The Multicultural Metropolis: Neighborhood Diversity and Segregation Patterns in the City of Chicago, 1990-2000

Juan Onésimo Sandoval

Faculty Fellow, Institute for Policy Research
Assistant Professor, Department of Sociology
Northwestern University
j-sandoval@northwestern.edu

Su Li

PhD Student, Department of Sociology
Northwestern University
suli@northwestern.edu

Abstract

This working paper examines neighborhood diversity and segregation in Chicago in 1990 and 2000. In it, the authors explore three main questions: (1) How did the growing Latino population impact neighborhood diversity? (2) How much of the segregation is due to white and nonwhite settlement patterns? (3) What explains the neighborhood diversity? The data the authors used for this study came from the 1990 and 2000 Censuses. They decomposed the segregation score between white and nonwhite racial groups and between black, Latinos, and Asians. Finally, they study the impact of Latino and Asian immigration settlement patterns and explore how these new settlement patterns are changing the nature of residential segregation in Chicago.

INTRODUCTION

Chicago occupies a unique place in the urban sociology literature. The development of the theoretical infrastructure used to explain city life has its intellectual roots in the Chicago School of Sociology (O'Connor 2001). Park and Burgess produced one of the most important theories about the spatial patterns of the city. The ecological theory of the city has been the scholarly benchmark for many seminal theories about residential differential and neighborhood change (Park and Burgess 1925). In their 1925 seminal book, they argued, in part, that the spatial patterns that are observed in the city can be explained by people's preferences to segregate or separate themselves along class, race and ethnic lines (Park and Burgess 1925). In a separate paper, Burgess observed that the separated of black and whites in American cities was a "unique phenomenon of urban life" (Park and Burgess 1925). The movement of blacks into neighborhoods was different compared to other racial groups despite the fact that the black population was economically and socially diverse like other minority groups. The settlement patterns of blacks in American cities, especially Chicago, were impacted by the immigrant groups (Park and Burgess 1925).

Drawing on the legacy of Park and Burgess, scholars continued to study the growing patterns of residential differentiation in Chicago. In 1945, St. Clair Drake and Horace R. Cayton published their influential research on the quality of life of black Chicagoans (Drake and Cayton 1945). In Black Metropolis, Drake and Cayton discussed the peculiar patterns of black residential settlement patterns in Chicago. By 1945, these residential patterns created a durable color-line in Chicago. This color-line eventually

1

became known as Chicago's Black Belt. The contours of the Black Belt were visible and real. Since the publication of Black Metropolis, the creation and maintenance of the Black Belt has been the focus of many scholarly books and articles (Park and Burgess 1925; Clark 1965; Hirsch 1983; Massey and Denton 1993; Suttles 1968).

DEMOGRAPHIC PATTERNS OF CHICAGO

Given the intellectual significance of Chicago as a social laboratory, the city remains an important unit of analysis. The city of Chicago also remains an important unit of analysis because, like many large U.S. cities, it has experienced a tremendous racial demographic change in the past 30 years. Figure one shows the racial demographic trends from 1920 to 2000.[1] Beginning sometime between 1950 and 1960 the white population in Chicago started to decline. Many white non-Latinos were leaving the central city and moving into the new suburbs surrounding Chicago. This decline in the white non-Latino population has continued, but, in the last 10 years, the decline in the white population started to slow down. It is important to note that Chicago's black population, which experienced a significant increase from 1920 until 1980, has continually declined since 1980. The Latino population has been increasing in numbers from 1970 to 2000. The growth of the Latino population is largely responsible for the u-shape curve for the total population of Chicago, in 2000. For the first time since 1950, the total population of Chicago actually grew. These trends, in and of themselves, provide a basis for testing new hypotheses about the nature of residential differentiation and neighborhood change.

---

[1] The census started to collect data by Latino origin in 1970. The numbers for whites and blacks from 1970 to 2000 are for white non-Latinos and black non-Latinos.

[INSERT FIGURE ONE]

The emphasis on studies focusing on the Black-Belt in Chicago during the 1940 and 1950 was an important element in understanding why whites and black lived in different neighborhoods. However, the 2000 census has shown that Chicago's population is no longer a black and white population. The population is almost divided equally among black non-Latinos (36%), white non-Latinos (32%), and Latinos (27%).

The motivation for this paper is to examine if and how these demographic changes have had an impact on the spatial contours of Chicago's historic Black Belt and others parts of the city. Given the remarkable demographic changes of the Chicago's population, the obvious question is, how this population change impacted the racial composition of the neighborhoods?

SEGREGATION AND CHICAGO

Chicago became the preeminent social laboratory for scholars interested in urban processes of a burgeoning metropolis. A significant amount of the literature since the early 1930s focused on neighborhood change and the racial composition of neighborhoods. (Wallace 1953; Hunter 1971; Maly 2000; Roof 1978; Hartmann 1990; Immergluck 1998; Duncan and Duncan 1957; Taeuber and Taeuber 1964; Suttles 1968; Zorbaugh 1929; Ottensmann and Gleeson 1992).

In the 1940s, Chicago's black/white segregation peaked due to the rapid growth of the black population (Massey and Denton 1993; Wallace 1953). After 1940, the city's black/white segregation level decreased as a result of the out-migration of whites (Hunter

1971; Roof 1978; Sørensen, Taeuber, and Hollingsworth Jr. 1975). Figure one shows this significant out-migration of whites from the city of Chicago after 1940. Although there has been a downward decline in Chicago's black/white segregation scores, the segregation score has historically ranked Chicago as one of America's most segregated cities.

The majority of the research on racial segregation in Chicago has focused on white and black residential patterns. These early studies relied overwhelmingly on the index of dissimilarity, which measures segregation between two groups. The seminal study on Chicago and segregation was the 1957 study by Duncan and Duncan (Duncan and Duncan 1957). This landmark study paved the way for future studies on residential segregation not only in Chicago, but the methodology was extended to other large metropolitan regions. Building on the Duncan study, Karl and Alma Taeuber, in 1964, also published a seminal paper which described neighborhood change and the nature and structure of racially diverse neighborhoods (Duncan and Duncan 1957; Taeuber and Taeuber 1964). For these scholars, the definition of a racially diverse neighborhood was black and white. Therefore, the methodological properties of the dissimilarity index provided many advantages to describe racial diversity and segregation within a city because it compared two groups (e.g., black and white). Overtime the dissimilarity index became the conventional segregation index because of the ease of interpretation and the historical data to compare trends over time. However, the index of dissimilarity has several drawbacks. The most important drawback is related to the two-group comparison.

As figure one shows, Chicago is no longer a white and black metropolis. Chicago has become a multicultural central-city via a large decline of the white population since 1950, a small decline in the black population since 1980, and a large increase in the Latino population. Given the new demographic profile of Chicago, I argue there is a need for a new analytical lens to investigate how this change in the racial composition of the city has impacted the racial composition of the neighborhoods, which has impacted the overall segregation patterns of Chicago.

The new urban landscape of segregation is no longer a white and black color-line. The color-line has been transformed and the contours of Chicago's Black Belt have changed. Chicago's new color-line has self-contained Latino Belts. Using block groups to map the Chicago new color-lines has one major advantage compared to the census tracts and community areas. Block groups are a smaller unit of analysis compared to the census tract. Therefore, these maps will show areas within a tract that maybe significantly different compared to another area of the same tract. Additionally, the geographic boundaries of the block groups did not change from 1990 to 2000.

Figures two and three show the spatial organizations white majority, black majority, Latino majority and Asian majority block groups and block groups that have no racial majority for 1990 and 2000, respectively. The two figures show how the racial majority block groups cluster in space, especially for black and Latino majority block groups. What is so surprising about the racial majority neighborhoods is that they all appear to be clustered with other like neighborhoods. There are a few black majority neighborhoods that are mixed with white majority neighborhoods and a few white

majority neighborhoods that are mixed with black majority and Latino majority neighborhoods, but for the most part, the clusters appear to be self-contained. The other interesting feature of this map is the emergence of neighborhoods that have no racial majority. These block groups appear to be slightly less clustered, but tend to be located in the north-east side of Chicago. The clustering of racially diverse neighborhoods on the northeast side of Chicago support the small but growing literature of stable racially diverse neighborhoods as fact of urban life (Ellen and Turner 1997; Maly 2000).

