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TRACKING VIOLENCE: USING NEIGHBORHOOD-LEVEL CHARACTERISTICS IN THE
ANALYSIS OF DOMESTIC VIOLENCE IN CHICAGO AND THE STATE OF ILLINOIS

by

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ABSTRACT

Social disorganization theory proposes that neighborhood characteristics, such as residential instability, racial and ethnic heterogeneity, concentrated disadvantage, and immigrant concentration contribute to an increase in crime rates. Informal social controls act as a mediator between these neighborhood characteristics and crime and delinquency. Informal social controls are regulated by members of a community and in a disorganized community these controls are not present, therefore, crime and delinquency flourish (Sampson, 2012). Researchers have focused on these measures of social disorganization and the ability to explain a variety of crimes, specifically public crimes. Recently, researchers have focused their attention to characteristics of socially disorganized areas and the ability to predict private crimes, such as domestic violence. This study contributes to the research on social disorganization theory and domestic violence by examining domestic offenses at three different units of analysis: Chicago census tracts, Chicago neighborhoods, and Illinois counties.

Demographic variables from the 2005-2009 American Community Survey were utilized to measure social disorganization within Chicago census tracts, Chicago neighborhoods, and Illinois counties. Data on domestic offenses in Chicago were from the City of Chicago Data Portal and data on domestic offenses in Illinois counties were retrieved from the Illinois Criminal Justice Information Authority (ICJIA). This study incorporated geographic information systems (GIS) mapping to examine the relationships between locations of domestic offenses and the measures of social disorganization in each unit of analysis. Results of this study indicate that different measures of social disorganization are significantly associated with domestic offenses in each unit of analysis.

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE: INTRODUCTION

Domestic violence (DV) continues to be an increasing public health and social concern in the United States. In 2000, Tjaden and Thoennes reported that approximately 25 percent of women in the United States had experienced physical assault or rape by an intimate partner in their lifetime, while almost five percent of women had experienced stalking by an intimate partner. More recently, researchers have shown that the prevalence of domestic violence continues to rise. In 2011, data from the National Intimate Partner and Sexual Violence Survey (NISVS) indicated that more than 35 percent of women in the United States have experienced DV by an intimate partner in the form of physical abuse, rape, or stalking in their lifetime (Black et al., 2010). Furthermore, more than 50 percent of women in the United States have experienced psychological abuse by an intimate partner during their lifetime (Black et al., 2010).

Over the past 40 years, researchers have uncovered much about domestic violence, including the types of violence that constitute DV (e.g., DeKeseredy & Schwartz, 2011), theoretical explanations for DV (e.g., Kaufman Kantor & Jasinski, 1998), the consequences of DV (e.g., Coker, Smith, Bethea, King, & McKeown, 2000; Golding, 1999; Wingood, DiClemente, & Raj, 2000; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003), and its connection to child abuse (e.g., Bowker, Arbitell, & McFerron, 1988; Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Hotaling & Sugarman, 1986; Jewkes, Levin, & Penn-Kekana, 2002). In addition, researchers have also examined the factors that increase one's risk for DV perpetration or victimization (e.g., Flake, 2005; Hotaling & Sugarman, 1986, 1990; Kaufman Kantor & Jasinski, 1998; Kyriacou et al., 1999; Macmillan & Gartner, 1999; Riggs, Caulfield, & Street, 2000). These researchers have primarily focused on individual-level factors that increase

the risk for domestic violence. More recently, researchers have started to focus on other types of risk factors, including structural-level characteristics at the census tract and neighborhood-levels, which increase one's risk for DV (e.g., Benson, Fox, DeMaris, & Van Wyk, 2003; Fox & Benson, 2006; Miles-Doan, 1998; Miles-Doan & Kelly, 1997; Rothman et al., 2011; Van Wyk, Benson, Fox, & DeMaris, 2003). Support has been found for structural-level characteristics that increase the risk of domestic violence; however, the research is limited and these characteristics warrant further analysis.

Many researchers examining structural-level factors and DV have used social disorganization theory as the framework to understand this type of violence (e.g., Benson et al., 2003; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; Browning, 2002). Historically, social disorganization theory has been used to explain crimes that take place in public settings, not private settings like DV (e.g., Martinez, Rosenfeld, & Mares, 2008; Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997; Shaw & McKay, 1969; Sun, Triplett, & Gainey, 2004). However, researchers who have analyzed neighborhood-level measures of social disorganization and their effect on DV have found that the theory can be applicable to this private crime (e.g., Benson et al., 2003; Fox & Benson, 2006; Miles-Doan, 1998; Miles-Doan & Kelly, 1997; Rothman et al., 2011; Van Wyk et al., 2003). To this point, researchers have primarily focused on one geographic unit in their analyses in order to understand the neighborhood effects.

The current study extends the research on social disorganization theory and domestic violence by examining this relationship at three distinct units of analysis: City of Chicago census tracts, City of Chicago neighborhoods, and counties in the State of Illinois. The primary goals of this research are: (1) to extend the research on concentrated disadvantage, immigrant concentration, racial and ethnic heterogeneity, and residential instability as measures of social

2

disorganization; (2) to determine the applicability of social disorganization theory when examining domestic offenses at multiple units of analysis; (3) to employ a broad definition of domestic violence in order to include multiple types of violence; and (4) to contribute to the research examining social disorganization theory and domestic violence in suburban and rural geographic areas.

CHAPTER TWO: THEORETICAL BACKGROUND

Since its inception, social disorganization theory has aided in understanding the dynamics and effects of neighborhood characteristics on criminal and delinquent behaviors that occur in public (e.g., Barnett & Mencken, 2002; Kubrin & Weitzer, 2003b). More recently, researchers have used social disorganization theory in order to have a more complete understanding of the structural factors that may put individuals at risk for more private crimes, such as domestic violence (e.g., Browning, 2002; Emery et al., 2011; Jain et al., 2010; Wright, 2011; Wright & Benson, 2011).

Social disorganization theory is a consensus theory, whereby social order, social stability, and social integration occur as a result of common norms and values among members. Consensus theories also hypothesize a strong cohesion between members of a society with interactions between members occurring in an ordered way. Social disorganization theory posits that the less cohesion, solidarity, and integration within members of a society or social group, the greater the rate of criminal and delinquent behavior; whereas socially organized areas are effectively enforcing informal social controls and have lower rates of criminal and delinquent behaviors (Akers & Sellers, 2009; Sampson & Groves, 1989).

The main premise of social disorganization theory is that crime and delinquency result from a breakdown in structural and institutionalized social controls, or informal social controls (Sampson, 2012; Shaw & McKay, [1942]1969). Informal social controls are regulated by members of a community and in a disorganized community these controls are not present, therefore, crime and delinquency flourish (Sampson, 2012; Shaw & McKay, [1942]1969). Proponents of social disorganization theory consider the decrease in informal social controls in a

community to be a "mediating social mechanism" (Sampson, 2012, p. 39) between characteristics of a disorganized neighborhood and subsequent criminal and delinquent behaviors (Akers & Sellers, 2009; Lersch & Hart, 2011; Lowenkamp, Cullen, & Pratt, 2003). Further, they aim to understand why rates of crime vary between communities (Baron & Straus, 1989).

Social disorganization theory posits that ecological characteristics, as opposed to individual-level characteristics, influence crime rates in neighborhoods (Kubrin & Weitzer, 2003a). This criminological theory was designed to explain crimes that take place in public rather than private areas. Social disorganization theory is a criminological theory that is often used in conjunction with the examination of spatial and temporal analyses of crime because it attributes crime and deviance to ecological characteristics of a neighborhood. There are a number of factors, or concepts, that make up the framework of social disorganization. These factors include low collective efficacy, concentrated disadvantage, residential instability, racial and ethnic heterogeneity, and immigrant concentration.

