

**Racial Segregation in America:  
A Virtual Tour of Residential Segregation in  
US Urban Areas Using the  
SegMaps Program**

by

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## **Introduction**

This document provides a guided tour of residential segregation in American urban areas. The tour is a “virtual” one that draws on the SegMaps program found at the VLAB-RESI web site housed and maintained at Texas A&M University.<sup>1</sup> It is intended to be an introduction geared to undergraduate students or interested lay readers who have little prior acquaintance with sociological analysis of residential segregation. It begins with an overview of segregation in American urban areas and a brief review of sociological conceptions of segregation. Then it discusses how segregation is measured and how it is depicted using the thematic maps presented by the SegMaps program. Finally, it concludes with a tour that guides the reader to particular maps for selected cities to illustrate key patterns of residential segregation.

## **Residential Segregation in America**

America is a highly urbanized society. Most of its population resides in large urban areas.<sup>2</sup> Indeed, more than half of the American population resides in a relatively small number of very large metropolitan areas.<sup>3</sup> Residential segregation is a fundamental fact of social life in US urban areas. It structures daily living; it has dramatic consequences for the lives and life chances of individuals and social groups living in them.

Every urban area in the United States is highly segregated along ethnic and socioeconomic lines. It is difficult to exaggerate the significance of this fact. Sociologists and other social scientists have care-

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<sup>1</sup> The SegMaps program is described in the Appendix at the end of this document. The appendix also discusses what software and hardware configurations are required to run the SegMaps program.

<sup>2</sup> In this discussion, we use the terms “urban” and “metropolitan” interchangeably. By these terms we are referring *not* to cities as defined by political boundaries. Instead, we are referring to nodal-functional urban regions that delimit the populations socially and economically integrated with a particular urban center (or cluster of urban centers). This sociological definition highlights the fact that, for purposes of many analyses, cities are properly seen as expansive entities which include not only “downtown” districts and “central cities” but also the suburban and exurban regions surrounding and socially and economically integrated with the central city.

<sup>3</sup> As will be noted below, the 40 largest megapolitan and metropolitan areas in the US contain more than half of the total US population and well over half of the total population of all of the principle ethnic minority populations of the US.

fully conceptualized the notion of segregation and generated rigorous quantitative measurements of its various manifestations. The lay person, however, understands the basic fact of segregation on a more intuitive level as the self-evident organization of urban space into different areas that can be readily characterized in terms such as “well-to-do”, “poor”, “safe”, “unsafe”, “white”, “black”, “rough”, etc..

The lay person grasps the social significance of segregation through the “common-sense” understanding that residential location has important implications for a wide range of outcomes (e.g., housing quality, neighborhood amenities, quality of schools and social services, and exposure to crime and other social problems to name just a few). Systematic research by sociologists and other social scientists has confirmed these general notions and thoroughly documented the strong connections between residential segregation and ethnic stratification, socioeconomic stratification, and urban poverty. One inescapable conclusion that emerges from this research literature is that segregation is pervasive (it is found in every city), it is often extreme, and it has powerful consequences for individuals, groups, and society as a whole.

## Sociological Conceptions of Segregation

Many excellent empirical studies document how residential segregation varies across cities and changes over time. This scientific research literature is highly quantitative and relies extensively on abstract summary indices to describe patterns of segregation and make comparisons between cities and over time. The summary indices of segregation used in these studies are familiar tools to demographers and urban sociologists who study segregation. But students without a background in the subject sometimes find them difficult to comprehend and interpret. Fortunately, however, one does not need to be a trained expert to understand basic sociological conceptions of segregation.

The general notion of segregation is that individuals and groups are not randomly distributed in urban space but are distributed in systematic patterns linked to social characteristics such as ethnicity, social class, and stage in the family life cycle to name a few. The present discussion focuses on ethnic segregation and the five major dimensions of ethnic segregation recognized in the literature (Massey and Denton 1988): (1) uneven distribution, (2) isolation, (3) clustering, (4) centralization, and (5) concentration.

Each of these dimensions can be measured quantitatively by using specialized summary indices, but such indices and the comput-

ing procedures and formulas used to obtain them are not of interest here.<sup>4</sup> Instead, the focus here is on more intuitive depictions of segregation based on thematic maps that have been prepared to highlight certain patterns of population distribution. With that in mind, we review the major dimensions of segregation in relatively non-technical terms. The next section notes how evidence of these dimensions of segregation can be seen in the maps that the SegMaps program presents.

**Uneven Distribution.** This aspect of segregation concerns the degree to which a group’s percentage representation in different neighborhoods departs from the group’s percentage representation in the city’s overall population. Under conditions of even distribution, every group will be represented in every neighborhood in proportions that match their respective group proportion in the city’s overall population.

**Isolation.** This aspect of segregation concerns the degree to which members of a group are residentially “isolated” because they reside in areas where their group predominates and thus have less “residential contact” with other groups.<sup>5</sup> Isolation can result from uneven distribution, but it also is affected by each group’s representation in the city population. Thus, for example, under even distribution a group may still be “isolated” from other groups if it is the predominant group in the city’s population.

**Centralization.** This aspect of segregation concerns the degree to which members of a group are concentrated in central (rather than suburban) neighborhoods.

