Version – GF6 CF5/ September 24, 2012

Still Separate, but Less Unequal: The Decline in Racial Neighborhood Inequality in America

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Word count: about 11,100

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Abstract

This article describes the trends in racial neighborhood inequality in America's metropolitan areas since 1980. We find that the neighborhoods where whites and minorities reside have become significantly more alike over the past three decades, especially with regard to neighborhood poverty. The convergence of African-Americans has been greater and more consistent than the convergence of Hispanics, which has occurred only in the last decade. With regard to Asians, the poverty rate where the average Asian lives now is virtually the same as where the average white lives. Although large neighborhood disparities remain for blacks and Hispanics vis-à-vis whites and Asians, declines in racial neighborhood inequality over the past three decades have been substantial, and have far outpaced declines in racial neighborhood segregation in most areas.

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Members of different racial groups reside disproportionately in rich and poor neighborhoods in America's metropolitan areas. As recently as 1980, for example, the *average* urban black lived in a neighborhood where the poverty rate exceeded the rate in the neighborhoods where all but 8% of urban whites lived (calculated using data from the U.S. census). For African-Americans in particular, economic disparity at the neighborhood level – which we call *racial neighborhood inequality,* or *RNI* – greatly exceeds racial inequality at the individual or household level (Logan 2002, 2011; Sharkey 2009).

Although racial neighborhood inequality has long been recognized as a critical component of racial stratification in America (Myrdal 1944; Du Bois 1899), we know little about how it is changing and why. In this study we describe trends in RNI since 1980 for the four racial groups[1] – Hispanics and non-Hispanic whites, blacks, and Asians – that comprise 97 percent of the U.S. population. We investigate the convergence/divergence of each group in turn to determine which groups are assimilating into the mainstream, and which are not, with respect to neighborhood economic environments. Because inequality reflects both ends of a distribution (not just concentrated disadvantage), we use two measures of inequality, one based on neighborhood poverty and the other based on median neighborhood income.

The article is organized as follows. We begin by discussing what racial neighborhood inequality is and why it matters. We then review the literature on RNI noting that, because prior studies lack easily interpretable summary statistics on RNI, it is difficult to say how fast RNI is changing in America or how much it varies across metropolitan areas or how large it is compared

[1] Although the term "Hispanic" is most often considered an ethnic designation, for simplicity we refer to whites, blacks, Hispanics and Asians as racial groups.

to other types of inequality. Using the Gini index of inequality, we present new findings on RNI for Hispanics and non-Hispanic whites, blacks, and Asians based on all 366 U.S. metropolitan areas in 1980, 1990, 2000, and 2010. To determine which groups are converging with the rest of the American population, we begin by comparing whites with nonwhites, blacks with nonblacks, Hispanics with non-Hispanics, and Asians with non-Asians.

A key finding is that the neighborhoods of whites and nonwhites have become significantly more alike, economically, over the past three decades. In a second set of analyses we unpack this finding to determine which nonwhite groups are moving toward whites in terms of local economic environments. We find that blacks, who differed the most from whites in 1980, have moved toward whites the most over the past 30 years. Reductions in Hispanic-white and Asian-white neighborhood inequality have been smaller and more sporadic, concentrated in the last 10 years. As measured by neighborhood poverty, there has been near convergence of Asians with whites and of Hispanics with blacks; the neighborhood poverty rate where the average Asian lives is now virtually the same as where the average white lives, and the neighborhood poverty rate where the average black lives does not differ much from the rate where the average Hispanic lives. We conclude the analysis by examining the metropolitan areas with the highest and lowest levels of racial neighborhood inequality, and we conclude the article by suggesting an agenda for future research on racial neighborhood inequality.

Racial Neighborhood Inequality: What it is and Why it Matters

Racial neighborhood inequality refers to disparities in the economic levels of the neighborhoods where different racial groups live. To capture both sides of the economic continuum – concentrated affluence as well as concentrated poverty – we use two measures of

RNI in this study, one based on median household income in a neighborhood and one based on neighborhood poverty rate. To be very clear, our aim is to investigate group disparities in the poverty rates and average incomes of the neighborhoods where whites, blacks, Hispanics, and Asians live, not to be confused with group differences in poverty and income *within* neighborhoods.

Disparities in the neighborhood economic environments of whites, blacks, Hispanics and Asians in America derive from three types of residential segregation (Quillian 2012): racial segregation itself, within-race economic segregation, and cross-race economic segregation. Using Quillian's example of neighborhood poverty rates for blacks vs. non-blacks, within-race economic segregation refers to the extent to which poor and non-poor blacks are residentially segregated, whereas cross-race economic segregation refers to the extent to which poor blacks are residentially segregated from non-poor individuals of other racial groups. Cross-race economic segregation contributes to racial neighborhood inequality when minorities reside disproportionately in neighborhoods populated by poorer members of other groups (this occurs, for example, when the nonblack neighbors of a *black* family tend to be poorer than the nonblack neighbors of a *nonblack* family with the same income as the black family).

The possibility of cross-race economic segregation implies that if blacks tend to reside in high-poverty neighborhoods in some metropolitan area, we should not assume that this is the case because their black neighbors are poor; it could be their white or Hispanic or Asian neighbors who are poor.[2] In order to take into account the important role played by the income

[2] In the calculation of group disparities in neighborhood income environments, then, we need to know only the racial composition and poverty rate or average income of each neighborhood, all of which are readily available in summary tables from the U.S. Census. We do not need to know neighborhood poverty rate or average income broken down by race. Nor do we need metro-level summary income data for each group, as we would if our aim were to investigate income inequality and residential income segregation within groups (see Reardon and Bischoff, 2011).

of other-race neighbors, then, we begin by comparing each racial group in turn with all other metropolitan residents (e.g., whites vs. non-whites and blacks vs. non-blacks rather than whites vs. blacks). That is Quillian's approach in his study of the spatial concentration of poverty for blacks, and that is our point of departure in this study of racial neighborhood inequality more generally.

Although there are many studies of the spatial concentration of poverty in America (Krivo et al. 1998; Massey 1990; Massey and Denton 1993; Jargowsky 1996, 1997), almost none use a standard summary index of inequality to estimate racial neighborhood inequality in America. While we can speculate that RNI is quite large (see next section), in the absence of direct measurement using a standard index it is difficult to determine exactly how large it is relative to other types of inequality, such as racial inequality at the household level.

Racial neighborhood inequality matters because neighborhood environments affect the quality of life and life chances for individuals (Harding 2003; Patillo-McCoy 1999; Sampson, Morenoff and Gannon-Rowley 2002; Sharkey 2008). If poor neighborhood environments adversely affect the life chances of individuals and their children, then racial disparities in neighborhood environments can serve as the wellspring for racial disparities in other domains that can persist across generations (Sharkey 2008, 2009). It is important to stress that racial neighborhood inequality differs from racial neighborhood *segregation* because, as Quillian (2012) shows, racial differences in neighborhood economic conditions result from *within-race and cross-race economic segregation* as well as from racial segregation itself. Hence racial neighborhood inequality mirrors racial neighborhood segregation only if within-race and cross-race economic segregation account for a constant proportion of RNI across metropolitan areas –

which clearly has not been the case, as we discover in our analysis of trends in America since 1980. Separate should not be conflated with unequal.

In terms of telling us about inequality in the local economic environments experienced by different groups, then, the study of residential segregation is only part way there. Segregation tells us that racial inequality is possible at the neighborhood level,[3] but does not tell us how large it is, or which metropolitan areas have the greatest levels of RNI. If we agree that the problem with racial residential segregation is not just that it separates individuals of different racial groups, but that it contributes to the disadvantages of some groups relative to others (Massey and Denton 1993; Cutler and Glaeser 1997), then the analysis of residential segregation is incomplete. As Alba et al. (2008, p. 14) put it, "While segregation indices can inform us about the extent to which members of different groups live in different neighborhoods, they cannot tell us directly about the 'qualities' of the neighborhoods in which group members reside."

