Racial/Ethnic Inequality in Neighborhood Socioeconomic Status in the 2000s*

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Abstract

In this paper we investigate change in the socioeconomic status (SES) of American neighborhoods during the 2000s. Using data from the 2000 U.S. census and the 2008/2012 American Community Surveys, we develop a measure of change in neighborhood SES by averaging absolute scores on five tract-level variables at each time point and taking the relative difference between the two scales. We then apply hierarchical linear modeling techniques to estimate the contributions of tract- and metropolitan area-level factors to change in neighborhood SES during this period. We focus on the racial/ethnic composition of neighborhoods in 2000 and change in neighborhood SES, hypothesizing that neighborhoods with higher percentages of minority residents in 2000 experienced negative or less positive change in neighborhood SES by 2008/2012 relative to neighborhoods dominated by whites. We further hypothesize that a key mediating variable in understanding these differences is the disproportionate concentration of housing foreclosures in minority neighborhoods. At the tract level, findings indicate that neighborhood change during the 2000s was sensitive to the percentage of blacks and Asians in the neighborhood and that foreclosures had the expected negative effect on neighborhood change. At the metropolitan area level, we find that larger metro areas and those in the Northeast and West exhibited more positive average change in neighborhood SES than those in the Midwest and South.

Neighborhood social context has occupied the more or less unwavering attention of urban sociologists and demographers for nearly a century. Indeed, a major wing of American sociology was built on the foundation of the early- and mid-Chicago School scholars who examined various aspects of neighborhood social context (Park 1915; Zorbaugh 1929; Shaw and McKay 1942; Drake and Cayton 1945). The last three decades have witnessed a resurgence in sociological interest in neighborhood context, triggered largely by Wilson's *The Truly Disadvantaged* (1987). Recent additions to the literature on urban neighborhoods include, *inter alia*, studies by Harding (2010), Sampson (2012), Sharkey (2013) and Mayorga-Gallo (2014). Though varying in theoretical, methodological, and empirical content, this literature is united by the recognition that human thought and behavior is influenced by properties of residential neighborhoods, including population characteristics and aspects of the built environment such as housing stock, recreational amenities, and commercial establishments.

Because neighborhoods are not static repositories of stocks of financial, human, and social capital, prior research has attempted to understand the forces leading to change over time in neighborhood socioeconomic status (SES). In particular, scholars have examined the role of the in-migration of members of previously rare (to the focal neighborhood) racial/ethnic or income groups in spurring neighborhood change (Park and Burgess 1925; Ellen and O'Regan 2011). Urban economists have focused on exogenous economic shocks to neighborhoods, leading to differential investments and migration decisions by existing and potential residents (Schwirian 1983; Grigsby et al. 1987; Megblolugbe, Hoek-Smit, and Linneman 1996). Uniting these scholars' work is an emphasis on the importance of understanding where, when, and how neighborhood change over time. Although neighborhood change has captured the attention of

scholars for many decades, we argue that these issues take on additional significance currently, due to the havoc wreaked on American neighborhoods by the foreclosure crisis in 2008-2009.

In this paper we propose to provide both a descriptive account of changes in the socioeconomic status (SES) of American neighborhoods during the 2000s, and test hypotheses about the likely sources of those changes. Importantly, because neighborhoods are nested within metropolitan areas, which themselves likely experienced varying degrees of social and economic change during the 2000s, we account for characteristics of both neighborhoods and metro areas in assessing neighborhood change. Hence, we employ decennial census data from 2000 matched to 2010 boundaries from the National Change Database (NCDB) and American Community Survey (ACS) data from 2008 to 2012. We then employ hierarchical linear modeling (HLM) techniques, allowing tracts to be nested within Core-Based Statistical Areas (CBSAs). We introduce a novel way to measure absolute neighborhood change that does not conflate residential and social mobility with changing neighborhood distributions.

We focus our attention on the relationship between the racial/ethnic composition of neighborhoods in 2000 and change in neighborhood SES, hypothesizing that neighborhoods with higher percentages of minority residents in 2000 experienced negative or less positive change in neighborhood SES by 2008/2012 (hereafter, "2010" for simplicity), relative to neighborhoods dominated by whites. We further hypothesize that a key mediating variable in understanding these differences is the disproportionate concentration of housing foreclosures in minority neighborhoods. The results of this analysis will yield important information on how neighborhoods dominated by minority group members fared over the past decade, and more specifically the extent to which the housing crises of 2008-2009 can account for observed racial/ethnic gaps in change in neighborhood SES.

Data

The data for this study come from the 2000 decennial census, available through GeoLytics, Inc.'s National Change Database (NCDB). In conjunction with the Urban Institute, GeoLytics has normalized the boundaries of tracts in 2000 to fit the boundaries in 2010, which yields a geographic "apples to apples" comparison with those same tracts in 2010. Data for the later period come from the 2008/2012 American Community Surveys (ACS), which replaced the "long form" of the decennial census and features a smaller sampling fraction per year (about 1 in 40 households compared to 1 in 6 households of the decennial census). This means that by combining five years of data (2008/2012) the ACS covers about 12.5% of the population (1/40 * 5 = 0.125) versus 16.7% of the population with the long form (1/6 = 0.167). Hence, there is more sampling error in the ACS, although the data provide unbiased estimates of population change.

At the neighborhood level, we examine all census tracts (N = 66,346) located in metropolitan areas, recently redefined by the Office of Management and Budget as Core-based Statistical Areas (CBSAs) (N = 942). CBSAs comprise both micro- and metropolitan statistical areas, and encompass a broader range of communities than did previous metro area definitions.

Measures

Dependent Variable

We conceive of neighborhood change as the absolute change in neighborhood SES between two time periods. Much past research employs reflective scales to measure the latent construct of "neighborhood SES." Typically, the constituent variables making up such scales include variables with widely varying metrics, including percentages (e.g., residents in poverty), dollars (e.g., average family income), and years (e.g., age of housing stock). To manage the problem of

varying metrics, analysts frequently standardize each variable of a scale and then average them. The resulting scale is then in the metric-less units of standard deviations.

There are two problems with this technique, both of which we surmount in this paper. First, because standardized variables are set to 0 at the mean, the question then becomes: which mean? For some purposes it may be desirable to set the mean to 0 within each metropolitan area; for others, the state or national mean may be appropriate. This is not a trivial question, for understanding how poor or affluent a neighborhood is depends deeply on the point of comparison. Assuming the analyst has a strong and well-justified preference for the 0 point of the scale, this problem can be overcome when examining cross-sectional data. However, for analyses of change over time the problem of using standardized scales gets worse. Consider the case in which a standardized scale for neighborhood *i* changed by some amount Δ, where Δ is in standard deviation units, from year *t* to *t* + 10. One might conclude that neighborhood *i* got "better" or "worse" by Δ during the period. However, observe that Δ is made up of two inseparable components: absolute change in SES for neighborhood *i* and change relative to the other neighborhoods in the comparison set. Put more concretely, neighborhood *i* might not have changed a bit from year *t* to *t* + 10; rather, the other neighborhoods may have changed, thereby changing the relative position of neighborhood *i* in the distribution.[1]

In this paper we argue that the most fundamental way in which neighborhoods exert their influence over residents' life chances is through the former mechanism—the absolute level of resources available in the neighborhood. Hence, we adopt a different strategy for measuring both neighborhood SES in the cross-section and over time. First, we used exploratory common factor analysis to assess the factor structure of nine candidate variables used to form a reflective

[1] If the analyst believes that what is important is not the absolute level of resources (like college-educated residents or family income to spend), but rather the relative social location of the neighborhood, then this is not a problem.

neighborhood SES scale. Five such variables resulted in a single factor with an eigenvalue over 1.0 (3.97), a commonly accepted cut point for retaining common factors. These variables include the percentage of neighborhood residents (1) not in poverty; (2) with a college degree; (3) with professional or managerial occupations; as well as (4) median family income; and (5) median housing value.