**Concentration.** This aspect of segregation concerns the degree to which members of a group are concentrated in a small, densely settled geographic area.

**Clustering.** This aspect of segregation concerns the degree to which the areas where a particular group predominates are located next to each other in urban space (e.g., adjacent to each other). Strong clustering produces *ghettoization*, the concentration of a group in a small number of adjacent areas that form ethnically homogeneous regions of the city.

**Hyper-Segregation.** The different dimensions of segregation

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<sup>4</sup> For technically advanced students, see Massey and Denton (1986) for a review of measures of segregation. For an introduction geared to undergraduate students, see Jaret (1995).

<sup>5</sup> Isolation is an important instance of the broader idea of “exposure” or “contact”. These broader ideas include cross-group contact as well as within-group contact.

do not necessarily vary together. For example, as mentioned earlier, a group may be evenly distributed yet still be isolated. Similarly, a group may be unevenly distributed but without being clustered into one large ghetto. Alternatively, a group may have high levels of isolation without being centralized or concentrated.

Since the different dimensions do not necessarily vary together, it is of special interest and significance when several dimensions reach high values simultaneously. When this occurs, the group in question is said to be *hyper-segregated* (Massey and Denton 1989). For our purposes, we will say that hyper-segregation exists when a group has high levels of segregation on three or more of the five dimensions of segregation identified above.

## Measuring and Depicting Segregation

This section describes the data and measurement strategies used to develop thematic maps depicting patterns of segregation in urban areas. It discusses how ethnicity and neighborhood are measured. Then it describes the types of maps that are developed to help highlight patterns of ethnic segregation.

### *Ethnic Categories*

SegMaps displays data for four racial-ethnic categories -- White, Black, Latino, and Asian.<sup>6</sup> These are “pan-ethnic” categories developed from racial and ethnic identifiers used in the 1980 and 1990 US Censuses of Population. These “racial” categories reflect social groupings. While they are connected in the lay public’s mind with stereotypes of physical appearance (phenotype), they do not identify meaningful biological categories. Instead, they reflect social groupings that correspond with ethnic distinctions that are generally recognized by the public at large and that have historically been salient in social interaction in the United States.

The data on ethnic distribution are generated by respondent’s answers to census questions regarding racial and ethnic identification. A thumbnail sketch of what the category labels reflect is as follows. *White*. Persons identifying with ancestors that originated in Europe (with the exception of Hispanic groups). *Black*. Persons whose ancestors originated in Africa. *Asian*. Persons whose ancestors originated in countries of Asia (including, for example, Japan, China,

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<sup>6</sup> We also developed data for a fifth pan-ethnic category, Native Americans, but the representation of this population was too small to register in the ethnic mix maps.

Korea, India, Viet Nam, and the Philippines). *Latino*. Persons of Latino or Hispanic ancestry including groups originating in Mexico, Cuba, Puerto Rico, the Dominican Republic, and Central or South America. *Nonwhite*. Persons of non-European and/or Hispanic ancestry including persons whose ancestors originated in Africa, Asia, and Latin and South America, or whose ancestors were indigenous peoples of the Americas.

### *Neighborhoods*

Neighborhoods are identified here based on either *census tracts* or, in some cases, *census block groups*. Both are small geographic areas used in the census for the purpose of providing data on small areas. They approximate “true” neighborhoods in some respects but not others. They are similar to neighborhoods in that their populations are small and somewhat homogeneous with regard to social characteristics. Typically, the population in a census tract numbers between 1,000 and 8,000. Block groups are smaller, and usually contain between 500 and 1,500 people. The Census Bureau establishes boundaries of census tracts and block groups with the goal of delimiting small areas with populations that are similar with respect to social and economic characteristics. However, similarity on social characteristics does not necessarily mean a sense of “community” within the area and in that respect census tracts and block groups differ from “true” neighborhoods.

### *The Data Base*

SegMaps provides thematic maps depicting residential segregation for all consolidated metropolitan areas and metropolitan areas ranked among the 40 largest in the US.<sup>7</sup> In addition, several “extra” metropolitan areas are included in the data on an *ad hoc* basis either because they exhibit a segregation pattern of particular interest or are

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<sup>7</sup> Consolidated metropolitan areas (sometimes called “megapolitan areas”) include multiple metropolitan areas (termed “primary metropolitan areas in census terminology). In most cases, the SegMaps database features the largest PSMA in the CMSA by name and does not separately list other PMSAs within the CMSA. For example, the Galveston, TX and Brazoria, TX PMSAs are included in the Houston, TX CMSA. These PMSAs are not identified by name in the SegMaps list of metropolitan areas, but their geographic area and populations are represented in the maps developed for Houston, which is included in SegMaps’ list of metropolitan areas. In a few cases, multiple PMSAs within a CMSA are included separately in the city selection list. Examples include Dallas and Fort Worth, Baltimore and Washington, D.C..

of interest to a particular audience.<sup>8</sup>

While the metropolitan areas in the primary SegMaps data base represent only a small portion of all metropolitan areas (the 2000 Census identified 331 metropolitan areas), they contain a very large share of the US population and an even larger share of the population living in metropolitan areas. The metropolitan areas included in the SegMaps data base contain almost 60% of the US population residing in metropolitan areas and just less than 50% of the total US population. Similarly, the SegMaps data base contains 64% of the black population residing in metropolitan areas and 58% of the black population in the US. It contains 72% of the Latino population residing in metropolitan areas and 66% of the Latino population in the US. And it contains 76% of the Asian population residing in metropolitan areas and over 80% of the Asian population in the US.