<u>History of Social Disorganization Theory</u>

Social disorganization theory was born as a result of a substantial change in a variety of environmental and social factors in Chicago during the 20th century (Paulsen & Robinson, 2009). Two of these factors that helped to shape social disorganization theory were large numbers of foreign immigrants and high rates of juvenile delinquency (Paulsen & Robinson, 2009). Researchers from the University of Chicago's Department of Sociology were aware of these societal factors and subsequently began the formation of the field of social ecology (Paulsen & Robinson, 2009).

Social ecology can be defined as "how plant and animal life forms relate to each other in their natural habitat" (Lersch & Hart, 2011, p. 40), and Robert Park is often considered the pioneer who examined social ecology and the changes occurring in Chicago at the time (Lersch & Hart, 2011). In his research studying Chicago, Park developed the term "natural areas" (Lersch & Hart, 2011, p. 41). These "natural areas" were areas within a city that were primarily differentiated by demographic characteristics of its residents (Lersch & Hart, 2011). These demographic characteristics that differentiate cities into smaller subunits, or neighborhoods, include race, ethnicity, and income.

Ernest Burgess, another sociologist at the University of Chicago, extended Park's theory regarding natural areas through his idea of concentric zones. Burgess argued that Chicago expanded and grew outward from the central business zone in a series of circles that ultimately ended in residential areas of the city (Lersch & Hart, 2011). Each of the five circles, or zones, represents an area with characteristics that differentiate it from the other zones (Burgess, 1925; Lersch & Hart, 2011). Park and Burgess' ecological theories were critical to the utilization of social disorganization theory and juvenile delinquency by Shaw and McKay.

Clifford R. Shaw and Henry D. McKay incorporated Park and Burgess' ideas examining ecological characteristics of communities and applied it to juvenile delinquency in Chicago (Sampson, 2012; Shaw & McKay, [1942]1969). Shaw and McKay concluded that rates of juvenile delinquency were greatest in the central business zone (Zone I) and decreased as the zones moved outward into the residential areas of the city (Shaw & McKay, [1942]1969). They identified a number of social factors that they found to be significant predictors of juvenile delinquency: low economic status, racial and ethnic heterogeneity, and residential instability (Sampson, 2012; Shaw & McKay, 1969).

Shaw and McKay argued that individual-level factors could not be the single explanation for participation in criminal and delinquent behaviors; instead, ecological characteristics, or neighborhood-level factors, were a vital contribution (Sampson, 2012). They claimed that delinquent behaviors committed by juveniles resulted from "detachment from conventional groups" and this resulted from an individual's environment (Paulsen & Robinson, 2009, p. 51). The factors that characterize socially disorganized neighborhoods are mediated by low social control by individuals within a community (Sampson, 2012). In other words, in socially disorganized neighborhoods, individuals may not have social ties with their neighbors and may not participate in community activities, thereby decreasing the framework that encourages social control and prevents criminal activity (Sampson, 2012).

Research on Social Disorganization and General Crime

Since its inception, social disorganization theory has been applied to a variety of public crimes, such as homicide (e.g., Kubrin & Weitzer, 2003b), burglary (e.g., Bellair, 1997; Smith & Jarjoura, 1988), juvenile delinquency (e.g., Jacob, 2006; Osgood & Chambers, 2000), and other types of violent crime (e.g., Browning et al., 2004; Kposowa et al., 1995; Martinez et al., 2008). In 1989, criminologists Robert J. Sampson and W. Byron Groves published a seminal piece of work testing Shaw and McKay's social disorganization theory. This study has been an important contribution to criminological literature, and many have considered this piece of research a classic (Lowenkamp et al., 2003).

The results of Sampson and Groves' (1989) study proved to be an important contribution to the social disorganization and crime literature. The research provided additional support for social disorganization theory and its applicability in predicting crime rates. Until this time,

research examining Shaw and McKay's social disorganization theory primarily focused on the effects of structural characteristics on crime rates. Sampson and Groves' (1989) research extended the scope of Shaw and McKay's work by examining other variables that have been used to measure social disorganization and subsequent criminal offending within a community. Community characteristics, such as low socioeconomic status, residential instability, and racial and ethnic heterogeneity, were factors associated with greater rates of crime and delinquency. Since it was published, many researchers have attempted to reproduce Sampson and Groves' study (e.g., Lowenkamp et al., 2003; Sun, Triplett, & Gainey, 2004; Veysey & Messner, 1999).

In 2003, Lowenkamp, Cullen, and Pratt replicated Sampson and Groves' study and yielded similar results. Lowenkamp and his colleagues (2003) reported that minimal social support and unsupervised groups of teenagers were mediating variables between certain neighborhood characteristics and an increased rate of criminal victimization. Participation in community organizations proved not to be a mediating variable to the criminal victimization rate in this study. The authors concluded that Sampson and Groves' initial work was appropriately titled a classic study in criminology and appeared to be valid in analyzing factors influencing social disorganization and crime rates.

Many researchers have examined the effects of social disorganization and its impact on crime, aside from Sampson and Groves' (1989) classic research design. These researchers have found support for the hypothesis that characteristics of neighborhoods indicative of social disorganization, including concentrated disadvantage, residential instability, racial and ethnic heterogeneity, immigrant concentration, and collective efficacy, are related to neighborhood crime rates (e.g., Lowenkamp et al., 2003; Sun et al., 2004; Veysey & Messner, 1999).

According to Shaw and McKay, concentrated disadvantage is a characteristic of socially disorganized areas (Sampson, 2012; Shaw & McKay, [1942], 1969). Shaw and McKay's pioneering work on juvenile delinquency found concentrated disadvantage to be significantly related to increased rates of juvenile delinquency within urban areas (Sampson, 2012). Sampson and Groves (1989) attributed the effects of concentrated disadvantage on crime to be a result of the fact that communities of low socioeconomic status have a "weaker organizational base than higher-status communities" (p. 780). Furthermore, they argued that neighborhoods of low socioeconomic status may have less organizational participation and activities for teenagers that may help to prevent crime and delinquency (Sampson & Groves, 1989).

Researchers examining social disorganization and criminal behavior have also found evidence to support the effects of concentrated disadvantage on crime. Neighborhood concentrated disadvantage was associated with an increase in rates of violent crime, specifically aggravated assault and homicide (Martinez et al., 2008; Morenoff et al., 2001; Smith & Jarjoura, 1988). In addition, retaliatory homicides are more common in neighborhoods of concentrated disadvantage (Kubrin & Weitzer, 2003b).

Researchers examining social disorganization have also included measures of residential instability and its effects on various types of crimes. Residential stability is important to a community because it helps to form and maintain informal and formal social networks, which in turn, decrease crime rates (Barnett & Mencken, 2002). Residential instability is significantly related to violent offenses (Kposowa et al., 1995; Osgood and Chambers, 2000) and property crimes (Kposowa et al., 1995). Residential instability has been found to have a significant association with increased burglary (Smith & Jarjoura, 1998), robbery (Martinez et al., 2008) and assault rates (Martinez et al., 2008; Sun et al., 2004).

Another structural-level characteristic of disorganized neighborhoods is racial and ethnic heterogeneity. Smith and Jarjoura (1988) found that racial heterogeneity was significantly associated with greater rates of burglary at the neighborhood-level. Other researchers have also found that racial and ethnic heterogeneity within a neighborhood is significantly associated with greater rates of assault and delinquency (Osgood & Chambers, 2000; Sun et al., 2004). Sampson and Groves (1989) argued that communication may be difficult for members of a community that is racially and ethnically heterogeneous and individuals may not share the same values which may prove difficult when solving social problems, such as crime (Sampson & Groves, 1989).