To create our scale of neighborhood SES, we first inflated 2000 median family income and median housing value to constant 2010 dollars, using the consumer price index calculator from the Bureau of Labor Statistics (BLS 2014). We then transformed the 2010 versions of the variables into percentiles and found the cut points for those percentiles. Next, we created percentile versions of the 2000 variables by asking what 2010 percentile corresponds to the 2000 median income or housing value. For example, if neighborhood *i* was in the 75th percentile in terms of median family income in 2010, and its corresponding value in 2000 would have been in the 70th percentile, this would mean that neighborhood *i*'s median family income improved five percentile points in absolute terms from 2000 to 2010. Note also that this technique allows us to put the two dollar-based variables into a metric (percentile) that is in the same metric (percent) as the three other variables in the scale. Thus, we simply average the five values to arrive at scales of neighborhood SES in 2000 and 2010 that range from 0 to 100. We present descriptive statistics for this and all other variables in Table 1 below. We also show the histogram for the dependent variable in Figure 1 below. Note that the distribution has an approximately normal shape, with a mean of about 3.27.

(Figure 1 about here)

Independent Variables

Level-1. At the tract level, our focal independent variables are the percentage of tract residents who are from one of four racial/ethnic groups: non-Latino white, black, and Asian, and Latinos of all races. We expect to observe lower levels of improvement in the neighborhoods of blacks and Latinos relative to whites and Asians. Because of the highly non-normal distributions of the percentages of these four groups across American neighborhoods (see Figure 2), we divide each distribution into deciles to assess how neighborhoods with varying percentages of the four groups fared from 2000 to 2010, accounting for potentially nonlinear relationships between group percentage and neighborhood change. Figure 3 below shows the average percentages of each group, by decile, in 2000.

(Figure 2 about here)

(Figure 3 about here)

The key mediating variable for this analysis is the average foreclosure rate from 2007 to 2009. These data were collected from RealtyTrac under a special agreement with two of the authors of this paper. To calculate this rate, we averaged the number of houses per 100 neighborhood housing units exhibiting visible signs of housing distress, including a listing for public auction or repossession by a bank. Because of the highly skewed distribution of this variable we transformed it using the inverse hyperbolic sine function, which is preferable to a log transformation because of the presence of many 0s in the data. For the average foreclosure rate (*AFR*), the transformation follows equation (1) below.

$$\sinh^{-1}(AFR) = \ln\left(AFR + \sqrt{1 + AFR^2}\right) \quad (1)$$

We include a number of control variables at the tract level, including a dummy variable indicating whether the tract is in a principal city of a CBSA, 0 if not, the population of the tract expressed in hundreds of persons, the percentage of residents who were not in the tract five years prior (i.e., in 1995), percent foreign-born, percent unemployed, and the percentage of vacant housing and the percentage of housing built prior to 1950 (see Table 1).

Level-2 (CBSA level). At the CBSA level, we control for the residential isolation $\left(P_g^*\right)$of each group, according to the formula shown below in equation (2).

$$P_g^* = \left(\sum_{j=1}^{J} \frac{g_j}{G}\left[\frac{g_j}{t_j}\right]\right)100, \quad (2)$$

where g_j is the number of members of group g in tract j, G is the number of members of group g in the CBSA overall, and t_j is the total population of tract j. We also control for total CBSA population (in 10,000s), the CBSA percentage of each group, and geographic region.

Methods

Our analysis proceeds in two steps. We first estimate a series of tract-level ordinary least squares regressions of neighborhood change on the tract-level independent variables. Results from this analysis appear in Tables 2 through 5 and in Figures 4 and 5 below. We then employ hierarchical linear modeling (HLM) techniques to assess the extent to which neighborhood change varies systematically by characteristics of tracts and CBSAs, and the extent to which certain CBSA characteristics moderate the tract-level associations, referred to in HLM terminology as "cross-level interaction effects." In this analysis we use racial/ethnic group percentage quintiles, and provide analysis of the effects of CBSA-level variables on the first and fifth quintiles. These

analyses are shown in Tables 6 through 9 below. The level-1 model is depicted in equation (3) below:

$$\Delta SES_{ij} = \beta_{0j} + \sum_{q=1}^{4} \beta_{qj} Group_j + \sum_{r=2}^{R} \beta_{rj} x_j + e_{ij}, \quad (3)$$

where ΔSES_{ij} is the change in neighborhood SES from 2000 to 2010 for tract *i* in CBSA *j*, β_{0j} is the average change in neighborhood SES for CBSA *j*, the β_{qj} are dummy variables representing the racial/ethnic group-specific quintile of tract *j* (with quintile 5 the omitted category), and the β_{rj} are effects of level-1 control variables.

At level 2, we model the average change in SES for quintile 1 and 5 (by omitting quintile 1 in a model similar to that shown in equation (3)) in CBSA *j* as a function of CBSA characteristics such as racial/ethnic isolation, CBSA population, and region. An example of such a model is shown in equation (4) below:

$$\beta_{0j} = \gamma_{00} + \sum_{t=1}^{T} \gamma_{s0} z_j + u_{ij}, \quad (4)$$

where γ_{00} is the overall average change in quintile 1 (or 5) neighborhood SES for all CBSAs, and the γ_{s0} are the effects of CBSA-level variables on CBSA-level change in neighborhood SES for quintile 1 (or 5).

Findings

Tract-level

Figure 4 shows average changes in neighborhood SES by group decile in 2000, without any tract-level controls. The bars in this figure come from Model 1 of Tables 2 through 5[2], where the

[2] Because our data comprise all metropolitan tracts, there is no sampling error; hence, the standard error estimates provided by Stata should not be interpreted in the usual way. We recommend that they be treated as estimates of

intercepts correspond to the omitted tenth decile for each group. Figure 4 shows that there are some nonlinearities in the relationships between group percentage decile and neighborhood change, though for whites, blacks, and Asians the general pattern of change conforms to our expectations. First, neighborhoods with higher percentages of whites in 2000 tended to experience above-average change (represented by the horizontal black line) in neighborhood SES, with particularly large positive increases between deciles 4 and 7. We also found a curiously high change associated with decile 1, perhaps due to the fact that neighborhoods with almost no white residents in them were relatively low in the neighborhood SES distribution and therefore had "nowhere to go but up." For blacks, we observed the opposite trend, in which increasing percentages of black residents in 2000 were associated with declining positive changes in neighborhood SES. At the lowest three deciles of black residents, the average neighborhood experienced increases in neighborhood SES of about 4.1 points on our scale, while at the lowest three deciles this figure was around 2.3 points, a difference of about one-quarter of a standard deviation on the neighborhood SES scale.

For Asians, we observed a similar patter to that for whites, though more dramatic. On average, neighborhoods with the lowest decile percentage of Asian residents experienced positive increases in neighborhood SES of about 2.2 points. At the upper end of the distribution, tenth-decile Asian neighborhoods experienced an average increase of fully 5.0 points, a difference of 40% of a standard deviation on the neighborhood SES scale. Finally, Latino neighborhood composition evinced a highly nonlinear pattern, in which neighborhoods with both low and high percentages of Latinos experienced below-average neighborhood change, while those in the middle of the distribution (deciles 4 to 7) experienced above-average change.

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consistency of measurement of the parameters. Accordingly, we include a single asterisk to indicate that a parameter estimate is at least twice the size of its associated standard error estimate.

(Figure 4 about here)

In order to determine the extent to which the pattern of racial/ethnic composition effects might be connected to neighborhood change via the influence of neighborhood foreclosures, and might be spurious owing to their associations with other known determinants of neighborhood change, we included control variables in Models 2 and 3 of Tables 2 through 5. In Model 2 we show that the 2007 to 2009 foreclosure rate had a large (relative to its standard error estimate) negative relationship with change in neighborhood SES. After controlling for the remaining variables in Model 3, the effect of the foreclosure rate remains essentially unchanged. In addition, we find that tracts principal cities on average experienced about 0.75 to 1.0 points lower average change in SES than suburban tracts. Larger (in population) tracts and those with higher unemployment rates also experienced lower change in neighborhood SES from 2000 to 2010, while tracts with more in-movers, more foreign-born residents, more vacant housing, and a higher percentage of housing units built before 1950 all experienced greater neighborhood change. This latter set of findings is consistent with growing research on the quantitative determinants of gentrification.