Thus, while the number of metropolitan areas in the SegMaps data base is relatively small, the maps for these cities depict the segregation patterns experienced by about half of all Americans and even larger fractions of the country's principle ethnic minority populations.

### **Types of Maps**

The SegMaps program presents two different thematic maps to depict ethnic segregation in urban areas: "Ethnic Mix" maps and "Group Percentage" maps.<sup>9</sup> The ethnic mix maps use different colors and shadings to indicate what racial and ethnic groups predominated in the population of different areas of a city in 1990 and in 1980.<sup>10</sup> The group percentage maps use monochromatic shading to indicate how a particular group is represented in the population of each area of the city in 1990 (darker shades indicate higher proportionate representation). These two kinds of maps provide a good sense about four of the five dimensions of segregation introduced earlier (namely, evenness, isolation, centralization, and clustering).

In addition, SegMaps presents thematic maps that depict segregation along status lines, segregation based on the combination of

status and ethnicity, neighborhood change in area ethnic mix, and neighborhood variation in population density. The latter map is especially helpful for considering concentration, the dimension of segregation not directly depicted in the ethnic mix maps.

**Even Distribution.** If all groups are "evenly" distributed across the city's neighborhoods, the ethnic mix map will be a single color for the entire city (the color reflecting the city's overall ethnic mix). If groups are distributed "unevenly", the ethnic mix map will register different colors in different areas and may depict a "mosaic" or "patchwork quilt" of varying colors. Additionally, if any particular group is distributed evenly throughout the neighborhoods of the city, the group percentage map for that group will be a single, uniform shade throughout the city (the color that corresponds to the group's representation in the city population). Uneven distribution is registered when the group percentage maps depict variations of lighter and darker shading across different areas of the city.

**Isolation.** The group percentage maps provide useful insight into patterns of isolation. Generally speaking, a group will be isolated when some areas of the city are depicted as having a high representation of the group (darkly shaded) while other areas have a low representation of the group (lightly shaded). Isolation will be low for a group when no or only a few areas in the city are characterized high proportionate representation of the group.

**Clustering.** The group percentage maps show clustering very well on a group by group basis. Clustering is high if darkly shaded areas are clustered together (adjacent to each other) rather than randomly distributed or "checker-boarded". Clustering is also indicated when transitions from high to low representation are evident; that is when there is a progression across adjacent neighborhoods from high to medium to low representation for the group. If the transition is "abrupt" and there is only a few large areas of high representation, clustering is particularly pronounced and may be characterized as ghettoization. Ethnic Mix maps also show clustering, but with less precision than the group percentage maps. Their advantage is that they can reveal clustering for several groups simultaneously.

**Centralization.** The group percentage maps shows well how this varies across groups.<sup>11</sup> For best effect, activate the display of the city center or central business district (CBD). If the group percentage

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<sup>8</sup> The list of 40 largest consolidated metropolitan areas and metropolitan areas was based on population size for the 2000 census. The additional maps include several metropolitan areas in Texas which are of special interest to students at Texas A&M University, the home of SegMaps.

<sup>9</sup> SegMaps also presents maps depicting patterns of neighborhood change. While interesting in their own right, they are not the best for illustrating patterns of segregation.

<sup>10</sup> At present SegMaps does not present data for ethnic segregation patterns in 2000. However, these maps will be developed in the near future.

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<sup>11</sup> Bear in mind that cities differ in their degree of overall "compactness". Thus, a group that is "centralized" in a sprawling city like Houston, TX, might be physically spread out more than a less centralized group in a compact city like Boston, MA.

map shows the central rings to be generally shaded darker than outlying rings, the group is centralized.

**Concentration.** Strictly speaking, this dimension of segregation is not depicted in the ethnic mix and group percentage maps. However, central neighborhoods are often settled more densely than other neighborhoods. As a consequence, “concentration” tends to follow “centralization” which the maps depict well. This assumption can be examined directly by inspecting the population density map to confirm that central neighborhoods in the city are higher-density neighborhoods.

**Hyper-Segregation.** The ethnic mix maps are effective for indicating hyper-segregation because they can indicate uneven distribution, clustering, centralization, and, to a certain extent, isolation. Furthermore, they provide the visually dramatic contrast with other groups that helps drive home the significance of hyper-segregation.

