Assumptions and Limitations of the Census Bureau Methodology Ranking Racial and Ethnic Residential Segregation in Cities and Metro Areas

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Few issues in American society are more politically sensitive than defining norms for racial mixing. One has only to look at the debates over Congressional redistricting to identify many diverse interests related to residential housing patterns and clusterings of populations with common and competing values. Considerable research has documented the role of discriminatory actions by governments and individuals in promoting separation of racial and ethnic groups in public schools and limiting employment and housing opportunities for individuals based on race. Yet, there appears to be little public consensus as to what constitutes racial segregation or appropriate definitions of racial integration or even of "diversity."

This paper responds to a request from the U.S. Census Bureau to serve on a five-member peer review panel to examine an historic and first-time study by the Census Bureau that ranked major metropolitan areas by their level of racial and ethnic housing segregation and offered segregation rankings of 1,092 cities and 331 metropolitan areas based on a series of indexes discussed in the sociological literature. The paper identifies assumptions and limitations of the indexes and the five-index rankings used by the Census Bureau in its report on **Racial and Ethnic Residential Segregation in the United States: 1980-2000 (CENSR-3)** and its "Segregation / Housing Pattern Index Tables" posted on the Census Bureau website, and questions the appropriateness of the Census Bureau promoting schemes for ranking cities and metropolitan areas on their population distributions.[2] The analysis draws in large part from research conducted for the University of Wisconsin-Milwaukee Employment and Training Institute report on **Racial Integration in Urban America: A Block Level Analysis of African American and White Housing Patterns**, published in December 2002 and co-authored with John Pawasarat, and that study is attached as Appendix A.[3] The statements and opinions expressed in this paper are those of the author and are not intended to reflect official positions of the University of Wisconsin-Milwaukee or of the U.S. Census Bureau.

I. Summary Points

- The CENSR-3 publication analyzes segregation for non-white racial/ethnic groups but not for the white population. The publication lacks a chapter analyzing white segregation or showing a five-ranking scale for metro areas with greatest segregation for whites.

- The ranking studies of racial/ethnic segregation in metro areas and cities duplicate the work of academics and others outside the Census Bureau.

- The definitions of race used in CENSR-3 are controversial. Use of white-only and any-part-other definitions of race (the "one drop rule") for the Census Bureau indexes are not comparable to data from prior years and ignore complex (and changing) Census Bureau data on racial and ethnic identity.

- The Census Bureau describes its segregation study as a study of "housing patterns" but uses population units rather than housing units. Analysis of racial patterns of households may be a more appropriate unit of analysis for studies of residential segregation.

- The indexes used by the Census Bureau assume that populations are evenly distributed within census tracts, even when SF1 data show they are not. Use of block data, while better capturing racial mix, may be problematic for the types of measurement tools used by the Census Bureau.

- The dissimilarity index used by the Census Bureau to rank metro areas considers racial/ethnic populations "segregated" if they are not distributed evenly throughout the entire metro area. Racial/ethnic populations living in racially integrated neighborhoods are considered "segregated" if their percentage of the census tract population exceeds the metrowide average.

- A simple adjustment of the dissimilarity index formula to expect that both non-white and white residents would be expected to move to achieve the "even" distributions of population creates dramatically different rankings of cities and metro areas. Use of a two-way dissimilarity formula for ranking the 100 largest metro areas on segregation of African Americans shows 47 of the 100 largest metro areas shifting by 20 or more places if white residents were also expected to move for racial "evenness."

- The delta index used by the Census Bureau expects the same number of African Americans, Latinos, Asians, and Native Americans per square mile throughout the metro area, regardless of where housing is located and regardless of whether the racial/ethnic population studied is urban or rural. In the metropolitan statistical areas (MSAs) that include large masses of farmland, the delta index may be a better measure of "urban sprawl" than of racial/ethnic segregation.

- Another land-based measure used by the Census Bureau to rank metro areas on their "segregation" is the absolute centralization index. This index expects each racial/ethnic population to be located in equal distances from the population centroid of the MSA. Rather than identifying a point where some racial/ethnic populations have been historically clustered (i.e., the central business districts, CBD, of older communities), the population centroid can be located in a rural or exurban census tract or an affluent area, depending on the number of central cities in the MSAs, the location of the central city compared to the remainder of the county (or counties) in the metropolitan statistical area, and other geographic factors. Again, in some cases the absolute centralization index may be a better measure of "urban sprawl" than of segregation.

- In its treatment of the isolation index used, the Census Bureau gives its lowest "segregation" rankings to geographic areas where very few "minority" members reside compared to whites, again reinforcing the Census Bureau ranking system as providing a "white perspective" on segregation.

- Warnings on rankings do not appear adequate to justify the present Census Bureau website postings of segregation measures for the 331 metro areas and 1,092 cities.

II. Defining Racial/Ethnic Groups: The Census Bureau Approach

The 2000 U.S. Census allowed for the most complex reporting to date of racial and ethnic self-identification of individuals and household members. In the 2000 census, respondents were allowed to check up to fifteen racial categories that each household member considered himself/herself to be, including: white; black, African American, or Negro; American Indian or Alaska Native; any of eleven groups of Asian and Pacific Islander; or "some other race" that could be specified by the respondent. Respondents also had the option of listing a race if they identified themselves as "Other Asian," "Other Pacific Islander," or "Some other race." Additionally, respondents were asked whether they were

Spanish/Hispanic/Latino. The results yield population descriptions that differ substantially from those solicited in prior decennial censuses.

By embracing a segregation ranking methodology that compares racial/ethnic populations one by one to the reference population (of whites), the Census Bureau was required to determine which individuals to include in each racial/ethnic category analyzed in 2000, in contrast to previous censuses when individuals could select only one racial group. The decisions made by the Census Bureau reflect a Euro-centric approach to racial mixing that is increasingly challenged by the self-definitions of race and ethnicity individuals ascribe to themselves and to their children and by the shifting positions of whites who have become the minority population in many geographic areas ranked. The Census Bureau selected a "white-only" reference population. Yet of the 216.9 million persons who reported to the 2000 Census as white, 194.5 million (90 percent) reported as white alone and not Hispanic or Latino, while 16.9 million (7.8 percent) reported as white alone race and Hispanic or Latino ethnicity; 1.8 million (0.8 percent) reported as white in combination with one or more other races and also Hispanic/Latino; and 3.6 million (1.7 percent) reported as white in combination with one or more other races and not Hispanic/Latino.[4] The identification of the "race" of persons identified as Hispanic/Latino is particularly challenging. Of 35.3 million persons reported to the 2000 Census as Hispanic or Latino, 14.9 million (42.2 percent) identified themselves as "some other race" while another 16.9 million (47.9 percent) identified as white, 2.2 million (6.3 percent) identified as 2 or more races, and 1.3 million 3.6 percent identified as one race that was not white.[5] The evolving views of race continue to challenge the use of a white-only reference population for measures of racial segregation by the Census Bureau and academics. Several issues require serious reexamination:

- **The interplay among racial groups is ignored in the Census Bureau methodology.** The dissimilarity, isolation, relative concentration, relative centralization, and spatial proximity indexes are used to rank only two groups at a time (whites and the "other"), so that diverse urban populations of Latinos, Asians, and Native Americans are not factored into the black-white segregation rankings, the Hispanic-white segregation rankings, etc. While described as the "one of the most exhaustive study of racial segregation ever undertaken,"[6] the Census Bureau study provides little new analysis relating to the interaction among racial groups or of households. Nor does it offer new models for analyzing racial/ethnic settlement patterns. Rather, the report plugs 2000 Census data into indexes and definitions developed mainly in the 1940s, 1950s and 1960s.