Evidence Bearing on Racial Neighborhood Inequality

Evidence that RNI might be very large comes from many sources. Research by urban planners and health policy researchers uncovers unevenness in the "geography of opportunity" of different racial and ethnic groups with respect to housing choice (Briggs 2005; Briggs and Keys 2009; Osypuk et al. 2009). Research by sociologists and other social scientists focusing on locational attainment (Alba and Logan 1991; Crowder and South 2005; Logan et al. 1996; Rosenbaum and Friedman 2006; Sampson and Sharkey 2008; South, Crowder and Chavez 2005; Woldoff and Ovadia 2009), economic segregation (Jargowsky 1996, 1997; Wilson 1987), concentrated disadvantage (Krivo et al. 1998; Massey and Denton 1993; Massey and Eggers 1990; Sampson, Sharkey and Raudenbush 2008), and exposure to poverty in urban areas

[3] There could be no racial neighborhood inequality if all neighborhoods had the same racial composition.

(Quillian 2003; Timberlake 2007; Timberlake and Iceland 2007) paint a picture of significant disparities in the neighborhoods where whites, blacks, Hispanics, and Asians reside, with whites disproportionately represented in the most affluent neighborhoods and blacks in the least affluent.

Despite that mountain of indirect evidence, we found only three studies (Timberlake 2002; Timberlake and Iceland 2007; Osypuk et al. 2009) that actually employ a measure of inequality to examine racial neighborhood inequality in America. All three studies use census tracts as proxies for neighborhoods, all measure RNI on the basis of poverty rates, and all compare minority groups to non-Hispanic whites. Osypuk et al. (2009) examined RNI for blacks vs. whites and Hispanics vs. whites for the 100 largest U.S. metropolitan areas in 2000 whereas Timberlake (2002) examined RNI (in his terms, "residential stratification") for blacks vs. whites (N=200 metro areas), Hispanics vs. whites (127 metro areas), and Asians vs. whites (77 metro areas) in 1980 and 1990. Timberlake and Iceland (2007) expanded the Timberlake (2002) analysis by adding data for 1970 and 2000 and using a regression model to determine the predictors of RNI in 2000 and change in RNI from 1970 to 2000.

However, none of these pioneering studies employs a measure of inequality that allows us to compare the magnitude of racial neighborhood inequality with the magnitude of other types of inequality. Inequality is a type of variance, and variance is a property of a distribution as a whole, so a measure of inequality should take into account all the points on a distribution. Measures that are based on a single point on a distribution, or on parts of a distribution, are suspect because they fail to reflect intuition about inequality, such as the principle that inequality is reduced when income is transferred from a richer person to a poorer person, and increased

when income is transferred from a poorer person to a richer person.[4] Standard inequality indexes satisfy such axiomatic criteria and thus qualify as valid measures of inequality (Allison 1978; Cowell 2011).

Osypuk et al. (2009) use two novel measures that reflect the amount of overlap of the distributions of the two groups being compared. Because the measures are based on a single point on the Lorenz curve of inequality (Appendix), they ignore most of the information in the two group distributions; this is in contrast to the Gini index of inequality, for example, which is based on all the points on the Lorenz curve, as explained in the discussion of Figures 1-3 (below). The studies by Timberlake (2002) and Timberlake and Iceland (2007) use the Index of Net Difference (ND), a measure that *is* based on information for the entire distribution, but has not been adopted as a standard measure of inequality.

In short, the evidence on racial neighborhood inequality to date is limited and hard to compare with segregation. We want an index of inequality with known properties that can be used to measure both inequality and segregation. The index must also be compositionally invariant, meaning that it is not sensitive to changes in the relative sizes of groups; this property is important in the current study because of the rapidly-changing racial composition of many areas in America (Lee, Farrell, and Sharp 2012). The Gini index is the natural choice: its properties are well-established (Cowell 2011), it measures segregation as well as inequality (Duncan and Duncan 1955), and it is compositionally invariant (Reardon and Firebaugh 2002). By using the Gini we can directly compare racial neighborhood inequality with other types of inequalities, as well as with segregation. In addition, the Gini is insensitive to inflation and cost of living differences, so it is ideal for comparisons across time and space.

[4] Measures based on the interquartile range, for example, fail to capture the change in inequality resulting from income transfers from richer to poorer (or poorer to richer) individuals within quartiles.

Data

For a nationwide study of neighborhoods, we need a proxy for neighborhoods that is readily available and relatively standard throughout the United States. Following Timberlake (2002), Osypuk et al. (2009), and many others, we use census-defined tracts as our measure of neighborhoods. Tracts are population-based geographic units nested within counties or county equivalents and generally average about 4,000 inhabitants. Our tract-level data for the 1980-2010 time period are based on summary files from the U.S. Census and from the American Community Survey (ACS) 2005-2009 five-year estimates. To ensure that the trends we observe are based on a consistent set of boundaries, we standardize all census tract data to 2000 boundaries using the GeoLytics suite of products (GeoLytics, Inc. 2004, 2006, 2011b).[5] In contrast to Osypuk et al. (2009), who base their results on the largest 100 metropolitan areas, we include all 366 metropolitan areas in the United States.[6] These 366 areas are comprised of 53,138 census tracts, capturing 77 percent of the total U.S. population in 1980, 82 percent in 1990, 83 percent in 2000, and 84 percent in 2010.

Using decennial census counts, we assess the residential circumstances of the four racial/ethnic groups that include all but about 3% of the American population: 1) non-Hispanic whites, 2) non-Hispanic blacks, 3) non-Hispanic Asians and Pacific Islanders, and 4) Hispanics of any race. The last 30 years have seen momentous change in the composition of the U.S.

[5] We also use tract data from *American Community Survey 2009* database (GeoLytics 2011b). These data do not require standardization because they are already provided in 2000 boundaries, though there are a few counties for which the 2005-2009 ACS tract boundaries are based on 2010 geographic definitions. This affects just 24 of the 50,000+ tracts included in our sample and we exclude them from the analyses. For details, see http://www.census.gov/acs/www/data_documentation/geography_notes/#tracts.

[6] As defined by the U.S. Office of Management and Budget (OMB), a metropolitan area contains a core urban area population of 50,000 or more. It is comprised of the county or counties in which the core is located as well as any adjacent counties that are socially and economically integrated with the core. We use OMB's November 2008 update of metropolitan definitions: http://www.census.gov/population/www/metroareas/lists/2008/List1.txt.

population with respect to these groups. From 1980 to 2010, Hispanics increased from 6.5% to 16.4% of the U.S. population; Asians increased from 1.6% to 4.9%. While these changes are well-known, we know much less about what shifts, if any, have occurred in the relative economic environments where whites, blacks, Hispanics and Asians live.

We use long-form census data and ACS 2005-2009 estimates to derive two measures of neighborhood SES – poverty rate and median household income. The poverty rate captures only the lower end of the neighborhood income distribution whereas median income encapsulates middle and upper localized incomes as well. Thus by comparing results for the two measures we can better pinpoint the source of racial disparities in neighborhood environments – whether the differences are primarily at the lower end of the income distribution, or at the middle and upper ends, or roughly the same at both ends.

Racial Neighborhood Inequality, Part 1: "Other Americans" as the Comparison Group

Convergence Nationally

We first examine levels of racial neighborhood inequality in America's metropolitan areas, and changes in those levels since 1980. From change in the RNI values we can determine whether there is convergence or divergence in the neighborhood economic environments for each of the groups – whites, blacks, Hispanics, and Asians, respectively – versus the other groups collectively. Our first task is to present the Gini coefficients for poverty- and income-based RNI based on all 53,138 census tracts for U.S. metropolitan areas as a whole, ignoring metropolitan boundaries. As noted earlier, the Gini is insensitive to inflation and to cost of living differences, so we can compare Gini coefficient across time and place.

To understand our procedures, imagine all 53,138 tracts arranged in a column from poorest to richest on the basis of poverty rate, so the highest-poverty census tracts in America are at the top and the lowest-poverty tracts are at the bottom. Now add two columns for the cumulative percentages of tract residents, starting with the poorest tract at the top. One column gives the cumulative percentage of nonwhites living in the tracts, and the second gives the cumulative percentage of whites living in the tracts. Plotting the values of those two columns on a graph, with nonwhites (the group living disproportionately in the poorer neighborhoods) on the x-axis and whites on the y-axis, yields the two curves in Figure 1, called "Lorenz curves" (Gastwirth 1972; Lorenz 1905). The Gini index is based on the area between the Lorenz curve and the 45-degree line of equality.