The group percentage maps show only one group at a time and are less dramatic visually. In fact, however, they reveal hyper-segregation for a particular group with greater clarity than can be obtained with the ethnic mix maps. In the group percentage maps, a hyper-segregated group will be shown as a few, centrally located regions of high group representation surrounded by a large region of low group representation. The group percentage map is more precise for representing extreme hyper-segregation because it is better able to show that a group’s representation in outlying areas is very low.<sup>12</sup>

### ***Limitations of Maps***

Before moving on to the guided tour a word of caution about the limitations of maps is warranted. Maps are an effective tool for documenting segregation patterns, but they are not without limitations. First, due to their emphasis of visual patterns, they can be misleading in certain respects. A good example of this is the greater visual impact that outlying neighborhoods have compared to central neighborhoods. Because census tracts and block groups are drawn to capture small populations, their physical size (and corresponding area in maps) tends to be smaller in central areas where population density is greater. The danger here is that high-density, central neighborhoods are given less “visual weight” even though their share of the city’s population is as large or larger than that of outlying neighborhoods which are larger in physical size. This means that for many purposes, the reader should make a “mental adjustment” and give greater im-

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<sup>12</sup> The ethnic mix map will only show that the group is less than a majority in outlying areas.

portance to central neighborhoods to compensate for the fact that they get less visual weight in the maps.<sup>13</sup>

A second limitation of maps is the “flip side” of their strength. They are geared to conveying quantitative information visually, making it more intuitive and easier to interpret. However, to achieve this, they lose the ability to convey information with the precision that is possible with quantification. This means, for example, that maps can readily convey differences between cities that vary markedly in their patterns of segregation. But they are much less useful for representing differences between cities that are not dramatically different.

The conclusion is a simple one. Maps can provide a valuable introduction to patterns of segregation, but, to obtain a fuller and more complete understanding of city-to-city variation in segregation patterns, it is ultimately necessary to examine quantitative measurements of the different dimensions of segregation.

### **Guided Tour**

Now we begin the virtual tour of segregation in American cities. Our goal here is to illustrate key points, not to look at every city in every way possible. No doubt, after you become acquainted with the basics, you will want take your own private, self-guided tour of particular cities focusing on patterns of particular interest to you. Taking this tour can get you started in that direction.

To begin, start the SegMaps program. If you acquired this document through the help options of that program you already know how to start the program. If not, go to your internet-connected computer and start your browser (use Microsoft Internet Explorer version 5 or higher for best results). Then point your browser to the VLAB-RESI web site found at the following web address.

<http://vlab-resi.tamu.edu/vlab.htm>

Once your browser has loaded the opening page for the VLAB-RESI site, click on the link for the SegMaps program.

### ***Chicago, Chicago***

When SegMaps opens, it presents the ethnic mix map for Chi-

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<sup>13</sup> This is particularly important for isolation which is determined not only by the number of areas at the extremes on group representation, but also by the proportion of the group’s overall population residing in each type of area. This is shaped by area population size which is much more similar across areas than their physical size. Thus, central areas which are visually small in size are just as important as other areas for determining isolation.

ago, IL. This is not an arbitrary accident. First off, Chicago is a highly segregated city and on those grounds alone is a good choice for visually depicting intense ethnic segregation. More importantly, however, sociological analysis of residential segregation in urban areas traces its intellectual heritage to the work of generations of sociologists at the University of Chicago. Furthermore many of the classic sociological studies of ethnic segregation have examined Chicago in close detail. Presenting Chicago in the opening map thus pays homage to this storied tradition of research on residential segregation.

### ***Check Out SegMaps' Controls***

The SegMap program has several controls which permit the user to select different cities and maps and to enhance the map display in various ways.

**City Selection.** The city selection box (the selection box that reads "Chicago") provides the means for choosing other cities in the SegMaps data base.

**Map Selection.** The map selection box (the selection box that reads "Ethnic Mix 1990") provides the means for choosing various thematic maps. Choose the "Percent Black" map. Familiarize yourself with the map legend (presented in the notes frame on the left side of the display). You will see that the map reveals that Chicago has two, large central ghettos where the city's black population is concentrated. With experience in interpreting these maps, you will recognize this pattern as one of hyper-segregation for blacks.

Use the map selection box and return to the original map by choosing the "Ethnic Mix 1990" map. Familiarize yourself with its legend. You will see that Chicago displays high levels of uneven distribution of groups. The city is divided into a patchwork of readily identifiable "white", "black", and "Latino" areas. Some are "simple-majority areas". Most are "super-majority areas"; areas where the predominate group comprises at least 80% of residents in the area. Chicago is a profoundly segregated city.

**Map Labeling.** SegMaps has several controls that permit the user to enhance the displayed map by overlaying it with titles, map legends, map scales, business district markers, etc. Their various functions can be quickly summarized as follows.

The "T" (Title) button "toggles" the display of a title for the map indicating the current city and the type of map being displayed.

The "L" (Label) button "toggles" the display of a legend for the map. Repeated "clicks" on the button turns the display on, moves it to different locations on the map, and turns it off.

The "S" (Scale) button "toggles" the display of a scale for the map

indicating distance in miles for the map being displayed.

The "B" (Business District) button toggles the display of the city's "central business district" or "CBD" (known as the "Loop" in Chicago) and draws "rings" around it at five mile intervals. This feature is helpful for maintaining spatial orientation when viewing different areas of the city and it is especially useful for helping interpret patterns of centralization.

The "C" (Center) button returns the map's orientation to the default "center". This action is relevant only if the map's orientation has been changed from its initial display.

New users should experiment with these features to find a combination that will help them understand and interpret the maps. Experienced users will probably elect to turn them off so more screen space can be devoted to the segregation maps and will only turn them on occasionally (e.g., when printing or capturing an image).