- **The racial classifications used by the Census Bureau reflect a "pure white" race model – which ignores the self-identification provided by Census 2000 respondents.** Ignoring the complex overlay of racial identities reported to the Census Bureau in the 2000 Census, in its segregation ranking study the Census Bureau uses definitions reminiscent of the 19th century "one drop rule." Whites are defined, not as anyone who told the U.S. Census they were white, but only those persons who identify themselves as white and white only. Persons who reported that they were white and Native American, Asian, Pacific Islander/Hawaiian, or African American are counted in each of those other racial groupings. Persons who reported they were Hispanic/Latino are classified both as Hispanic/Latino and in every other racial group they listed (except white). At the same time Hispanics who reported they were Hispanic and white are counted only as Hispanic. The Census Bureau states, "The reference group – non-Hispanic Whites – is always defined as those who report being White alone, and who are not of Hispanic origin."[7] By contrast, "blacks" are persons with any part black (including persons who are white and African American, white and black and Native American, Asian and black, Latino and black, etc.) -- that is, any mixture that includes black. Similar "any part" definitions are used for Native Americans, Asians and other Pacific Islanders.

- **The Census Bureau report and rankings reflect a perspective that racial/ethnic segregation is a "minority group" problem and not a white problem.** In the Census Bureau CENSR-3 report and accompanying website each non-white racial/ethnic group is compared to a white-only population, which serves as the reference population (and expected behavioral model). Absent from the Census Bureau report and website are sections ranking communities where white populations are segregated. Absent, for example, is a ranking of metro areas where whites are considered "isolated," that is, surrounded by "too many" other whites.

- **Even in communities where a population other than whites is the majority racial group, the white-only population is used as the model of residential settlement patterns for the dissimilarity, isolation, and spatial proximity indexes.** For example, less than 20 percent of the population in Honolulu is white-only, but this population is used as the reference group for determining whether Native Hawaiian and other Pacific Islanders, African Americans, Hispanics, or Native Americans are racially segregated. White-only persons made up only 10 percent of the population of the City of Detroit, yet this group is used as the reference population for assessing city segregation of African Americans and all other racial/ethnic groups. Even in Laredo, Texas, where white-only persons made up 5 percent of the city population, they (and not the Latino majority) are used as the standard against which segregation of so-called "minority" groups was assessed in the city.

- **Rather than models of racial mixing (as is implied by the "lowest segregation" rankings), many of the metro areas and cities with low segregation scores on the Census Bureau indexes might be considered "hyper-segregated" white communities. Others are racially mixed but show low percentages of the racial/ethnic group being studied.** Among metro areas with over one million population in 2000, the five-index rankings approach shows the Orange County and Salt Lake City-Ogden metro areas as least segregated for African Americans among the largest metro areas, yet both areas have 2 percent or less African American populations. The five-index rankings approach shows the Pittsburgh, Baltimore, and Cincinnati metro areas as least segregated for Hispanics; again, in all three metro areas Hispanics comprise 2 percent or less of the population. The three least segregated metro areas (on the five-index rankings) for Asian and Pacific Islanders were the Tampa-St. Petersburg-Clearwater, Hartford, CT, and Fort Lauderdale metro areas, all of which had 3 percent or less Asian and Pacific Islander populations. These "least segregated" rankings call into question the Census Bureau approach and reinforce the perception that the Census Bureau considers "segregation" to be solely a non-white minority problem.

- **Major metro areas with fewer racial/ethnic group members are arbitrarily excluded from the high-to-low segregation rankings in the published Census Bureau report.** The Census Bureau CENSR-3 publication notes that its indexes were selected using criteria that stressed their usefulness regardless of the size of the geographic areas, but eliminates rankings for large metro areas where the racial/ethnic group analyzed comprised less than 20,000 (or 3 percent of the total population) in 1980. At the same time the Census Bureau website suggests that segregation indexes are useful for places that have at least 100 persons in the racial/ethnic group studied.

III. Selection of the Measurement Tools

With one modification (substitution of Duncan's delta index for the relative concentration index), the Census Bureau utilized the measures of segregation advanced by Douglas Massey and Nancy Denson in their 1988 article on "The Dimensions of Residential Segregation."[8] Four of the five measures are discussed below and their limitations identified.

- **The Duncan's delta index used by the Census Bureau expects racial/ethnic populations to be dispersed in flat settlement patterns throughout each metro area regardless of where housing units are located – hardly an uncontroversial perspective on "racial segregation."** Here, a community's urban density, as well as its levels of racial/ethnic segregation, affects the index scores. The delta index measures the distribution of each non-white racial/ethnic group against the land area in the area tested, and effectively expects the same approximate number of African Americans (Latinos, Asians, or Native Americans) per square mile on all land in the metro area (or city) regardless of where the urban population lives. For the Milwaukee-Waukesha PMSA, the Census Bureau rates the metro area against an ideal of having approximately 170 African Americans residents per square mile, 65 Latinos per square mile, 25 Asians and Pacific Islanders per square mile, and 10 Native Americans per square mile. (Under the Duncan's delta index ideal population spread, nearly a half million of all City of Milwaukee residents, 84 percent of the total, should be residing outside the city in the suburbs, exurbs, farmlands, and other land areas of the four-county area.) In the Las Vegas metropolitan area, which has 39,370 square miles, the delta index uses an urban ideal of about 8 Latinos, 3 Asians and Pacific Islanders, 3 African Americans, and 1 Native American per square mile. Not surprisingly, the Las Vegas MSA scores "most segregated" on the delta index for all racial/ethnical populations analyzed by the Census Bureau. Fully 97 percent of African Americans, 96 percent of Asians and Pacific Islanders, and 95 percent of Latinos would be required to move to achieve the perfect "urban sprawl" anticipated by the index.

  Milwaukee Mayor John Norquist responded to the delta index with the observation that if the implicit goal were to equally distribute population in metro areas, "you'd have to demolish all the great cities of the world. Paris, London – any healthy city would have to be torn apart."[9]

- **A second land area measure used by the Census Bureau, the absolute centralization index, tests whether each racial/ethnic group is distributed in equal distances from a designated geographic center, again regardless of where the urban housing stock or populations are located in the region.** The Census Bureau ranks metro areas where the racial/ethnic population is located closer to the center of the city (compared to land distances in the metro area) as most "segregated" and metro areas where the racial/ethnic group has more settlements in the suburban, exurban and rural portions of the metro area as least "segregated." The Census Bureau's absolute centralization index expects each minority population to be settled equal distances away from the population center of the metro area, ignoring the location of existing housing or any advantages of residing in denser city neighborhoods with existing infrastructure, mass transit, and urban amenities.