Figure 1 about here

Note that in Figure 1 the Lorenz curve is closer to the line of equality in 2010 than it was in 1980, indicating that the disparity in neighborhood poverty rates for nonwhites and whites declined from 1980 to 2010. This decline is summarized by the Gini coefficient, which fell from .57 to .36. To get a better sense of the magnitude of this decline, we can compare particular points in the two Lorenz curves. Consider the 50th percentile for non-whites, for example. In 1980 about 10% of whites lived in higher-poverty neighborhoods than the neighborhood where the *average* (median) non-white lived; by 2010 the difference had narrowed, with about 22% of whites living in neighborhoods with poorer neighborhoods than for the average non-white. Stated differently, 90% of whites lived in lower poverty neighborhoods than the average nonwhite in 1980; in 2010, 78% of whites lived in lower poverty neighborhoods than the average non-white.

Figures 2 and 3 depict the Lorenz curves for black and Hispanic poverty RNI, respectively (curves for Asians are not presented because the disparities are so small). In Figure 2 we see that in 1980 about 9% of non-blacks lived in neighborhoods poorer than the neighborhood where the average black lived; in 2010, about 23% of non-blacks lived in poorer neighborhoods than the average black. The change for Hispanics is in the same direction, but less dramatic. In 1980, one in five non-Hispanics lived in neighborhoods poorer than the neighborhood where the average Hispanic lived. In 2010, about one in four non-Hispanics lived in neighborhoods poorer than the neighborhood where the average Hispanic lived.

Figures 2 and 3 about here

Table 1 provides a more panoramic view of change in racial neighborhood inequality in America by reporting the Gini coefficients for all four groups during the three decades from 1980 to 2010. The panel headings for each of the group combinations indicate how to interpret the indices. The group listed first has the lower income (in the aggregate) and the second group is the higher income group. In other words, the first group appears on the x-axis of the Lorenz curves and the second group appears on the y-axis. Thus, positive values indicate relative residential advantage for whites and Asians (compared to their nonwhite and non-Asian counterparts), and positive values indicate relative residential disadvantage for blacks and Hispanics.

In addition to reporting the level of racial neighborhood inequality in Table 1, we also report the level of racial neighborhood *segregation* for each of the paired groups. Because both are measured using the Gini coefficient, we can compare the relative magnitudes of racial neighborhood inequality and segregation.[7] As with the RNI indices, these segregation

[7] Complete racial segregation (Gini = 1) at the neighborhood level means that all neighborhoods are racially homogeneous, and complete integration (Gini = 0) means that the racial composition of each neighborhood mirrors

coefficients are calculated irrespective of metro boundaries. Subsequent analyses will take into account metro-specific segregation levels.

Table 1 about here

We highlight three findings. First, with the exception of Asians (where the disparities are relatively minor), the overall trend since 1980 has been one of declining racial neighborhood inequality in metropolitan America. In fact, the decline in racial neighborhood inequality is outpacing the decline in segregation. Across the metropolitan landscape, white, black, and Hispanic residents have seen their neighborhoods converge much more rapidly in terms of socioeconomic composition than racial composition – a result that is in line with what Timberlake and Iceland (2007) found for the 1970-2000 period. In recent decades, then, racial neighborhood inequality in America has been less resistant to change than racial neighborhood segregation.

Second, the convergence of blacks has been faster and more consistent than the convergence of Hispanics. In 1980 blacks tended to live in notably more disadvantaged neighborhoods than Hispanics, with Gini coefficients of .63 for blacks/nonblacks versus .42 for Hispanics/nonHispanics based on poverty rates and .53 versus .33 based on median income. Thirty years later the differences are much smaller, especially with respect to poverty RNI. The 2010 black/nonblack and Hispanic/nonHispanic neighborhood poverty Gini coefficients are .37 and .34 respectively – roughly the same as the estimated level of post-tax income inequality in the United States (OECD, 2012). While Ginis of this size still represent substantial inequality, the decline for blacks since 1980 has been remarkable. Hispanic RNI was volatile over the period, often increasing in earlier decades only to fall sharply in the most recent decade, most

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the racial composition for the metropolitan area as a whole. In other words, Gini measures of segregation capture the inequality or "unevenness" (Massey and Denton 1988) in the distribution of groups across spatial or organizational units.

likely due to the spatial dispersion of Hispanics to new destinations in America (Lichter, Parisi, and Taquino, 2012). By contrast, black RNI declined fairly rapidly in all three decades for both poverty and income. Given the volatility in the pattern for Hispanics, it is difficult to predict whether the 2020 census will indicate higher levels of RNI for Hispanics or for blacks. In a similar vein, whites are becoming less removed from localized poverty and Asians are much closer to residential parity with whites than the other minority groups are.

Finally, it is noteworthy that changes in RNI accelerated in 2000-2010. This decade featured the largest RNI declines for white, black, and Hispanic residents. In fact, the recent trend toward Hispanic convergence more than offset divergent trends from earlier decades. This was particularly the case at the lower end of the income distribution, as recent poverty-based inequality decreased more rapidly than income-based inequality in absolute and relative terms. The source of this acceleration is unclear, and its solution would require the analysis of tract-specific changes and residential mobility patterns that lie outside the scope of this study.[8]

Results for Metropolitan Areas: Convergence Locally

We turn now to the comparison of tracts within metropolitan areas. This is in contrast to the analysis above where we compare census tracts in Detroit, for example, to census tracts in Houston, New York, San Diego, etc.; so our findings to this point bear on racial disparities relative to a national, not local, tract average. Racial disparities at the local metropolitan level could differ from those at the national level because racial groups are spread unevenly across

[8] Some of the acceleration might be due to acceleration in the decline of racial segregation over this decade, but probably not all of it, since the decline in RNI was much faster. Perhaps the decline in RNI was also boosted by the mortgage crisis toward the end of the decade, the singular residential event of the period; but our dependent variables here are neighborhood poverty rates and household incomes, not home values. Although one might speculate that plunging prices for houses enabled some minorities to move to better neighborhoods, that seems unlikely on a large scale because the economic recession accompanying the housing crisis disproportionately affected minorities (Rugh and Massey 2010).

regions and metropolitan areas that have different labor markets and different segregation histories and cultures. We expect differences between local and national convergence to be especially pronounced for immigrant-rich groups (i.e., Asians and Hispanics) characterized by uneven and changing spatial distribution across America's landscape (see Iceland 2009; Massey 2008).

In comparing racial disparities at the local level with those at the national level, it is important to remember that the national values in Table 1 are based on single Lorenz curves for all metropolitan areas combined, whereas those in Table 2 below are based on 366 Lorenz curves (one for each metropolitan area). The means reported in Table 2 are Ginis weighted by population size. The weighting is important. As described earlier, Lorenz curves are constructed using cumulative population percentages so, for a given Gini, census tracts with more residents automatically count more than tracts with fewer residents. In calculating averages across areas, however, we must take the population of the area into account because metropolitan areas in the United States vary greatly in size. Hence we weighted the means in Table 2 by the population of the focal group in the metropolitan area.

We find that convergence of neighborhoods at the metropolitan level on the whole is similar to convergence of neighborhoods at the national level. There are nonetheless some important differences. We expected the metro-specific average Ginis (Table 2) to diverge from the national Ginis (Table 1) the most for Hispanics and Asians, reflecting the uneven and changing geographic distribution of these immigrant groups. In line with these expectations, the trends in Tables 1 and 2 differ more for Hispanics and Asians than for whites and blacks. Income RNI, for example, declined by about 15% for Hispanics in the 1980s when metropolitan boundaries are ignored while increasing by about 5% on average within metropolitan areas.

While these differences no doubt reflect the metropolitan concentration and migration patterns for Hispanics and Asians in the United States, it remains for future research to fill in the details of how these patterns produce the observed differences between Tables 1 and 2.