[INSERT FIGURES TWO AND THREE]

Figures two and three raise several questions about the makeup of the racial and ethnic character of the block groups and how they have changed in the past ten years. In particular, Chicago's black white color-line has fractured into several distinct color-lines. There are now several black and Latino colorline, white and Latino colorline. Chicago is city of 12 neighborhood clusters: 2 black neighborhood clusters, 5 white neighborhood clusters, 3 Latino, and 2 clusters of racially diverse neighborhoods. Figure four shows the Chicago's new colorful colorlines. There are several striking features that highlight the change in Chicago's colorline. First, the spatial organization of the neighborhood clusters explains why Chicago consistently ranks at the top of the most segregated cities. It is interesting to note that the two northside white neighborhood clusters are adjacent to one Latino neighborhood cluster and to the racially diverse neighborhood cluster. The black neighborhood clusters are bounded by the Latino neighborhood clusters with a few racially diverse neighborhoods that may represent transition neighborhoods. Finally

there are two small white neighborhood clusters in the southside that are adjacent to black neighborhood clusters.

[INSERT FIGURE FOUR]

There are several factors that may explain the spatially fragmented Chicago Metropolis. Perhaps the most important issue that has been raised regarding Chicago and the spatial distribution of the population is whether the ecological theory can fully explain the new spatial patterns. In other words, residential settlement patterns are part of cycle of neighborhood change that includes invasion, competition, conflict, and succession. This process of neighborhood change is fostered by the desire for people to live in homogeneous neighborhoods whether they are white, black or Latino (Berry and Horton 1970; Shevky and Bell 1955).

Two competing paradigms have emerged in the sociology literature that tries to explain the processes of neighborhood change. The first paradigm can be traced to the ecological theory of the city. This paradigm is referred to as the spatial assimilation model. This model offers a theoretical framework that suggests that residential mobility is a byproduct of acculturation and social mobility (Massey 1985; Massey and Mullan 1984). As Alba and Logan noted in their 1993 American Journal of Sociology article, "as members of minority groups acculturate and establish themselves in American labor markets, they attempt to leave behind less successful members of their groups and to convert socioeconomic and assimilation progress into residential gain" (Alba and Logan 1993). Implicit in the spatial assimilation model is the advantage that comes from white neighborhoods (Alba and Logan 1993; Alba, Logan, and Crowder 1997). The model also

suggests that they individuals become more assimilation they acquire the human, cultural and social capital to move to better quality neighborhoods with less crime, better school, and more opportunities. The spatial assimilation argues that the face of urban segregation is more related to class than race.

This model is used to explain the difference in Latino and Black residential settlement patterns. Douglas Massey and Nancy Denton have argued that Latino settlement patterns were explained by socioeconomic processes whereas black segregation was a result of prejudice and discrimination (Massey and Denton 1993; Massey 1987). One of the major tenets of their argument is that Latino immigrant settlement patterns over time will vary due to the nature of ethnic enclave and their assimilation patterns. Thus, the residential settlement patterns will not be reproduced similar to the black neighborhood patterns. Therefore, Latinos will have the opportunity to move into different neighborhoods, thus leading to lower levels of segregation.

The second paradigm regarding urban settlement patterns is call place stratification. The basic tenant of this paradigm is that race matters in the spatial distribution of groups. Race is the principal marker used to sort groups based on the socials standing of the group (Stearns and Logan 1986; Galster 1988). Contrary to the assimilation model, this model offers a valid theory as to why certain groups (e.g., blacks) do fit the assimilation model. Implicit in this model, is that the impact of race is relative and that residential sorting is based on the groups social standing. In other words, race will matter more for black compared to Latinos because Latinos have a higher social standing. Alba and Logan, also make an important note regarding this

8

theoretical model. If the minority groups want to move to "better neighborhood" the

opportunity costs will be higher for low social standing groups (Alba and Logan 1993).

The 2000 neighborhood patterns for Chicago seem to suggest that the place

stratification better explains the white, black, and Latino settlement patterns. Work by

John Betancur, also suggests the spatial assimilation model does not explain the

residential settlement of Latinos (Betancur 1996). Betancur suggests that Latino

settlement patterns in Chicago are a result of discrimination and exclusion. He argues

that although acts overt discrimination have declined considerably, Latinos are still

subject to subtle forms of residential discrimination, such as targeted marketing, poor

enforcement of regulations and restrictions of children among others. Betancur also

argues that since Latino neighborhoods are becoming increasingly mixed, different

national groups are not only enduring similar processes but sharing the experiences of

residential segregation, which locates them in the worst housing. In addition, he argues

that the prejudice and discrimination he documents is also relevant to the experience of

middle class and US born Latinos. Betancur develops a hypothesis that the real estate

industry in Chicago has played a vital role in fostering neighborhood change in white

majority neighborhoods. The basics tenant of his hypothesis is the real estate industry

manipulated the housing stock in old white neighborhoods so that they would be

available for the new Latino immigrants (Betancur 1996). The change in residential

patterns from 1990 and 2000 support Betancur's hypothesis that the growing Latino

population would settled in old white neighborhoods. Section H1 of figure 1 shows this

incredible change in the demographic composition of these neighborhoods from 1990 to

2000. A recent study commissioned by the Department of Housing and Urban Development provides evidence to support Betancur's argument (Turner 2002). One of the major findings of this report suggest that "Latinos experienced more discrimination than blacks" (Cashin 2004).

If Betancur's hypothesis is true for Chicago, then a second hypothesis that there should be an increase in racial diversity in white majority neighborhoods should also be true. The hypothesis would also suggest that Latino majority neighborhoods should become more homogeneous. Finally, we would argue that if Latinos are the new urban minority and are indeed living in the former white neighborhoods or white majority neighborhoods it would stand to reason that the segregation between whites and non-whites should be declining and segregation between the two largest minority groups, blacks and Latinos should be on the increase.

RESEARCH QUESTION

The following questions will be investigated in this study: (1) how did the growing Latino population impact neighborhood diversity?; (2) how diverse are white, black, and Latino neighborhoods; and (3) how much of the segregation is due to white and nonwhite settlement patterns? In this paper, the following hypotheses will be examined: (1) Latino majority neighborhoods will be the most diverse neighborhoods in Chicago and black majority neighborhoods will be the lease diverse neighborhoods; (2) The multi-group segregation index (H), will show that segregation in Chicago has become stronger between Latino and blacks; (3) overall racially diversity will be a function of the growing Latino population.

RESEARCH METHOD AND DATA

The data for this research are the population data drawn from the 1990 and 2000 U.S. Census. To study neighborhood diversity and racial segregation the following racial groups will be used: (1) non-Latino white; (2) non-Latino black; (3) non-Latino Asian; (4) non-Latino other; and (5) Latino. Using block group data for the city of Chicago, we calculated the segregation index of evenness. According to Massey and Denton (1988), evenness "refers to the differential distribution of two social groups among aerial units in a city" (Massey and Denton 1993). It is also the most widely used and fully explored dimension. Given the diversity of the population in the Chicago metropolitan region, it is necessary to compute multi-group indices. We move from the traditional index of segregation (i.e., index of dissimilarity) to a multi-group segregation index. This multi-group segregation index is not new and it has been discussed as potential index to measure segregation for decades (Massey and Denton 1988; Reardon and Firebaugh 2002).

The Theil Entropy index can be view in two parts: (1) diversity of the neighborhood and (2) segregation of the city. We refer to the first of the index as the Theil diversity index and the later part of the formula will be referred to as the Theil segregation index (Theil 1972; Theil and Finizza 1971). The Entropy index is becoming widely used in research on residential segregation, school segregation, and occupation segregation (Fischer et al. 2004; Reardon and Firebaugh 2002; McCall 2001; Iceland 2004) .

To measure neighborhood diversity we use this formula:

(1) $E_i = \left| \sum_{r=1}^{n} \frac{(\log(P_{(i)}) * P_{(i)})}{(\log_{(n)})} \right| * 100$

where:

E_i= Diversity index for tract i

$P_{(i)}$=Proportion of the tract population in race/ethnic group k

n=the total number of racial/ethnic categories

Scores range from 0 to 100, where 0 is homogeneous and 100 is heterogeneous. A score of 0 means a tract has only one race/ethnic group, whereas a score of 100 means each of the racial/ethnic groups is of equal size in the tract.