**Spatial Orientation.** The spatial orientation of the map can be changed by moving the mouse pointer to some area on the map and clicking once. The area that you clicked on will become the new center of the map display area (which is indicated by a small, cross). In this way, you can navigate the map "surface" to focus on different regions of the map. Clicking on the "Center" button will return the map to its default orientation.

**Magnification.** The magnification selection box (the selection box with the number 100% in it) allows the user to "zoom in" or "zoom out" to gain a different perspective on the map. Clicking on 100% returns the map to its original scaling.

**Help.** Clicking on the "Help" button brings up a help menu in the "notes" frame on the left side of the screen.

Finally, notice that SegMaps does not have a button or menu item for printing or capturing map images. It is possible to print and/or capture its images, but this is not done directly through the SegMaps program but instead either through the browser or the operating system. Instructions on how to do this can be found in the "Help" system.

Now we are ready to start the tour.

### ***The Pervasiveness of Segregation***

One of the most fundamental facts about residential segregation is that it is found in all urban areas of the United States. To be sure, there is variation in form and degree of segregation across areas. But major urban areas that are "low" on ethnic residential segregation are low only relative to other cities, not in any absolute sense.

To see this point, consider uneven distribution, the dimension of

segregation studied most often by social scientists. If a city is free of uneven distribution (i.e., if racial and ethnic groups are distributed evenly), the ethnic mix maps for the city will be of uniform color throughout the city. Use the map selection box and select an “Ethnic Mix” map. Next use the city selection box and select any city at random or proceed in turn with every city. You will observe that there is no ethnic mix map which is a uniform color. Simply put, it is not possible to find a city in the data base that is free of substantial ethnic segregation.

### ***Variation in Racial Residential Patterns***

Major metropolitan areas vary widely in their racial and ethnic makeup and this has important implications for their patterns of residential segregation. Examine the ethnic mix maps for cities in the Midwest (e.g., Cincinnati, Cleveland, Detroit, Milwaukee, Minneapolis, and St. Louis) and you will see that they are primarily “White-Black” cities characterized by a relatively simple mix of black and white residential areas. This pattern is also found in major metropolitan areas of the Northeast (e.g., Boston, Pittsburgh, and Philadelphia) and the South (e.g., Atlanta, New Orleans, and Tampa-St. Petersburg). It is relatively uncommon in the West with the exception of Portland. The “White-Black” pattern is the most common in major metropolitan areas. And for many people the very term segregation brings to mind the notion of white-black segregation. Among the 30 major metropolitan areas, the overwhelming majority have identifiable black area with at least one 80% black area with several immediately adjacent “simple-majority” black areas.

Latinos are the most rapidly growing ethnic minority population in the US and Latinos presently are emerging as the largest ethnic minority population in the country. Even so *only two* of the 30 largest metropolitan areas are primarily “White-Latino” cities (San Antonio and Phoenix, both found in the Southwest). Among major metropolitan areas, San Antonio is by far the one with the most evident Latino residential presence.

Asian-Americans are the second most rapidly growing ethnic minority population in the US, yet *none* of the major metropolitan areas are primarily “White-Asian” cities. Furthermore, over half of the top 30 metropolitan areas do not have *any* identifiable Asian residential areas (at the level of census tracts or block groups). Of those that do, most have only a handful of identifiable Asian neighborhoods.

### ***Especially Diverse Cities***

Several major metropolitan areas stand out for having segrega-

tion patterns that reflect great diversity in the racial and ethnic composition of the city’s residential areas. Three in particular are Los Angeles, New York, and San Francisco. The ethnic mix maps for these cities reveal identifiable areas for all four major racial groups (white, black, Latino, and Asian) with large expanses of black and Latino neighborhoods. Several other cities in the top 30 have a substantial presence of at least three (white, black, and Latino) of the four groups. Notable examples include Chicago, Dallas-Fort Worth, Houston, and Miami. Comparing these cities with “two-group” cities such as Atlanta, Cleveland, Detroit, and Pittsburgh shows how markedly cities can vary in terms of the ethnic diversity of residential neighborhoods.

### ***High Segregation Cities***

In this set of major metropolitan areas, the five cities with the dubious distinction of being marked by the highest levels of white-minority segregation (based on quantitative measures of uneven distribution) are Chicago, Cleveland, Detroit, St. Louis, and Milwaukee.<sup>14</sup> Their high levels of segregation are evident in the ethnic mix maps in several ways. Each city has a clearly identifiable, centrally located black ghetto (an expanse of contiguous, 80% black neighborhoods). Most identifiable black neighborhoods are 80% black rather than simple-majority black. Few neighborhoods are “mixed” (with no identifiable ethnic majority). Transitions from 80% black neighborhoods to neighborhoods that are less than 20% black are very abrupt.

Examination of the maps of percent black reinforce these observations and highlight additional common patterns. In each of these cities, neighborhoods tend to fall into two categories; 80% black or less than 20% black. Few neighborhoods have intermediate values on percent black and those that do are generally found in “transition areas” bordering large, central ghettos. The maps also reveal extreme clustering; the vast majority of 80% black neighborhoods are contiguous in space creating large expanses of black residential areas that are extremely isolated in terms of contact with other ethnic groups.<sup>15</sup>

Two final points can be noted about these high-segregation cit-

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<sup>14</sup> This finding is consistent with previous research by Massey and Denton (1987).