The findings for income RNI for Asians likewise differ depending on whether we look at metropolitan averages or at metropolitan areas collectively (the metropolitan averages are much smaller). Note also the negative values for poverty-based Asian RNI in 1980 and 1990. As discussed in the previous section, we have configured the white and Asian RNI indices such that positive values indicate relative residential advantage for these two groups. Thus, the -.03 Gini values for poverty RNI for Asians in 1980 and 1990 indicate that the average metropolitan Asian resident lived in a neighborhood with (very slightly) above-average poverty rates in 1980 and 1990. In 2000 and 2010, Asians lived in neighborhoods where poverty rates tended to be (very slightly) lower than those where non-Asians lived – thus the positive Ginis of .01 and .07 for poverty RNI for those years. While it is counterintuitive to express inequality (and the Gini) as a negative value, we retain this configuration because it is important not to conflate metros where Asians are the advantaged group with metros where non-Asians are the advantaged group. If we ignored the negative values for the Ginis, the standard deviations reported in Table 2 would understate the metro dispersion in RNI. This is less common with the other group combinations. For the other groups, the variance in racial neighborhood inequality across metropolitan areas tends to be fairly small relative to the mean; while the means for the RNI Ginis range from .33 to .64 for nonwhites, blacks, and Hispanics, the standard deviations of the Ginis are all .18 or smaller. From the relative sizes of the means and standard deviations we can infer that

neighborhood environments disfavor non-Asian minorities in virtually every American metropolitan area.[9]

Table 2 about here

Along these lines, note that racial neighborhood inequality is *not* always smaller at the local level than it is for the country as a whole. That feature (among others) distinguishes racial neighborhood inequality from racial neighborhood segregation. Because some of the racial clustering in America is across regions and metropolitan areas (for example, blacks live disproportionately in the South, and Hispanics and Asians live disproportionately in certain cities [Lee, Farrell, and Sharp 2012]), racial segregation is always greater at the national level. Indeed, when measured by a decomposable index, segregation can be written as the weighted sum of within- and across-urban components (Fischer et al. 2004), so average segregation at the metropolitan level cannot exceed segregation at the national level. Apparently racial neighborhood inequality is not so readily partitioned, but is a more complex phenomenon involving different types of segregation that can have offsetting effects (Quillian 2012).

Racial Neighborhood Inequality, Part 2: Whites as the Comparison Group

Based on our analysis of the census tracts of all 366 metropolitan areas in the United States, we conclude that neighborhood economic conditions have become less unequal for minorities and whites since 1980, especially with regard to neighborhood poverty. In this section we unpack that finding by identifying the minority populations most responsible for this convergence – is it blacks converging with whites? Or Hispanics converging with whites? Or Asians converging with whites?

[9] For poverty GNI and income GNI in the 366 metropolitan areas in 2010, there are only 74 instances (of 366x2x3=2196 possibilities) where non-whites lived in more affluent neighborhoods than whites, blacks in more affluent neighborhoods than non-blacks, or Hispanics in more affluent neighborhoods than non-Hispanics.

To begin, it is instructive to examine the neighborhood poverty rates for the average (median) white, black, Hispanic, and Asian residing in U.S. metropolitan areas. In Table 3, the values are obtained by ranking the 53,138 census tracts from high to low on poverty, and selecting the value at the 50th percentile for each of the groups in 1980 and 2005-2009. Poverty rates over this period increased in the neighborhood of the average white, from 6.7% to 7.6%, while declining in the neighborhood of the average nonwhite, from 18.1% to 14.0%. As a result, the nonwhite/white ratio declined from 2.70 to 1.84. Poverty rates declined the most dramatically in the neighborhood of the average black resident, from 22.1% to 16.7%, which is still 2.2 times the poverty rate in the neighborhood where the average white lives (Table 3). The Hispanic/white ratio declined from 2.36 to 2.01 largely because of an increase in neighborhood poverty rate for the average white rather than a decline for the average Hispanic, as the latter was modest (from 15.8% to 15.3%). Neighborhood poverty rates converged nearly completely for the average Asian and average white (Asian/white ratio = 1.03) due to a decrease in poverty rates in the neighborhoods where Asians live and an increase in the neighborhoods where whites live.

Table 3 about here

On the basis of these results, it appears that the narrowing of differences in the neighborhood poverty rates for nonwhites and whites was driven largely by the narrowing of differences between blacks and whites, as the difference between blacks and whites narrowed considerably while the difference between Hispanics and whites narrowed only modestly. At the same time, the difference between blacks and Hispanics narrowed dramatically, as poverty rates in the neighborhoods where blacks lived declined toward the Hispanic rates. With respect to the Gini coefficients, then, we expect to find a large decline for blacks versus whites, and a more modest decline for Hispanics versus whites.

Table 4 reports the means and standard deviations for the Gini coefficients using whites as the comparison group. For convenience, we reproduce the results for nonwhites and whites from Table 2. While the results in general are not as dramatic as in Table 2, the overall picture remains the same. In particular, blacks remain the most residentially disadvantaged group even though they have experienced larger residential gains than either Hispanics or Asians. Also, as in Table 2, declining black-white RNI has been a multi-decade phenomenon while virtually all of the 30-year drop in Hispanic-white and Asian-white RNI has occurred in the past ten years.

Table 4 about here

In addition, there was (as before) greater narrowing of neighborhood disparities at the lower end of the income distribution than in the middle and upper end of the distribution. As measured by the Gini, black-white disparities were reduced by 27.6% based on poverty and by just 16% based on income. A very similar trend can be observed for Asian-white RNI, though the Ginis are much smaller overall for this group dyad. Hispanic-white differences in neighborhood poverty have declined more modestly than they have for blacks, but they still have dropped at three times the rate of Hispanic-white neighborhood inequality based on median income. Poverty-based RNI has declined so rapidly that it is now lower than income-based RNI for blacks and Hispanics vis-a-vis whites.

Likewise, declines in racial neighborhood inequality surpass declines in residential segregation, as in Table 2. Black, Hispanic, and Asian residents are increasingly residing in neighborhoods that look similar in socioeconomic terms to the neighborhoods where whites live, with the movement toward racially integrated neighborhoods proceeding at a much slower pace.

Finally, note that the neighborhood convergence of blacks with non-blacks is attributable partially but not entirely to the neighborhood convergence of blacks with whites. Income RNI,

for example, declined 25% for blacks and non-blacks (Table 2) but only 16% for blacks and whites (Table 4). Some of the convergence of blacks and non-blacks, then, is due to a growing similarity in the neighborhoods of blacks and other minorities. Similarly, the decline in the neighborhood *segregation* of blacks and non-blacks is attributable both to reduced black-white segregation and to reduced segregation of blacks with other minority populations.

To test this conclusion, we conducted a separate analysis (not shown) of RNI and segregation between blacks and Hispanics, the two largest nonwhite groups. Black and Hispanic neighborhood environments did in fact converge rapidly over the three-decade period; poverty-based RNI declined 58% from a weighted mean of .31 in 1980 to .13 in 2010 and income-based RNI declined 40% from .25 in 1980 to .15 in 2010.[10] By 2010, then, the neighborhood disadvantage experienced by blacks vis-a-vis Hispanics was not greatly higher than that experienced by Asians in relation to whites. Consistent with the Hispanic-white trends summarized above, much (but not all) of this RNI reduction occurred recently. Black-Hispanic poverty RNI declined by more than one-third (35%) and income RNI declined by one-quarter between 2000 and 2010. Black-Hispanic segregation also declined over this period, from a weighted mean Gini of .73 in 1980 to .61 in 2010, but the rate of segregation decline was too gradual (16%) to fully account for the RNI declines occurring between these two groups.

Racial Neighborhood Inequality at the Extremes

We remarked earlier about the consistent direction of racial neighborhood inequality; in virtually all metros, blacks and Hispanics tend to reside in poorer neighborhoods than whites do, as measured either by poverty rate or median income. There is a great deal of variability in the metro-to-metro magnitude of RNI, however, and we conclude our analysis by examining those

[10] These results are weighted by the decade-specific black population size in each metro.

metropolitan areas falling on the low and high ends of the continuum. We focus on income-based RNI for the two most residentially disadvantaged groups: blacks and Hispanics. Table 5 lists the metropolitan areas where, in 2010, black income environments were the least disadvantaged (left panels) and most disadvantaged (right panels) vis-à-vis those of whites and non-blacks. Given that previous analyses have weighted RNI indices by the focal group's population size, we limit our consideration to those metropolitan areas with black populations of at least 25,000.

Table 5 about here

The magnitude of the metro differences is startling. For black-white inequality based on median neighborhood income, the Ginis range from .78 in Milwaukee to near equality (Gini = .01) in Hinesville, Georgia. The metropolitan areas with the smallest black-white neighborhood disparities are found in the South and West and tend to be smaller in size, with just Riverside-San Bernardino exceeding one million residents. When using the more inclusive (and racially diverse) reference group of non-blacks (lower left panel) the regional picture looks largely the same despite some rank shifting among metros. One noteworthy change is the appearance of San Antonio and Tuscson—both have large Hispanic populations and a smaller black presence in proportional terms—among the metros with the least residential disadvantage for blacks. Thus, as expected, the inclusion of other nonwhite populations tends to attenuate the estimated residential inequality experienced by blacks. With the exception of Monroe, Louisiana, the metropolitan areas with the largest neighborhood disparities between blacks and whites (upper right panel) and blacks and non-blacks (lower right panel) are all located in the Midwest or Northeast. They range from relatively small metros (e.g., Saginaw, Michigan and Bridgeport, Connecticut) to Chicago, Milwaukee, and Cleveland, large metropolitan areas well-known for being residentially segmented along racial lines.