  When Massey and Denton used this measure, they selected the central business district as the central point identified as the least desirable place for minorities to reside. They argued that, "Residence near this district has long been associated with a relatively high level of crime, social disorder, and economic marginality."[10] They also have observed, "In most industrialized countries, racial and ethnic minorities concentrate in center city areas, inhabiting the oldest and most substandard housing, even though urban renewal and recent 'gentrification' have mitigated this tendency somewhat." [quotation with reference notes excluded][11] While this was a common

and often problematic settlement pattern for African Americans migrating to northern cities, it is not the only settlement pattern, and patterns often differed for Native Americans and Latinos, compared to African Americans, and by region of the country.[12]

The Census Bureau apparently last used the concept of the central business district in its 1982 Census of Retail Trade. At that time, the Bureau defined the CBD as "an area of very high land valuation characterized by a high concentration of retail businesses, service businesses, offices, theaters, and hotels, and by a very high traffic flow" and not necessarily where the oldest housing was located.[13] Judgment calls would have been required for the use of the 20-year-old CBD site locations, along with decisions as to which CBD to use in metro areas with several large cities. Instead, for its calculation of the absolute centralization index the Census Bureau substituted the metropolitan area's population centroid for the CBD, with a different location identified for each decennial census analyzed. The Census Bureau explanation for utilizing the population centroid was as follows:

> Most analysts using a centralization measure define it in terms of access to the traditional Central Business District (CBD). We feel that this concept is increasingly outmoded as jobs, retail sales, and other CBD functions continue to decentralize.[14]

This change is not insignificant, as it alters the meaning of the central point used for the measurement. For Denton and Massey, the CBD marked a city area where historic settlement patterns showed minorities (and particularly African Americans) concentrated because of the poorer quality of the housing and less desirable living conditions. There is no reason to believe, however, that a metropolitan area's population centroid will fall in a lower-income neighborhood or in a neighborhood where segregation of minorities has occurred. In the Milwaukee-Waukesha PMSA, for example, in 2000 the population centroid is located near the Bluemound Country Club in suburban Wauwatosa.

- **The isolation index used by the Census Bureau ranks geographic areas as *least segregated* where the racial/ethnic group typically lives with the highest percentages of whites and ranks areas as *most segregated* where the racial/ethnic group lives with the highest percentages of its own racial/ethnic group – again, a highly controversial perspective.** As used by the Census Bureau, this index, more than any of the other four in the five-index approach, places maximum value on each racial/ethnic group's contact with whites. One might imagine a different value system that would hold that African Americans, for example, are **least** isolated when they constitute about half of the population along with a variety of other racial/ethnic groups and are **most** isolated at either end of the continuum, when they make up only 1 percent of the total population or when they make up 99 percent of the population. Such an approach would require new definitions by the Census Bureau regarding which racial mixes are considered most integrated (or less segregated) and would modify the concept of "segregation" tested. A recent survey in Milwaukee, for example, found that 51 percent of African Americans reported a preference for living in neighborhoods that are more than half African American.[15]

- **The dissimilarity index used by the Census Bureau to measure segregation places a high value on the widest possible dispersal of non-white populations.** The dissimilarity index used to rank cities and metropolitan areas as to their degree of segregation was popularized by Karl and Alma Taeuber of the University of Wisconsin, who prepared historic segregation rankings for U.S. cities and discussed the discriminatory practices contributing to segregation of Midwestern cities in their book **Negroes in Cities**, published in 1965. The dissimilarity index centered on concerns related to the observed unwillingness of numbers of urban white residents to remain in

or move into racially mixed neighborhoods. Taeuber and Taeuber spoke of a theoretical "tipping point," which they described as "the percentage Negro in an area which 'exceeds the limits of the neighborhood's [that is, the white residents'] tolerance for inter-racial living.'"[16] Along with measuring movement of African Americans into previously all-white neighborhoods, in large part the dissimilarity index addressed the concerns of a white population (and mainly white academic researchers) with "tipping," by identifying the lowest possible black neighborhood population that could be achieved if blacks were spread evenly throughout the city or the entire metro area.[17] Taeuber and Taeuber explained the approach:

> Our segregation index is an index of dissimilarity, and its underlying rationale as a measure of residential segregation is simple: Suppose that whether a person was Negro or white made no difference in his choice of residence, and that his race was not related to any other factors affecting residential location (for instance, income level). Then no neighborhood would be all-Negro or all-white, but rather each race would be represented in each neighborhood in approximately the same proportion as in the city as a whole....
>
> The value of the index may be interpreted as showing the minimum percentage of non-whites who would have to change the block on which they live in order to produce an unsegregated distribution – one in which the percentage of non-whites living on each block is the same throughout the city (0 on the index). For instance, if some governing council had the power and the inclination to redistribute the population of Birmingham so as to obtain an unsegregated distribution of white and non-white residences, they would have to move 92.8 per cent of the non-whites from blocks now containing an above-average proportion of non-whites to blocks now disproportionately occupied by whites.[18]

Karl Taeuber recently elaborated on this approach to *Milwaukee Journal Sentinel* reporter Bruce Murphy, and was quoted as stating, "The whole notion was that when a minority population moves into a neighborhood, they're going to take over the area. We used these war-like terms, like invasion." With wide dispersal, Taeuber noted, "There's no ability of a tiny population to take over an area. And it doesn't develop the infrastructure of an ethnic specific neighborhood, like the old Chinese laundries and Chinese restaurants."[19] When most U.S. cities were majority white, the dissimilarity index was typically applied to measure "evenness" of the black population within city boundaries. Once suburbanization of white residents expanded urban centers and some major cities became majority black, scholars and open housing advocates began using the index primarily for metropolitan statistical areas, as defined by the federal Office of Management and Budget.

– **The dissimilarity index is based on a one-way concept of desegregation.** While purporting to be race-neutral, the index has historically been used to measure progress toward the dispersal of African Americans into geographic units where they would remain in the minority. Milwaukee's metro ranking on the index (.818) is based on the ideal of edging toward the goal of moving 200,000 African Americans of the total 245,151 African American population (or 81.8 percent) out of their "too black" census tracts and into the remaining "whiter" tracts. (The converse would be to move toward the goal of "evenness" by relocating 900,000 whites out of 1.1 million from their "too white" census tracts in the four-county area.)[20]

In discussing the dissimilarity index in **Negroes in Cities,** Taeuber and Taeuber acknowledged receiving correspondence from Otis Dudley Duncan suggesting that "a more effective redistribution of the population to achieve desegregation could be made by having white and non-

white households exchange residences."[21] This simple adjustment of the dissimilarity index formula to expect that both black and white residents could move to achieve the index goal of "even" white-black populations in each census tract creates a dramatically different ranking of the metro areas on the dissimilarity index. Use of this formula for ranking the 100 largest metro areas on segregation of African Americans showed 47 of the 100 largest metro areas shifting by 20 or more places if white residents were also expected to move for racial "evenness." Milwaukee's ranking as a segregated metropolitan area improved by 22 places. **If the Census Bureau were to adopt a two-way formula, its rankings would change dramatically – both for the dissimilarity index and for the Duncan's delta index.** Under a one-way dissimilarity index, the ten most segregated metro areas (among the 100 largest) for African Americans were identified as Detroit, Gary, Milwaukee-Waukesha, New York, Chicago, Newark, Cleveland-Lorain-Elyria, Buffalo-Niagara Falls, Cincinnati, and Nassau-Suffolk. Only Detroit and New York remained in the top ten most segregated metro areas when a two-way index was applied. The others were replaced by Miami, Memphis, New Orleans, Birmingham, Baton Rouge, Newark, Atlanta, and Washington D.C. The Gary metro area dropped to 13th and the rest were out of the top 20.