Measuring Segregation

To measure segregation for Chicago, we use the H index developed by Theil (Theil and Finizza 1971). The following formula shows how the H index is calculated:

(2) $H = \frac{\sum_{i=1}^{k} \frac{t_i}{T} (E - E_i)}{E} * 100$

where:

t_i is the total population of the block group

T is the total population of the city

E_i is the diversity of the block group

E is the diversity of the city or MSA

k is the total number of tracts

The segregation index varies between 0, when all the neighborhoods in a city have the same racial distribution as the city, and 100, when all the neighborhoods in a city contain one racial group. This index has several mathematical properties that allow the researcher to expand the analysis. The Theil index is a superior multi-group index and a superior segregation index overall because it move beyond the analysis of a simple two-group analysis (Reardon and Firebaugh 2002).

Segregation Between Black and Latino

One of the mathematical properties that we take advantage of in this article is the ability to decompose the index into different components. Using the methods outline by Reardon, Yon, and Eitle, we replicate the decomposition for the Chicago analysis (Reardon and Firebaugh 2002). The first part of the decomposition formula is the segregation that is between whites and non-whites. The second part of the formula is the segregation that is between blacks, Latinos, and other minorities. When you add the first part and second part of this equation it will equal the score from equation 2. In other words, this formula, allows us to parse out how much of the total segregation in Chicago is between whites and non-whites and how much is between blacks, Latinos, and other minorities.

$$(3) \quad H_i = \left(\frac{E_{w/blo}}{E_{w\backslash b\backslash l\backslash o}}\right) H_{w\backslash bho} + Q_{blo}\left(\frac{E_{b\backslash l\backslash o}}{E_{w\backslash b\backslash l\backslash o}}\right) Hblo$$

where:

w= white

b= black

l=latino

o=other

TRENDS IN NEIGHBORHOOD DIVERSITY

For this analysis there were 2,432 block groups, 856 census tracts and 77 community areas. From Table 1 we see that in 1990, 33% of the block groups were homogeneous and 22% were diverse. This compares to 23% of the block groups that were homogeneous and 33% that were diverse in 2000. Eighty percent of the 1990 diverse block groups were diverse in 2000. Sixty-five percent of the 1990 homogeneous block groups were homogeneous in 2000. This compares to 67% and 73% of 1990 homogeneous census tracts and community areas that were homogeneous in 2000. (See Table 2)

[INSERT TABLES ONE AND TWO]

Table 3 shows the actual diversity score change from 1990 to 2000. Of the 2,423 block groups, 73% experienced an increase in diversity score and 27% experienced a decrease in the diversity score from 1990 to 2000. More importantly, 15% of the block

groups had an increase of 20 or more diversity points from 1990 to 2000. This compares to 1.6% that experienced a decrease in 20 or more diversity points from 1990 to 2000.

[INSERT TABLE THREE]

Table 4 shows the distribution of neighborhood diversity for neighborhoods that have a dominant racial group for block groups and census tracts. One of the points, we make in this article is that there are different types of white majority, black majority, and Latino majority neighborhoods. We need to move from the simple notion that there white majority, black majority, and Latino majority neighborhoods. For example, there are white majority neighborhoods that are racially diverse and there are white majority neighborhoods that are not racially diverse. This same pattern is true for black and Latino majority neighborhoods. In 1990, 42% of the white majority block groups were homogeneous (6%) or somewhat homogeneous (36%). This compares to 82% of the white majority block groups that were diverse (44%) or somewhat diverse (38%), in 2000. Similar to white majority block groups, 82% of the Latino majority block groups were diverse (42%) or somewhat diverse (40%) in 2000. The majority of black majority block groups in 1990 (75%) and 2000 (54%) were homogeneous. However, there has been a significant decline in black block groups from 1990 to 2000. The number of block groups that had a racial plurality increased from 168 to 208. Figure 4 and 5 shows the spatial distribution of neighborhood diversity for 2000 and the change of neighborhood diversity from 1990 to 2000, respectively. These descriptive statistics support the assimilation spatial model.

[INSERT TABLE FOUR AND FIGURES FOUR AND FIVE]

15

DECLINING SEGREATION IN CHICAGO

Table 5 shows the segregation scores (H index), which are computed from the diversity scores of the block groups. In 1990, the segregation score was 57 and 51 in 2000. This 6 point decline in segregation can be attributed to growing diversity in white neighborhoods. Many of these neighborhoods experienced a significant increase in the Latino population. Another interesting finding from Table 5 is that the amount of segregation that can be accounted for by whites living in different neighborhoods than non-whites has declined from 49% in 1990 to 40% in 2000. In other words, the majority of the spatial arrangement of segregation in the city of Chicago can be explained by the Latinos, Asian, and blacks living in different neighborhoods from each other. Segregation in Chicago has transformed from a white and black social phenomenon to a multi-racial phenomenon. This finding reflects the trend that whites are leaving Chicago. It also reflects the fact that Latinos are moving in the areas that have been abandoned by whites. There was a net loss of whites in Chicago from 1990 to 2000, while there were net gains for Latinos, Asians and other immigrants for Chicago.[2] If this trend continues, the spatial segregation patterns in Chicago will continue to be explained by Latino, black and Asian settlement patterns. Therefore, Chicago's macro diversity is driven by two social forces, whites moving out of the central city and Latinos moving into the central city where whites once lived. These two forces explain to some extent the decline in segregation scores for the city of Chicago.

---

[2] In 1990 there were 1,056,048 million white non-Latinos compared to 907,166 white non-Latinos in 2000. Chicago total population increased from 2,783,726 in 1990 to 2,896,016 in 2000.

[INSERT TABLE FIVE]

REGRESSION RESULTS FOR NEIGHBORHOOD DIVERSITY

In tables 6 and 7, I provide a detailed definition of the variables used in the regression model and mean score, respectively. In table 8 and 9, I present coefficients for four models for the 1990 and 2000 diversity scores, respectively.[3] The first model examines the relationship between economic variables and neighborhood diversity. In our second model we add socio-demographic variables to the economic model. In our final model, we include the dummy variables for the neighborhood that have a dominant racial group.[4]

[INSERT TABLES SIX THROUGH NINE]

Overall, as the economic characteristics of the neighborhood became more homogeneous the diversity of neighborhood declined. The poverty rate was a significant factor in 2000. This result suggests that as poverty increased, neighborhood diversity decreased. The magnitude of the impact was surprising large. It is interesting to the note that for the four models in 1990, none of the coefficients for poverty rate were significant at the 95% level. The legacy of the spatial concentration of poverty continues to shape neighborhood change and it appears that particular social problem fosters a geography of homogeneity has a greater impact on black neighborhoods relative to Latino and white neighborhoods. Another interesting finding regarding the economic characteristics of the neighborhood was that the more economically affluent neighborhoods were less racially

---

[3] The use of neighborhoods in this section refers to block groups.
[4] The regression results we present are the best fitting models. We ran several models with other variables, however, the model were no longer parsimonious. At this stage in the research process we decided to include only variable that theoretically significant.

diverse. This effect was present in 1990 and 2000, however, when we controlled for neighborhood type, the effect was significant in 1990, but was not significant in 2000. The homeowner rate was only significant in the 1990 for models 3 and 4. As with the economic variables, as the number of homeowners increase there was a negative relationship with racial diversity.

There were housing variables that were significant. The number of housing units available and the percentage of housing units built between 1940 and 1960. One possible explanation why Latino moved into white neighborhoods is that the white neighborhoods had more available housing relative to the black neighborhoods. The data supports this findings because whites overall were leaving the city for the suburbs. The abandoned housing stock became an attractive option for new residents, especially Latinos. This finding lends some evidence to support Betancur's thesis that Latino moved into white neighborhoods. However, this finding is also consistent the spatial assimilation model. Although I can't specifically test Betancur's theory the regression results and maps clearly suggest that Latinos were clustering in the neighborhoods Betancur identified in his research paper (Betancur 1996).

Immigrants played a very important role in the changing pattern of neighborhood diversity. Surprisingly, the immigrants that have been in Chicago for a while were the most likely to contribute to racial diversity. The regression results suggest that newer immigrants were living in areas that were somewhat homogenous, however, the older immigrants had a greater impact on neighborhood diversity. As the percent of immigrants increased, the racial diversity in the neighborhood increased. These

immigrants may have settled in immigrant enclaves when they first arrived to Chicago.

After they become settled and more familiar with the city they may be moving up to

better neighborhoods which where housing became available because of white flight.

This finding is also consistent with the spatial assimilation model.

The percent of foreign born in the neighborhood was also a positive variable that

was a significant predictor of neighborhood diversity. In other words, a 10 percent point

change in the foreign born population will produce on average a 2.675 point change in

the diversity index controlling for the other variables. Education was also a significant

variable. The percent of college educated individuals in the neighborhood is highly

associated with neighborhood diversity. A 10 percent point change in the college

educated population produced a 4.062 point change in the diversity index controlling for

the other variables in 2000 compared to a 10 percent point change in the college educated

population that produced a 2.4577 point change in the diversity index in 1990.