Table 6 provides a list of metropolitan outliers for Hispanic neighborhood income inequality. Among metropolitan areas with at least 25,000 Hispanic residents, income-based RNI is negligible in certain metropolitan areas and extremely high in others. For Hispanics and whites, the Ginis range from .01 in Deltona-Daytona Beach, Florida to .73 in Reading, Pennsylvania. We again see strong regional patterns with respect to neighborhood income inequality. Hispanics experience income environments that are similar to whites in several southern and western metros—Pittsburgh is the exception—while the Northeast stands out in terms of Hispanic residential disadvantage. When considering Hispanics versus all non-Hispanics (lower left panel), the list of low inequality metropolitan areas becomes almost exclusively southern in character. Deltona-Daytona Beach and Baton Rouge are interesting cases because their income-based values are negative, indicating that Hispanics tend to reside in higher income neighborhoods than their non-Hispanic counterparts.

Table 6 about here

The Ginis in the upper panel of Table 6 tend to be greater than those in the lower panel, indicating greater Hispanic-white neighborhood inequality than Hispanic-nonHispanic neighborhood inequality. In Milwaukee, for example, the neighborhood inequality Gini for Hispanics declines from .62 to .44 when we change the comparison group from whites to the more inclusive non-Hispanic category – exactly as we would expect because one in seven residents in Milwaukee is black, and blacks tend to live in much poorer neighborhoods than whites (the black-white Gini is .78 [Table 5]). So Hispanics in Milwaukee are relatively less disadvantaged when compared to whites and blacks as opposed to whites alone. After taking into account the income environments of its black residents, then, Milwaukee disappears from the list of most unequal metros for Hispanics. As the Milwaukee example illustrates, the degree

of racial neighborhood inequality associated with a particular nonwhite group can vary quite a bit depending on whether the group is compared to all other groups or only to whites, especially when the metropolitan area is home to a large population of other-race minorities concentrated in less affluent neighborhoods.

Discussion and an Agenda for Future Research

In their recent study of residential segregation in America, Glaeser and Vigdor (2012) conclude that segregation peaked in the 1960s, and that today the racial segregation of America's neighborhoods is at its lowest level since 1910. As we have noted, however, separate is not the same as unequal, and what matters more is racial neighborhood *inequality*.

At first blush, the news about neighborhood inequality is even more optimistic than the news about neighborhood segregation. The neighborhoods of whites and nonwhites have become significantly more alike, economically, over the past three decades. For blacks especially, the decline in neighborhood inequality has outpaced the decline in neighborhood segregation since 1980 (Timberlake and Iceland [2007] observed the same pattern for the period 1970-2000). This is the case whether we compare blacks to nonblacks or blacks to whites, and whether we use poverty rate or median income to measure neighborhood inequality. Indeed, as measured by neighborhood poverty, the gap with whites has narrowed significantly for all three minority groups – blacks, Hispanics, and Asians. Asians and whites now have nearly the same neighborhood environments with respect to poverty, and neighborhood poverty has declined more rapidly for blacks than for Hispanics, resulting in a narrowing of the gap for those two large minority groups.

The challenge for future research is to determine why racial neighborhood inequality has declined. The hypothesis that the decline has resulted from *declining neighborhood racial*

segregation combined with *rising neighborhood income segregation* is a good place to begin. The decline in black-white neighborhood segregation is well-documented, and has been observed in our results as well. Rising neighborhood income segregation has been noted in recent studies by Reardon and Bischoff (2011a, 2011b) and by Fry and Taylor (2012). Reardon and Bischoff (2011b) found, for example, that the percentage of families living in neighborhoods they classified as either "poor" or "affluent" increased from 15% in 1970 to 31% in 2007. Likewise, Fry and Taylor (2012) found that residential segregation by income increased in 27 of the country's 30 largest metropolitan areas from 1980 to 2010.

Apparently, then, income has become more important, and race has become less important, in the residential sorting of Americans. The rise in income segregation could have a powerful dampening effect on racial neighborhood inequality, likely contributing even more than the decline in racial segregation. This is the case because (1) cross-race income segregation is an important source of RNI in America and (2) rising overall income segregation constricts cross-race income segregation. Cross-race income segregation contributes to racial neighborhood inequality when other-race neighbors tend to be poorer for minorities than for whites with the same level of income. Quillian (2012) found cross-race income segregation to be an important source of concentrated poverty in America – a source that contributes to concentrated poverty net of the effects of racial segregation. Thus we expect reductions in cross-race segregation to reduce RNI independent of the effect of declining racial segregation. To complete the causal chain of *rising income segregation → declining cross-race income segregation → declining RNI*, the *rising income segregation → declining cross-race income segregation* part of the chain follows from the fact that neighborhood income homogeneity constrains cross-race income segregation

(the more income-homogenous the neighborhood, the less that white, black, Hispanic, and Asian neighbors can deviate from the neighborhood standard).

If future research confirms that the decline in racial neighborhood inequality has been due in large part to rising neighborhood income segregation, then optimism about the trend in racial neighborhood inequality is tempered by the fact that *racial differences are narrowing largely because class differences are widening*. It is important, then, for future research to take up the challenge of determining *why* racial neighborhood inequality has been declining in America.

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Figure 1. Unequal Poverty Environments of Non-Whites vs. Whites, 1980-2010