Another characteristic of socially disorganized neighborhoods is low collective efficacy between individuals in a neighborhood. Sampson (2012) defines collective efficacy as "social cohesion combined with shared expectations for social control" (p. 27). Collective efficacy refers to social ties with other members of one's community. Low social control may mediate the relationships between low collective efficacy and crime rates in socially disorganized areas. There has been evidence to support the idea that low levels of collective efficacy within a neighborhood significantly increased crime rates (Morenoff et al., 2001).

The final characteristic of social disorganization presented in this review of the literature is immigrant concentration within a neighborhood. Shaw and McKay noted that the neighborhoods with the greatest rates of juvenile delinquency were typically inhabited by immigrants (Sampson, 2012; Shaw & McKay, [1942]1969). Some researchers have included immigrant concentration as a measure of social disorganization and found that immigrant concentration within a county was significantly associated with property and violent crime rates (Kposowa et al., 1995). Specifically, this relationship indicated that there was a decrease in violent crime rates in U.S. cities that had a high concentration of immigrants (MacDonald, Hipp,

& Gill, 2012; Ousey and Kubrin, 2009). However, others found that immigrant concentration within neighborhoods did not significantly impact violent crime rates (Olson, Laurikkala, Huff-Corzine, & Corzine, 2009). Further research is needed to examine this relationship.

Researchers have contributed much to the topic of social disorganization and its effect on criminal and delinquent behaviors committed in the public arena. Significant associations have been found between neighborhood-level concentrated disadvantage, racial and ethnic heterogeneity, residential instability, collective efficacy, and immigrant concentration and crime rates.

<u>Geographic Units of Analysis and Social Disorganization Theory</u>

Many researchers examine smaller units of analysis when testing the effects of measures of social disorganization on crime. Researchers have found support for social disorganization theory when examining census tracts (e.g., Krivo & Peterson, 1996; Li et al., 2010; Miles-Doan & Kelly, 1997), city neighborhoods (e.g., Browning, 2002; Emery, Jolley, & Wu, 2011), and U.S. cities (e.g., Hetling & Zhang, 2010; Ousey, 1999; Ousey & Kubrin, 2009). Researchers have also found support for the effects of social disorganization on crime in larger units of analysis, such as counties (e.g., Lee, Maume, & Ousey, 2003; Osgood & Chambers, 2000). Support for the effects of concentrated disadvantage, residential instability, and racial and ethnic heterogeneity on crime rates have been reported at the county-level, indicating that structural-level variables may be used to explain crime in larger, rural units of analysis, in addition to smaller, urban areas (Lee, Maume, & Ousey, 2003; Osgood & Chambers, 2000). The current research extends the research on social disorganization theory and its applicability to the effects

11

of domestic violence in larger, rural units of analysis by examining domestic violence in Illinois counties.

Critiques of Social Disorganization Theory

Throughout the years, researchers have critiqued social disorganization theory and called attention to its limitations (Baron & Straus, 1989; Bursik & Grasmick, 1993; Lersch & Hart, 2011). One criticism of social disorganization is that it violates the ecological fallacy. The ecological fallacy occurs when researchers draw conclusions about individuals based on the observation of groups. By examining the characteristics of individuals within a neighborhood and their relationship to criminal activity, which is an individual behavior, social disorganization theory may be seen as a violation of the ecological fallacy. Social disorganization theory has also been criticized for being tautological (Lersch & Hart, 2011). The concept of tautology implies that a theoretical framework exhibits circular reasoning. It has been argued that socially disorganized neighborhoods are disorganized because of the high levels of crime and delinquency, and in turn, this disorganization contributes to higher rates of crime and delinquency (Lersch & Hart, 2011). Another critique of social disorganization theory is that it fails "to consider the relational networks that pertain to the public sphere of control" (Bursik & Grasmick, 1993, p. 37). In other words, even if there is a high level of collective efficacy within a community, individuals cannot control others within their community. This, in turn, decreases the amount of social control within a community and may lead to an increase in crime and delinquency.

No theoretical framework is without flaws. Since Shaw and McKay's ([1942]1969) original work on social disorganization and juvenile delinquency, countless researchers have

used the theory to understand a variety of criminal offenses and delinquent behaviors (e.g., Bellair, 1997; Browning et al., 2004; Kposowa et al., 1995; Kubrin & Weitzer, 2003b; Jacob, 2006; Martinez et al., 2008; Olson et al., 2009; Osgood & Chambers, 2000; Smith & Jarjoura, 1988). A plethora of support for measures of social disorganization and their relationship to criminal and delinquent behaviors, including domestic violence, have been contributed to the field despite these criticisms. The current research study contributes to the research examining the effects of measures of social disorganization and domestic violence.

Social disorganization theory is used in this study because one of the primary goals of the study is to determine what types of communities, or neighborhoods, influence the rate of domestic offenses. Typically, characteristics of a socially disorganized neighborhood include concentrated disadvantage, residential instability, racial and ethnic heterogeneity, immigrant concentration, and low collective efficacy. Social disorganization theory proposes that neighborhoods that exhibit these characteristics have less solidarity, cohesion, and integration of their members, therefore, decreasing informal social controls on crime and increasing rates of crime and deviance. Support for social disorganization theory has been found when examining public crimes, such as homicide (e.g., Kubrin & Weitzer, 2003b), burglary (e.g., Smith & Jarjoura, 1988), and juvenile delinquency (e.g., Osgood & Chambers, 2000). In addition, social disorganization theory can be easily applied to private crimes, such as domestic violence: disorganized neighborhoods are less likely to exhibit social solidarity, cohesion, and integration, therefore, domestic violence victims may be less likely to confide in their neighbors about their experience with abuse. In turn, neighbors cannot intervene, or act as informal social controls, and the abuse may continue.

Much of the research examining social disorganization theory and domestic violence focuses on smaller units of analysis, such as census tracts and city neighborhoods, within urban areas. Few researchers have examined the applicability of social disorganization theory in suburban and rural counties (e.g., Lanier & Maume, 2009). Pinchevsky and Wright (2012) note that future research should focus on larger rural and suburban geographic areas in order to determine if social disorganization theory may be extended to other types of geographies. The current study aims to contribute to this gap in the research by examining urban, suburban, and rural counties in Illinois.

CHAPTER THREE: LITERATURE REVIEW

Over the past 40 years, researchers have contributed much to the literature on domestic violence[1]. Within the field, extensive research has been conducted on risk factors that increase the odds of being a victim or perpetrator of domestic violence (e.g., Flake, 2005; Hotaling & Sugarman, 1986, 1990; Kaufman Kantor & Jasinski, 1998; Kyriacou et al., 1999; Macmillan & Gartner, 1999; Riggs et al., 2000). The two main categories of domestic violence risk factors are individual-level and structural-level. Individual-level risk factors are characteristics of individuals that may increase the risk for perpetrating or being a victim of DV. Individual-level risk factors include sociological and psychological characteristics such as exposure to violence, race, gender, and educational attainment. Other individual-level risk factors of DV include income, substance use, and gender roles in the family. Structural-level risk factors of DV are factors at the societal level that may affect the perpetration or victimization of domestic violence. Economic status and community characteristics are the primary structural-level risk factors that researchers have examined (Carlson, Worden, van Ryn, & Bachman, 2003). These structural-level risk factors can also be seen in the literature examining social disorganization theory and its applicability to domestic violence.