<sup>15</sup> There are cities where white-black segregation on the dimension of uneven distribution is high, but clustering is not as pronounced. For example, compare Cincinnati, Minneapolis, and Pittsburgh with Detroit, Boston, and Milwaukee. In the latter three, there is one primary black ghetto. In the former three, there are multiple, spatially disconnected areas of black residential concentration.

ies. In every case, the high level of segregation involved is between whites and blacks. *Nowhere* does white-Latino or white-Asian segregation approach the levels and patterns seen for white-black segregation in these five cities. These are all cities in the Midwest and, with the possible exception of Chicago, they can be characterized as “White-Black” cities.

### ***Low Segregation Cities***

What do cities with lower levels of segregation look like? Focusing on white-black segregation, we can single out four cities for close examination; Phoenix, Sacramento, San Diego, and San Antonio have comparatively low levels of segregation (not low in an absolute sense). The contrast between these cities and the high-segregation cities just noted can be brought into sharp relief by examining the percent black maps for these cities. In each of these cities the areas with intermediate percentages of percent black greatly outnumber the areas that are 80% black. Indeed, Phoenix, Sacramento, and San Diego have no 80% black areas.

Interestingly, each of these cities is a rapidly growing, ethnically diverse city located in the Southwest. They contrast sharply with the highly segregated cities of the Midwest. To drive the point home, select the ethnic mix map for 1990, then compare Sacramento and San Diego with Detroit and Cleveland. The maps for Sacramento and San Diego contain only a small number of identifiable black, Latino, and Asian neighborhoods, no 80% minority neighborhoods, and, most importantly, contain more “mixed” neighborhoods than distinct, single-minority neighborhoods. In Detroit and Cleveland, the number of 80% black neighborhoods greatly outnumbers both simple-majority black and mixed areas *combined*. Furthermore, the ratio of 80% white areas to simple-majority white areas is much higher in Detroit and Cleveland, indicating that whites in Sacramento and San Diego are much more likely to live in integrated neighborhoods.

The fact that the low-segregation cities are ethnically diverse, rapidly growing, and located in the Southwest is apparently not a coincidence. Quantitative studies of recent patterns of segregation and change in segregation by Massey and Denton (1987) and Farley and Frey (1994) report that cities with these characteristics tend to have lower levels of residential segregation and greater declines in segregation.

### ***Black, Latino, and Asian Segregation Patterns***

Several distinctions can be drawn between patterns of segregation for blacks, Latinos, and Asians – the three major ethnic minority

populations in the US. First, blacks are subject to much higher residential isolation than the other groups. This can be seen by examining the group percent maps for three cities with large numbers of all three minority populations – Los Angeles, San Francisco, and New York. Select one of these cities (Los Angeles for example) and then select the percent black map. Next advance to the percent Latino map, then to the percent Asian map. You will observe that the Asian population has a higher ratio of intermediate percentage neighborhoods to majority neighborhoods. In contrast, the black population has the lowest ratio and the Latino population is in between. This visual demonstration corroborates the findings reported in quantitative studies of minority group isolation (e.g., Massey and Denton 1987; Farley and Frey 1993). Blacks are more likely than other minorities to live in high levels of residential isolation from other groups. Asians are less likely than other minorities and Latinos are in between.

A related finding runs in parallel to the one just noted; minority suburbanization is greatest for Asians, lowest for blacks, and in between for Latinos. This finding is a bit harder to discern in the group percentage maps for the three minority groups in cities like Los Angeles (the visual contrasts in the maps are evident to those who study segregation patterns closely, but they are not nearly as dramatic as some of the other patterns we have highlighted). But, the patterns are there and are confirmed by quantitative analysis of segregation patterns. Suburbanization, of course, is the “flip side” of centralization. So the finding can be restated as follows: blacks are more centralized than other minority populations, Asians are least centralized, and Latinos are in between.

### ***Hyper-Segregation and Black Exceptionalism***

In the discussions above, blacks have been reported to experience higher levels of segregation than other minority populations on the various dimensions of segregation including uneven distribution, isolation, clustering, and centralization. The maps presented in Seg-Maps do not “speak” directly to the dimension of concentration. However, since population densities in cities closely follow centralization, the greater centralization of blacks usually results in higher concentration levels. Thus, on every major dimension, blacks experience the highest levels of segregation.

Massey and Denton (1988) were the first to rigorously establish this finding using sophisticated quantitative measures of each of the five dimensions of segregation. They also noted that it was not uncommon for all five dimensions of segregation to be high for blacks *simultaneously*. They termed this phenomenon *hyper-segregation*.

The pattern is visually quite distinct in both the ethnic mix maps and the percent black maps for cities where hyper-segregation occurs. Prime examples of hyper-segregation can be seen by examining either of these maps for the cities of Chicago, Detroit, Cleveland, Milwaukee, and St. Louis. Blacks in these cities are highly segregated on all five dimensions of segregation. That is, they are unevenly distributed and concentrated in a single, centrally located ghetto where members of the group are isolated from other groups. Other cities such as Boston, Dallas, and Washington also approach this pattern showing that it is hardly exceptional for blacks to be hyper-segregated.