Figure 5 below presents the same set of bars as in Figure 4, with all control variables in Model 3 set to their grand means. The overall pattern of findings remains similar to that shown in Figure 4, with the exceptions of the upper tails of the white and black racial composition distributions. It appears that a portion of the apparent effect of high percentages of white residents was due to those neighborhoods' on average having higher scores on the other predictors of positive neighborhood change, such as location in the suburbs, and lower scores on the predictors of negative neighborhood change, such as home foreclosures. In addition, the

strong linear relationship between percent Asian and the strong inverted u-shaped relationship between percent Latino and neighborhood change are more pronounced in Figure 5 than in Figure 4.

(Figure 5 about here)

(Tables 2 through 5 about here)

CBSA-level

We turn now to an analysis of relationships between several variables measured at the CBSA level and CBSA-level average change in neighborhood SES. Tables 6 through 9 show the full set of results, several of which are depicted in Figures 6 and 7. For these models, the dependent variables are the CBSA-level average changes in neighborhood SES calculated at the lowest quintile for each of the four racial/ethnic groups. Figure 6 shows that CBSAs with higher than average scores on the white isolation index experienced lower levels of neighborhood change than CBSAs with lower levels of white isolation. Our findings for the other three groups were near zero, suggesting that overall, residential segregation at the CBSA level does not appear to contribute much to average change in neighborhood SES. We found much larger effects of CBSA size, such that larger CBSAs experienced more positive change in neighborhood SES, particularly for neighborhoods with low levels of whites and blacks. Finally, CBSAs with higher percentages of each group experienced slightly more positive neighborhood change. Figure 7 shows that, relative to CBSAs in the West region, CBSAs in the Northeast experienced slightly

higher average neighborhood change and CBSAs in the Midwest and South experience lower levels of change.

(Figures 6 and 7 about here)

(Tables 6 through 9 about here)

Conclusions

This paper attempted to understand the forces of change in American neighborhood SES during the 2000s. We showed that change in neighborhood SES was sensitive to the percentage of members of four large racial/ethnic groups, with neighborhoods dominated by whites and Asians experiencing greater than average change, neighborhoods dominated by blacks experiencing lower than average neighborhood change, and neighborhoods with both low and high percentages of Latinos experiencing lower than average change, with neighborhoods in the middle of the distribution experiencing greater than average change. We showed that a portion of these patterns could be explained by accounting for key predictors of neighborhood change such as the neighborhood foreclosure rate and other compositional factors; however, the overall pattern of results remained similar in models with and without controls. At the CBSA level, there were clear regional differences in neighborhood change, with Midwestern CBSAs experiencing particular poor outcomes relative to CBSAs in the West. Larger CBSAs appeared to fare better during the period, suggesting that those CBSAs continue to produce and attract higher-educated,

and more professional residents, and to experience positive change in income and housing values, relative to smaller CBSAs.

Future research should strive to understand the mechanisms by which neighborhood SES is linked to race/ethnicity, particularly in light of the fact that our findings replicate past findings on the residential advantages of whites and Asians relative to blacks and Latinos. What is important to remember is that our findings do not take into account cross-sectional inequality in neighborhood SES, only the change over time. Hence, given that there are at any given moment vast inequalities among groups in the neighborhood resources at their disposal, our findings show that these inequities likely grew during the 2000s. Given that public policy has been loath to intervene in the neighborhood selection process of residents, it seems likely that the best hope for ameliorating some of the pernicious sequelae of these neighborhood inequalities will be direct investments in neighborhoods themselves.

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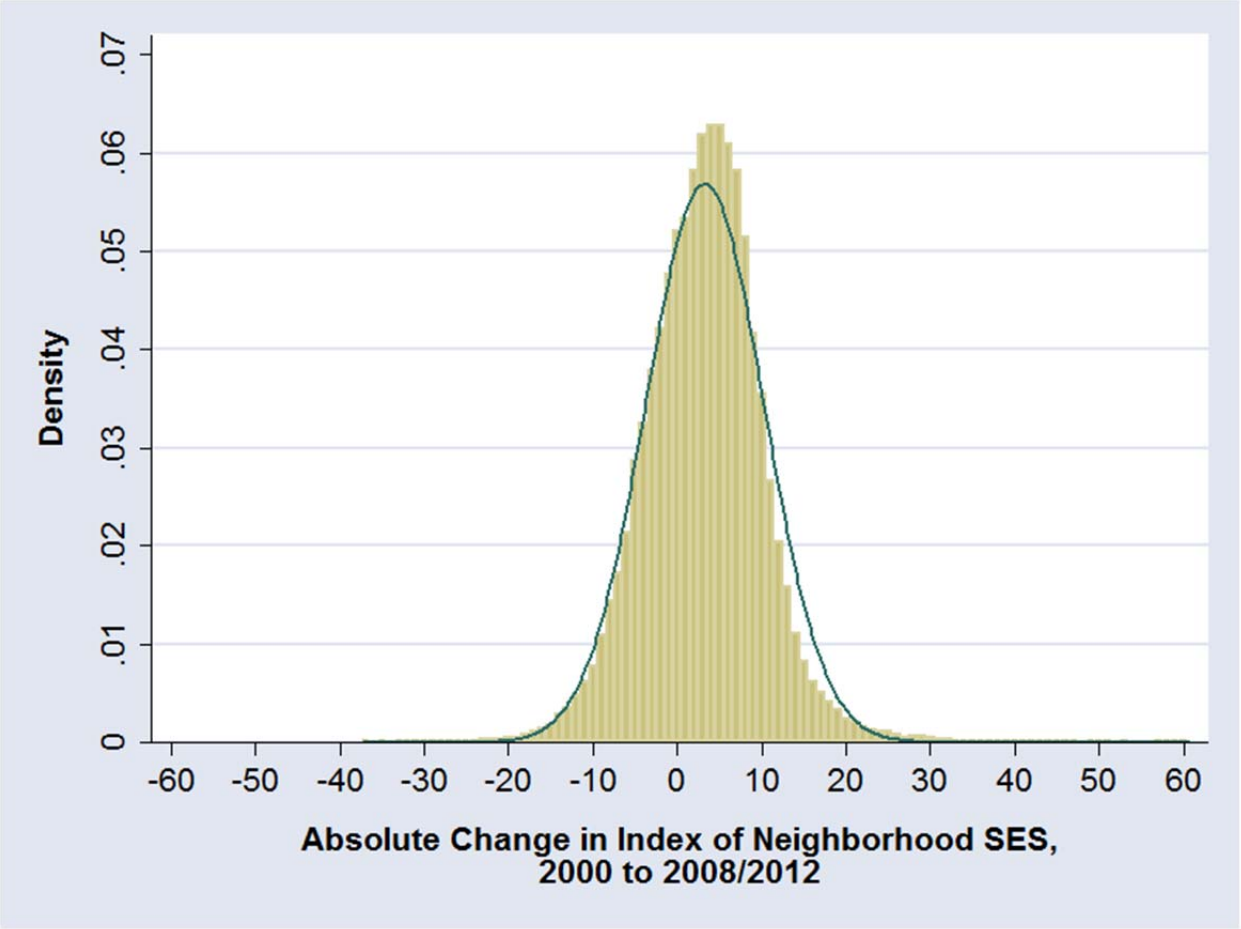

Figure 1. Histogram of the Dependent Variable, Absolute Change in Index of Neighborhood SES, 2000 to 2008/2012

