white-minority income dissimilarity since 2000. White-black segregation has generally declined across white income groups when the reference group is all blacks, but when various black income groups are compared, segregation has slightly increased over the decade for three of the four quartiles. Interestingly, lower-income whites have gotten more segregated from affluent blacks, which would perhaps suggest increasing integration between high-income whites and blacks, yet affluent white-affluent black dissimilarity also increased (3.5%) during the 2000s. What is more remarkable is the extent to which non-Hispanic whites are becoming increasingly segregated from Hispanics and Asians of all income groups. On average, the magnitude of the changes in white segregation from Asians is higher than it is from Hispanics, while affluent whites experienced greater increases in segregation from their affluent Asian (9.7%) and Hispanic (7.5%) counterparts than from lower income reference groups. Similar to the patterns of affluent blacks, whites of lower and middle income groups have become more segregated from affluent Hispanics and Asians. Descriptively, it is difficult to decipher the drivers for these diverging patterns, but will be explored later in our multivariate models.

Table 3 supplements the segregation by income results with an examination of white segregation by poverty status. We find that nonpoor whites are more segregated from all blacks and Hispanics, but less segregated from Asians than are poor whites. In general, whites are very

highly segregated from poor minorities compared to nonpoor minorities. For example, dissimilarity among poor whites is highest when poor Asians are the reference group (.712), while the index for poor blacks is .669 and .607 for poor Hispanics. These indexes are much higher when nonpoor whites are the group of interest versus poor minorities—roughly .70 or greater. Nonpoor whites are substantially more integrated with the nonpoor of all minority groups, but in line with the income results we find that this reduction in segregation is more pronounced for Hispanics and Asians than it is for blacks. This difference in dissimilarity is only .142 (.759 – .617) for blacks, but .215 and .279 for Hispanics and Asians, respectively. In addition to the high level of dissimilarity between nonpoor whites and nonpoor blacks, poor whites are more residentially integrated with nonpoor blacks than are nonpoor whites (.585 vs. .617). Nonpoor Hispanics are equally segregated from both poor and nonpoor whites, while nonpoor Asians are much less segregated from nonpoor whites than poor whites. While the poor white segregation from blacks by poverty status was relatively stable in the 2000s, it rose between Hispanics, and even more so for Asians. Since 2000, nonpoor white segregation from nonpoor blacks slightly declined, while it increased between poor Hispanics, as well as poor and nonpoor Asians. Given that poverty status is a function of income, we again find that on average these SES indicators appear to have a significant influence on the residential segregation of whites and Asians, less so for Hispanics, and is more limited when considering blacks.

[Table 3 about here]

Table 4 presents dissimilarity indexes for our final socioeconomic indicator—educational attainment. In large part, the residential patterns of whites and minorities based on education mirror those of household income. When examining all blacks and Hispanics, college-educated whites have much higher dissimilarity than whites of lower educational attainment. For Asians as

a whole, integration increases with white educational attainment in a linear fashion. On average, higher-status whites (at least some college) are more segregated from blacks of all education levels than from Hispanics and Asians, who are comparably segregated from whites at each education level. However, indicative of spatial assimilation, college-educated white segregation declines at each increasing level of minority educational attainment. Similar to our income findings, education appears to play a more prominent role in the residential outcomes of whites vis-à-vis Hispanics and Asians than for blacks. Focusing on college-educated whites, for instance, the difference in the dissimilarity of blacks without a high school diploma and those with a college degree is .181 (.787 – .606), compared to .277 for Hispanics and .248 for Asians. Likewise, when college-educated blacks are considered, there is only a .030 difference (.636 – .606) in the index for whites with less than a high school diploma and those with a college degree. This difference, by contrast, is substantial for college-educated Hispanics (.119) and Asians (.188). Changes in white segregation by educational attainment in the 2000s are similar to the patterns already presented for changes in income and poverty status. Generally, there have been little to no changes in white-black segregation of all education levels, while whites are increasingly living apart from Hispanics and Asians at every pair-wise education index. On one hand, these trends seem to reflect spatial assimilation processes for Hispanics and Asians in that the increasing educational attainment of these groups is being converted into residentially integrated areas with higher-status whites. On the other hand, increasing white segregation from these groups since 2000 may have alternative implications, and whether or not these patterns possibly entail processes of stratification (i.e., white-Hispanic) or self-segregation (i.e., white-Asian) is less clear.