Individual-Level Risk Factors

Researchers have reported a variety of individual-level risk factors that may increase the odds of experiencing or perpetrating domestic violence. One of the most common risk factors for domestic violence is experiencing or witnessing violence in one's family of origin (Flake,

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[1] Domestic violence is the terminology that was used in this study. Domestic violence includes intimate partner abuse, parent-to-child abuse, and sibling abuse.

2005; Hamby, Finkelhor, Turner, & Ormrod, 2010; Hotaling & Sugarman, 1986, 1990; Kaufman Kantor & Jasinski, 1998). In 1986, Hotaling and Sugarman reviewed approximately 100 risk factors that increase the risk of domestic violence. An overwhelming majority of the studies reviewed in their work indicated that females witnessing violence as a child between parents or guardians increased their risk of being victims in their future intimate relationships.

Other individual-level risk factors for DV are demographic characteristics of the victim and perpetrator. Researchers have reported that females are more likely to be the victim of DV compared to males (McFarlane, Willson, Malecha, & Lemmey, 2000). Additionally, males are more likely to be the perpetrator of DV compared to females (Johnson & Ferraro, 2000). Race has also been reported in the research to be a risk factor for DV victimization. Households that are non-white are at an increased risk for DV (Fantuzzo & Fusco, 2007; Hotaling & Sugarman, 1986; Leone, Johnson, Cohan, & Lloyd, 2004). Many researchers have found that having minimal education increases the risk for experiencing violence by an intimate partner (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Flake, 2005; Hotaling & Sugarman, 1986; Jewkes, Levin, & Penn-Kekana, 2002; Kyriacou et al., 1999). In addition, living in a household that is classified as low income has been identified as a risk factor for experiencing abuse by an intimate partner (Fantuzzo et al., 1997; Fantuzzo & Fusco, 2007; Flake, 2005; Hotaling & Sugarman, 1986, 1990; Leone, Johnson, Cohan, & Lloyd, 2004).

Substance use and homelessness have been identified as individual-level risk factors for domestic violence. Alcohol use by the victim and perpetrator can increase the risk for abuse (Flake, 2005; Jewkes et al., 2002). Frequent alcohol use can also increase the risk for perpetrating DV (Hotaling & Sugarman, 1986, 1990). Alcohol use by men also increases the risk of injuring a partner during a domestic dispute (Kyriacou et al., 1999). Drug use has also

been reported to increase the risk of injury during a domestic dispute (Kyriacou et al., 1999). In addition, homelessness is another individual-level risk factor of domestic violence. Researchers have indicated that domestic violence and homelessness may go hand-in-hand because victims often have to choose between staying with their abusive partner and being homeless (Jasinski, Wesely, Wright, & Mustaine, 2010).

Researchers have contributed much to the field on individual-level risk factors that may increase the odds of perpetrating or experiencing domestic violence. However, risk factors present at the structural-level may also increase the risk for being a victim of or perpetrating domestic violence. The ecological model posits that it is an interrelationship between these individual and structural-level risk factors that contribute to an increase in family violence (Belsky, 1980; Carlson, 1984). Research focusing on structural-level factors is limited and often is examined in conjunction with social disorganization theory. Findings from this area of research suggest that an examination of structural-level factors and the applicability of social disorganization theory to DV may aid researchers in achieving a more complete picture of the dynamics of DV.

Structural-Level Risk Factors

Most research on domestic violence has focused on individual-level characteristics and not ecological, or neighborhood, characteristics that may contribute to victimization and perpetration. Benson, Fox, DeMaris, and Van Wyk (2003) argued that researchers may shy away from this topic because it is assumed that neighborhood and community factors are not present and influential within the context of the family. However, there is some research

suggesting that the component parts of socially disorganized areas may be important factors in any examination of domestic violence. Research guided by the ecological model suggests that structural-level factors are part of a larger model of violence examining the interrelationships between the individual, family, social-structural, and sociocultural levels (Belsky, 1980; Carlson, 1984).

Social disorganization theory posits that neighborhood-level factors may increase the risk for particular types of crimes and delinquent behaviors. Common neighborhood-level factors that contribute to the disorganization of an area are low collective efficacy, residential instability, racial and ethnic heterogeneity, immigrant concentration, and concentrated disadvantage (e.g., Browning, 2002; Emery, Jolley, & Wu, 2011; Jacob, 2006; Jain, Buka, Subramanian, & Molnar, 2010; Kposowa, Breault, & Harrison, 1995; Kubrin & Weitzer, 2003b; Martinez, Rosenfeld, & Mares, 2008; Osgood & Chambers, 2000; Wright, 2011; Wright & Benson, 2011).

Low collective efficacy within a neighborhood is an important factor in determining the social disorganization of a neighborhood (Morenoff, Sampson, & Raudenbush, 2001; Rose & Clear, 1998; Sampson, Raudenbush, & Earls, 1997). Researchers have found that lower levels of neighborhood collective efficacy are also associated with an increase in DV (Browning, 2002; Raghavan, Mennerich, Sexton, & James, 2006). In areas of low collective efficacy, individuals may not be likely to call the police or intervene in a domestic dispute because their social ties to members of their community are weak (Benson et al., 2003; Raghavan et al., 2006; Wright & Benson, 2011). The relationship between collective efficacy and risk for DV also includes dating violence as researchers have reported an increase in dating violence in areas of low collective efficacy (Jain et al., 2010; Rothman et al., 2011).

Concentrated disadvantage is another measure of social disorganization in a community. Individuals with low income and minimal education are at an increased risk for DV (Fantuzzo et al, 1997; Fantuzzo & Fusco, 2007; Flake, 2005; Hotaling & Sugarman, 1986, 1990; Jewkes et al., 2002; Kyriacou et al., 1999; Leone et al., 2004) and are likely to be living in the same neighborhoods. Therefore, in neighborhoods of concentrated disadvantage the risk for intimate partner abuse increases. In economically disadvantaged neighborhoods where there is increased financial stress, there is an increased risk for domestic violence (Benson et al., 2003; Benson et al., 2004; Fox & Benson, 2006; Hetling & Zhang, 2010; Reed et al., 2008; Wright, 2011; Wright & Benson, 2011). Explanations for this increased risk of domestic violence may be attributed to increased financial stress in the family and the increased strain to secure stable employment, this may in turn, increase the risk for violence (Weatherburn, 2011).

Other research examining DV and social disorganization focuses on female headed households as a measure of concentrated disadvantage. Neighborhoods with a greater percentage of female headed households and impoverished residents have greater rates of DV compared to other neighborhoods (Miles-Doan, 1998). Greater rates of DV in disadvantaged neighborhoods may be attributed to the stigma of reporting DV in affluent neighborhoods (Miles-Doan, 1998). In other words, victims in economically disadvantaged neighborhoods may be more likely to call law enforcement while affluent victims may not, therefore, underestimating rates of domestic violence reported to the police.

In addition to collective efficacy and concentrated disadvantage, residential instability is another measure of social disorganization. Some researchers indicate that residential instability increases domestic violence (Reed et al., 2008) while other researchers counter that claim (Browning, 2002; Li et al., 2010). For example, Reed and colleagues' (2008) interviews of

young male perpetrators of intimate partner abuse found that residential instability was a commonality between the perpetrators. Other research has found positive relationships between residential instability and experiencing intimate partner abuse among low-income pregnant women. Specifically, as neighborhood residential instability increases, so too does experiencing intimate partner abuse among low-income, pregnant women (Li et al., 2010). On the other hand, there is evidence to conclude that residential instability is not a contributing factor of DV (Browning, 2002). Instead, residential instability decreased the odds of DV (Benson et al., 2003; Wright, 2011). A possible explanation for these findings is that areas of concentrated disadvantage may be relatively stable and have low population turnover because residents are unable to leave (Benson et al., 2003). There is little research examining residential instability and DV, and the findings that exist are inconclusive and warrant further research. The current study extends the literature examining residential instability as a measure of social disorganization and its effects on domestic offenses reported to police in the City of Chicago and Illinois counties.