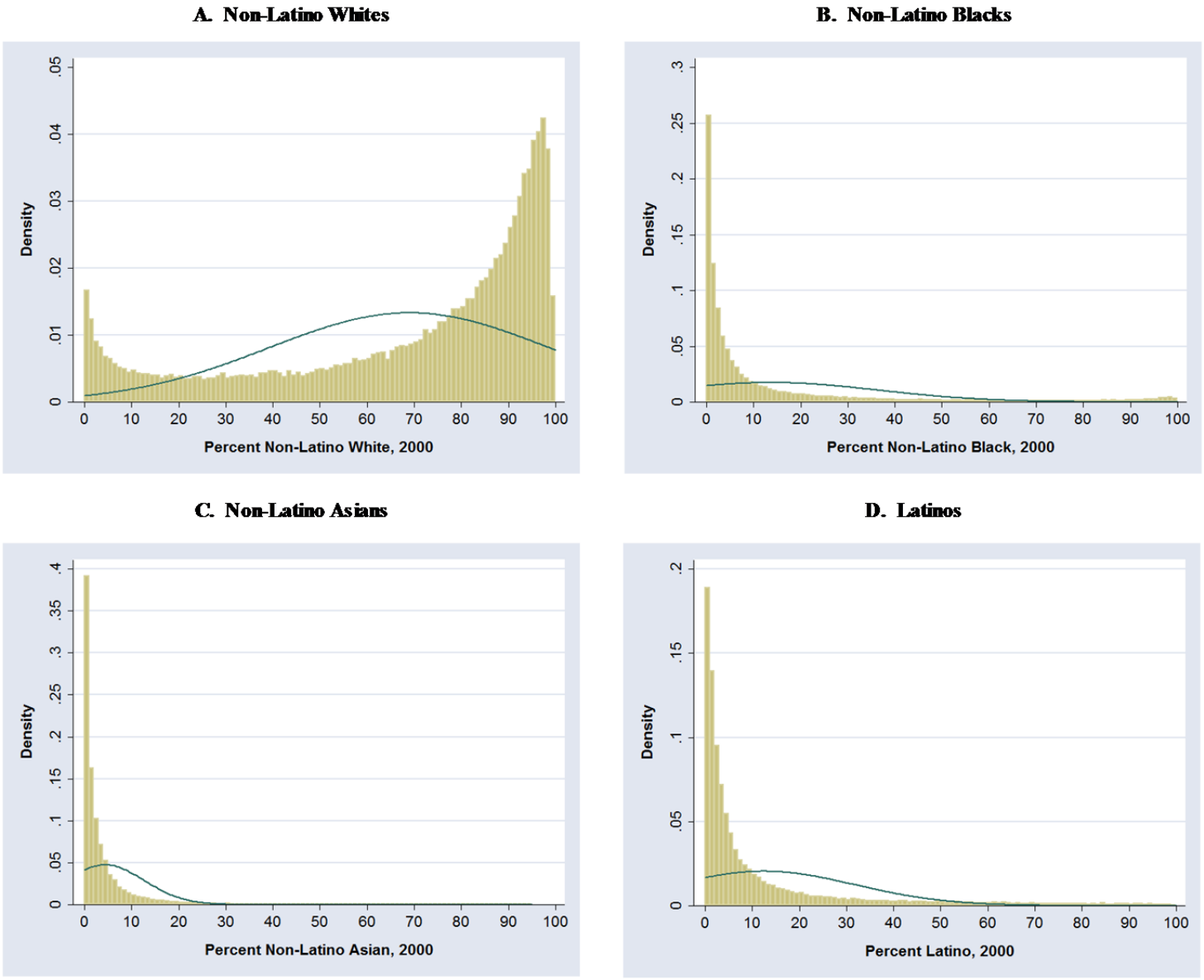

Figure 2. Histograms of Tract Percentages of Non-Latino Whites, Blacks, Asians, and Latinos of All Races, 2000

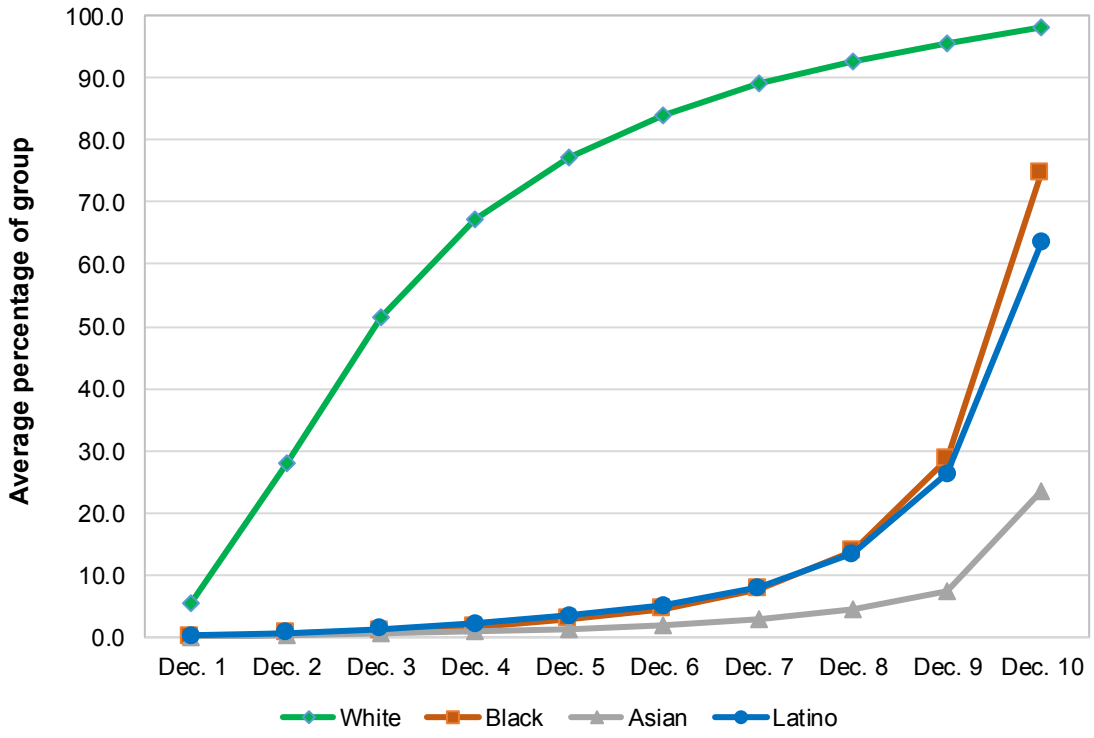

Figure 3. Average Percentage of Four Racial/Ethnic Groups in American Neighborhoods in 2000, by Decile

Table 1. Descriptive Statistics for the Variables Used in the Analysis

Variables	Mean	SD	Min	Max
Tract-level variables (*N* = 66,346)				
Dependent variable				
Absolute change in neighborhood SES	3.27	7.02	-37.4	59.8
Focal independent variables				
Percent non-Latino white	68.9	30.0	0.0	100.0
Percent non-Latino black	13.5	22.9	0.0	100.0
Percent non-Latino Asian	4.31	8.41	0.0	94.6
Percent Latino	12.4	19.5	0.0	100.0
Average foreclosure rate, 2007 to 2009	1.11	1.87	0.0	38.2
Control variables				
In principal city of CBSA	0.36	—	0.0	1.0
Population (in 100s)	39.0	16.8	1.0	291.8
Percent population not in tract in 1995	53.3	13.3	0.0	92.3
Percent foreign-born	11.1	13.4	0.0	83.8
Percent unemployed	6.18	5.14	0.0	89.7
Percent vacant housing	7.70	7.75	0.0	90.6
Percent housing built before 1950	22.7	22.9	0.0	100.0
CBSA-level variables (*N* = 942)				
Segregation measures				
Black-white dissimilarity	43.8	13.4	12.9	84.7
Asian-white dissimilarity	36.3	9.8	2.9	78.1
Latino-white dissimilarity	34.8	11.3	6.1	72.0
White isolation	82.8	15.3	2.0	99.0
Black isolation	18.1	19.7	0.1	88.5
Asian isolation	3.1	5.6	0.1	76.1
Latino isolation	11.8	16.4	0.4	98.1
Multi-group entropy (Theil's *H*)	13.7	8.7	0.6	52.0
Control variables				
Population (in 10,000s)	27.5	95.4	1.3	1,822.9
Percent non-Latino white	79.3	18.4	1.6	99.0
Percent non-Latino black	9.6	13.1	0.0	84.8
Percent non-Latino Asian	1.7	4.5	0.1	71.8
Percent Latino	8.1	14.0	0.3	98.1
Northeast region	0.10	—	0.0	1.0
Midwest region	0.30	—	0.0	1.0
South region	0.42	—	0.0	1.0
West region	0.18	—	0.0	1.0

Note: All variables measured in 2000 except the dependent variable, which is measured as change from 2000 to 2008/2012 and the foreclosure rate variable, which is the tract average foreclosure rate from 2007 to 2009.