- **Rather than acknowledging a range of population mixes as integrated (or non-segregated), the dissimilarity index seeks as the only ideal condition of an even distribution of each racial/ethnic group compared to the white-only population.** As Howard Fuller, Distinguished Professor of Education at Marquette University and former Superintendent of Milwaukee Public Schools, observed, "The question is what percent of black people to white people is OK? When are there too many of us?"[22] The Census Bureau is well aware of the controversies over redistricting of legislative districts, where the value of political majorities may take precedence over emphasis on dispersal of racial/ethnic populations in urban areas as a primary housing goal, particularly since African Americans and Latinos have gained political power in major U.S. cities and electoral districts. Yet the dissimilarity index, based on the dispersal approach, was embraced by the Census Bureau as a primary measure of racial segregation trends.

  Massey and Denton suggest this dispersal perspective in **American Apartheid,** when they present the hypothetical example of a city where 32,000 blacks make up 25 percent of the population and 96,000 whites make up 75 percent. They offer as an example of "high racial segregation," a scenario where all of the black population live in census tracts that are 50 percent black and 50 percent white and where the remaining (non-integrated) white population lives on tracts that are 100 percent white.

Table 1:

Hypothetical City Showing "High Racial Segregation"
(Denton and Massey, **American Apartheid**, p. 121)

B=0 W=8,000 *Tract 1*	B=0 W=8,000 *Tract 2*	B=0 W=8,000 *Tract 3*	B=0 W=8,000 *Tract 4*
B=0 W=8,000 *Tract 5*	B=0 W=8,000 *Tract 6*	B=0 W=8,000 *Tract 7*	B=0 W=8,000 *Tract 8*
B=4,000 W=4,000 *Tract 9*	B=4,000 W=4,000 *Tract 10*	B=4,000 W=4,000 *Tract 11*	B=4,000 W=4,000 *Tract 12*
B=4,000 W=4,000 *Tract 13*	B=4,000 W=4,000 *Tract 14*	B=4,000 W=4,000 *Tract 15*	B=4,000 W=4,000 *Tract 16*

While Denton and Massey describe the African Americans in this hypothetical city as highly segregated, I (and likely many others) would conclude that the African Americans in such a community are not segregated at all but live in racially integrated areas. Table 2 (below) shows the population mix described by Massey and Denton as their most desirable configuration. This mix would require each census tract to have a 25 percent African American population and a 75 percent white population.[23]

Table 2:

Hypothetical City Showing "No Racial Segregation"
(Denton and Massey, **American Apartheid**, p. 120)

B=2,000 W=6,000 *Tract 1*	B=2,000 W=6,000 *Tract 2*	B=2,000 W=6,000 *Tract 3*	B=2,000 W=6,000 *Tract 4*
B=2,000 W=6,000 *Tract 5*	B=2,000 W=6,000 *Tract 6*	B=2,000 W=6,000 *Tract 7*	B=2,000 W=6,000 *Tract 8*
B=2,000 W=6,000 *Tract 9*	B=2,000 W=6,000 *Tract 10*	B=2,000 W=6,000 *Tract 11*	B=2,000 W=6,000 *Tract 12*
B=2,000 W=6,000 *Tract 13*	B=2,000 W=6,000 *Tract 14*	B=2,000 W=6,000 *Tract 15*	B=2,000 W=6,000 *Tract 16*

The Census Bureau describes this condition, where the dissimilarity score conceptually reaches 0, as "complete integration" (the only time the word "integration" is used in the CENSR-3 report). Entering the realm of social engineering, one could argue that African Americans had already reached "complete integration" in Table 1 above (when all lived on 50-50 racially mixed tracts). It is the white population, and not the African Americans, who reach "complete integration" in Table 2. Again, the perspective and bias of the formula is toward the white (reference group) population and not the racial/ethnic group.[24]

IV. Issues of Geography

The determination of what geographical unit to use to approximate an "urban area" is critically important for the indexes selected for the Census Bureau analysis. As noted, the Census Bureau ranks communities on the distribution of racial/ethnic groups throughout the geographical unit (whether it be a city or collections of counties). The extent of rural land in the MSA and the racial/ethnic background of the farm population becomes critically important, for example, for the delta index, which expects racial/ethnic groups to be distributed equally per square mile (or per acre) throughout the unit analyzed. The dissimilarity index differs substantially when geographic areas outside the central city are included. In Milwaukee, for example, the dissimilarity index for the City of Milwaukee expects African Americans to make up 69 percent of the combined black and white population in each census tract. Tracts with less than a 69 percent black population (of their black-white population) are considered "too white" and tracts with more than 69 percent black are considered "too black." When the dissimilarity index is calculated for the four-county Milwaukee-Waukesha MSA, however, African Americans are expected to make up only 18 percent of each census tract's combined black and white population. For this analysis any tracts more than 18 percent black (of their black-white population) are considered "too black" and tracts with less than 18 percent black are considered "too white."

- **A serious concern with the Census Bureau study is the use of OMB metropolitan area boundaries to define comparable geographic units.** The Census Bureau posits, "While residential segregation can occur at any geographic level, we have chosen to focus on metropolitan areas as reasonable approximations of housing markets."[25] Outside of New England, under the Office of Management and Budget definitions the metro area boundaries are expanded to include entire counties, encompassing areas that are rural, small towns, and cities only loosely associated with the central city. Although described as comparable urban geographic units for purposes of the segregation index rankings, metropolitan areas vary widely in size and character and their outlying census tracts vary even more. Among the 100 largest metro areas, the land areas range from 47 square miles in the Jersey City metro area to 39,369 square miles in the Las Vegas metro area. The Tucson metro area includes one county, which is 9,186 square miles in size. The Gary metro area covers 915 square miles and two counties. The Milwaukee-Waukesha metro area comprises 1,460 square miles and four counties. (In one of these counties, over half of the land is in farms; in another county, 47 percent of the land is farmland.) The St. Louis metro area spans 6,392 square miles and includes the City of St. Louis plus 12 counties in Missouri and Illinois. The metro area of Atlanta covers 6,124 square miles and includes 20 counties.[26] The application of the Census Bureau segregation indexes to such diverse areas (particularly given the index assumptions regarding the value of low density and even dispersal away from urban cores) raises questions that need further exploration from Census Bureau geographers and housing specialists.

- **The indexes used by the Census Bureau assume that racial/ethnic populations are equally distributed within census tracts (and within block groups), even when SF1 block level data show that this is not the case.** The Census Bureau could have studied racial/ethnic segregation at the block level, and to the extent that residential closeness signals racial interaction, the block suggests a better measure than census tracts or block groups.[27] Adults may interact at the block level when going to and from work, taking out the garbage, mowing the lawn, taking walks, jogging, and (at least in Wisconsin) shoveling snow. Their children have a higher likelihood of attending the same schools and playing together. In explaining its rationale for choosing census tracts rather than blocks, the Census Bureau report stated,

  > Arguments can be made that residential segregation indexes ought to be built up from the smallest geographic unit available – the block. Yet we believe it makes less sense to include the residents you may never see (on the opposite edge of a census block as blocks tend not to cross streets) and exclude the residents living across the street (in a different block). Going to larger aggregations of blocks, this problem is mitigated, although it never disappears as all geographies have boundaries. Census tracts, which typically have between 2,500 and 8,000 people, are defined with local input, are intended to represent neighborhoods, and typically do not change much from census to census, except to subdivide.[28]

  It appears spurious for the Census Bureau to argue that residents have as much in common with 2,500 – 8,000 other individuals who live in their census tract (or 600 – 3,000 other individuals living in their block group) as they do with residents who live on the opposite side of their block (and who typically share the same alley).