The final measure of social disorganization that has been examined in domestic violence research is the concentration of immigrants within a neighborhood. It has been hypothesized that a greater concentration of immigrants within a neighborhood decreases communication, therefore, decreasing collective efficacy and, in turn, social ties between neighbors (Browning, 2002). However, Browning (2002) concluded that the concentration of immigrants within a neighborhood is not a significant predictor of intimate partner homicide. Further, Wright and Benson (2010) and Wright (2011) found that immigrant concentration within a neighborhood decreased rates of domestic violence. Wright and Benson (2010) hypothesized that the concentration of immigrants within a neighborhood functions as a type of protection against

intimate partner violence. The current study fills a gap in the social disorganization and DV research by extending the research examining the concentration of immigrants and domestic violence at the neighborhood-level.

Low collective efficacy may increase the risk for DV because neighbors are not socially connected with each other. If individuals are socially isolated from their neighbors, they may not intervene or call the police if family violence is suspected (Browning, 2002). Further, they may not even be aware it is occurring. Residential instability is tied to low collective efficacy in the case of DV. Specifically, neighborhoods that have a constant turnover of residents are not socially tied to one another, thereby, socially isolating residents and making it more difficult for others in the neighborhood to recognize DV. Racial and ethnic heterogeneity is another characteristic of social disorganization that may lead to an increased risk for DV. Diverse communities are likely to not see eye-to-eye on community issues; as a result, residents of these communities are lacking social ties with one another which may increase the risk for violence (Bursik & Grasmick, 1993). In addition, residents of diverse communities may not speak the same language which may hinder social ties and crime prevention efforts (Laurikkala, 2011; Sampson & Groves, 1989). There is a clear relationship between concentrated disadvantage and the risk for DV. Neighborhoods characterized by low socioeconomic status and low educational attainment are considered to be disorganized and, therefore, at an increased risk for DV.

Researchers studying domestic violence continue to examine the structural risk factors that characterize social disorganization which may increase the risk for DV and continue to find support for these characteristics. Structural characteristics such as collective efficacy, concentrated disadvantage, and residential instability are the primary factors researchers have focused on while examining DV. The current study extends the knowledge on this topic by

examining the effects of concentrated disadvantage, racial and ethnic heterogeneity, residential instability, and immigrant concentration on DV.

Limitations to the Current Literature

The literature reviewed above presents several limitations that the current study addresses. The primary limitations in the existing literature on social disorganization and DV are the measures of social disorganization, measures of domestic violence, units of analysis, and geographic areas examined.

Many researchers who have examined neighborhood-level social disorganization and DV have used the Project on Human Development in Chicago Neighborhoods (PHDCN) Community Survey (e.g., Browning, 2002; Emery et al., 2011; Jain et al., 2010; Wright, 2011; Wright & Benson, 2011). The PHDCN focused on how families, schools, and neighborhoods influence child and adolescent development by observing physical, social, and economic characteristics of Chicago neighborhoods (Earls, Raudenbush, Reiss & Sampson, 1995; Sampson et al., 1997; Sampson, 2012). The PHDCN contains data on 343 neighborhood clusters in the City of Chicago that originated from 847 census tracts. The PHDCN data are available for public use and may be downloaded from the Inter-university Consortium for Political and Social Research (ICPSR) website. Several researchers using these data have found support for many measures of social disorganization and its effects on domestic violence (e.g., Browning, 2002; Jain et al., 2010; Wright, 2011). However, not all researchers have found this support (e.g., Emery et al., 2011).

Other researchers have used census tracts as their unit of analysis to examine neighborhood-level social disorganization and DV (Benson et al., 2003; Cunradi, Caetano, Clark,

& Schafer, 2000; Li et al., 2000; Miles-Doan, 1998; Miles-Doan & Kelly, 1997; Van Wyk, Benson, Fox, & DeMaris, 2003). Many of these researchers who have used census tracts as their unit of analysis have also found support for the relationship between social disorganization and DV (Benson et al., 2003; Cunradi et al., 2000; Li et al., 2000; Miles-Doan, 1998; Miles-Doan & Kelly, 1997).

Researchers have also examined units of analysis other than census tracts. Rothman and her colleagues (2011) used Boston neighborhoods comprised of multiple census blocks in order to determine the effects of social disorganization on dating violence perpetration. In addition, some researchers have used police beats in their examination of neighborhood-level social disorganization and intimate partner abuse (Block & Skogan, 2002). Researchers examining social disorganization and DV have adopted many different units of analysis in their studies. This may help to explain why the results of this research are inconsistent. The current research will examine different units of analysis using the same data in order to determine the effects of levels of aggregation on the relationship between measures of social disorganization and domestic violence.

Another limitation to the existing research examining social disorganization and DV are the units of analysis and geographic areas examined in the study. Data examining factors of social disorganization and DV have been analyzed at a variety of different units of analysis. Pinchevsky and Wright (2012) note that the majority of studies examining social disorganization and DV have focused on large, urban areas, such as Chicago, however, researchers have not analyzed multiple units of analysis in an individual study in order to determine if the effects of social disorganization are different when using police data for different geographical units of analysis. The current research addresses this gap in the literature by including all 102 counties in

the State of Illinois, in addition to the City of Chicago, and thereby considers urban, suburban, and rural areas.

A final limitation to the current research examining social disorganization and DV concerns the measurement of DV. Researchers who have analyzed the PHDCN Community Survey use Straus' (1979) Conflict Tactics Scales (CTS) as their measure of DV. Straus' CTS is said to be one of the most reliable and widely used measures of physical abuse by a family member (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). However, the PHDCN analyzes only severe physical violence measured by the CTS. Other researchers not using the PHDCN have also used severe physical violence as their measure of DV (e.g., Li et al., 2010; Rothman et al., 2011), while some have used non-severe violence in their measures (e.g., Benson et al., 2003; Benson et al., 2004). By using these different definitions and ways of operationalizing domestic violence, other forms of family violence may be omitted from the analysis. This may potentially influence the effects of social disorganization on domestic violence. Pinchevsky and Wright (2012) note in their thorough review of the literature in this area that researchers should expand their definitions of abuse in future research to be broader and more inclusive of different types of abuse. The current research employs a broader definition of domestic violence by examining all domestic offenses that were reported in Chicago and each of the counties in Illinois and aims to capture a more accurate representation of the different forms of domestic violence.

Why Chicago and the State of Illinois?

The primary reason the City of Chicago and the State of Illinois were used in this study was because of the availability of crime data. The City of Chicago Data Portal publicly distributes data on criminal offenses that were reported to the Chicago Police Department from

2001 to present[2]. Confidentiality laws protecting victims of domestic violence and sexual assault in Florida prohibit the release of data at any unit of analysis smaller than zip code areas.

The City of Chicago Data Portal gives specific information on offenses, such as the time the offense was reported, the primary type of offense, whether the offense was a domestic offense, and the X-Y coordinates of the city block in which the offense occurred. All of this information is imperative to the current study. The time the offense was reported was needed in order to determine which offenses occurred in 2009. This study examines domestic offenses and violent offenses, therefore, the type of crime needed to be filtered in order to only include these types. Finally, the X-Y coordinates of the city blocks in which the offense occurred was needed so that the offenses could be aggregated to the census tract-level and neighborhood-level. Crime data were also available at the county-level from the Illinois Criminal Justice Information Authority (ICJIA). Data on the number of violent offenses and domestic offenses in each Illinois county were publicly available from the ICJIA website. The most recent year these data were available was 2009, therefore, all data used in this study are from 2009.