Another way to interpret these results is to examine how diverse white, black,

Asian and Latino neighborhoods were using the regression coefficients to generate

estimates for diversity scores. This sensitivity analysis reveals that neighborhoods that

had no racial majority were the most diverse in 1990 and 2000. This should not be a

surprise. However, it is interesting that all neighborhoods experienced an increase in

racial diversity from 1990 to 2000. (See Figure 5) In 2000, white block groups were the

most diverse followed by Latino, Asian and black block groups. Although black block

groups experienced an increase in racial diversity, these geographic areas are nearly 20 or

more diversity points lower compared to the average Asian, Latino and white

neighborhoods controlling for all other variables. Thus, white, Asian, and Latino block groups with a similar economic and housing structure tend to have somewhat similar diversity scores, but the black block groups with the same economic and housing structure had a significantly lower diversity score. This analysis suggests that the class and socio economic variables help explain the variation of racial neighborhood diversity. However, race appears to matter more for black block groups.

SUMMARY

The motivation for this paper was to study neighborhood diversity in Chicago. Based on the empirical results presented in this paper I draw several conclusions. First, there was a significant increase in the overall neighborhood diversity score for Chicago from 1990 and 2000. This finding is underscored by the fact that only 25% of the blocks groups became more homogeneous from 1990 to 2000. Second, white and Latino majority block groups were almost twice as diverse compared to black majority block groups in 2000. This is consistent with the hypothesis that Latinos are moving into white majority neighborhoods. Third, the segregation level has significantly declined from 1990 to 2000 in Chicago. Fourth, the majority of segregation in Chicago is no longer explained by white and non-white settlement patterns. Instead segregation in Chicago can be explained by black, Latino and Asian settlement patterns. We argue that this is a significant change not only empirically, but theoretically. This research suggests that a new theory of urban sociology must explain why the nature of segregation has changed in America's original social laboratory. Finally, this research has provided evidence that although all neighborhoods experienced an increase in diversity, controlling for income,

education, and other social and economic factors, black block groups were more homogeneous compared to the diversity for Asian, Latino, and white block groups.

Race is still an important factor for black block groups. Even though the macro population for Chicago continues to become more diverse, this diversity is not trickling down to the black block groups. The message is mixed. There is evidence that supports the thesis that segregation is decreasing, however, there remains a group of homogenous black block groups that have not experienced an increase of diversity from this decrease in segregation.

REFERENCE

Alba, Richard D., and John R. Logan. 1993. Minority Proximity to White in Suburbs: An Individual-Level Analysis of Segregation. *American Journal of Sociology* 98 (6):1388-1427.

Alba, Richard D., John R. Logan, and Kyle Crowder. 1997. White Ethnic Neighborhoods and Assimilation: The Greater New York Region, 1980-1990. *Social Forces* 75 (3):883-909.

Berry, Brian J.L., and Frank Horton. 1970. *Geographic Perspectives on Urban Systems*. Englewood Cliffs, N.J.: Prentice-Hall.

Betancur, John J. 1996. The Settlement Experience of Latinos in Chicago: Segregation,Speculation, and the Ecology Model. *Social Forces* 74 (4):1299-1324.

Cashin, Sheryll. 2004. *The Failures of Integration: How Race and Class Are Undermining the American Dream*. New York: Public Affairs.

Clark, Kenneth B. 1965. *Dark Ghetto: Dilemmas of Social Power*. Hanover, NH: Wesleyan University Press.

Drake, St. Clair., and Horace A. Cayton. 1945. *Black Metropolis: A Study of Negro Life in a Northern City*. Chicago: The University of Chicago Press.

Duncan, Otis Dudley, and Beverly Duncan. 1957. *The Negro Population of Chicago*. Chicago: University of Chicago Press.

Ellen, Ingrid Gould, and Margery Austin Turner. 1997. Does Neighborhood Matter? Assessing Recent Evidence. *Housing Policy Debate* 8 (4):833-866.

Fischer, Claude S., Gretchen Stockmayer, Jon Stiles, and Michael Hout. 2004. Distinguishing the Levels and Dimensions of U.S. Metropolitan Segregation, 1960-2000. *Demography* 41 (1):37-60.

Galster, George. 1988. Residential Segregation in American Cities: A Contrary Review. *Population Research and Policy Review* 7:93-112.

Hartmann, David J. 1990. Racial Change in the Chicago Area, 1980-1987. *Social Science Research* 74 (3):168-181.

Hirsch, Arnold R. 1983. *Making the Second Ghetto: Race and Housing in Chicago 1940-1960*. Chicago, IL: The University of Chicago Press.

Hunter, Albert. 1971. The Ecology of Chicago: Persistence and Change, 1930-1960. *American Journal of Sociology* 77 (3):425-444.

Iceland, John. 2004. Beyond Black and White Metropolitan Residential Segregation in Multi-Ethnic America. *Social Science Research* 33:248-271.

Immergluck, Daniel. 1998. Progress Confined: Increases in Black Home Buying and the Persistence of Residential Segregation. *Journal of Urban Affairs* 20 (4):443.

Maly, Michael T. 2000. The Neighborhood Diversity Index: A Complementary Measure of Racial Residential Settlement. *Journal of Urban Affairs* 22 (1):37-47.

Massey, Douglas S. 1985. Ethnic Residential Segregation: A Theoretical Synthesis and Empirical Review. *Sociology and Social Research* 69:315-50.

———. 1987. Ethnic Residential Segregation. *Sociology and Social Research* 69 (315-350).

Massey, Douglas S., and Nancy A. Denton. 1988. The Dimensions of Residential Segregation. *Social Forces* 67 (2):281-315.

———. 1993. *American Apartheid: Segregation and The Making of The Underclass*. Cambridge, MA: Harvard University Press.

Massey, Douglas S., and Brendan P. Mullan. 1984. Processes of Hispanic and Black Spatial Assimilation. *American Journal of Sociology* 89 (4):836-873.

McCall, Leslie. 2001. *Complex Inequality: Gender, Class, and Race in the New Economy*. New York: Routledge.

O'Connor, Alice. 2001. Origins: Poverty and Social Science in the Era of Progressive Reform. In *Poverty Knowledge: Social Science, Social Policy, and The Poor in Twentieth-Century U.S. History*. Princeton, NJ: Princeton University Press.

Ottensmann, John R., and Michael E. Gleeson. 1992. The Movement of Whites and Blacks into Racially Mixed Neighborhoods: Chicago, 1960-1980. *Social Science Quarterly* 73 (3).

Park, Robert E., and Ernest W. Burgess. 1925. *The City: Suggestions for Investigation of Human Behavior in the Urban Environment*. Chicago, IL: The University of Chicago Press.

Reardon, Sean F., and Glenn Firebaugh. 2002. Measures of Multigroup Segregation. *Sociological Methodology* 32:33-67.

Roof, Wade Clark. 1978. 'The Negro as an Immigrant Group'-A Research Note on Chicago's Racial Trends. *Ethnic and Racial Studies* 1 (4):452-464.

Shevky, Eshref, and Wendell Bell. 1955. *Social Area Analysis: Theory, Illustrative Application, and Computational Procedures*. Palo Alto: Stanford University Press.

Sørensen, Annemette, Karl E. Taeuber, and Leslie J. Hollingsworth Jr. 1975. Indexes of Racial Residential Segregation for 109 Cities in the United States, 1940 to 1970. *Sociological Focus* 8:128-30.

Stearns, Linda, and John R. Logan. 1986. Measuring Trends in Segregation: Three Dimensions, Three Measures. *Urban Affairs Quarterly* 22 (1):124-150.

Suttles, Gerald D. 1968. *The Social Order of the Slum: Ethnicity and Territory in the Inner City*. Chicago, IL: The University of Chicago Press.

Taeuber, Karl E., and Alma F. Taeuber. 1964. The Negro as an Immigrant Group: Recent Trends in Racial in Racial and Ethnic Segregation in Chicago. *American-Journal-of-Sociology* 69 (4):374.

Theil, Henri. 1972. *Statistical Decomposition Analysis: With Applications in the Social and Administrative Sciences*. Amsterdam: North-Holland Publishing Company.