The contrast with other minority groups is stark. Asian residential patterns do not approach hyper-segregation in any city in the data base. To see this, select any percent Asian map for any city with a substantial Asian minority population (e.g., Los Angeles, San Francisco, or New York) or for any city period. Nothing like the percent black map for Detroit can be found.

Patterns of Latino residential distribution approach hyper-segregation in a couple of cities, San Antonio and Los Angeles, but even in these cities there is a clear visual contrast between hyper-segregation as seen for blacks. For example, while the percent Latino maps for these to cities show centrally located “barrios” (a cluster of contiguous 80% Latino neighborhoods), they also show a much greater presence of intermediate neighborhoods and less abrupt transitions from 80% Latino neighborhoods to neighborhoods where Latinos are less than 20% of the population. If this is hyper-segregation, it is not as severe as the extreme hyper-segregation seen for blacks in some cities.

In sum, the severity and frequency of hyper-segregation for blacks sets their residential segregation patterns apart from those experienced by other minority groups.

## **Sociological Understandings of Segregation**

The descriptive findings reviewed above and illustrated by the maps presented by the SegMaps program document the existence and patterning of racial segregation in major metropolitan areas of the US. This is a valuable sociological finding in and of itself. However, it stops short of an “explanation” of residential segregation.

It is beyond the scope of the present discussion to provide a review of theories of segregation. However, I can take a moment to note that the study of residential segregation is one of the oldest fields in sociological research and theories of the causes of residential segregation are relatively well developed with a long history of cumulative improvement and refinement. For an advanced introduction to these

theories, consider Massey (1985) or Massey and Denton (1993). For an introduction geared to undergraduates, consider Jaret (1995).

These treatments identify several type of hypotheses commonly advanced to account for segregation. Some emphasize the role of ethnic prejudice, “social distance”, preferences, and choice dynamics in housing markets. Others emphasize minority-majority differences in purchasing power combined with strong segregation of high and low cost housing. Others emphasize various forms of housing discrimination including exclusion, steering, redlining, and other forms of differential treatment that reduce minority access to the broader housing market. Sociological studies have tended to emphasize discrimination dynamics. Studies by economists have tended to call attention to choice and market dynamics and how they are shaped by preferences and group differences in purchasing power. Of course, the different hypotheses are *not* mutually exclusive and there is strong evidence to suggest that all three are relevant and are mutually reinforcing.

The SimSeg program found at the VLAB-RESI web site provides a means for performing virtual experiments to explore these ideas along with other materials that discuss these ideas in more detail.

## **Conclusion**

Ethnic segregation in America is a fundamental social fact with important consequences for a wide range of social and stratification outcomes. The SegMaps program provides a way for the new student of residential segregation to gain an intuitive appreciation for many of the concepts used in segregation analysis and the major descriptive findings about segregation patterns that have been advanced in the technical research literature. However, I cannot overstate the point that, while the maps the SegMaps program presents can provide a valuable introduction to the study of segregation, they also have important limitations. Thus, I strongly encourage the reader to pursue their interest in residential segregation much further. A full understanding of residential segregation requires gaining familiarity with the findings from the quantitative research literature (e.g., Massey and Denton 1986; 1988; 1993; Farley and Frey 1993), the literature on the history of residential segregation (e.g., Massey and Denton 1993), and the ethnographic literature detailing segregation dynamics and their consequences at the micro-level (e.g., Anderson 19xx; De Sena 19xx). Given the importance of residential segregation in American life, an educated citizens owe it to themselves to get a broad perspective on this sociological phenomenon.

## Literature Cited

- Duncan, Otis Dudley and Beverly Duncan. 1955. "A Methodological Analysis of Segregation Indices." *American Sociological Review* 20:210-217.
- Farley, Reynolds and Walter Allen. 1986. *The Color Line and the Quality of Life in America*. New York, NY: Russell Sage Foundation.
- Jaret, Charles. 1995. *Contemporary Racial and Ethnic Relations*. New York, NY: Harper Collins.
- Massey, Douglas S. 1985. "Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review." *Sociology and Social Research* 69:315-350.
- Massey, Douglas S. and Nancy A. Denton. 1987. "Trends in the Residential Segregation of Blacks, Hispanics, and Asians." *American Sociological Review* 52:802-825.
- Massey, Douglas S. and Nancy A. Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67: 281-309.
- Massey, Douglas S. and Nancy A. Denton. 1989. "Hypersegregation in US Metropolitan Areas: Black and Hispanic Segregation Along Five Dimensions." *Demography* 26: 373-391.
- Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.
- White, Michael J. 1986. *American Neighborhoods and Residential Differentiation*. New York: Russell Sage Foundation.

## Suggestions for Further Reading

### Methodological Studies

- Duncan, Otis Dudley and Beverly Duncan. 1955. "A Methodological Analysis of Segregation Indices." *American Sociological Review* 20:210-217.
- Massey, Douglas S. and Nancy A. Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67: 281-309.
- Massey, Douglas S. and Nancy A. Denton. 1989. "Hypersegregation in US Metropolitan Areas: Black and Hispanic Segregation Along Five Dimensions." *Demography* 26: 373-391.