- **It also appears inappropriate for the Census Bureau to claim that census tracts defined a half-century ago "represent neighborhoods."** As the Census Bureau itself notes, "***Census tracts...when first delineated***, are designed to be homogeneous with respect to population characteristics, economic status, and living conditions." [emphasis added][29] Once defined, the

Census Bureau does not allow adjustments of census tract boundaries (except for subdivisions), regardless of whether the neighborhood characteristics change.

The primary reason for using census tracts as the unit of analysis appears to be for historical continuity with the segregation studies of the past four decades. There also appear to be methodological reasons why the Census Bureau could not use blocks as the measurement unit for the segregation indexes it had selected. If so, these reasons should simply be stated. At minimum, one might expect the Census Bureau to use block level data in its maps showing concentrations of white and racial/ethnic groups (rather using dots randomly distributed throughout each census tract).

V. Using Individuals Rather Than Households as the Unit of Analysis for a Study of "Housing Patterns"

While billed as a study of housing patterns, the Census Bureau used population data rather than households (or housing units) as the unit of analysis for all of its indexes. The Census Bureau description of its research as a study of "housing patterns" and identification of spreadsheets as tables of "housing patterns" should be revised. Likewise, the treatment in the formulas of institutional populations, and particularly of prisoners (given the high percentages of non-white males who are incarcerated) requires thoughtful consideration and careful analysis.

- The number of cases for **many of the areas ranked may be too small for statistical analysis** when the household or family decision-making unit is identified as the decision-making unit.

- **In addition to individuals residing in households, the populations used for the Census Bureau segregation indexes included populations in group quarters**, leading to a number of misleading findings (discussed below). One questions why the Census Bureau included state and federal prisoners, nursing home residents, college dorm students, and mental health patients and then assumed an even distribution of population within each census tract (or block group) when applying the segregation indexes. Analysis of changes in household locations by race/ethnicity (and by mixtures of races/ethnic populations within households) might have yielded more useful information for policy deliberations, particularly if integrated or diverse neighborhoods had been mapped or described.[30]

VI. The "Least Segregated" Cities and Metro Areas in Wisconsin, According to the Census Bureau

In light of the concerns cited above, it may be instructive for policy makers and academics to examine the segregation rankings produced by the Census Bureau for their states in order to determine the perspectives embedded in the Census Bureau approach and to judge the usefulness of the Census Bureau data.

City Rankings for Wisconsin

In Wisconsin, the Census Bureau methodology (using the five-index rankings) identifies the City of Milwaukee as the "most segregated" for African Americans and the City of Brookfield as "least segregated" for African Americans of 22 cities ranked. The urban population mix of Milwaukee is the most diverse in the state – 45 percent white, 38 percent African American, 12 percent Hispanic/Latino, 3 percent Asian, and 1 percent Native American. By contrast, even though it is located less than five miles from Milwaukee, Brookfield is 93 percent white and only 1 percent African American. Rather than

acknowledged for its growing diversity and mixed race neighborhoods, the City of Milwaukee is classified by the Census Bureau as a "highly segregated" city, while white suburbs surrounding it are classified as having low segregation.[31]

Table 3:

Wisconsin Cities Ranked from "Least Segregated" to "Most Segregated" for African Americans, According to the Census Bureau Methodology and Indexes

Rank	Wisconsin City	African Americans	% African American
1	**Brookfield**	**402**	**1.0%**
2	Greenfield	450	1.3%
3	Sheboygan	575	1.1%
4	Janesville	1,037	1.7%
5	Eau Claire	628	1.0%
6	Appleton	906	1.3%
7	New Berlin	246	0.6%
8	Wauwatosa	1,187	2.5%
9	Waukesha	1,096	1.7%
10	West Allis	1,074	1.8%
11	La Crosse	1,040	2.0%
12	Wausau	311	0.8%
13	Fond du Lac	937	2.2%
14	Green Bay	1,978	1.9%
15	Oshkosh	1,516	2.4%
16	Superior	289	1.1%
17	Madison	14,234	6.8%
18	Beloit	6,002	16.8%
19	Racine	17,692	21.6%
20	Fitchburg	1,985	9.7%
21	Kenosha	7,804	8.6%
22	**Milwaukee**	**230,503**	**38.6%**

Note: The Census Bureau indexed all places that had at least 10,000 total population, at least 10 census tracts, and at least 100 persons in the racial/ethnic population analyzed.

In fact, the Census Bureau methodology ranks the City of Brookfield, Wisconsin as the third "least segregated" place in the U.S. (Only Levittown, New York and Sun City, Arizona had better segregation scores.) It appears that Brookfield does very well on the Census Bureau indexes, not only because it has a very small African American population that is spread throughout the city, but also because of the city's geography. In comparison with other U.S. cities, Brookfield does best on the Duncan's delta index (which measures whether the racial/ethnic population is spread evenly on the land area within the city boundaries), likely because the housing stock in Brookfield is spread throughout the former countryside and lacks a denser urban core. Brookfield also does well on the so-called isolation index, since those African Americans living in Brookfield typically comprise only 1.2 percent of their census tract's combined black-white population. (Sun City, Arizona and Coeur d'Alene, North Dakota are even less "African American" – and thus score "best" on the Census Bureau's isolation index.)

Notably, in Wisconsin the cities ranked as "least segregated" all have very low percentages of African Americans. Indeed, the Milwaukee area suburbs ranked least segregated by the Census Bureau (Brookfield, Greenfield, New Berlin, Wauwatosa, and West Allis) are usually viewed locally as

contributing to racial segregation in the Milwaukee metro area. Interestingly, West Allis shows up as a "less segregated" community even though 94 percent of the African Americans residing in one census tract are located on two blocks where subsidized housing is available. These residents make up nearly a third of all African Americans living in the community. In spite of this high concentration, the Census Bureau formulas report West Allis as ranking 10th in "least segregated" for African Americans.

Metro Area Rankings for Wisconsin

Metro area rankings by the Census Bureau similarly favor areas with very low percentages of non-white populations. For African Americans, the Wausau metro area (i.e., Marathon County) is ranked the "least segregated" metro area in Wisconsin, according to the five-index scale used by the Bureau.[32]

Table 4:

Wisconsin "Metro Area" Ranked from "Least Segregated" to "Most Segregated" for African Americans, According to the Census Bureau Methodology and Indexes

Rank	MSA	Counties	# of African Americans	% African American
1	**Wausau**	**Marathon**	**542**	**0.4%**
2	Eau Claire	Eau Claire, Chippewa	906	0.6%
3	La Crosse	La Crosse, Houston (MN)	1,455	1.1%
4	Sheboygan	Sheboygan	1,447	1.3%
5	Green Bay	Brown	3,514	1.5%
6	Appleton-Oshkosh-Neenah	Calumet, Outagamie, Winnebago	3,470	1.0%
7	Kenosha	Kenosha	8,629	5.8%
8	Janesville-Beloit	Rock	7,993	5.2%
9	Madison	Dane	20,241	4.7%
10	Racine	Racine	21,100	11.2%
11	**Milwaukee-Waukesha**	**Milwaukee, Waukesha, Ozaukee, Washington**	**245,151**	**16.3%**

Note: The Minneapolis-St. Paul and Duluth metro areas were not included as they are located mainly out of Wisconsin.