Table 2. Coefficient and Standard Error Estimates from OLS Regressions of Change in Neighborhood SES on Non-Latino White Decile and Control Variables, 2000 to 2008/2012

	Model 1		Model 2		Model 3	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE
Percent non-Latino white						
Decile 1	-0.409 *	0.122	0.633 *	0.123	-0.426 *	0.156
Decile 2	-1.098 *	0.122	0.030	0.124	-0.810 *	0.145
Decile 3	-1.162 *	0.122	-0.221	0.123	-0.456 *	0.135
Decile 4	-1.019 *	0.122	-0.229	0.122	-0.172	0.130
Decile 5	-0.590 *	0.122	0.144	0.122	0.391 *	0.128
Decile 6	-0.353 *	0.122	0.193	0.121	0.509 *	0.125
Decile 7	-0.143	0.122	0.249 *	0.121	0.625 *	0.123
Decile 8	-0.140	0.122	0.183	0.121	0.501 *	0.121
Decile 9	-0.066	0.122	0.107	0.120	0.342 *	0.119
Foreclosure rate, 2007 to 2009	—	—	-1.585 *	0.040	-1.387 *	0.041
Control variables						
In principal city of CBSA	—	—	—	—	-0.802 *	0.062
Population (in 100s)	—	—	—	—	-0.022 *	0.002
Percent not in tract in 1995	—	—	—	—	0.027 *	0.002
Percent foreign-born	—	—	—	—	0.079 *	0.003
Percent unemployed	—	—	—	—	-0.031 *	0.007
Percent vacant housing	—	—	—	—	0.003	0.004
Percent housing built before 1950	—	—	—	—	0.027 *	0.001
Constant	3.771 *	0.086	4.272 *	0.086	2.588 *	0.194
R^2	0.004		0.027		0.056	

Notes: N = 66,346. All independent variables measured at tract level in 2000 except for average foreclosure rate, which is the inverse hyperbolic sine transformation of the average foreclosure rate from 2007 to 2009.

Table 3. Coefficient and Standard Error Estimates from OLS Regressions of Change in Neighborhood SES on Non-Latino Black Decile and Control Variables, 2000 to 2008/2012

	Model 1		Model 2		Model 3	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE
Percent non-Latino black						
Decile 1	1.683 *	0.121	0.972 *	0.121	0.519 *	0.131
Decile 2	1.736 *	0.121	1.130 *	0.121	0.817 *	0.131
Decile 3	1.681 *	0.121	1.174 *	0.121	0.872 *	0.131
Decile 4	1.569 *	0.121	1.161 *	0.120	0.887 *	0.131
Decile 5	1.285 *	0.121	0.980 *	0.120	0.741 *	0.130
Decile 6	0.809 *	0.121	0.597 *	0.120	0.388 *	0.130
Decile 7	0.196	0.121	-0.009	0.120	-0.188	0.130
Decile 8	-0.076	0.121	-0.243 *	0.120	-0.379 *	0.128
Decile 9	-0.108	0.121	-0.389 *	0.120	-0.507 *	0.125
Foreclosure rate, 2007 to 2009	—	—	-1.460 *	0.038	-1.435 *	0.040
Control variables						
In principal city of CBSA	—	—	—	—	-0.752 *	0.062
Population (in 100s)	—	—	—	—	-0.022 *	0.002
Percent not in tract in 1995	—	—	—	—	0.018 *	0.002
Percent foreign-born	—	—	—	—	0.064 *	0.002
Percent unemployed	—	—	—	—	-0.040 *	0.006
Percent vacant housing	—	—	—	—	-0.001	0.004
Percent housing built before 1950	—	—	—	—	0.027 *	0.001
Constant	2.396 *	0.086	3.757 *	0.092	3.065 *	0.201
R^2	0.012		0.033		0.058	

Notes: N = 66,346. All independent variables measured at tract level in 2000 except for average foreclosure rate, which is the inverse hyperbolic sine transformation of the average foreclosure rate from 2007 to 2009.

Table 4. Coefficient and Standard Error Estimates from OLS Regressions of Change in Neighborhood SES on Non-Latino Asian Decile and Control Variables, 2000 to 2008/2012

	Model 1		Model 2		Model 3	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE
Percent non-Latino black						
Decile 1	-2.796 *	0.121	-3.225 *	0.120	-3.504 *	0.137
Decile 2	-2.523 *	0.121	-3.078 *	0.120	-3.182 *	0.136
Decile 3	-2.124 *	0.121	-2.583 *	0.120	-2.570 *	0.134
Decile 4	-1.913 *	0.121	-2.282 *	0.120	-2.152 *	0.132
Decile 5	-1.662 *	0.121	-1.923 *	0.119	-1.643 *	0.130
Decile 6	-1.656 *	0.121	-1.844 *	0.119	-1.428 *	0.128
Decile 7	-1.789 *	0.121	-1.917 *	0.119	-1.331 *	0.127
Decile 8	-1.541 *	0.121	-1.589 *	0.119	-0.942 *	0.124
Decile 9	-1.175 *	0.121	-1.088 *	0.119	-0.548 *	0.122
Foreclosure rate, 2007 to 2009	—	—	-1.761 *	0.038	-1.529 *	0.039
Control variables						
In principal city of CBSA	—	—	—	—	-1.011 *	0.060
Population (in 100s)	—	—	—	—	-0.024 *	0.002
Percent not in tract in 1995	—	—	—	—	0.045 *	0.002
Percent foreign-born	—	—	—	—	0.034 *	0.002
Percent unemployed	—	—	—	—	-0.022 *	0.006
Percent vacant housing	—	—	—	—	0.025 *	0.004
Percent housing built before 1950	—	—	—	—	0.030 *	0.001
Constant	4.991 *	0.086	6.458 *	0.090	3.826 *	0.180
R^2	0.011		0.042		0.068	

Notes: N = 66,346. All independent variables measured at tract level in 2000 except for average foreclosure rate, which is the inverse hyperbolic sine transformation of the average foreclosure rate from 2007 to 2009.

Table 5. Coefficient and Standard Error Estimates from OLS Regressions of Change in Neighborhood SES on Latino Decile and Control Variables, 2000 to 2008/2012

	Model 1		Model 2		Model 3	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE
Percent Latino						
Decile 1	-0.311 *	0.122	-1.357 *	0.122	0.107	0.155
Decile 2	-0.051	0.122	-1.123 *	0.123	0.467 *	0.154
Decile 3	0.026	0.122	-1.014 *	0.122	0.637 *	0.152
Decile 4	0.272 *	0.122	-0.720 *	0.122	0.967 *	0.150
Decile 5	0.273 *	0.122	-0.619 *	0.122	1.069 *	0.146
Decile 6	0.560 *	0.122	-0.250 *	0.122	1.347 *	0.142
Decile 7	0.453 *	0.122	-0.142	0.121	1.321 *	0.138
Decile 8	-0.224	0.122	-0.505 *	0.120	0.814 *	0.133
Decile 9	-0.255 *	0.122	-0.259 *	0.120	0.633 *	0.126
Foreclosure rate, 2007 to 2009	—	—	-1.734 *	0.040	-1.451 *	0.041
Control variables						
In principal city of CBSA	—	—	—	—	-0.938 *	0.060
Population (in 100s)	—	—	—	—	-0.022 *	0.002
Percent not in tract in 1995	—	—	—	—	0.032 *	0.002
Percent foreign-born	—	—	—	—	0.072 *	0.003
Percent unemployed	—	—	—	—	-0.044 *	0.006
Percent vacant housing	—	—	—	—	0.002	0.004
Percent housing built before 1950	—	—	—	—	0.027 *	0.001
Constant	3.199 *	0.086	5.085 *	0.095	1.901 *	0.211
R^2	0.002		0.029		0.057	

Notes: N = 66,346. All independent variables measured at tract level in 2000 except for average foreclosure rate, which is the inverse hyperbolic sine transformation of the average foreclosure rate from 2007 to 2009.