[Table 4 about here]

Thus far, our descriptive account of white-minority segregation by socioeconomic status suggests that SES indeed plays an integral part in shaping the residential patterns of whites, and that all racial groups are experiencing integration consistent with the spatial assimilation model. Blacks, however, appear to be especially disadvantaged compared to Hispanics and Asians, in line with the place stratification thesis. To better assess the predictive power of these theoretical explanations, we present 2006-2010 generalized linear regression models of high-SES white segregation for each minority reference group in Table 5. Recall our strategy of entering each level of the SES reference group as a dummy variable such that we are testing, for example, whether the dissimilarity of affluent whites significantly declines as minority incomes increase. While all models include the previously listed metropolitan-level controls, we only present coefficients for the relevant SES variables because we are not concerned with the metro area *effects* as much as the SES coefficients once metropolitan characteristics are *controlled*.[5]

[Table 5 about here]

Beginning with white segregation by income, we see that for all minority households there is a significant and linear association between increasing minority income with less segregation from affluent whites. For example, the segregation of affluent whites from affluent blacks is .107 lower than that of blacks in the less than $25,000 category, controlling for other factors. Yet, income has an even stronger influence on residing in neighborhoods with affluent whites for Hispanics and Asians. More specifically, affluent white segregation from affluent Hispanics is .133 lower than that for the lowest income Hispanics, and this relationship is .204 lower for affluent Asians than the lowest income Asians. When considering poverty status, nonpoor minorities are substantially more integrated with nonpoor whites than are poor minorities, net of controls. However, this effect is significantly stronger for Asians (β = -.288)

than it is for Hispanics (β = -.202) and for blacks (β = -.148). Turning to the education models, again we witness significantly lower dissimilarity scores for college-educated whites with increasing minority education, holding other variables constant. Gains in education for Asians and Hispanics are also converted into greater integration with college-educated whites compared to highly educated blacks. To summarize, the results from Table 5 show that minority SES is influential in shaping the residential patterns of high-SES whites, which is consistent with the spatial assimilation model. These socioeconomic advances, while important for all minority groups, are not equally observed for all minorities—blacks are uniquely disadvantaged compared to Hispanics and Asians in the magnitude of their segregation declines, supporting the place stratification model.

[Table 6 about here]

In Table 6, we present race-specific models for the absolute change in high-SES white dissimilarity between 2000 and 2006-2010. The income segregation coefficients indicate that, on average, affluent white-affluent black segregation increased by .035 points more than the lowest income blacks, controlling for metropolitan characteristics. Affluent white segregation from affluent Hispanics and Asians also significantly increased over the period relative to the lowest income Hispanics and Asians (.020). Indeed, as reported in the descriptive Table 2, segregation between affluent whites and all minorities from the highest income group increased compared to the lowest income group. Nonpoor white dissimilarity from nonpoor minorities either declined more than (or increased less than) dissimilarity from poor minorities. For instance, nonpoor white-nonpoor black segregation, on average, declined by .024 points more than nonpoor white segregation from poor blacks, net of other factors. This finding is suggestive of the growing income inequality and increase in the salience of class over time in the U.S. The association is

similar when Hispanics and Asians are considered, but the negative coefficients for these groups indicate that, for example, nonpoor white-nonpoor Asian dissimilarity increased .017 points less than it did for poor Asians, because segregation increased for all white-Asian SES comparisons (see Table 3). As for changes in white-minority segregation by education, the results are mixed. During the 2000s, average changes in the segregation of college-educated whites from college-educated blacks were not discernable from changes in segregation from blacks without a high school diploma, holding metro changes and other factors constant. Increases in the segregation of college-educated whites from college-educated Hispanics were higher than they were for Hispanics who did not graduate from high school, buts these same increases for Asians were less for the college-educated than they were for the low-educated. In total, results from these change models suggest that high-SES white segregation witnessed larger increases from all affluent minority groups than their low-income counterparts, experienced relatively less segregation from nonpoor minorities, while education segregation changes were inconsistent across racial and ethnic groups.