### Quantitative Studies

- Duncan, Otis Dudley, and Beverly Duncan. 1957. *The Negro Population of Chicago*. Chicago: University of Chicago Press.
- Farley, Reynolds and William H. Frey. 1994. "Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward a More Integrated Society." *American Sociological Review* 59:23-45.
- Lieberman, Stanley. 1980. *A Piece of the Pie: Blacks and White Immigrants Since 1880*. Berkeley: University of California Press.
- Massey, Douglas S. and Nancy A. Denton. 1987. "Trends in the Residential Segregation of Blacks, Hispanics, and Asians." *American Sociological Review* 52:802-825.
- Taeuber, Karl E., and Alma F. Taeuber. 1965. *Negroes in Cities*. Chicago: Aldine.

### Historical Reviews

- Massey, Douglas S. and Nancy A. Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Chapter 2. Cambridge, MA: Harvard University Press.

### Ethnographic Studies

- DeSena, Judith N. 1990. *Protecting One's Turf: Social Strategies for Maintaining Urban Neighborhoods*. Lanham, MD: University Press of America.
- DeSena, Judith N. 1994. "Local Gatekeeping Practices and Residential Segregation." *Sociological Inquiry* 64:307-321.
- Anderson, Elijah. 1990. *Streetwise: Race, Class, and Change in an Urban Community*. Chicago, IL: University of Chicago Press.

### Reviews of Theories of Segregation

- Farley, Reynolds and Walter Allen. 1986. *The Color Line and the Quality of Life in America*. New York, NY: Russell Sage Foundation.
- Massey, Douglas S. 1985. "Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review." *Sociology and Social Research* 69:315-350.
- White, Michael J. 1986. *American Neighborhoods and Residential Differentiation*. New York: Russell Sage Foundation.

## Appendix

### The SegMaps Program

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#### About SegMaps

The SegMaps program is a Java applet designed to run under web browser programs. It presents map images depicting residential patterns in selected American cities. It also allows the user to manipulate these images in various ways to explore segregation patterns in detail.

#### System Requirements

The SegMaps program should run well on computers with the following capabilities and configurations:

- *High- or medium-resolution display.* A display set to at least 800x600 resolution. (For best performance, the display should be 1024x768 or higher resolution.)
- *Web browser software.* One of the following web-browsers: Microsoft Internet Explorer (version 5 or higher) (recommended); or Netscape Navigator (version 4.5 or higher).
- *Java capability.* The web browser must be configured to run Java programs.
- *Adequate memory.* The computer must have sufficient memory to store and manipulate graphic images. It is not possible to say exactly what amount of memory is needed for satisfactory performance (too many factors must be considered). However, the symptom of inadequate available memory is “blank” maps and/or badly “behaved” map displays.
- *Adequate processing power.* Most contemporary computers have more than adequate processing speed to provide satisfactory performance for SegMaps. Any CPU comparable in performance to a 450MHz Pentium III processor should be adequate.
- *High-speed internet access.* SegMaps presents previously prepared map images that are loaded from the VLAB-RESI web site. While the images have been saved in “compressed” formats to make them as small as possible for faster loading, they are not small files (most are 30-50K files). SegMaps performance may be poor to barely adequate over lower-speed internet connections (e.g., conventional dial-up modems) but quite satisfactory on

high-speed internet connections (e.g., Ethernet connections commonly found on college campuses and faster cable modem and DSL connections increasingly found in homes).

#### The SegMaps Program and the VLAB-RESI Web Site

SegMaps is a program geared to undergraduate instruction focusing on residential segregation. The underlying motivation behind the program is to provide a tool for presenting data on residential segregation in an intuitive form to help communicate and illustrate key findings about residential segregation.

To do this, SegMaps relies extensively on graphical presentations to describe patterns of segregation, neighborhood ethnic composition, and neighborhood change over time. It draws on GIS technologies to develop graphical depictions of these patterns in metropolitan areas. It also draws on the new technology of the World Wide Web and web-based software to make these graphical presentations available to instructors, students, and others via an easy-to-use presentation program that can be invoked by anyone with access to the World Wide Web via standard web browsers.

The SegMaps program can be found on the web at the Virtual Laboratory in Racial and Ethnic Stratification and Inequality (VLAB-RESI), a site developed and supported with funding from the National Science Foundation and developed by Mark Fossett, Professor in the Department of Sociology and Research Affiliate at the Racial and Ethnic Studies Institutes at Texas A&M University, College Station, Texas. The web address for the site is:

<http://vlab-resi.tamu.edu/vlab.htm>

SegMaps is one among several programs geared to undergraduate instruction and made available through the VLAB-RESI web site. In addition, links at the VLAB-RESI site provide web access to a range of materials focusing on residential segregation. One particularly relevant link for the latest quantitative data on trends in residential segregation can be found at the Lewis Mumford Center for Comparative Urban and Regional Research, Metropolitan Racial and Ethnic Change – Census 2000. The web address for this site is:

<http://www.albany.edu/mumford/census/>