For Hispanics, Wausau/Marathon County (with an 0.8 percent Hispanic population) is again ranked as "least segregated." Wausau/Marathon County is ranked "most segregated" for Asians, however, based on the distribution patterns of the largely Hmong population locating in Wausau. Racine County, with an Asian population making up less than 1 percent of its total population, is ranked "least segregated" for this racial group.

Given that two of the main indexes used by the Census Bureau (Duncan's delta index and the absolute centralization index) expect each ethnic/racial group's settlement patterns to conform with the distribution of the land mass and distance from a centroid point, the issue of the geography included in the area of analysis becomes crucial. In many of the "metro areas" of Wisconsin analyzed by the Census Bureau, over half of the land is in farm acreage. Other land is zoned industrial or commercial, state and county parkland, wetlands, etc.

Table 5:

Percent of "Metro Area" Land in Farms
(from the 2002 Census of Agriculture)[33]

Counties in Wisconsin MSAs	% of Land in Farms by County
Milwaukee-Waukesha MSA:	
Milwaukee	4%
Waukesha	28%
Washington	47%
Ozaukee	51%
Madison	
Dane	87%
Appleton-Oshkosh-Neenah	
Winnebago	61%
Outagamie	64%
Calumet	73%
Green Bay	
Brown	58%
Racine	
Racine	58%
Janesville-Beloit	
Rock	75%
Kenosha	
Kenosha	51%
Eau Claire	
Eau Claire	50%
Chippewa	58%
La Crosse	
La Crosse	60%
Houston (MN)	71%
Wausau	
Marathon	54%
Sheboygan	
Sheboygan	59%

Other non-residential land uses include industrial and commercial parcels, state and county parkland, and wetlands.

It becomes fairly meaningless for indexes of urban segregation to expect that racial/ethnic groups will be distributed equally on farmland or to indirectly suggest that the absence of such settlement patterns reflects persistent racial discrimination. In the Milwaukee-Waukesha MSA, the presence of large tracts of farmland in three of the four counties (only Milwaukee County is a solidly urban county) mitigates against even distributions of urban populations.

VII. A Case Study of the Sheboygan MSA

The limitations of the methodology and definitions used by the Census Bureau are shown for the primary metropolitan statistical area (MSA) of Sheboygan, Wisconsin. The Sheboygan MSA was ranked 4th least segregated – better than average -- of the 11 metro areas in Wisconsin for African Americans, and far less segregated than the urban areas with notable African American populations (i.e., Milwaukee, Racine, and Kenosha). On its website, the Census Bureau reported the following "housing patterns" for the Sheboygan MSA.

Table 6:

Census Bureau Segregation Index Rankings for Sheboygan MSA

	1980	1990	2000
Segregation Index			
Dissimilarity	0.687	0.573	0.500
Isolation	0.051	0.055	0.088
Duncan's Delta	0.693	0.639	0.679
Absolute Centralization	-0.125	-0.074	0.115
Spatial Proximity	1.046	1.048	1.090
Population			
African Americans	309	430	1,447
Total Population	100,935	103,877	112,646

The Sheboygan MSA is actually Sheboygan County, which includes the City of Sheboygan (located on Lake Michigan, 50 miles north of Milwaukee) as its "central city" and the remainder of the county in which that city is sited. Sheboygan County has always had a very small African American population (of 1 percent or less) and would generally be considered a "white" and largely rural county. The county includes 13 places, with a total population of 89,193, or 79 percent of the MSA's 112,646 population. These places are located on 5 percent of the land area of the county.

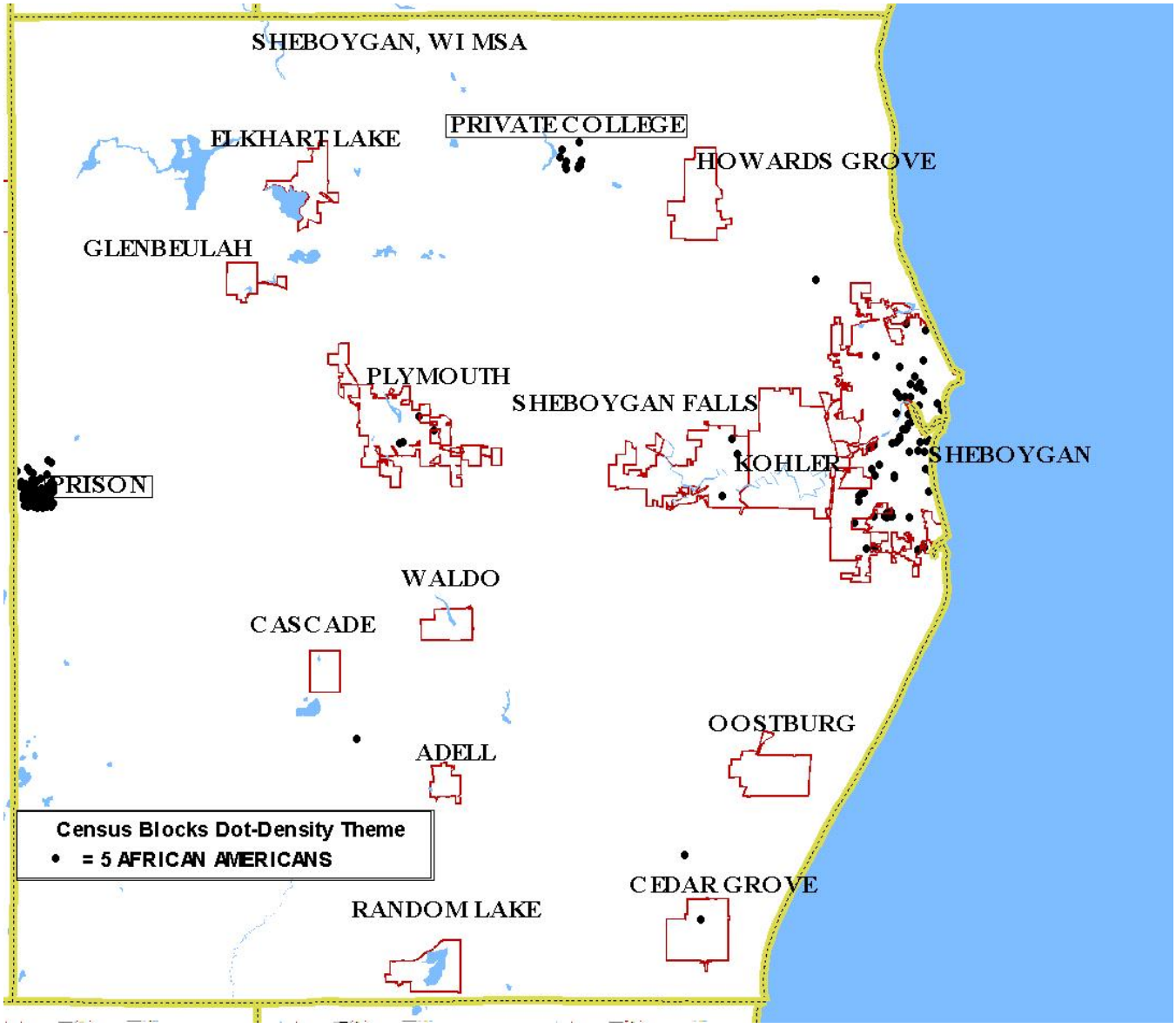
Examination of the geography of Sheboygan County raises several immediate concerns about the application of the delta and absolute centralization indexes to this MSA. There is little reason to expect the population of each racial/ethnic group (African American, Latino, Native American, Asian, or white) to be evenly distributed on a per square mile basis throughout the county (as the delta index expects) nor is there any reason to expect the racial/ethnic groups to live near or far from the population centroid of the county (as the absolute centralization index measures). In 2000 the population centroid of Sheboygan County was located in Sheboygan Falls, a small city to the west of Sheboygan. This location has no particular historic significance for settlement patterns – or less or more desirable housing.