Theil, Henri, and Anthony J. Finizza. 1971. A Note on the Measurement of Racial Integration of Scholls by Means of Informational Concepts. *Journal of Mathematical Sociology* 1:187-194.

Turner, Margery Austin. 2002. Discrimination in Metropolitan Housing Markets: National Results from Phase I HDS 2000, Final Report. Washington D.C.: The Department of Housing and Urban Development.

Wallace, David A. 1953. Residential Concentration of Negroes in Chicago. *unpublished Ph.D. dissertation, Harvard University*.

Zorbaugh, Harvey Warren. 1929. *The Gold Coast and The Slum: A Sociological Study of Chicago's Near North Side*. Chicago, Il: University of Chicago Press.

Table 1 - Neighborhood Diversity from 1990 to 2000

	Block Group			
	1990		2000	
	n=2,423	%	n=2,423	%
Homogenous	788	33%	563	23%
SW Homogenous	554	23%	519	21%
SW Diverse	550	23%	551	23%
Diverse	531	22%	790	33%
Total	2423	100%	2423	100%
Mean (Diversity)	0.29		0.35	
WT Mean (Diversity)	0.32		0.40	

Table 2 - Comparison of Neighborhood Diversity for 1990 and 2000

		Block Group								
		2000								
		Homogenous		SW Homogenous		SW Diverse		Diverse		Total
1990	Homogenous	515	65%	233	30%	28	4%	12	2%	788
	SW Homogenous	43	8%	223	40%	190	34%	98	18%	554
	SW Diverse	4	1%	52	9%	238	43%	256	47%	550
	Diverse	1	0%	11	2%	95	18%	424	80%	531
	Total	563	23%	519	21%	551	23%	790	33%	2423

Table 3 - Change in Diversity Score from 1990 and 2000

	Point Change in Diversity Score	Number of Block Groups	Percent
	25+	23	1%
	20 to 24	16	1%
Block Groups Became Less Diverse	15 to 19	37	2%
	10 to 14	99	4%
	5 to 9	161	7%
	0 to 4	305	13%
No Change	0	7	0%
	0 to 4	583	24%
	5 to 9	414	17%
Block Groups Become more Diverse	10 to 14	238	10%
	15 to 19	163	7%
	20 to 24	147	6%
	25+	230	9%
	Total	2,423	100%

Table 4 - Diversity of Tracts by Majority Racial Groups

	Homogenous		SW Homogenous		SW Diverse		Diverse		Total		Mean E		Weighted Mean E	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
White	6%	0%	36%	17%	34%	38%	24%	44%	964	731	0.35	0.47	0.38	0.48
Black	75%	54%	15%	32%	7%	8%	4%	5%	975	1006	0.11	0.15	0.11	0.16
Latino	2%	3%	18%	15%	49%	40%	32%	42%	306	464	0.46	0.50	0.48	0.47
Asian	10%	0%	10%	7%	30%	29%	50%	64%	10	14	0.42	0.45	0.40	0.44
No Majority	0%	0%	0%	0%	2%	1%	98%	99%	168	208	0.70	0.75	0.73	0.78
Total	33%	23%	23%	21%	23%	23%	22%	33%	2423	2423	0.29	0.35	0.32	0.40

Table 5 - Segregation Scores from 1990 to 2000

	n	H Index	H for White and NonWhite	H for minority groups	% H for White and NonWhite	% H for minority groups
1990 Block Group	2423	57.20	27.91	29.29	49%	51%
2000 Block Group	2423	50.86	20.32	30.55	40%	60%

Table 6 - Description of Variables Included in the Regression Analysis

	Name	Description
Economic Variables	Poverty Rate	Percent of People in Poverty
	Welfare Rate	Percent of Households on welfare
	Average Income	Average Household Income
	Unemployment Rate	Unemployment Rate (of persons over 16 years old)
	Percent Home Owner	Percent of Housing Units that is Occupied By Home Owners
Housing	housing units	Number of Housing Units Available
	housing 40 to 60	Percent of Housing Units built between 1940 and 1960
	housing 60 to 80	Percent of Housing Units built between 1960 and 1980
	housing 80 to 90	Percent of Housing Units built between 1980 and 1990
	housing after 90	Percent of Housing Units built after 1990
Demographic variables	Imm 65 to 75	Percent of population that foreign born that arrived between 1965 and 1975
	Imm 75 to 85	Percent of population that foreign born that arrived between 1975 and 1985
	Imm 85	Percent of population that foreign born that arrived after 1985 (only for 1990 census)
	Imm 85 to 95	Percent of population that foreign born that arrived between 1985 and 1995 (only for 2000 census)
	Imm 95	Percent of population that foreign born that arrived after 1995 (only for 2000 census)
	Age< 18	Percent of population less than 18 years of age
	Age > 60	Percent of population older than 60 years of age
	highschool	Percent of population with a high school degree (people are over 25 years old)
	somcoll	Percent of population with some college (people are over 25 years old)
	college	Percent of population with a college degree or higher (people are over 25 years old)
	marriedrate	Percent of families that are married-couple family
	femalefamilyrate	Percent of families that are single femaled headed household
Neighborhood type	white	White Majority Block Group
	black	Black Majority Block Group
	latino	Latino Majroity Block Group

Table 7 - Description of Variables Included in the Regression Analysis

	Name	Mean 1990	Mean 2000
Economic Variables	NH Poverty Rate	0.213653	0.1978344
	NH Welfare Rate	0.1686528	0.0854757
	Average Income	32281.74	48138.25
	Unemployment Rate	0.1346808	0.1212413
	Percent Home Owner	0.4691528	0.485921
Housing	housing units	467.6	474.9
	housing 40 to 60	0.3276301	0.3461441
	housing 60 to 80	0.1722863	0.1922191
	housing 80 to 90	0.042531	0.0461478
	housing after 90	N/A	0.0431847
Demographic variables	Imm 65 to 75	0.0306143	0.0225877
	Imm 75 to 85	0.0491298	0.0365388
	Imm 85	0.0330327	N/A
	Imm 85 to 95	N/A	0.0598
	Imm 95	N/A	0.042119
	Age< 18	0.2706594	0.2772588
	Age > 60	0.1693981	0.1384656
	highschool	0.2580527	0.1136339
	somcoll	0.1728218	0.0860579
	college	0.2035938	0.1222574
	marriedrate	0.4118779	0.3846483
	femalefamilyrate	0.223815	0.2238874
Neighborhood type	white	0.3978539	0.3016921
	black	0.4023937	0.4151878
	latino	0.1262897	0.1914981