In addition to the accessibility of data, the other reason the State of Illinois was used in this research study is because it contributes to a gap in the research examining domestic violence and measures of social disorganization. Primarily, researchers examining domestic violence and social disorganization have focused on large, urban areas and neglected other types of geographies (Pinchevsky & Wright, 2012). The State of Illinois has urban, suburban, and rural counties which allowed this study to contribute research on different types of geographies in addition to an urban area.

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[2] "Present" refers to January of 2013, which was when this dissertation was written.

Research Questions

Based on the gaps in the current literature, there will be four research questions in this study. In essence, these research questions ask if measures of social disorganization that predict rates of domestic violence are different for different levels of aggregation. The first three research questions are:

1. *What characteristics of social disorganization are associated with domestic offenses in Chicago at the census tract-level?*

2. *What characteristics of social disorganization are associated with domestic offenses in Chicago at the neighborhood-level?*

3. *What characteristics of social disorganization are associated with domestic offenses in Illinois at the county-level?*

The goal of the fourth research question is to understand if there is a difference in what measures of social disorganization (concentrated disadvantage, residential instability, racial and ethnic heterogeneity, and immigrant concentration) are significantly associated with domestic violence at each of the units of analysis in this study.

4. *Is there a difference in what measures of social disorganization are associated with a greater number of domestic offenses across different units of analysis?*

CHAPTER FOUR: METHODOLOGY

The Present Study

This study contributes to the research focusing on social disorganization theory and domestic violence by examining domestic offenses reported to police in the State of Illinois. Specifically, this research will examine three units of analysis in order to examine the effects of measures of social disorganization on domestic violence in Chicago census tracts, Chicago neighborhoods, and counties in the State of Illinois. The City of Chicago and the State of Illinois were chosen as geographical areas in this study because of the availability of crime data at the census tract and county-level. Another advantage of using these geographic areas is that demographic data for Chicago census tracts and counties in Illinois could be obtained from the U.S. Census Bureau's American Community Survey. Lastly, many researchers have used the City of Chicago in their examinations of social disorganization theory and its applicability to different types of violent crime (e.g., Bellair, 1997; Browning et al., 2004; Jacob, 2006; Kposowa et al., 1995; Kubrin & Weitzer, 2003b; Martinez et al., 2008; Osgood & Chambers, 2000; Smith & Jarjoura, 1988); however, no research has been published examining social disorganization and domestic violence in Chicago census tracts, Chicago neighborhoods, and Illinois counties in the same study.

Hypotheses

Hypotheses are separated into three groups: census tract-level, neighborhood-level, and county-level.

Census tract-level hypotheses:

>*H1: Greater concentrated disadvantage is significantly associated with an increase in domestic offenses at the census tract-level.*

>*H2: Greater residential instability is significantly associated with an increase in domestic offenses at the census tract-level.*

>*H3: A greater concentration of immigrants is significantly associated with an increase in domestic offenses at the census tract-level.*

>*H4: Racial and ethnic heterogeneity is significantly associated with an increase in domestic offenses at the census tract-level.*

Neighborhood-level hypotheses:

>*H5: Greater concentrated disadvantage is significantly associated with an increase in domestic offenses at the neighborhood-level.*

>*H6: Greater residential instability is significantly associated with an increase in domestic offenses at the neighborhood-level.*

>*H7: A greater concentration of immigrants is significantly associated with an increase in domestic offenses at the neighborhood-level.*

>*H8: Racial and ethnic heterogeneity is significantly associated with an increase in domestic offenses at the neighborhood-level.*

County-level hypotheses:

>*H9: Greater concentrated disadvantage is significantly associated with an increase in domestic offenses at the county-level.*

>*H10: Greater residential instability is significantly associated with an increase in domestic offenses at the county-level.*

H11: A greater concentration of immigrants is significantly associated with an increase in domestic offenses at the county-level.

H12: Racial and ethnic heterogeneity is significantly associated with an increase in domestic offenses at the county-level.

<u>Data</u>

Data for this study were collected from a number of sources: the U.S. Census Bureau's American Community Survey (ACS), the Illinois Criminal Justice Information Authority (ICJIA), the City of Chicago Data Portal, the Illinois Coalition Against Domestic Violence, the Illinois State Police, and a website identifying the locations of military bases in the United States. Measures of social disorganization are from the U.S. Census Bureau's ACS 2005-2009 five year estimates (http://www.census.gov/acs/www/). The ACS five year estimates were the only option for collecting data on the variables of interest at the census tract-level (as opposed to the one year and three year estimates). Data on social disorganization measures were collected at the census tract and county-level. In order to get neighborhood-level measures of social disorganization, census tract data were aggregated[3]. County-level domestic offense data for 2009 were collected from the ICJIA on the 102 counties in the State of Illinois. The ICJIA receives their data from the Illinois State Police (http://www.icjia.org/public/sac/instantatlas/MainHTML/report_Counties_i28_2009.html). The City of Chicago Data Portal was used to obtain data on domestic offenses and violent crimes reported to the Chicago Police Department in 2009 (https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2). The portal data consists of crimes committed in

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[3] Chicago neighborhood boundaries are defined by the Office of Tourism.

Chicago that were reported to law enforcement from 2001 to present. These data were filtered in order to obtain only crimes committed in 2009. All data that were used in this research study are from 2009 because it is the most recent year of data available on the county-level domestic offenses from ICJIA. All crimes present in the Data Portal have been de-identified by City of Chicago personnel prior to public use. Addresses for each offense are at the block-level only, therefore, specific locations pertaining to the crime are not identified. All data that were used in this research study were publicly available online.

<u>Variables</u>

Dependent Variables

The dependent variable in this study is the domestic offense rate in 2009. The rate of violent crimes that occurred in 2009 in the City of Chicago and at the Illinois county-level is included as a comparison to the domestic offense rate. Rates were calculated per 1,000 people for the census tracts and neighborhood analyses. Rates were calculated per 100,000 people for the Illinois county analysis.

Domestic offense data were collected from the City of Chicago Data Portal for the census tract and neighborhood-level analyses. Data were filtered to contain only criminal offenses that occurred in 2009 and then filtered to include only offenses categorized as a "domestic" by law enforcement. The City of Chicago Police Department and the State of Illinois define domestic offenses as:

> *Domestic-related crimes are defined as crimes committed by family or household*
>
> *members, including spouses, former spouses, parents, children, stepchildren and other*
>
> *persons related by blood or marriage, persons who share or formerly shared a common*

30

dwelling, and persons who have or allegedly have a child in common. In the case of a

high-risk adult with disabilities, family or household member includes any person who

has the responsibility for a high-risk adult as a result of a family relationship or who has

assumed responsibility for all or a portion of the care of a high-risk adult with

disabilities voluntarily, or by express or implied contract, or court order.

(http://www.icjia.org/public/sac/instantatlas/MainHTML/report_Counties_i28_2009.htm

).

Violent crimes that occurred in Chicago and at the county-level in 2009 will be used as a

comparison in this study. These data are included in the analyses in order to compare the effects

of social disorganization between domestic offenses and violent offenses. Offenses that were

considered to be "domestic" were excluded from the count of violent crimes. In this study,

violent crime is defined by the Federal Bureau of Investigation's (FBI) definition:

> *In the FBI's Uniform Crime Reporting (UCR) Program, violent crime is composed of*
>
> *four offenses: murder and nonnegligent manslaughter, forcible rape, robbery, and*
>
> *aggravated assault. Violent crimes are defined in the UCR Program as those offenses*
>
> *which involve force or threat of force* (Federal Bureau of Investigation [FBI], 2011).