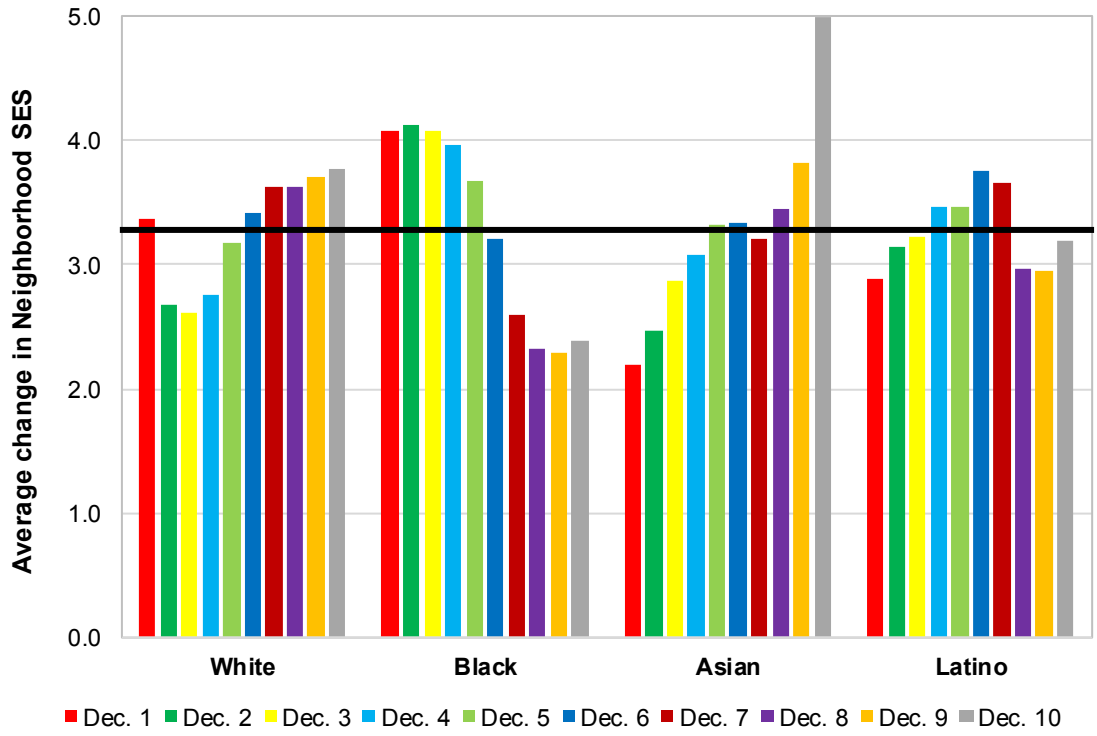

Figure 4. Average Change in Neighborhood SES, by Decile of Racial/Ethnic Group in Tract

Notes: Data from Model 1 of Tables 2-5. Horizontal black line indicates average change in neighborhood SES for all 66,346 tracts.

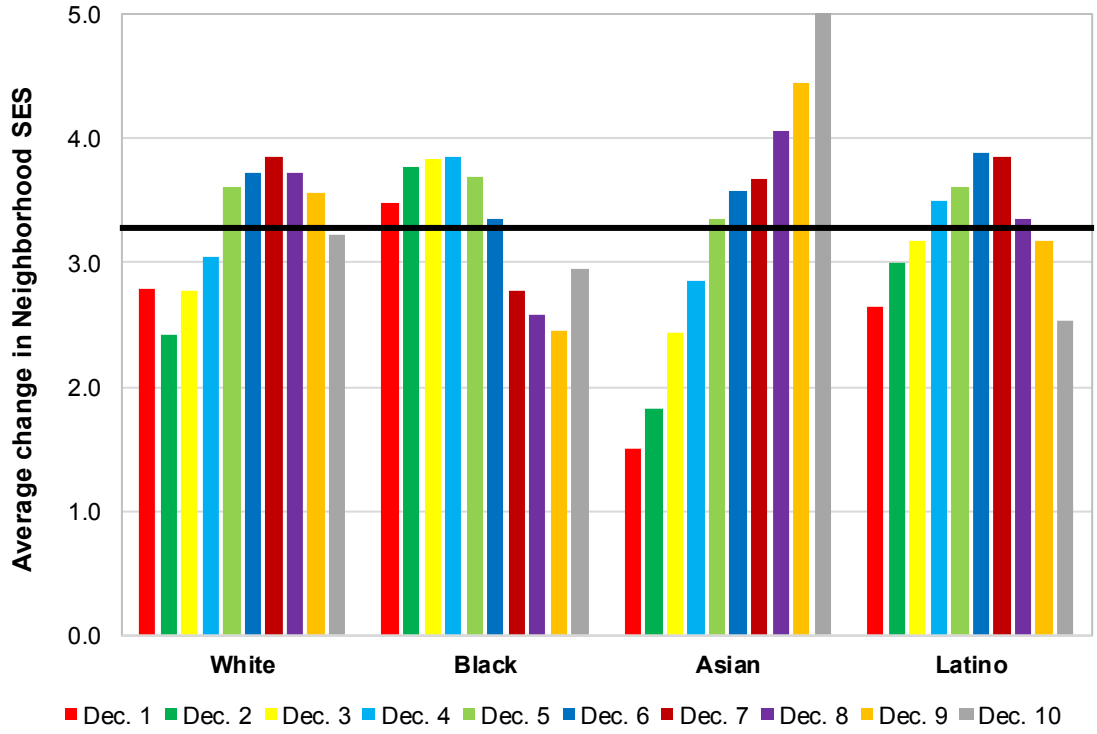

Figure 5. Average Change in Neighborhood SES, by Decile of Racial/Ethnic Group in Tract, Including All Control Variables Set to Grand Means

Notes: Data from Model 3 of Tables 2-5. Horizontal black line indicates average change in neighborhood SES for all 66,346 tracts.

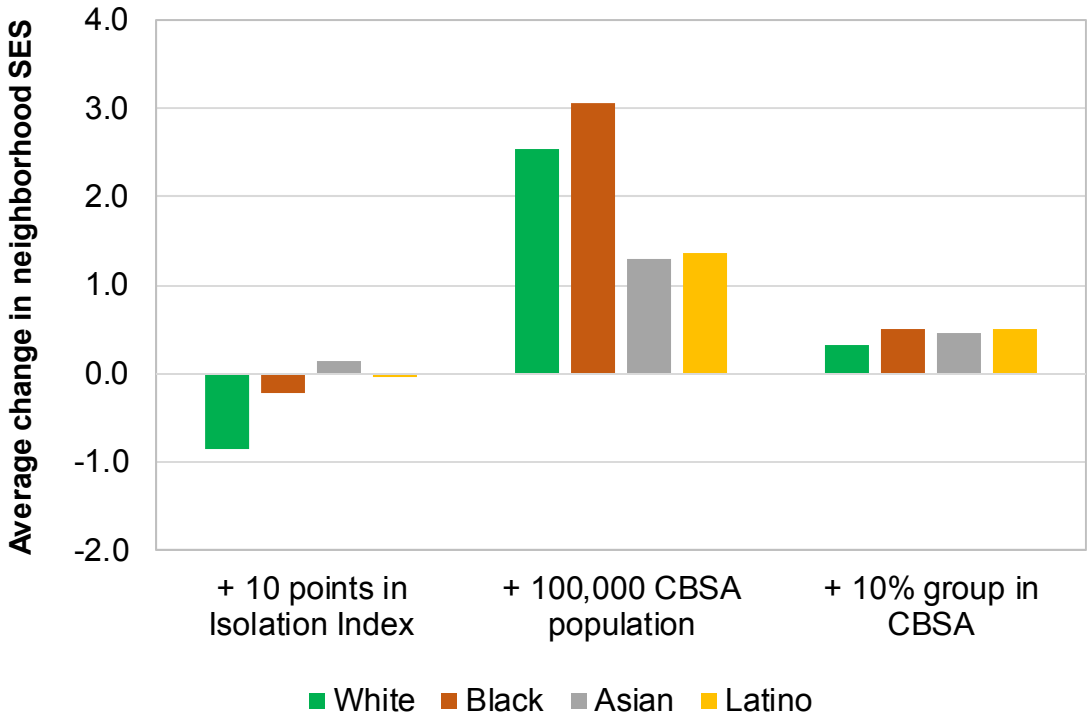

Figure 6. Effects of Selected CBSA-Level Variables on CBSA-Level Average Change in Neighborhood SES, Neighborhoods in the Lowest Racial/Ethnic Quintile