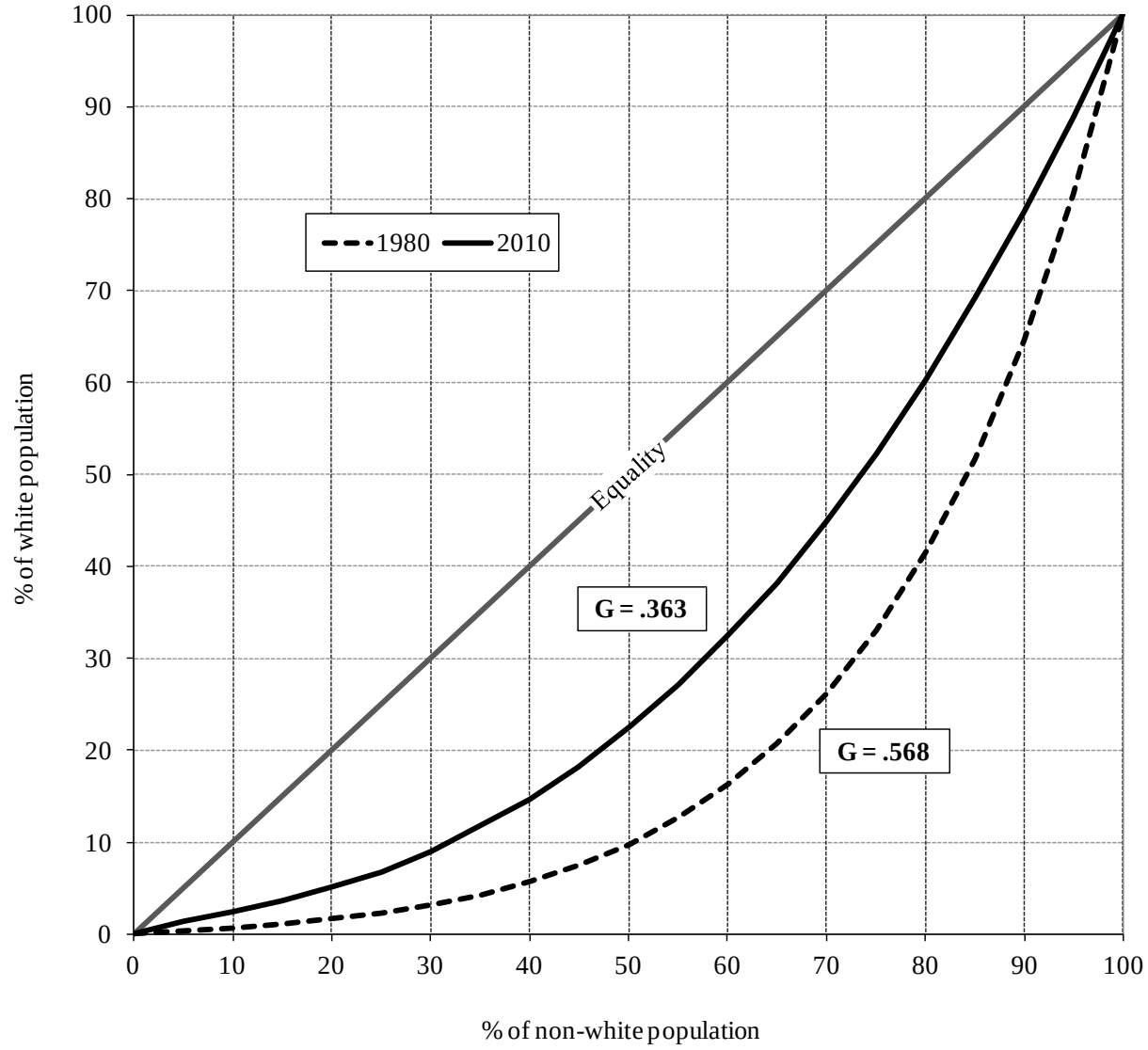

Figure 2. Unequal Poverty Environments of Blacks vs. Non-Blacks, 1980-2010

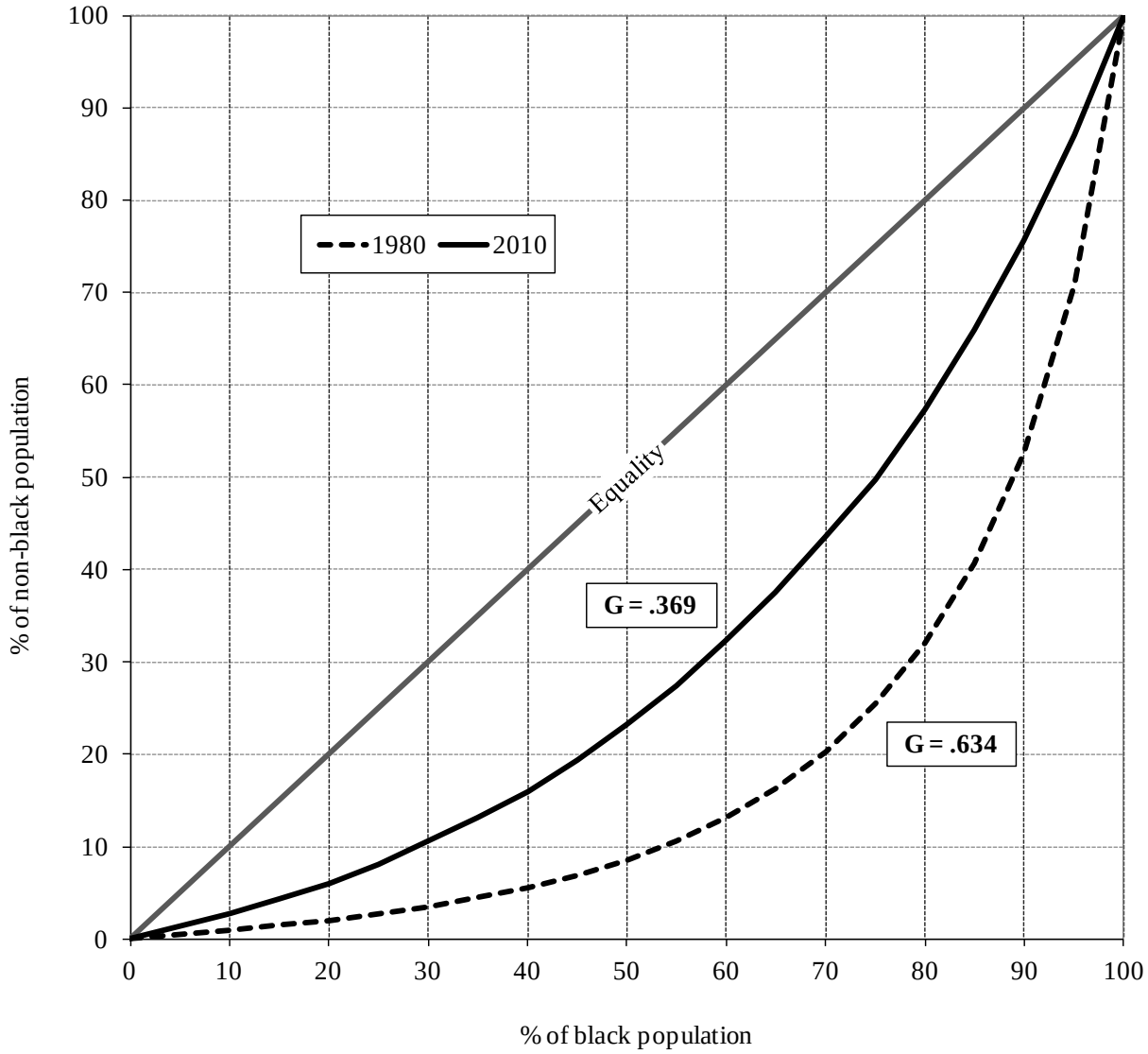

Figure 3. Unequal Poverty Environments of Hispanics vs. Non-Hispanics, 1980-2010

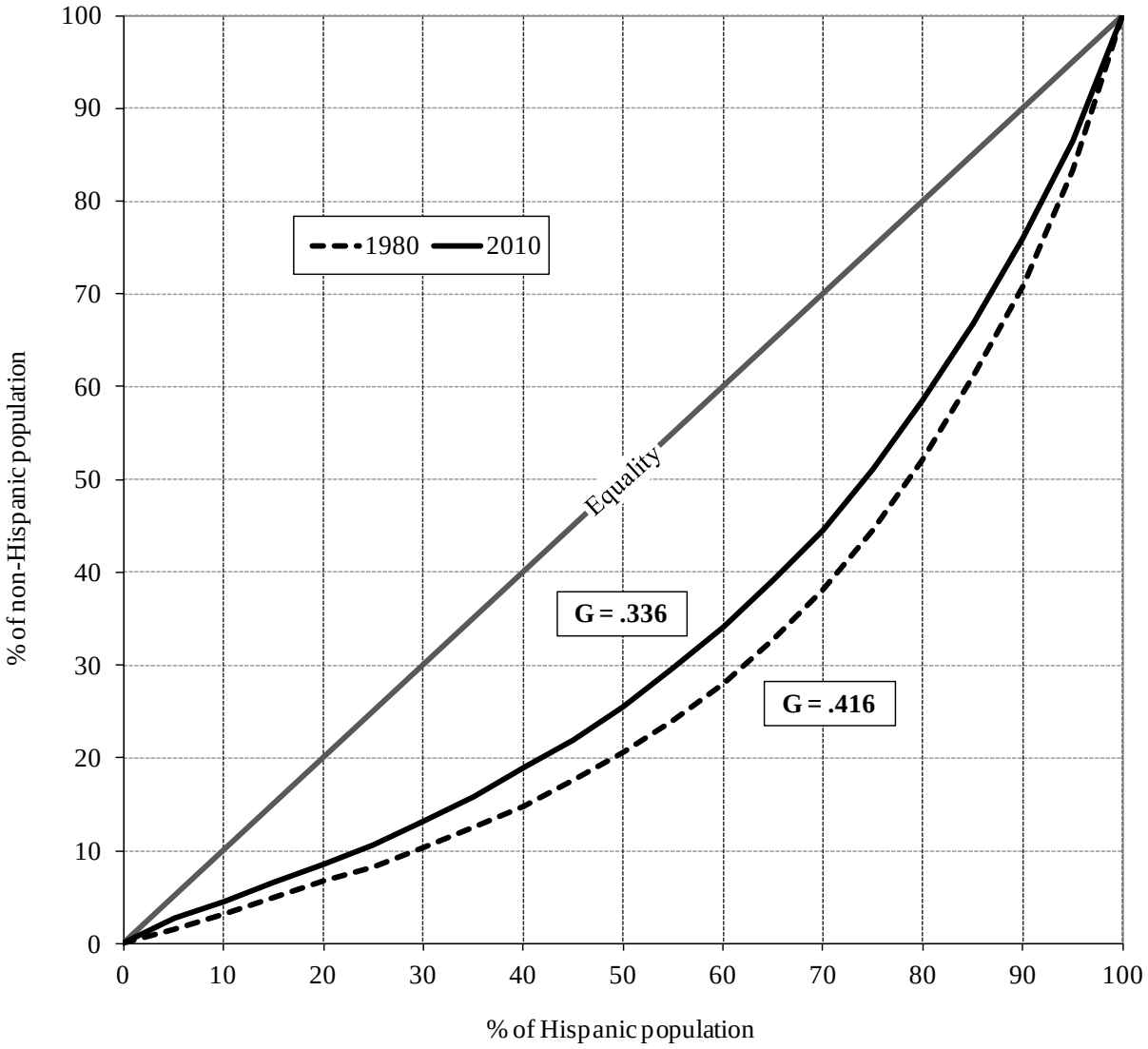

Table 1. Racial Neighborhood Inequality Across All 53,138 Metropolitan Census Tracts in the United States: Ginis for 1980-2010[a]