Conclusion

The goal of this paper was to provide new evidence on the role of SES in shaping the residential patterns of whites in U.S. metropolitan areas over the last decade. To assess this relationship, we used data from Census 2000 and the most recent American Community Survey (2006-2010) to compute segregation indexes for multiple white-minority SES comparisons. Additionally, we conducted multivariate analyses highlighting the segregation patterns of high-SES whites minorities of varying SES to test the explanatory power of spatial assimilation and place stratification models. Our analyses point to several conclusions, which come with varying degrees of optimism for the current state of white-minority integration.

First, SES plays a vital part in shaping white-minority segregation patterns in urban America. We find that high-SES white are more integrated with blacks, Hispanics, and Asians of higher SES (i.e., affluent, nonpoor, college-educated), which supports the basic tenets of spatial assimilation theory. Blacks, however, not only continue to be the most segregated racial minority, but they are not able to cash in their socioeconomic gains with more integrated neighborhoods at the same rate that Hispanics and Asians can. This finding is consistent with much of the prior work concluding that the effect of SES is limited for blacks compared to Hispanics and Asians. As was illustrated in Table 2, compared with affluent blacks, affluent whites were just slightly more integrated than were whites from the lowest income group. Our cross-sectional regression analyses (Table 5) buttress this finding in demonstrating that upper-SES do indeed experience residential patterns that point to spatial assimilation, but even after controlling for an extensive set of metropolitan-level variables, blacks benefit less from their improved status than do Hispanic and Asians, lending credence to place stratification.

The finding that white segregation from Hispanics and Asians is increasing across all SES categories raises cause for concern. While recent data on white-minority segregation has documented the growing segregation of Hispanics and Asians, to the extent that these patterns are to the detriment or benefit of these groups is rather unclear. For example, segregation between affluent whites and affluent Asians increased by 10 percent since 2000, and up to 20 percent for other middle-income comparisons. Hispanics are experiencing increases in white segregation that are comparable or just slightly less than Asians. Given the much higher household incomes for Asians than all other groups, we may be witnessing more self-segregative behavior due to residential preferences for co-ethnics (Clark and Blue 2004), or whether these patterns are being shaped by the residential mobility decisions of natives in spite of continuing

immigration (Crowder, Hall, and Tolnay 2011). Rising class segregation between whites and Hispanics may be operating under alternative conditions. More specifically, despite their impressive gains along all SES indicators, Hispanics may be increasingly disadvantaged and racialized similar to blacks, especially with rising concentrations of high-poverty barrios in metropolitan America (Jargowsky 2005; Logan 2011). Ultimately, changes in the importance of race and class in determining residential segregation suggests that different forms of spatial processes of assimilation and stratification may be emerging.

A more complete understanding of the evolving patterns of segregation between whites and minority groups is needed, particularly on the heels of a foreclosure crisis that hit minorities and low-income groups especially hard. Indeed, housing policies in the 1990s facilitated the transition to homeownership for many traditionally disadvantaged groups, thus urban areas with high rates of foreclosure may find these households slipping back to renting in racially isolated neighborhoods. The recent ACS data, however, do not completely capture the full time period of the housing crisis, and thus future research is needed to assess these changes. The research herein has provided empirical support for the importance of SES in the segregation patterns of whites and minorities. While socioeconomic improvements seem to matter more for Hispanics and Asians than for blacks, new forms of residential stratification may be undermining the traditional assimilation arguments used to explain Hispanic patterns.