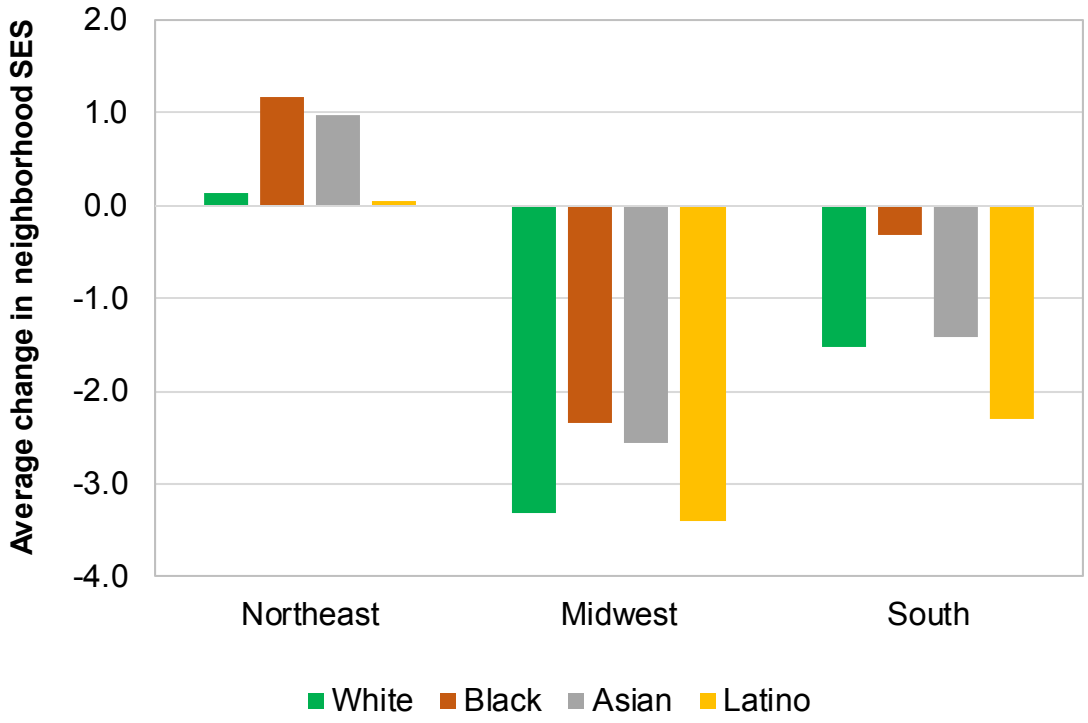

Figure 7. Regional Differences (vs. West) in CBSA-Level Average Neighborhood Change, Neighborhoods in the Lowest Racial/Ethnic Quintile

Table 6. Coefficient and Standard Error Estimates from HLM Regressions of Change in Neighborhood SES on Tract Percent Non-Latino White and Control Variables, 2000 to 2008/2012

	Quintile 1				Quintile 5			
	Model 1		Model 2		Model 1		Model 2	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
γ_{00}, Intercept (% white quintile 1)	-0.040	0.218	-0.094	0.217	—	—	—	—
γ_{00}, Intercept (% white quintile 5)	—	—	—	—	4.046*	0.122	4.020*	0.114
γ_{01}, ***White isolation***	-0.071*	0.007	-0.086*	0.026	-0.071*	0.007	-0.086*	0.026
γ_{02}, ***Population (in 10,000s)***	—	—	0.258*	0.062	—	—	0.255*	0.062
γ_{03}, ***Percent white in CBSA***	—	—	0.033	0.021	—	—	0.032	0.021
γ_{04}, ***Northeast region***	—	—	0.138	0.338	—	—	0.142	0.338
γ_{05}, ***Midwest region***	—	—	-3.324*	0.268	—	—	-3.322*	0.268
γ_{06}, ***South region***	—	—	-1.514*	0.222	—	—	-1.514*	0.222
γ_{10}, % white quintile 1	—	—	—	—	-4.094*	0.260	-4.120*	0.263
γ_{20}, % white quintile 2	0.424*	0.174	0.438*	0.178	-3.662*	0.182	-3.675*	0.182
γ_{30}, % white quintile 3	1.708*	0.211	1.708*	0.213	-2.383*	0.133	-2.408*	0.131
γ_{40}, % white quintile 4	2.840*	0.245	2.830*	0.248	-1.232*	0.095	-1.276*	0.096
γ_{50}, % white quintile 5	4.091*	0.260	4.114*	0.263	—	—	—	—
γ_{60}, **Foreclosure rate, 2007 to 2009**	-1.346*	0.247	-1.345*	0.248	-1.345*	0.247	-1.345*	0.248
γ_{70}, **In principal city of CBSA**	0.140	0.211	0.139	0.211	0.140	0.211	0.139	0.211
γ_{80}, **Population (in 100s)**	-0.016*	0.003	-0.016*	0.003	-0.016*	0.003	-0.016*	0.003
γ_{90}, **Percent vacant housing**	0.009	0.005	0.009	0.005	0.009	0.005	0.009	0.005
γ_{100}, **Percent population not in tract in 1995**	-0.049*	0.009	-0.049*	0.009	-0.049*	0.009	-0.049*	0.009
γ_{110}, **Percent foreign-born**	-0.002	0.016	-0.002	0.016	-0.002	0.016	-0.002	0.016
γ_{120}, **Percent elderly**	0.025*	0.009	0.024*	0.009	0.025*	0.009	0.024*	0.009
γ_{130}, **Percent unemployed**	0.039*	0.005	0.039*	0.005	0.039*	0.005	0.039*	0.005
Unconditional variance in intercepts	8.50				6.34			
Residual variance in intercepts	7.87		5.55		6.02		4.81	
% of variance in intercepts explained	7.4		34.7		4.9		24.1	

Notes: Level-1 N = 66,346; level-2 N = 942. Bolded non-italicized variables have been group-mean (CBSA) centered. Bolded italicized variables have been grand-mean centered.

Table 7. Coefficient and Standard Error Estimates from HLM Regressions of Change in Neighborhood SES on Tract Percent Non-Latino Black and Control Variables, 2000 to 2008/2012

	Quintile 1				Quintile 5			
	Model 1		Model 2		Model 1		Model 2	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
γ_{00}, Intercept (% black quintile 1)	3.630*	0.122	3.672*	0.113	—	—	—	—
γ_{00}, Intercept (% black quintile 5)	—	—	—	—	0.358	0.198	0.217	0.200
γ_{01}, ***Black isolation***	0.007	0.006	-0.023*	0.010	0.007	0.006	-0.023*	0.010
γ_{02}, ***Population (in 10,000s)***	—	—	0.306*	0.070	—	—	0.307*	0.070
γ_{03}, ***Percent black in CBSA***	—	—	0.051*	0.014	—	—	0.051*	0.014
γ_{04}, ***Northeast region***	—	—	1.173*	0.317	—	—	1.169*	0.316
γ_{05}, ***Midwest region***	—	—	-2.333*	0.260	—	—	-2.335*	0.260
γ_{06}, ***South region***	—	—	-0.322	0.263	—	—	-0.323	0.263
γ_{10}, % black quintile 1	—	—	—	—	3.273*	0.237	3.454*	0.242
γ_{20}, % black quintile 2	-0.607*	0.088	-0.623*	0.087	2.665*	0.233	2.834*	0.237
γ_{30}, % black quintile 3	-1.506*	0.121	-1.548*	0.120	1.767*	0.208	1.909*	0.213
γ_{40}, % black quintile 4	-2.608*	0.165	-2.699*	0.166	0.664*	0.159	0.755*	0.160
γ_{50}, % black quintile 5	-3.273*	0.237	-3.458*	0.242	—	—	—	—
γ_{60}, **Foreclosure rate, 2007 to 2009**	-1.366*	0.251	-1.364*	0.251	-1.366*	0.251	-1.364*	0.251
γ_{70}, **In principal city of CBSA**	0.089	0.223	0.090	0.222	0.089	0.223	0.090	0.222
γ_{80}, **Population (in 100s)**	-0.016*	0.003	-0.016*	0.003	-0.016*	0.003	-0.016*	0.003
γ_{90}, **Percent vacant housing**	0.007	0.005	0.007	0.005	0.007	0.005	0.007	0.005
γ_{100}, **Percent population not in tract in 1995**	-0.061*	0.011	-0.061*	0.011	-0.061*	0.011	-0.061*	0.011
γ_{110}, **Percent foreign-born**	-0.016	0.018	-0.016	0.018	-0.016	0.018	-0.016	0.018
γ_{120}, **Percent elderly**	0.018*	0.009	0.018	0.009	0.018*	0.009	0.018	0.009
γ_{130}, **Percent unemployed**	0.038*	0.005	0.038*	0.005	0.038*	0.005	0.038*	0.005
Unconditional variance in intercepts	5.16				9.24			
Residual variance in intercepts	5.23		4.22		9.29		7.04	
% of variance in intercepts explained	-1.5		18.3		-0.5		23.8	