	1980	1990	2000	2010	% change 1980-90	% change 1990-00	% change 2000-10	% change 1980-2010
NW-White[b]								
Poverty RNI	.57	.50	.49	.36	-11.6	-3.2	-25.3	-36.1
Income RNI	.46	.37	.37	.30	-19.1	-1.9	-19.4	-36.0
Segregation	.80	.77	.74	.70	-3.0	-4.4	-5.7	-12.5
NA-Asian[b]								
Poverty RNI	.01	.02	.01	.11	-	-	-	-
Income RNI	.10	.18	.17	.23	-	-	-	-
Segregation	.74	.74	.72	.68	0.1	-2.7	-5.1	-7.6
Black-NB[c]								
Poverty RNI	.63	.53	.47	.37	-16.6	-10.4	-22.2	-41.8
Income RNI	.53	.47	.44	.38	-12.6	-6.2	-14.0	-29.5
Segregation	.89	.86	.83	.78	-3.5	-3.5	-6.3	-12.7
Hispanic-NH[c]								
Poverty RNI	.42	.43	.44	.34	3.1	3.3	-24.2	-19.2
Income RNI	.33	.28	.32	.27	-14.8	12.4	-16.0	-19.6
Segregation	.80	.80	.78	.72	0.8	-3.4	-6.8	-9.3

a. Consistent tract boundaries are used for neighborhoods over the three decades. A Gini value of 0 denotes complete equality while a Gini of 1 denotes complete racial neighborhood inequality; complete inequality occurs when all members of one group live in wealthier neighborhoods than all members of the other group. The percentage change values reported here were calculated before the Ginis were rounded off to two decimal points. We do not report percentage change for Asian RNI because the Ginis are so small that percentage change is not very meaningful.

b. The second group listed is the y-axis for the RNI Lorenz curves. Positive values indicate relative residential *advantage* for that group (whites, Asians).

c. The first group listed is the x-axis for the RNI Lorenz curves. Positive values indicate relative residential *disadvantage* for that group (blacks, Hispanics).

Table 2. Weighted-Average Racial Neighborhood Inequality for the 366 U.S. Metropolitan Areas: Ginis for 1980-2010[a]

	1980	1990	2000	2010	% change 1980-90	% change 1990-00	% change 2000-10	% change 1980-2010
NW-white[b]								
Poverty RNI	.53	.50	.47	.38	-5.3	-6.6	-18.9	-28.3
	(.18)	(.16)	(.14)	(.12)				
Income RNI	.48	.46	.44	.38	-3.5	-4.8	-12.9	-20.0
	(.17)	(.15)	(.14)	(.13)				
Segregation	.69	.67	.63	.58	-2.8	-6.4	-7.7	-16.0
	(.16)	(.14)	(.13)	(.13)				
NA-Asian[b]								
Poverty RNI	-.03	-.03	.01	.07	-	-	-	-
	(.11)	(.14)	(.13)	(.12)				
Income RNI	.01	.01	.04	.09	-	-	-	-
	(.12)	(.14)	(.13)	(.12)				
Segregation	.53	.56	.57	.55	6.0	1.8	-4.2	3.4
	(.08)	(.08)	(.08)	(.09)				
Black-NB[c]								
Poverty RNI	.64	.57	.52	.41	-11.3	-9.2	-20.8	-36.2
	(.14)	(.15)	(.15)	(.14)				
Income RNI	.58	.54	.50	.43	-6.9	-6.5	-13.8	-25.0
	(.12)	(.13)	(.13)	(.14)				
Segregation	.84	.80	.76	.70	-4.2	-4.7	-8.6	-16.6
	(.11)	(.11)	(.12)	(.12)				
Hispanic-NH[c]								
Poverty RNI	.40	.41	.40	.33	2.7	-2.9	-17.9	-18.1
	(.15)	(.14)	(.13)	(.11)				
Income RNI	.37	.38	.38	.34	4.9	-1.3	-10.6	-7.4
	(.16)	(.15)	(.13)	(.12)				
Segregation	.61	.61	.61	.56	0.7	-0.7	-8.1	-8.1
	(.13)	(.11)	(.10)	(.10)				

a. See notes to Table 1. Ginis are weighted means for U.S. metropolitan areas, where weights are based on group-specific population size. Standard deviations appear in parentheses.
b. The second group listed is the y-axis for the RNI Lorenz curves. Positive values indicate relative residential *advantage* for that group (whites, Asians).
c. The first group listed is the x-axis for the RNI Lorenz curves. Positive values indicate relative residential *disadvantage* for that group (blacks, Hispanics).

Table 3. Tract Poverty rates of Group-Specific Median Residents

	% poverty		Ratio to whites	
	1980	2005-2009	1980	2005-2009
White	6.7	7.6	1.00	1.00
Non-White	18.1	14.0	2.70	1.84
Black	22.1	16.7	3.30	2.20
Hispanic	15.8	15.3	2.36	2.01
Asian	8.3	7.8	1.24	1.03

Table 4. Black, Hispanic, and Asian Racial Neighborhood Inequality and Segregation Relative to Whites, 1980-2010[a]

	1980	1990	2000	2010	% change 1980-1990	% change 1990-2000	% change 2000-2010	% change 1980-2010
NW-White								
Poverty RNI	.53	.50	.47	.38	-5.3	-6.6	-18.9	-28.3
	(.18)	(.16)	(.14)	(.12)				
Income RNI	.48	.46	.44	.38	-3.5	-4.8	-12.9	-20.0
	(.17)	(.15)	(.14)	(.13)				
Segregation	.69	.67	.63	.58	-2.8	-6.4	-7.7	-16.0
	(.16)	(.14)	(.13)	(.13)				
Black-White								
Poverty RNI	.68	.62	.59	.49	-8.1	-4.5	-17.5	-27.6
	(.14)	(.14)	(.14)	(.13)				
Income RNI	.61	.59	.57	.51	-4.2	-2.0	-10.5	-16.0
	(.12)	(.12)	(.13)	(.13)				
Segregation	.85	.82	.80	.75	-3.3	-2.5	-6.2	-11.6
	(.11)	(.11)	(.11)	(.12)				
Hispanic-White								
Poverty RNI	.51	.52	.51	.42	2.4	-0.6	-17.9	-16.4
	(.17)	(.16)	(.14)	(.12)				
Income RNI	.46	.48	.48	.43	4.8	1.3	-10.7	-5.3
	(.18)	(.17)	(.15)	(.14)				
Segregation	.65	.66	.67	.63	2.0	1.1	-6.4	-3.5
	(.13)	(.12)	(.11)	(.12)				
Asian-White								
Poverty RNI	.16	.20	.20	.12	23.5	0.5	-39.8	-25.3
	(.12)	(.14)	(.13)	(.12)				
Income RNI	.12	.14	.16	.10	21.0	7.6	-34.2	-14.3
	(.15)	(.15)	(.14)	(.14)				
Segregation	.55	.59	.61	.58	6.1	3.6	-4.8	4.7
	(.16)	(.07)	(.07)	(.08)				

a. Ginis are weighted means for U.S. metropolitan areas, where weights are based on the nonwhite group's population size. Standard deviations appear in parentheses.