There has been some migration of African American households to Sheboygan County (from 33 in 1990 to 146 in 2000) and those households have settled mainly in the City of Sheboygan. African Americans are also attending Lakeland College, a private school located in rural Sheboygan County. What appears to be of most significance for the very small African American population in Sheboygan County is that over half counted in the 2000 Census are in group quarters and not part of households. The use of population rather than housing units to measure "housing segregation" results in the institutionalized and group quarters population skewing the rankings due primarily to the location of a state prison (Kettle Moraine Correctional Institution, KMCI) occupying three census blocks of land in the most rural census tract of the MSA (Tract # 104). The three blocks of the correctional institution make up 1 percent of the land area of Tract #104, but account for 637 of the 642 African Americans living in the

tract and 637 of the 1,447 African Americans living in the county. The segregation indexes used by the Census Bureau assume that these prisoners are evenly distributed within Tract #104 (and have access to the same land area for their housing), but this is obviously not the case.

Had the prison population been excluded, Sheboygan County (given its very small African American population) would have likely scored even better as a "less segregated" MSA for African Americans. However, residential block level analysis shows only 3 blocks in the Sheboygan MSA with a 20-20 black-white population, i.e., a population that is at least 20 percent African American and also at least 20 percent white (a standard we used in our integration analysis to signal blocks with some level of meaningful black-white integration). There are another 86 blocks with at least one African American living on a block that is 80 percent or more white.

Distribution of the African American Population by Census Blocks in the Sheboygan MSA: 2000 U.S. Census



Had the Census Bureau used households or family units to study housing segregation, the data suggests that far different results would have emerged. An analysis of Sheboygan County by households shows 3,562 blocks of which 2,697 have at least one household. Of these, 2,527 have no African American households, and yet these 2,527 blocks account for 87 percent of all households in the MSA. Note also the very small number of African American households in this MSA – only 17 of 35,433 households in 1980 and only 146 of 43,545 households in 2000. The number of families, typically the unit of concern with discussions of racial segregation, is even smaller. These numbers raise serious questions about the statistic validity of the Census Bureau indexes.[34]

Table 7:

U.S. Census Data on Population in the Sheboygan MSA: 1980-2000

	All Races			African Americans			
	Total Population	Number of Households	Number of Families	Total Population	Population Not in Group Qtrs.	Number of Households	Number of Families
1980	100,935	35,433	26,952	309	80	17	15
1990	103,877	38,592	28,006	430	146	33	25
2000	112,646	43,545	29,936	1,447	667	146	100

Time constraints precluded a full analysis of the Census Bureau indexes and five-index rankings for other racial/ethnic groups in Wisconsin, but preliminary review suggests that the Census Bureau indexes do not offer useful representations of racial changes since 1980 or 1990 nor do they appear to provide fair comparisons of communities, counties, or MSAs in the state.

VIII. Should the Census Bureau Expand Its Rankings Reports for Metro Areas and Cities?

The American public looks to the Census Bureau for the most accurate possible count of its citizenry and for descriptions of current social and economic conditions, and Congress awards considerable public funds to support these efforts. In the case of the Census Bureau housing segregation ranking studies, the Census Bureau has embraced a research methodology which is popular with a relatively small group of academics, but which suggests controversial approaches to racial segregation based on inconsistent definitions of race, simplistic assumptions about the geography of urban areas, and methodologies with statistical limitations. The Census Bureau segregation rankings reflect one set of competing values regarding racial mixing, and it is questionable whether the Census Bureau is the appropriate body to develop consensus around these politically charged and emotional issues.

Further, while the CENSR-3 Publication and other Census Bureau ranking studies generate headlines, they offer few insights into actions needed to address involuntary segregation, housing discrimination, and economic disparities within or among communities. The Census Bureau provides databases that policymakers, academics, and others can use to conduct their own research in areas such as racial/ethnic segregation and integration. It does not appear productive for the U.S. Census Bureau to divert its resources to ranking studies based on 5 (or 19) of hundreds of potential perspectives on racial mixing or to lend its name (and its reputation) to ranking schemes based on perspectives that many Americans may not share.

Endnotes

[1] Lois Quinn is a senior research scientist at the University of Wisconsin-Milwaukee. In the 1970s she assisted the U.S. District Court Special Master John Gronouski in analyzing the pupil movement by race required under various desegregation plans presented by the Milwaukee Public Schools in response to a federal court order to desegregate its schools. She subsequently served for three years as executive director of the Metropolitan Integration Research Center where she collected evidence on government actions contributing to housing and school segregation in the Milwaukee area for a metropolitan school lawsuit; co-authored a research study for the National Institute of Education on interrelationships between school desegregation and government housing programs; and testified for community organizations in legal challenges to the closing of North Division High School and other predominantly African American schools to the neighborhood African American students.

[2] Iceland, John, Daniel H. Weinberg, and Erika Steinmetz, **Racial and Ethnic Residential Segregation in the United States: 1980-2000** (Washington, D.C.: U.S. Government Printing Office, 2002); "Housing Patterns" website at http://www.census.gov/hhes/www/resseg.html.

[3] Lois M. Quinn and John Pawasarat, **Racial Integration in Urban America: A Block Level Analysis of African American and White Housing Patterns** (University of Wisconsin-Milwaukee Employment and Training Institute, December 2002, revised January 2003). The study is available online at http://www.uwm.edu/Dept/ETI/integration/integration.pdf and included as Appendix A.

[4] Elizabeth M. Grieco, "The White Population: 2000" Census 2000 Brief, Issued August 2001 (C2KBR/01-4).

[5] U.S. Census Bureau, "Overview of Race and Hispanic Origin: 2000" Census 2000 Brief, Issued March 2001 (C2KBR/01-1).

[6] Daniel H. Weinberg quoted in "Residential Segregation of African Americans Declines; Signals Mixed for Other Groups, Analysis Shows," Press Release of the U.S. Census Bureau, November 27, 2002. Online at http://www.census.gov/Press-Release/www/2002/cb02cn174.html.