Notes: Level-1 N = 66,346; level-2 N = 942. Bolded non-italicized variables have been group-mean (CBSA) centered. Bolded italicized variables have been grand-mean centered.

Table 8. Coefficient and Standard Error Estimates from HLM Regressions of Change in Neighborhood SES on Tract Percent Non-Latino Asian and Control Variables, 2000 to 2008/2012

	Quintile 1				Quintile 5			
	Model 1		Model 2		Model 1		Model 2	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
γ_{00}, Intercept (% Asian quintile 1)	2.184 *	0.111	2.168 *	0.103	—	—	—	—
γ_{00}, Intercept (% Asian quintile 5)	—	—	—	—	1.821 *	0.197	1.778 *	0.193
γ_{01}, ***Asian isolation***	0.089 *	0.015	0.014	0.047	0.089 *	0.015	0.014	0.047
γ_{02}, ***Population (in 10,000s)***	—	—	0.130	0.069	—	—	0.131	0.069
γ_{03}, ***Percent Asian in CBSA***	—	—	0.046	0.052	—	—	0.046	0.052
γ_{04}, ***Northeast region***	—	—	0.976 *	0.317	—	—	0.976 *	0.317
γ_{05}, ***Midwest region***	—	—	-2.566 *	0.265	—	—	-2.566 *	0.265
γ_{06}, ***South region***	—	—	-1.414 *	0.237	—	—	-1.416 *	0.237
γ_{10}, % Asian quintile 1	—	—	—	—	0.364	0.207	0.395	0.201
γ_{20}, % Asian quintile 2	0.300 *	0.081	0.282 *	0.081	0.663 *	0.201	0.668 *	0.198
γ_{30}, % Asian quintile 3	0.324 *	0.102	0.278 *	0.102	0.687 *	0.190	0.668 *	0.187
γ_{40}, % Asian quintile 4	-0.108	0.146	-0.145	0.143	0.256	0.146	0.246	0.145
γ_{50}, % Asian quintile 5	-0.364	0.207	-0.391	0.201	—	—	—	—
γ_{60}, **Foreclosure rate, 2007 to 2009**	-1.747 *	0.242	-1.745 *	0.242	-1.747 *	0.242	-1.745 *	0.242
γ_{70}, **In principal city of CBSA**	-0.343	0.227	-0.340	0.226	-0.343	0.227	-0.340	0.226
γ_{80}, **Population (in 100s)**	-0.019 *	0.003	-0.019 *	0.003	-0.019 *	0.003	-0.019 *	0.003
γ_{90}, **Percent vacant housing**	0.023 *	0.005	0.022 *	0.005	0.023 *	0.005	0.022 *	0.005
γ_{100}, **Percent population not in tract in 1995**	-0.058 *	0.012	-0.058 *	0.012	-0.058 *	0.012	-0.058 *	0.012
γ_{110}, **Percent foreign-born**	-0.046 *	0.020	-0.046 *	0.020	-0.046 *	0.020	-0.046 *	0.020
γ_{120}, **Percent elderly**	0.013	0.009	0.013	0.009	0.013	0.009	0.013	0.009
γ_{130}, **Percent unemployed**	0.036 *	0.005	0.036 *	0.005	0.036 *	0.005	0.036 *	0.005
Unconditional variance in intercepts	6.20				9.51			
Residual variance in intercepts	6.03		4.89		8.86		6.77	
% of variance in intercepts explained	2.9		21.2		6.8		28.8	

Notes: Level-1 N = 66,346; level-2 N = 942. Bolded non-italicized variables have been group-mean (CBSA) centered. Bolded italicized variables have been grand-mean centered.

Table 9. Coefficient and Standard Error Estimates from HLM Regressions of Change in Neighborhood SES on Tract Percent Latino and Control Variables, 2000 to 2008/2012

	Quintile 1				Quintile 5			
	Model 1		Model 2		Model 1		Model 2	
Parameter	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
γ_{00}, Intercept (% Latino quintile 1)	3.231 *	0.115	3.234 *	0.107	—	—	—	—
γ_{00}, Intercept (% Latino quintile 5)	—	—	—	—	0.064	0.212	-0.012	0.204
γ_{01}, ***Latino isolation***	0.061 *	0.006	-0.003	0.018	0.061 *	0.006	-0.004	0.018
γ_{02}, ***Population (in 10,000s)***	—	—	0.130	0.072	—	—	0.137	0.072
γ_{03}, ***Percent Latino in CBSA***	—	—	0.050 *	0.022	—	—	0.050 *	0.022
γ_{04}, ***Northeast region***	—	—	0.055	0.343	—	—	0.051	0.343
γ_{05}, ***Midwest region***	—	—	-3.406 *	0.274	—	—	-3.410 *	0.274
γ_{06}, ***South region***	—	—	-2.291 *	0.240	—	—	-2.290 *	0.240
γ_{10}, % Latino quintile 1	—	—	—	—	3.162 *	0.231	3.248 *	0.229
γ_{20}, % Latino quintile 2	-0.227 *	0.088	-0.230 *	0.087	2.945 *	0.225	3.012 *	0.222
γ_{30}, % Latino quintile 3	-1.135 *	0.116	-1.184 *	0.115	2.034 *	0.216	2.063 *	0.214
γ_{40}, % Latino quintile 4	-2.210 *	0.145	-2.252 *	0.146	0.951 *	0.175	0.989 *	0.171
γ_{50}, % Latino quintile 5	-3.167 *	0.232	-3.246 *	0.229	—	—	—	—
γ_{60}, **Foreclosure rate, 2007 to 2009**	-1.583 *	0.253	-1.580 *	0.253	-1.583 *	0.253	-1.580 *	0.253
γ_{70}, **In principal city of CBSA**	-0.234	0.222	-0.235	0.222	-0.235	0.222	-0.235	0.222
γ_{80}, **Population (in 100s)**	-0.017 *	0.003	-0.017 *	0.003	-0.017 *	0.003	-0.017 *	0.003
γ_{90}, **Percent vacant housing**	0.011 *	0.005	0.011 *	0.005	0.011 *	0.005	0.011 *	0.005
γ_{100}, **Percent population not in tract in 1995**	-0.049 *	0.008	-0.049 *	0.008	-0.049 *	0.008	-0.049 *	0.008
γ_{110}, **Percent foreign-born**	-0.049 *	0.017	-0.049 *	0.017	-0.049 *	0.017	-0.049 *	0.017
γ_{120}, **Percent elderly**	0.016	0.009	0.016	0.009	0.016	0.009	0.016	0.009
γ_{130}, **Percent unemployed**	0.038 *	0.005	0.038 *	0.005	0.038 *	0.005	0.038 *	0.005
Unconditional variance in intercepts	6.54				9.90			
Residual variance in intercepts	6.29		4.82		9.21		7.55	
% of variance in intercepts explained	3.8		26.3		7.0		23.7	

Notes: Level-1 *N* = 66,346; level-2 N = 942. Bolded non-italicized variables have been group-mean (CBSA) centered. Bolded italicized variables have been grand-mean centered.