Table 8 - 1990 Parameter Estimates for Block Group

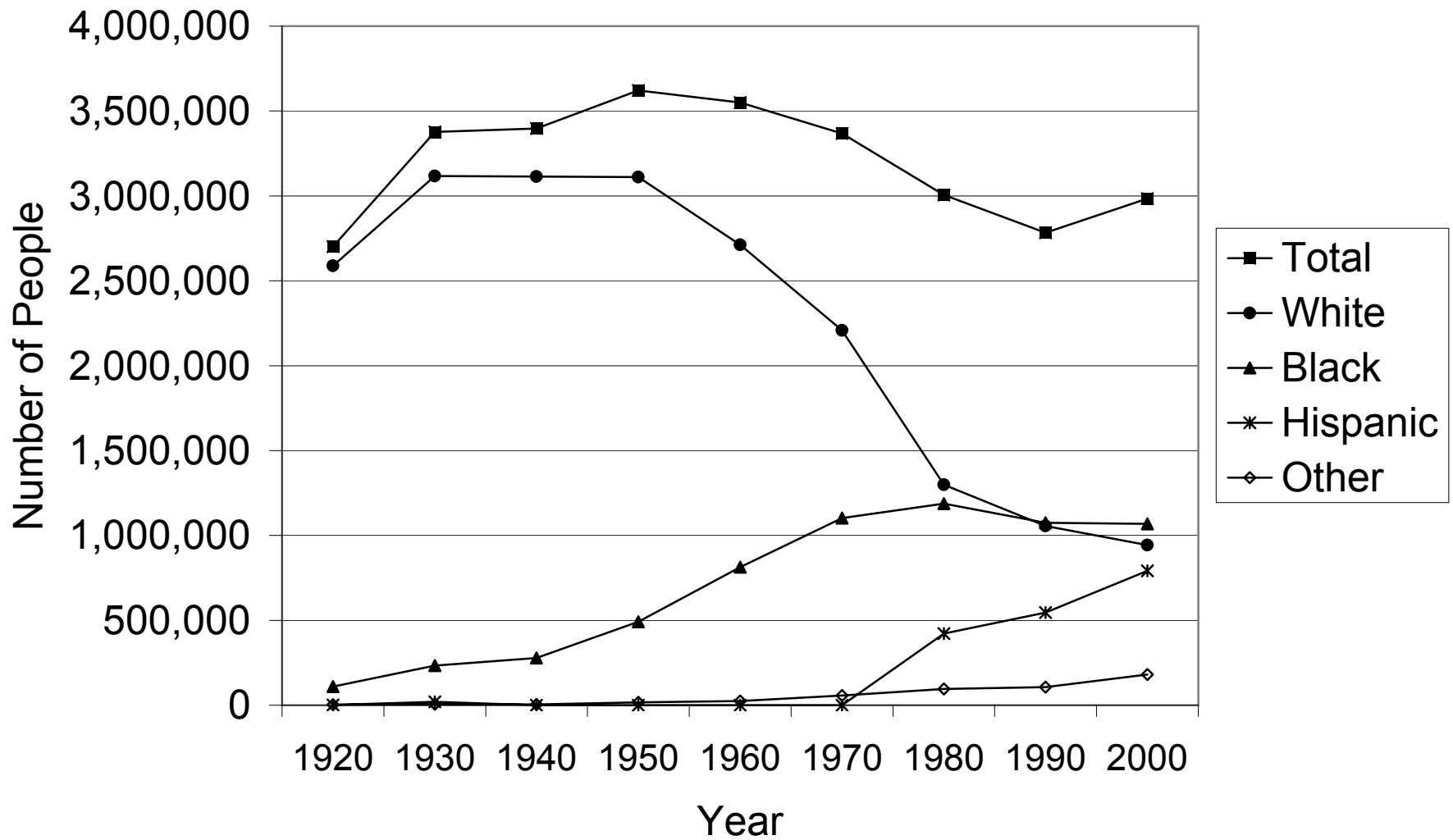|		Model 1	Model 2	Model 3	Model 4
Economic Variables	NH Poverty Rate	0.009	0.037	0.037	-0.048
		(-.040)	(.039)	(.035)	(.030)
	NH Welfare Rate	-0.560*	-0.476*	-0.118**	-0.023
		(.041)	(.040)	(.039)	(.034)
	Average Income	-0.00000106**	-0.00000126**	-0.00000335*	-0.00000401*
		(0.00000044)	(0.000000431)	(0.000000502)	(0.000000427)
	Unemployment Rate	-0.469*	-0.413*	-0.195*	-.100**
		(.048)	(.046)	(.042)	(.035)
	Percent Home Owner	-0.338*	-0.188*	-0.049***	-0.042**
		(.018)	(.022)	(0.023)	(.018)
Housing	housing units		0.00004834*	0.0000196***	0.00000353*
			(.00000938)	(.00000835)	(.00000705)
	housing 40 to 60		-0.256*	-0.168*	-0.129*
			(.021)	(.019)	(.016)
	housing 60 to 80		-0.265*	-0.155*	-0.109*
			(.024)	(.022)	(.018)
	housing 80 to 90		-0.176*	-0.092**	-0.096*
			(.038)	(.033)	(.028)
Demographic variables	Imm 65 to 75			0.896*	0.396*
				(.105)	(.091)
	Imm 75 to 85			0.789*	0.451*
				(.077)	(.067)
	Imm after 85			0.312*	-0.068
				(.083)	(.071)
	Age< 18			0.022	0.032
				(.045)	(.038)
	Age > 60			-0.261*	-0.271*
				(.045)	(.038)
	highschool			0.224*	0.060
				(.041)	(.037)
	somcoll			0.085	0.130*
				(.047)	(.042)
	college			0.365*	0.283*
				(.034)	(.030)
	femalefamilyrate			-0.267*	-0.081**
				(.035)	(.031)
Neighborhood type	white				-0.237*
					(.012)
	black				-0.436*
					(.014)
	latino				-0.255*
					(.014)
	Intercept	0.636	0.659	0.408	0.758
		(.020)	(.022)	(.034)	(.032)
Goodness of Fit Statistics	Number of Cases	2375	2375	2375	2375
	d.f.	5	9	18	21
	F statistic	216.55	158.47	149.6	228.35
	r square	0.3136	0.3761	0.5332	0.6707
	adj r square	0.3124	0.3737	0.5297	0.6678

*p<.001, **p<.01, ***<.05 (Two-tailed test); numbers in parentheses are standard errors

Table 9 - 2000 Parameter Estimates for Block Group

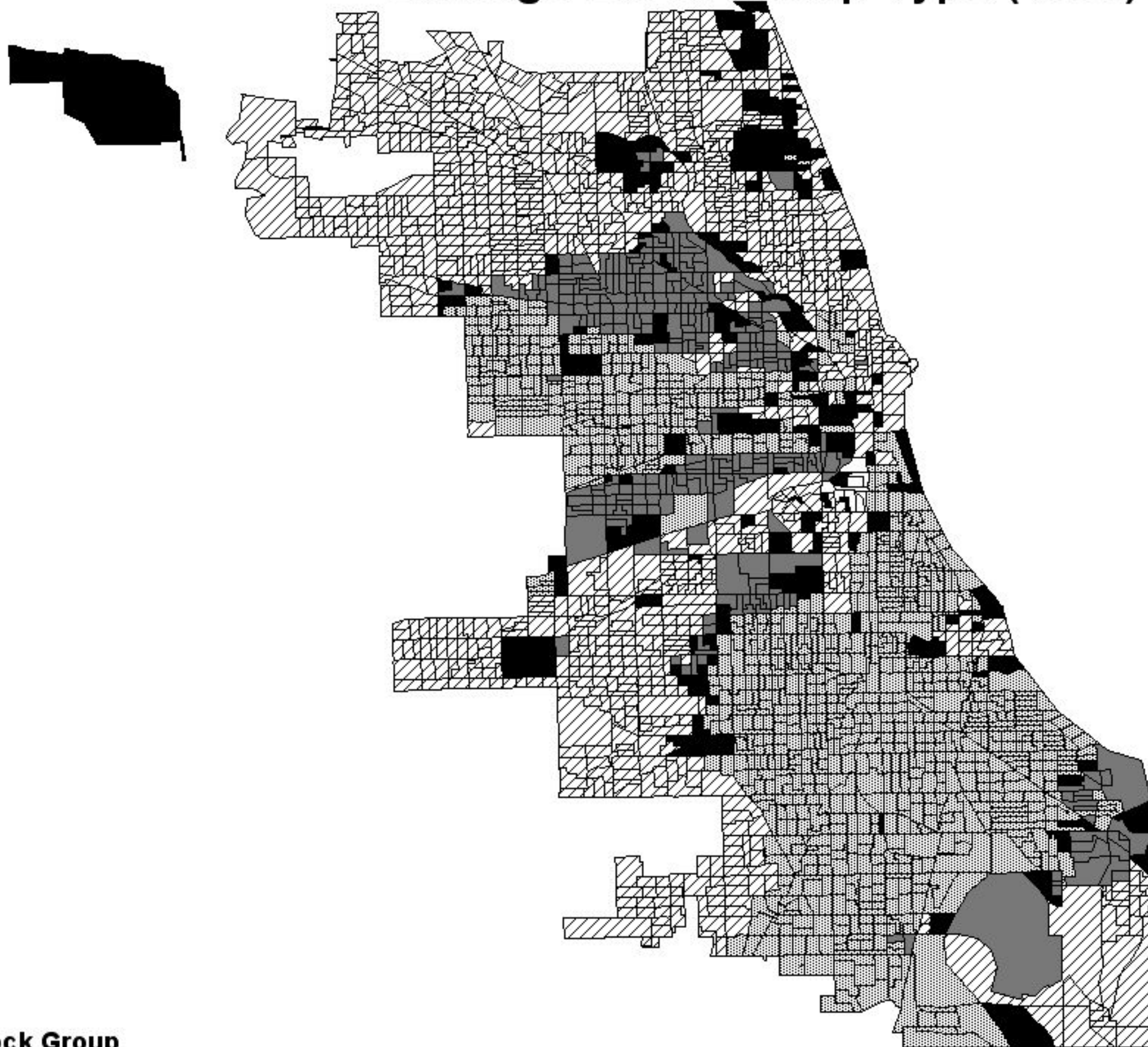|		Model 1	Model 2	Model 3	Model 4
Economic Variables	NH Poverty Rate	-.099**	-.107**	-.015	-.065***
		(.044)	(.044)	(.038)	(.032)
	NH Welfare Rate	-.0681*	-.586*	-.073	-.049
		(.0575)	(.058)	(.052)	(.044)
	Average Income	0.00000141*	0.00000055	-8.87478E-7*	-.00000128
		(0.000000331)	(-0.00000035)	(3.658033E-7)	(3.200355E-7)
	Unemployment Rate	-.578*	-.532*	-.097	.00259
		(.053)	(.052)	(.045)	(.039)
	Percent Home Owner	-.285*	-.152*	-.029	-.03323
		(.020)	(.024)	(.022)	(.019)
Housing	housing units		.0000061*	.000021*	.00000458
			(.0000104)	(.0000088)	.00000756
	housing 40 to 60		-.214*	-.086*	-.064**
			(.028)	(.024)	(.020)
	housing 60 to 80		-.129*	-.021	.012
			(.031)	(.026)	(.022)
	housing 80 to 90		-.127**	-.047	-.033
			(.054)	(.045)	(.039)
	housing after 90		.050	.061	.056
			(.056)	(.046)	(.039)
Demographic variables	Imm 65 to 75			.836*	.366*
				(.111)	(.098)
	Imm 75 to 85			1.054*	.633*
				.114	(.102)
	Imm 85 to 95			.461*	.202**
				(.073)	(.064)
	Imm 95			.467*	.032
				(.087)	(.077)
	Age< 18			-.094***	-.038
				(.048)	(.041)
	Age > 60			-.182*	-.148**
				(.052)	(.046)
	highschool			.346*	.176**
				(.063)	(.055)
	somcoll			.237**	.100
				(.075)	(.066)
	college			.599*	.361*
				(.052)	(.047)
	femalefamilyrate			-.242*	-.073*
				(.036)	(.033)
Neighborhood type	white				-.217*
					(.012)
	black				-.432*
					(.016)
	latino				-.257*
					(.013)
	Intercept	.573*	.611*	.324*	.691*
		(.023)	(.026)	(.035)	(.033)
Goodness of Fit Statistics	Number of Cases	2393	2393	2393	2393
	d.f.	5	10	20	23
	F statistic	193.65	109.95	142.37	204.80
	r square	.2885	.3157	.5454	.6653
	adj r square	.2870	.3128	.5416	.6620