Notes

1. Random factors and geocoding errors are more influential in determining the settlement patterns of racial and ethnic groups when fewer members are present, causing these indexes to contain greater volatility (Iceland et al. 2002). We use a 10,000 member threshold to allow adequate sample coverage for the multiple categories of each SES variable by race/ethnicity.
2. Other studies of SES and segregation have used the exposure index to measure segregation (e.g., Clark and Ware 1997; Iceland et al. 2005). In this analysis, we calculated interaction indexes to gauge the level of contact between white SES groups and minorities of varying SES, but we choose to focus on the dissimilarity results for two reasons. First, exposure indexes are sensitive to the relative size of the group population whereby contact is higher when reference groups are higher (Iceland and Wilkes 2006). While contact is important, we are more concerned with how *evenly* whites and minorities are distributed across neighborhoods by SES. Another reason for our omission of exposure is to keep our analysis succinct and parsimonious, given the already numerous white-minority by SES comparisons presented in the text.
3. Our household income quartiles are as follows: 2006-2010: 1 = Less than $25,000; 2 = $25,000-49,999; 3 = $50,000-99,999; 4 = $100,000 and over; 2000: 1 = Less than $20,000; 2 = $20,000-44,999; 3 = $45,000-74,999; 4 = $75,000 and over. These income breaks are also remarkably comparable over time, as indicated when adjusting the 2000 to 2010 dollars.
4. It should be noted that our population universe changes across socioeconomic status variables. Segregation scores for educational attainment are limited to those individuals aged 25 and over, income scores only include households and omit those in group quarters, while poverty indexes are specific to those in the poverty universe—which omits people in

institutions, military group quarters, college dormitories, as well as unrelated individuals under 15 years old.

5. When warranted, we point out significant differences in coefficients across minority group regression models using a statistical test based on the work of Clogg, Petkova, and Haritou (1995) and Paternoster et al. (1998).

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Table 1. Distribution of the Metropolitan Area Population by Race and Socioeconomic Status, 2000 and 2006-2010

	Whites		Blacks		Hispanics		Asians	
SES Indicator	2000	2006-2010	2000	2006-2010	2000	2006-2010	2000	2006-2010
HH Income Quartile[a]								
Quartile 1	17.3	18.7	33.9	35.4	27.4	28.3	18.4	17.7
Quartile 2	28.9	22.6	32.6	27.3	35.6	29.5	24.0	18.1
Quartile 3	26.0	32.6	20.1	25.9	22.3	29.2	24.2	30.5
Quartile 4	27.7	26.2	13.4	11.4	14.6	13.0	33.4	33.6
Poverty Status								
Poor	7.2	8.6	23.7	24.1	22.2	21.9	12.4	11.1
Nonpoor	92.8	91.4	76.3	75.9	77.8	78.1	87.6	88.9
Educational Attainment								
Less than high school	13.0	8.8	26.0	17.8	47.5	38.1	19.5	14.1
High school graduate	28.3	27.7	29.2	31.7	21.9	26.7	16.0	16.3
Some college	29.0	29.4	29.5	31.7	20.0	21.8	20.9	19.5
Bachelor's degree or higher	29.7	34.0	15.2	18.9	10.6	13.4	43.7	50.0
N of Metropolitan Areas	365	365	216	227	188	230	91	118

Notes: Numbers are in percent. Metro areas restricted to those with at least 10,000 group population. [a] Income quartiles: 2006-2010: 1 = Less than $25,000; 2 = $25,000-49,999; 3 = $50,000-99,999; 4 = $100,000 and over; 2000: 1 = Less than $20,000; 2 = $20,000-44,999; 3 = $45,000-74,999; 4 = $75,000 and over.

Table 2. Mean White Dissimilarity from Minority Reference Groups for Income Quartiles, 2000-2010[a]

	2006-2010				Percent Change 2000-2010			
Minority Reference Group	Quartile 1	Quartile 2	Quartile 3	Quartile 4	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Black								
Total	.573	.588	.622	.704	-2.0	-2.6	-3.9	-2.0
Quartile 1	.651	.686	.732	.805	0.0	-1.0	-1.6	-0.2
Quartile 2	.628	.642	.681	.764	4.3	3.3	1.3	1.8
Quartile 3	.620	.615	.632	.710	3.0	2.8	0.5	0.8
Quartile 4	.697	.676	.654	.667	11.0	11.0	7.8	3.5
Hispanic								
Total	.456	.457	.492	.596	4.0	3.1	-0.2	1.0
Quartile 1	.582	.611	.660	.745	5.8	4.0	1.8	2.0
Quartile 2	.558	.563	.602	.698	12.8	11.2	7.0	5.6
Quartile 3	.535	.518	.528	.618	7.2	7.4	4.2	3.3
Quartile 4	.633	.604	.563	.541	17.8	19.7	16.2	7.5
Asian								
Total	.520	.501	.487	.497	6.3	8.0	4.4	2.3
Quartile 1	.682	.698	.713	.738	10.6	9.8	6.6	4.1
Quartile 2	.658	.651	.652	.682	18.8	19.9	15.6	10.8
Quartile 3	.614	.589	.567	.579	6.6	8.8	6.7	3.9
Quartile 4	.678	.646	.597	.512	9.7	13.2	12.8	9.7