Table 5. Metropolitan Areas with Least, Most Black Neighborhood Income Disadvantage Relative to Whites and to Non-Blacks, 2010[1]

Least Neighborhood Disadvantage vs. Whites

	RNI	Region	Population	% black
Hinesville, GA	.01	South	77,947	37.9
Jacksonville, NC	.11	South	177,809	14.9
Dover, DE	.15	South	162,318	23.3
Killeen, TX	.15	South	404,787	18.6
Riverside-San Bernardino, CA	.15	West	4,224,928	7.1
College Station, TX	.16	South	228,383	11.5
Fayetteville, NC	.16	South	366,369	35.3
Auburn, AL	.19	South	140,088	22.6
Ocala, FL	.20	South	331,454	11.9
Stockton, CA	.20	West	685,153	7.1

Most Neighborhood Disadvantage vs. Whites

	RNI	Region	Population	% black
Milwaukee, WI	.78	Midwest	1,552,607	16.5
Saginaw, MI	.76	Midwest	200,721	18.6
Bridgeport, CT	.75	Northeast	919,087	10.1
Buffalo, NY	.71	Northeast	1,134,347	11.8
Trenton, NJ	.71	Northeast	367,230	19.4
Monroe, LA	.69	South	176,462	35.2
Chicago, IL-IN-WI	.69	Midwest	9,450,879	17.1
Youngstown, OH-PA	.69	Midwest	566,019	10.6
Cleveland, OH	.68	Midwest	2,071,377	19.8
Rochester, NY	.67	Northeast	1,054,766	11.0

Least Neighborhood Disadvantage vs. Non-Blacks

	RNI	Region	Population	% black
Hinesville, GA	.01	South	77,947	37.9
San Antonio, TX	.04	South	2,140,332	6.1
Riverside-San Bernardino, CA	.05	West	4,224,928	7.1
Stockton, CA	.08	West	685,153	7.1
College Station, TX	.10	South	228,383	11.5
Jacksonville, NC	.10	South	177,809	14.9
Killeen, TX	.11	South	404,787	18.6
Fayetteville, NC	.14	South	366,369	35.3
Tucson, AZ	.14	West	980,245	3.2
Dover, DE	.14	South	162,318	23.3

Most Neighborhood Disadvantage vs. Non-Blacks

	RNI	Region	Population	% black
Saginaw, MI	.72	Midwest	200,721	18.6
Milwaukee, WI	.71	Midwest	1,552,607	16.5
Monroe, LA	.68	South	176,462	35.2
Buffalo, NY	.67	Northeast	1,134,347	11.8
Youngstown, OH-PA	.67	Midwest	566,019	10.6
Cleveland, OH	.65	Midwest	2,071,377	19.8
Toledo, OH	.64	Midwest	651,189	13.2
Flint, MI	.64	Midwest	426,393	20.5
St. Louis, MO-IL	.63	Midwest	2,840,017	18.1
Peoria, IL	.63	Midwest	379,437	9.1

1. RNI based on median income. Limited to metro areas with black populations of more than 25,000. Official metro area names have been shortened in the interests of space.

Table 6. Metropolitan Areas with Least, Most Hispanic Neighborhood Income Disadvantage Relative to Whites and to Non-Hispanics [1]

Least Neighborhood Disadvantage vs. Whites				
	RNI	Region	Population	% Hisp.
Deltona-Daytona Beach, FL	.01	South	494,881	11.2
Honolulu, HI	.06	West	953,156	8.1
Fayetteville, NC	.10	South	366,369	9.8
Ocala, FL	.10	West	331,454	10.9
Lake Havasu, AZ	.11	West	200,190	14.8
Pittsburgh, PA	.11	Northeast	2,356,909	1.2
San Luis Obispo, CA	.12	West	269,835	20.8
Palm Bay, FL	.13	South	544,724	8.2
Jacksonville, FL	.13	South	1,346,958	6.9
Prescott, AZ	.14	West	211,034	13.6

Most Neighborhood Disadvantage vs. Whites				
	RNI	Region	Population	% Hisp.
Reading, PA	.73	Northeast	411,493	16.3
Bridgeport, CT	.66	Northeast	919,087	16.9
Springfield, MA	.65	Northeast	693,452	15.4
Hartford, CT	.64	Northeast	1,215,623	12.5
Providence, RI-MA	.62	Northeast	1,600,415	10.2
Milwaukee, WI	.62	Midwest	1,552,607	9.5
New Haven, CT	.62	Northeast	856,193	15.1
Boston, MA-NH	.61	Northeast	4,554,266	9.0
New York, NY-NJ-PA	.60	Northeast	18,905,417	22.9
Trenton-Ewing, NJ	.59	Northeast	367,230	15.1

Least Neighborhood Disadvantage vs. Non-Hispanics				
	RNI	Region	Population	% Hisp.
Deltona-Daytona Beach, FL	-.05	South	494,881	11.2
Baton Rouge, LA	-.04	South	802,536	3.4
Jacksonville, FL	.01	South	1,346,958	6.9
Fayetteville, NC	.02	South	366,369	9.8
Columbia, SC	.04	South	767,536	5.1
New Orleans, LA	.05	South	1,167,787	7.9
Pittsburgh, PA	.06	Northeast	2,356,909	1.2
Birmingham, AL	.07	South	1,128,040	4.3
Ocala, FL	.07	South	331,454	10.9
Baltimore, MD	.07	South	2,710,753	4.6

Most Neighborhood Disadvantage vs. Non- Hispanics				
	RNI	Region	Population	% Hisp.
Reading, PA	.71	Northeast	411,493	16.3
Springfield, MA	.60	Northeast	693,452	15.4
Providence, RI-MA	.58	Northeast	1,600,415	10.2
Hartford, CT	.57	Northeast	1,215,623	12.5
Allentown, PA-NJ	.56	Northeast	821,453	13.0
Boston, MA-NH	.55	Northeast	4,554,266	9.0
Bridgeport, CT	.55	Northeast	919,087	16.9
Worcester, MA	.55	Northeast	798,896	9.4
Lancaster, PA	.52	Northeast	519,615	8.6
New Haven, CT	.51	Northeast	856,193	15.1

1. RNI based on median income. Limited to metro areas with Hispanic populations of more than 25,000. Metro area names have been shortened in the interests of space.

Appendix: Measures of Inequality

Osypuk et al. (2009) use two novel measures that are based on the amount of overlap of the distributions of the two groups being compared. One measure, the "distributional overlap measure," is based on the point in the distribution where the percentage of people in the richer group below the income threshold equals the percentage of people in the poorer group above the same threshold. To find this point, it is convenient to construct a Lorenz curve (Lorenz 1905), as we would for calculating the Gini coefficient: First we rank neighborhoods from poorest to richest on the characteristic of interest (e.g. poverty rate), and calculate the cumulative percentage of each group living in the neighborhoods, beginning with the poorest neighborhood. The result, then, is two cumulative percentages, one for each group being compared. Then, to form a Lorenz curve, we plot those percentages on a graph, letting the x-axis be the cumulative percentage for the poorer group and the y-axis be the cumulative percentage for the richer group. The distributional overlap measure of Osypuk et al. (2009) is based on the point on the Lorenz curve where the co-ordinates sum to 100 (for example, the point might be [80, 20], indicating that only 20 percent of members of the richer group live in neighborhoods as poor as or poorer than the neighborhoods of residence for 80 percent of the members of the poorer group). The greater the distance of this point from (50,50), the point of equality, the greater the *RNI*. The second Osypuk et al. [2009, pp. 35-36] measure is similar (the difference is that it is based only on the amount of overlap of the middle one-half of the distributions of the two groups).

Now compare the distributional overlap measure to the Gini index. The Gini index is also based on the Lorenz curve, with this important difference: The degree of inequality for the Gini is determined by the area between the Lorenz curve and the line of perfect equality. The Gini, then, is based on distance from a *line* of equality, thereby using information across the

ranges of the distributions, whereas overlap measures are based on a single *point* on the Lorenz curve, thereby missing much of the information in the distributions.

In contrast to Osypuk et al. (2009), Timberlake (2002) and Timberlake and Iceland (2007) uses the Index of Net Difference (ND), a measure that is based on information for the entire distribution. As developed by Lieberson (1975), the ND was intended for group differences, and as such it has been used to study occupational segregation, but has not been adopted as a standard measure in the inequality literature. Because of the way they measure *RNI*, then, it is difficult to use the results of Timberlake (2002) and Timberlake and Iceland (2007) for *RNI* to gauge the magnitude of racial inequality at the neighborhood level relative to, say, the magnitude of racial inequality at the household level, or to neighborhood segregation.

In short, the evidence on *RNI* to date is limited and hard to compare with other types of inequality. To alleviate that problem we use an index of inequality that permits the direct comparison of *RNI* with other types of inequality. Of the indexes we could have used, the Gini index is the best choice for our purposes, as explained in the text.