*p<.001, **p<.01, ***<.05 (Two-tailed test); numbers in parentheses are standard errors

Figure 1 - Chicago Population Trends by Race: 1920 to 2000

Source: 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000 U.S. Census

Figure 2
Chicago Block Group Type (1990)

Asian Majority Block Group
Hispanic Majority Block Group
Black Majority Block Group
White Majority Block Group
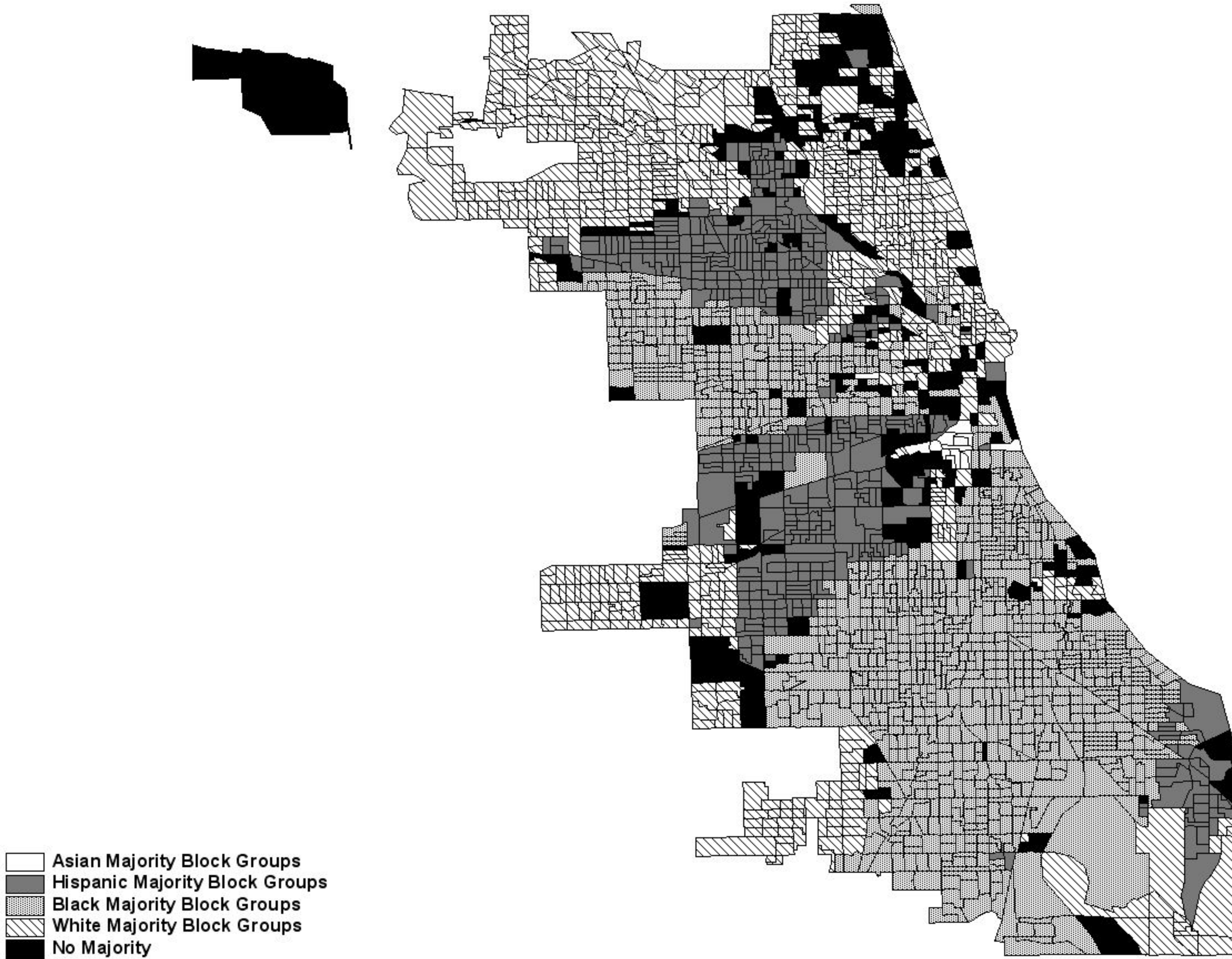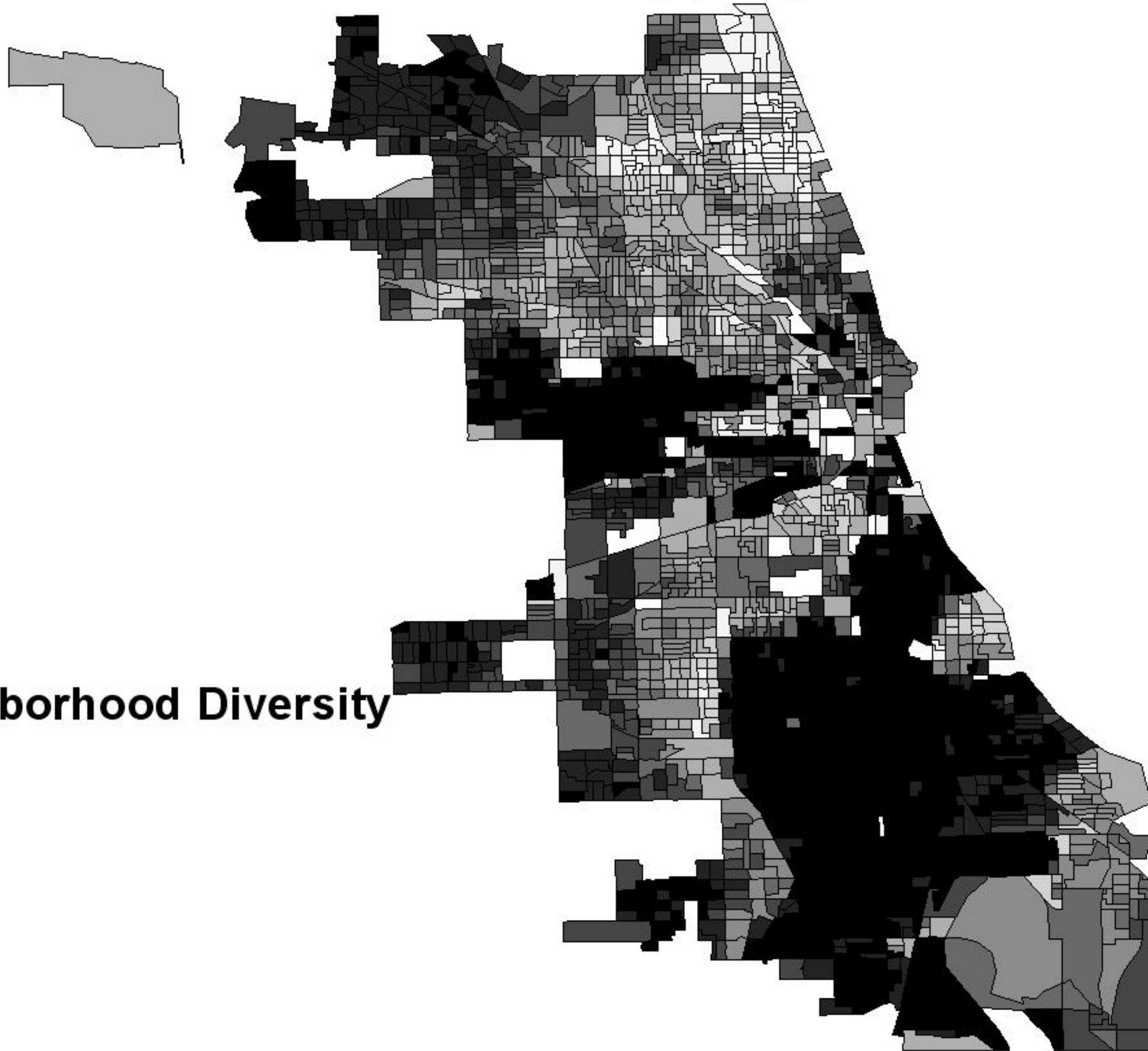No Majority