Notes: [a] Income quartiles: 2006-2010: 1 = Less than $25,000; 2 = $25,000-49,999; 3 = $50,000-99,999; 4 = $100,000 and over; 2000: 1 = Less than $20,000; 2 = $20,000-44,999; 3 = $45,000-74,999; 4 = $75,000 and over. Segregation indexes calculated for only those metro areas with at least 10,000 of minority reference group in question.

Table 3. Mean White Dissimilarity from Minority Reference Groups for Poverty Status, 2000-2010

	2006-2010		Percent Change 2000-2010	
Minority Reference Group	Poor	Nonpoor	Poor	Nonpoor
Black				
Total	.582	.633	-0.6	-3.6
Poor	.669	.759	1.4	-0.3
Nonpoor	.585	.617	0.8	-3.4
Hispanic				
Total	.472	.503	6.6	-0.8
Poor	.607	.693	7.0	1.8
Nonpoor	.473	.478	8.6	-0.1
Asian				
Total	.547	.477	10.4	5.0
Poor	.712	.755	12.3	7.5
Nonpoor	.562	.475	10.7	6.7

Note: Segregation indexes calculated for only those metro areas with at least 10,000 of minority reference group in question.

Table 4. Mean White Dissimilarity from Minority Reference Groups for Educational Attainment, 2000-2010

	2006-2010				Percent Change 2000-2010			
Minority Reference Group	Less than high school	High school graduate	Some college	Bachelor's or higher	Less than high school	High school graduate	Some college	Bachelor's or higher
Black								
Total	.594	.610	.604	.663	-2.3	-4.0	-4.3	-3.8
Less than high school	.683	.725	.739	.787	1.2	0.5	0.8	0.4
High school graduate	.638	.666	.674	.735	0.7	-0.5	-0.7	-0.8
Some college	.614	.625	.618	.680	0.2	-1.2	-0.9	-0.9
Bachelor's degree or higher	.636	.619	.589	.606	2.5	1.1	2.2	1.2
Hispanic								
Total	.476	.479	.476	.561	4.1	-0.4	-1.1	-0.9
Less than high school	.600	.633	.644	.724	5.8	2.9	2.1	1.9
High school graduate	.531	.542	.547	.640	10.4	7.1	6.7	4.3
Some college	.506	.491	.470	.554	11.3	8.1	9.1	6.2
Bachelor's degree or higher	.565	.522	.466	.446	8.9	6.1	8.8	7.5
Asian								
Total	.576	.533	.480	.461	8.7	6.0	6.8	3.2
Less than high school	.704	.697	.680	.707	13.2	11.3	11.4	7.4
High school graduate	.665	.646	.622	.647	13.3	12.4	13.8	10.2
Some college	.638	.603	.563	.576	12.4	11.0	13.4	10.7
Bachelor's degree or higher	.647	.595	.529	.459	7.3	6.1	8.4	7.9

Note: Segregation indexes calculated for only those metro areas with at least 10,000 of minority reference group in question.