Data from the ICJIA for violent offenses at the county-level were collected based on the FBI's

definition; therefore, counts of violent offenses that occurred in each Illinois county in 2009 were

available. Data for the census tract and neighborhood-level analyses for Chicago were collected

from the City of Chicago Data Portal. Data were filtered first to obtain only the offenses that

occurred in 2009 and then filtered to obtain only the offenses considered to be violent crimes as

defined by the FBI.

Independent Variables

Independent variables in this study are characteristics of social disorganization including concentrated disadvantage, immigrant concentration, residential instability, and racial and ethnic heterogeneity. Data for these measures are from the U.S. Census Bureau's American Community Survey (ACS) 2005-2009 five year estimates. More recent ACS data will not be used because the data for the dependent variables, the domestic offense rate and violent offense rate, are from 2009.

Concentrated disadvantage was measured by combining five variables into a scale: percent on cash public assistance, percent of individuals living below the poverty line, percent unemployed, percent female headed households, and percent of the population under 18 (census tract Cronbach's alpha = 0.81; neighborhoods = 0.86; county = 0.66). Data for each of these variables were collected for census tracts in Chicago and each county in Illinois. Each of these variables was transformed into a Z-score and then all values were summed together.

A similar measure was developed by Earls, Raudenbush, Reiss, and Sampson and utilized in their Project on Human Development in Chicago Neighborhoods (PHDCN) Community Survey (Sampson, Raudenbush & Earls, 1997; Sampson, 2012). The PHDCN version included percent on cash public assistance, percent of individuals living below the poverty line, percent unemployed, percent female headed households, percent of the population under 18, and percent of African Americans (Sampson, Raudenbush & Earls, 1997; Sampson, 2012). The current study did not include the percent of African Americans in the measure of concentrated disadvantage because it assumes that African Americans as a race are inherently poor and disadvantaged. There are African American neighborhoods in Chicago that are disadvantaged;

however, there are many African American neighborhoods in which the majority of residents are middle or upper-middle class. Examples of these neighborhoods include Avalon Park (98% African American), Chatham (97%), Jackson Park Highlands (93%), Kenwood (75%), and Morgan Park (69%).

Immigrant concentration was measured by the percent of the population that is foreign born and percent of the population that is Hispanic (census tract Cronbach's alpha = 0.78; neighborhoods = 0.73; county = 0.92). Values for these variables were transformed into Z-scores and summed to create a measure of immigrant concentration.

Residential stability was measured by the percentage of owner-occupied housing units and the percentage of individuals that have lived in the same house for the past year. The Cronbach's alpha reliability coefficient for this measure at the census tract-level was low at 0.39; indicating that the variables don't fit well together. Therefore, these variables will be included in the census tract-level analysis as two separate variables measuring residential stability. For the neighborhood-level analysis, the Cronbach's alpha was 0.59 and for the county-level analysis it was 0.80; therefore, for these two units of analysis the values were transformed into Z-scores and summed into a single measure of residential stability. Typically, measures of residential stability include the percentage of individuals that have lived in the same house for the past five years (e.g., Sampson, Raudenbush & Earls, 1997; Wright & Benson, 2010). However, the U.S. Census Bureau's American Community Survey now uses residence for the past one year to measure residential mobility of the population (http://quickfacts.census.gov/qfd/meta/long_POP715210.htm). The use of a one year measure of residential mobility was deemed appropriate because 83 percent of Chicagoans have lived in the same residence for the past year or more from the years 2006-2010

(); indicating that the majority of

Chicago residents are not that mobile and therefore, exhibit some sort of residential stability.

Racial and ethnic heterogeneity is the final characteristic of social disorganization that

was measured in this study. A racial heterogeneity measure was created for each Chicago census

tract, Chicago neighborhood, and Illinois counties by using the proportions of whites, African

Americans, American Indian/Alaska Native, Asian, Hawaiian/other Pacific Islander, and other

races. Each proportion was squared, summed, and then subtracted from one to create a fraction

which represents the heterogeneity of race in the census tract, neighborhood, or county (Osgood

& Chambers, 2000). The equation used to calculate this measure is as follows (Osgood &

Chambers, 2000):

$$(1 - (\sum p_i^2).$$

Control Variables

Seven control variables will be included in the county-level analyses: whether there were

domestic violence resources or programs within the county, whether there was a military base in

the county, rurality, firearm availability and prevalence, population density, total population, and

the percent of vacant housing units. Total population, population density, and the percent of

vacant housing units will be included in the Chicago census tract, Chicago neighborhood, and

Illinois county analyses.

A dummy variable indicating whether or not there are domestic violence resources or

programs in each county will be included as a control in the county-level analysis. Data for this

variable was retrieved from the Illinois Coalition Against Domestic Violence website. A dummy

variable measuring whether or not there is a military base in each county will be included as a control variable in the county-level analysis. Data for this variable was retrieved from militarybases.com, a website identifying the locations of military bases in the United States. The measure of rurality used in this study was consistent with other studies examining urban and rural violence (Hunnicutt, 2007; Lanier & Maume, 2009). Counties were considered rural if their total population was less than 20,000 and urban if their total population was greater than 20,000. In addition, a proxy variable measuring firearm availability and prevalence will be also used as a control variable in the county-level analysis. This proxy variable was measured by including the number of registered firearm owners, or number of FOID (Firearm Owners Identification) cards, in each Illinois county in 2009. Data for this control variable was obtained from the Illinois State Police.

Population density is included to determine the average number of people per square mile in Chicago census tracts, Chicago neighborhoods, and Illinois counties. Total population is included as a control variable in the Chicago census tract analysis, Chicago neighborhood analysis, and Illinois county analysis. The percent of vacant housing units in Chicago census tracts, Chicago neighborhoods, and Illinois counties is included as a housing density measure. This measure used because census tracts or neighborhoods in Chicago and counties in Illinois would be considered less dense if they had a greater percentage of vacant housing units and more dense if they had a lower percentage of vacant housing units.

Analytic Plan

Descriptive statistics are presented for all of the variables of interest. Pearson's correlations were conducted between each of the independent and control variables and the

35

dependent variables. Preliminary multivariate analyses indicated that the variance of the dependent variables were larger than the mean, indicating overdispersion, which is a violation of the Poisson regression. Therefore, negative binomial regression was chosen rather than Poisson regression in order to examine the relationships between the independent and control variables and the dependent variables. The consequences of selecting Poisson regression over negative binomial regression when overdispersion exists include incorrect significance tests for the coefficients (Osgood, 2000).

Twelve multivariate models were estimated. Four models were estimated for each unit of analysis: Chicago census tracts, Chicago neighborhoods, and Illinois counties. For each unit of analysis, one model includes domestic offenses and the independent variables and one model includes domestic offenses and the independent and control variables. The third model includes violent offenses and the independent variables and the final model includes violent offenses and the independent and control variables. All twelve models include the composite measures of social disorganization and not the individual variables that make up the composite measures. The Chicago census tract analysis includes the two variables that make up the residential stability measure instead of the composite measure based on the Cronbach's alpha reliability test. Table 1 presents an overview of what variables are included in the multivariate analyses for Chicago census tracts, Chicago neighborhoods, and Illinois counties.