[7] Ibid., 117.

[8] Douglas S. Massey and Nancy A. Denton, "The Dimensions of Residential Segregation," **Social Forces** 67: 281-315.

[9] Bruce Murphy, "UWM Research Sheds New Light on Census Findings," **Milwaukee Journal Sentinel**, January 18, 2003, available online at http://www.jsonline.com/news/metro/jan03/111860.asp.

[10] Douglas S. Massey and Nancy A. Denton, **American Apartheid: Segregation and the Making of the Underclass** (Cambridge, Mass.: Harvard University Press, 1993), 75.

[11] Massey and Denton, "Dimensions of Residential Segregation," 291.

[12] In Milwaukee, for example, Mexicans immigrants settled near factory districts on the city's south side. See Joseph A. Rodriquez, "Home Ownership and Ethnic Culture: Mexicans in Milwaukee after World War II," paper presented at the Social Science History Association meeting, November 5-8, 1992.

[13] "Census Business Districts: 1982 Census of Retail Trade" website posted at http://www.census.gov/geo/www/cbd.html.

[14] Iceland, Weinberg, and Steinmetz, **Racial and Ethnic Residential Segregation**, 121.

[15] "Housing, Diversity and Choices: A Metro Milwaukee Opinion Survey," Public Policy Forum, September 2004.

[16] Karl E. Taeuber and Alma Taeuber, **Negroes in Cities: Residential Segregation and Neighborhood Change** (Chicago: Aldine Publishing Company, 1965), quoting from Morton Grodzins, **The Metropolitan Area as a Racial Problem** (Pittsburgh: University of Pittsburgh Press, 1958), 100.

[17] In his 1971 study on **The Black Ghetto**, Harold Rose of the University of Wisconsin-Milwaukee observed that the terminology used by white scholars to describe racial changes in neighborhoods, while derived from descriptions of plant ecology, "has come to represent the white residents' perception of events in the struggle for residential space, and in all likelihood the white writer's perception as well." Harold M. Rose, "The Development of an Urban Subsystem: The Case of the Negro Ghetto," **Annals of the Association of American Geographers** (March 1970), 4, cited in Harold M. Rose, **The Black Ghetto: A Spatial Behavioral Perspective** (New York: McGraw-Hill Book Company, 1971), 8.

[18] Taeuber and Taeuber, **Negroes in Cities**, 29-30.

[19] Bruce Murphy, "Segregation Data Based on Racist Premise, Critics Say," **Milwaukee Journal Sentinel**, January 12, 2003, available online at http://www.jsonline.com/news/metro/jan03/110290.asp.

[20] The dissimilarity index approach toward desegregation is not a mere abstraction, but represents an ideological approach that has been used in school desegregation cases. The initial Milwaukee Public Schools desegregation plan, for one, was based on such an approach. Concerned (as were the early proponents of the dissimilarity index) with "tipping" and "white flight," the federal court ordered that schools be considered desegregated if they were no more than 25-50 percent black (an "evenness" range, given the racial mix at that time). The first year desegregation plan prepared by the all-white school board was designed to require mandatory reassignment of up to 5,800 black children from their predominantly black schools while no more than 350 white children would be given mandatory reassignments. Nearly all of first year desegregation resulted from movement of black children out of their neighborhood schools and into predominantly white schools throughout the city. A two-way concept of desegregation, using pairing and clustering of schools, would have produced far different bussing patterns, and burdens, by race. Analysis of the author for the federal court, 1976-1978.

[21] Under the Duncan approach, the formula used is $2pqD$, where D equals the dissimilarity index, p represents the metro area's black population expressed as a percentage of the metro area's combined black and white populations, and $q=1-p$, or the percentage white of the metro area's combined black and white population. Taeuber and Taeuber, 30.

[22] Sarah Carr, "State's Schools Called Segregated," **Milwaukee Journal Sentinel,** January 22, 2003, online at http://www.jsonline.com/news/metro/jan03/112671.asp.

[23] Massey and Denton, **American Apartheid**, 120-121.

[24] Scholars and the press often ignore racial integration occurring in the large urban centers and focus on dispersal of small African American populations into suburban and exurban areas of metropolitan counties, based on the dissimilarity index approach to measuring "segregation." Edward L. Glaeser and Jacob L. Vigdor in a paper for The Brookings Institution, for example, concluded, "The decline in segregation comes about primarily from the integration of formerly entirely white census tracts." Glaeser and Vigdor, **Racial Segregation in the 2000 Census: Promising News** (Washington, D.C.: The Brookings Institution Center on Urban and Metropolitan Policy, April 2001), 1.

[25] Ibid., 7.

[26] U.S. Census Bureau, "GCT-PH1 Population, Housing Units, Area, and Density: 2000."

[27] See, Quinn and Pawasarat, **Racial Integration in Urban America.** The report presented five examples of racial combinations by residential block: blocks with at least 20 percent African American and at least 20 percent white populations, majority white blocks with at least 50 percent white population and less than 20 percent African American population, blocks with at least 50 percent African American population and less than 20 percent white

population, blocks with more than 80 percent black population, blocks with more than 80 percent white population. We also examined blocks with various mixes of African American, Latino, and Asian populations, blocks with 3 or more racial/ethnic groups each comprising at least 10 percent of the population, and many other combinations. We selected residential blocks rather than census tracts as the unit of analysis because we believe that blocks are more sensitive to interaction between races.

[28] Iceland, Weinberg, and Steinmetz, **Racial and Ethnic Segregation**, 8.

[29] "Census Tracts and Block Numbering Areas," U.S. Census Bureau website at http://www.census.gov/geo/www/cen_tract.html.

[30] The race of the head of household could have been used. Absent that, the population in group quarters could have been excluded (by race/ethnicity) from the analysis, or blocks with more than a third of the population in group quarters could have been excluded as we did in our study.

[31] Over a fifth (21.7 percent) of Milwaukee's population live on blocks where at least 20 percent of the population are African American and at least 20 percent are white – one definition of black-white integration offered. See Quinn and Pawasarat, **Racial Integration in Urban America**.

[32] The siting of state prisons outside of major metropolitan areas contributes to problems with many of the Census Bureau rankings and assumptions. Nearly a third of the African Americans counted in the 2000 Census in the Appleton-Oshkosh-Neenah metro area (i.e., Calumet, Outagamie, and Winnebago counties) were incarcerated in correctional facilities; the Census Bureau indexes and five-index ranking system showed that area in the middle (6^{th}) of the Wisconsin rankings for segregation of African Americans.

[33] United States Department of Agriculture National Agricultural Statistics Service, "2002 Census of Agriculture" (U.S. Department of Agriculture, Wisconsin Counties), posted at www.nass.usda.gov.

[34] The Census Bureau disclaimer, automatically printed on each of the "Housing Patterns Place Table," states: "Because of their complexity, segregation indexes are particularly subject to programming error. Indexes for places with small minority populations are also less reliable than those with larger ones." This hardly appears adequate notice for reporting indexes for places where the Census Bureau data shows very small numbers of households and families compared to the number of census tracts and/or where the Census Bureau data shows most of the non-white populations in group quarters or limited to a very small number of blocks.