Table 5. Generalized Linear Regression Models of High-SES White Dissimilarity from Minority Reference Groups for SES Indicators, 2006-2010

	Blacks			Hispanics			Asians		
SES Reference Group	Income	Poverty	Education	Income	Poverty	Education	Income	Poverty	Education
ncome Quartile (Ref=Less than $25k)									
$25,000-$49,999	-.047 ***			-.046 ***			-.056 ***		
	(.003)			(.003)			(.004)		
$50,000-$99,999	-.100 ***			-.118 ***			-.153 ***		
	(.004)			(.004)			(.005)		
$100,000 or more	-.107 ***			-.133 ***			-.204 ***		
	(.007)			(.008)			(.007)		
Poverty Status (Ref=Poor)									
Nonpoor		-.148 ***			-.202 ***			-.288 ***	
		(.004)			(.005)			(.006)	
Education (Ref=Less than high school)									
High school graduate			-.062 ***			-.087 ***			-.053 ***
			(.003)			(.003)			(.004)
Some college			-.120 ***			-.160 ***			-.123 ***
			(.004)			(.004)			(.005)
Bachelor's degree or higher			-.177 ***			-.220 ***			-.232 ***
			(.005)			(.007)			(.006)
Constant	-.799 **	-.855 **	-.887 ***	.425 *	.519 *	.546 **	-.213	.620 *	.214
	(.248)	(.304)	(.268)	(.214)	(.212)	(.203)	(.392)	(.269)	(.410)
QIC	981.84	495.77	1010.70	979.24	489.19	985.77	545.21	252.38	568.28
N of Metropolitan Areas	225	225	227	230	230	230	117	117	118

* p < .05; ** p < .01; *** p < .001

Notes: Dependent variable is the high-SES category for whites: HH income $100,000 or more, nonpoor, and bachelor's degree or higher. Standard errors in parentheses. Models include the following metropolitan-level covariates: proportion population minority group, proportion minority group foreign-born, minority group population growth, white-to-minority income ratio, white and minority group education composition, white and minority group poverty rate, proportion minority group female-headed households, logged population size, average household income (1000s), occupational composition, proportion population 55 and over, proportion population under 18, proportion housing built since 2000, and region.

Table 6. Generalized Linear Regression Models for the Absolute Change in High-SES White Dissimilarity from Minority Reference Groups for SES Indicators, 2000-2010

	Blacks			Hispanics			Asians		
SES Reference Group	Income	Poverty	Education	Income	Poverty	Education	Income	Poverty	Education
Income Quartile (Ref=Quartile 1)[a]									
Quartile 2	.012 ***			.014 ***			.047 ***		
	(.003)			(.004)			(.006)		
Quartile 3	.004			.000			-.011		
	(.004)			(.004)			(.006)		
Quartile 4	.035 ***			.020 ***			.020 ***		
	(.005)			(.005)			(.006)		
Poverty Status (Ref=Poor)									
Nonpoor		-.024 ***			-.018 ***			-.017 ***	
		(.003)			(.004)			(.005)	
Education (Ref=Less than high school)									
High school graduate			-.012 ***			.001			.006
			(.003)			(.004)			(.005)
Some college			-.010 **			.016 ***			.007
			(.004)			(.004)			(.006)
Bachelor's degree or higher			.003			.012 *			-.017 ***
			(.004)			(.005)			(.005)
Constant	.058 *	.031	.069 **	-.052	-.081 **	-.054 *	.018	.009	.054
	(.023)	(.019)	(.023)	(.028)	(.029)	(.026)	(.052)	(.034)	(.037)
QIC	897.71	460.44	919.60	795.57	404.66	802.89	412.73	200.13	408.04
N of Metropolitan Areas	212	212	215	188	188	188	91	91	91

* p < .05; ** p < .01; *** p < .001

Notes: Dependent variable is the high-SES category for whites: HH income quartile 4, nonpoor, and bachelor's degree or higher. Standard errors in parentheses. [a] Income quartiles: 2006-2010: 1 = Less than $25,000; 2 = $25,000-49,999; 3 = $50,000-99,999; 4 = $100,000 and over; 2000: 1 = Less than $20,000; 2 = $20,000-44,999; 3 = $45,000-74,999; 4 = $75,000 and over. Models include the following metropolitan-level covariates: change in proportion population minority group, change in proportion minority group foreign-born, minority group-to-white population growth, change in white-to-minority income ratio, change in white and minority group education composition, change in white and minority group poverty rate, change in proportion minority group female-headed households, population growth (1000s), change in average household income (1000s), change in occupational composition, change in proportion population 65 and over, change in proportion population under 18, proportion housing built since 2000, and region.