Figure 3
Chicago Block Group Type (2000)

Asian Majority Block Groups
Hispanic Majority Block Groups
Black Majority Block Groups
White Majority Block Groups
No Majority

Figure 4
Racial Diversity (1990)

1990 Neighborhood Diversity
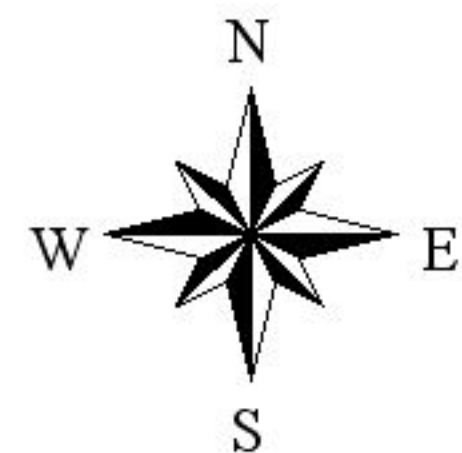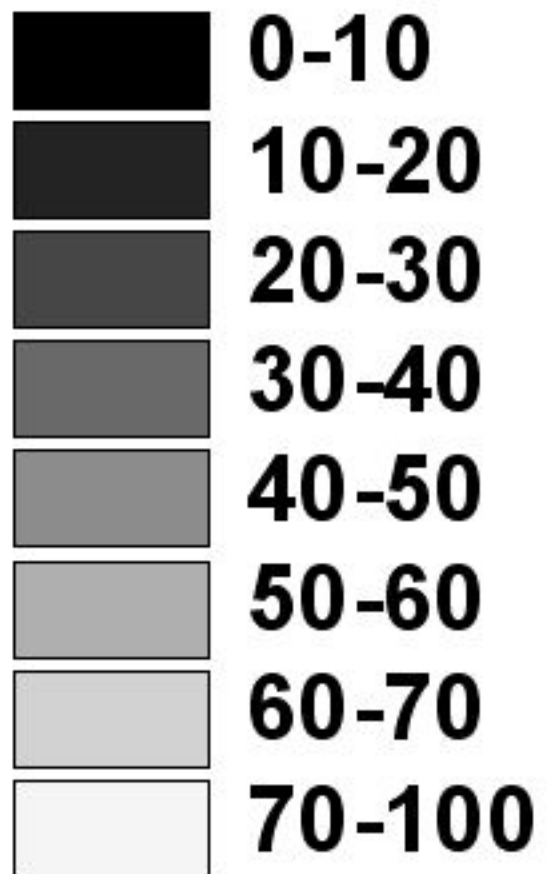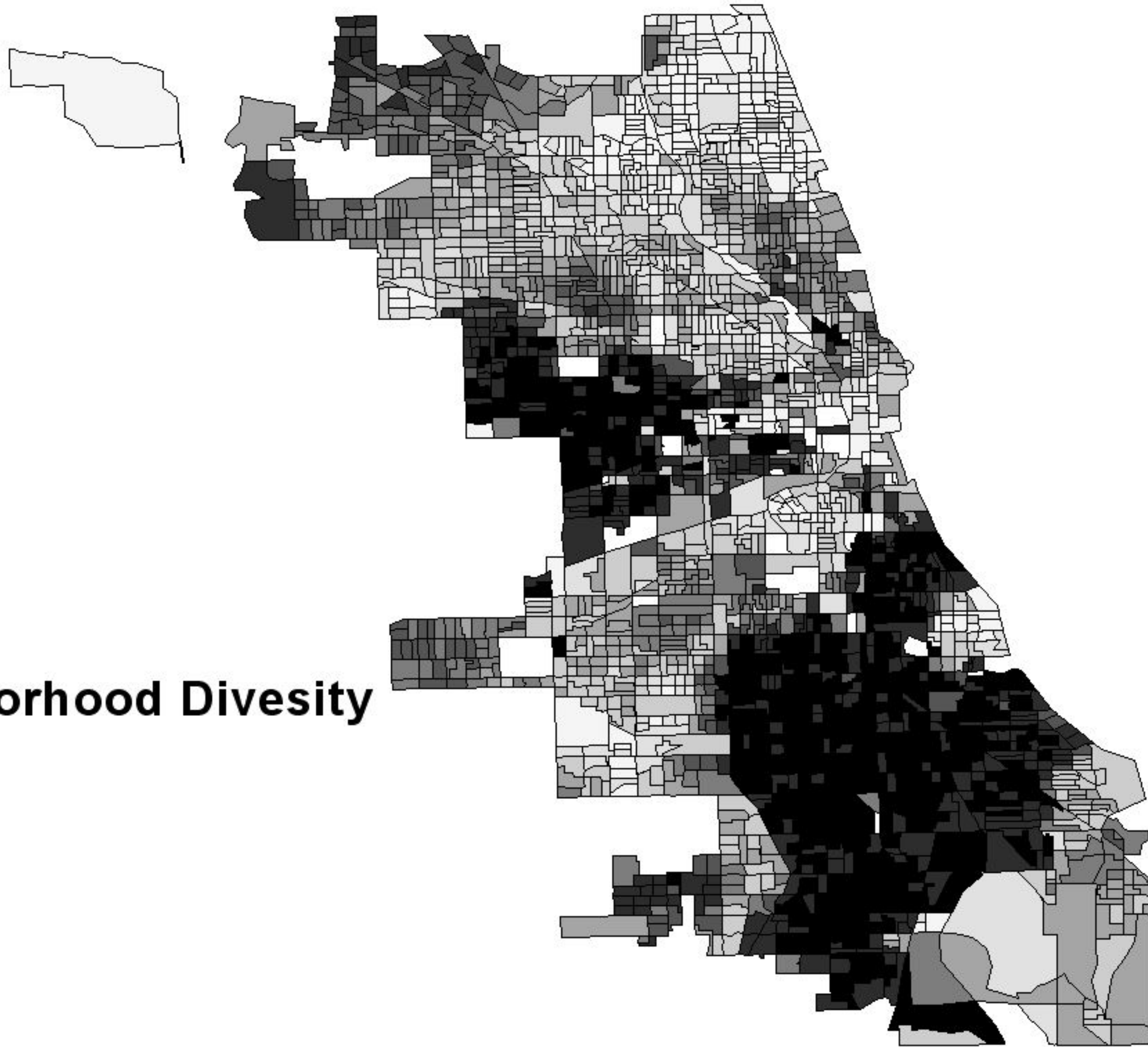
- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60
- 60-70
- 70-100

Figure 5
Racial Diversity (2000)

2000 Neighborhood Divesity

- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60
- 60-70
- 70-100