Prior to any statistical analysis, analyses using the geographic information systems (GIS) program ArcGIS 10 were conducted. First, a map of Cook County, Illinois (Chicago resides in Cook County) census tracts was joined with a map of the city boundaries of Chicago. The purpose of this was to determine which census tracts are in the City of Chicago. Second, a map of Chicago neighborhoods was joined with a map of Chicago census tracts in order to aggregate

36

the census tract-level data to the neighborhood-level. This was used to determine the neighborhood-level effects of social disorganization on domestic violence and violent crime. ArcGIS was also used in this research study to provide visual representations of the geographic areas used and to examine spatial autocorrelation (see Chapter Eight).

Table 1

Overview of Independent and Control Variables Included in the Chicago Census Tracts, Chicago Neighborhoods, and Illinois Counties Multivariate Analyses

	Chicago Census Tracts	Chicago Neighborhoods	Illinois Counties
Independent Variables (Social Disorganization Measures)			
Concentrated Disadvantage Measure	X	X	X
Immigrant Concentration Measure	X	X	X
Residential Stability Measure		X	X
% of Owner Occupied Housing Units	X		
% Same House for the Past Year	X		
Racial and Ethnic Heterogeneity	X	X	X
Control Variables			
% of Vacant Housing Units	X	X	X
Population Density			
Total Population (Exposure Variable)	X	X	X
DV Resources/Programs			X
Military Base			X
Firearm Owners			X
Rurality			X

CHAPTER FIVE: CHICAGO CENSUS TRACT RESULTS

Census variables and crime statistics were collected for each census tract in Chicago (N = 877). Census tracts within the City of Chicago boundary were determined by the U.S. Census Bureau. After a thorough investigation and preliminary analysis of each of the Chicago census tracts, it was determined that 27 census tracts must be deleted prior to the analysis. The majority of these tracts (17 of 27) had no Census data. It was determined that these tracts are Lake Michigan, airports, parks, and other areas within the Chicago City limits that do not have residents. Because there are no Census data for these tracts, it cannot be determined if they are socially disorganized and, therefore, they must be omitted from the analysis.[4]

Eight tracts only have Census data on the housing variables needed for this study (percent same house for the past year and percent of owner-occupied housing units) but no other variables of interest. Based on the data downloaded from the U.S. Census Bureau's website, it can be concluded that *part* of these eight specific tracts are in *part* of Chicago City. However, it cannot be determined if the part of the tract that the data are representing is in the City of Chicago. As a result of this and the fact that there are no economic or social measures available to determine if the tract is socially disorganized, these eight tracts will also be omitted from the analysis.[5]

Finally, two census tracts (2208 and 3111) were dropped because they were extreme outliers. Census tract 2208 is located in the northern part of Chicago and had a total population of 20 people in 2009. Census tract 2208 had a domestic offense rate of 5,000 per 1,000 people and a violent offense rate of 2,700 per 1,000 people. Census tract 3111 is located in central Chicago and had a total population of 9 people in 2009. Census tract 3111 had a domestic

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[4] These 17 tracts are: 7609, 5613, 6402, 5612, 2927, 2904, 3806, 4405, 2834, 3817, 2314, 3505, 3816, 2901, 5810, 3115, and 0.
[5] These 8 tracts are: 7706, 8056, 8116, 7707, 7705, 8081, 7708, and 8233.04.

offense rate of 3,222 per 1,000 people and a violent offense rate of 2,889 per 1,000 people.

Negative binomial regressions were estimated with and without these two outliers (census tracts 2208 and 3111) in order to determine if they influenced the analyses. In three of four models, there were differences in what measures of social disorganization were significantly associated with domestic and violent offenses. The only model in which there were no differences in whether these two census tracts were included was the domestic offense model including only the measures of social disorganization (Table 4). Therefore, these tracts were omitted from all census tract analyses and the final number of Chicago census tracts included was 850.

<u>Descriptive Statistics for Chicago Census Tracts</u>

Table 2 presents the descriptive statistics for the dependent, independent, and control variables in Chicago census tracts (N = 850). Chicago census tracts had a mean population of 3,327 (S.D. = 2,523.91) and 17,233 people per square mile (S.D. = 11,399.43). On average, the percent of vacant housing units in Chicago census tracts in 2009 was 14.5 (S.D. = 10.81). On average, the rate of domestic offenses in Chicago census tracts was 121 per 1,000 people (S.D. = 224.68) and the rate of violent offenses was 58 per 1,000 people (S.D. = 129.26). Census tract 8214.02 had the lowest rate of domestic offenses reported to the Chicago Police Department in 2009 with one per 1,000 people; census tract 8214.02 is in the southwestern corner of the city. Census tract 806 had the highest rate of domestic offenses reported to police in 2009 with 4,182 per 1,000 people; this census tract is in the central portion of the city. Census tracts 7608, 1201, and 901 had the lowest rate of violent offenses with zero per 1,000 people. All three of these census tracts are located in the northern part of the city. Census tract 806 in the central portion

of the city had the highest rate of violent offenses reported to the Chicago Police Department with 2,636 per 1,000 people.

The concentrated disadvantage scale ranged from -1.37 (concentrated advantage) to 3.93 (concentrated disadvantage). On average, Chicago census tracts had a value of 0.01 on the concentrated disadvantage scale (S.D. = 0.77). In 2009, the average percentage of individuals on cash public assistance in Chicago census tracts was about four percent (S.D. = 5.25) while 21 percent were living below the poverty line (S.D. = 15.70). More than one in five households was headed by a female (21.73%; S.D. = 16.73) and 13 percent of the population was unemployed (S.D. = 10.33). On average, 24 percent of the population in Chicago census tracts was under 18 years old (S.D. = 10.37).

The immigrant concentration scale ranged from -0.92 (low immigrant concentration) to 3.79 (high immigrant concentration) with an average per tract of 0.001 (S.D. = 0.93). On average, Chicago census tracts were 17 percent foreign born (S.D. = 16.75) and 23 percent Hispanic (S.D. = 28.97).

Residential stability was measured by two variables: percent of housing units that are owner-occupied and percent of the population that has remained in the same residence for the past year. On average, 47 percent of housing units were owner-occupied (S.D. = 21.87) and the majority of the population had remained in the same house for the past year (82.53%; S.D. = 11.08).

The measure of racial and ethnic heterogeneity ranged from zero (racially and ethnically homogeneous) to 0.75 (racially and ethnically heterogeneous) with an average per Chicago census tract of 0.33 (S.D. = 0.23). On average, Chicago census tracts were approximately 39 percent White (S.D. = 32.74), 41 percent African American (S.D. = 42.28), five percent Asian

(S.D. = 9.33), less than one percent American Indian or Alaska Native (S.D. = 2.05), less than one percent Hawaiian or other Pacific Islander (S.D. = 0.44), and 14 percent was another race (S.D. = 19.32).

Table 2

Descriptive Statistics for Chicago Census Tracts, 2009, N = 850

	Mean	S.D.	Minimum	Maximum
Dependent Variables				
Domestic Offense Rate (per 1,000)	121.36	224.68	1	4182
Violent Offense Rate (per 1,000)	57.91	129.26	0	2636
Independent Variables				
Concentrated Disadvantage Composite				
Measure	.01	.77	-1.37	3.93
% on Cash Public Assistance	4.13	5.25	0	48
% of Individuals Below Poverty	20.69	15.70	0	100
% Unemployed	12.61	10.33	0	67
% Female Headed Households	21.73	16.73	0	100
% of the Population Under 18	24.29	10.37	0	68
Immigrant Concentration Composite				
Measure	.001	.93	-.92	3.79
% Foreign Born	17.24	16.75	0	100
% Hispanic	23.40	28.97	0	100
Residential Stability				
% of Owner-Occupied Housing Units	46.89	21.87	0	100
% in Same House 1 Year	82.53	11.08	11	100
Racial and Ethnic Heterogeneity				
Composite Measure	.33	.23	0	.75
% White	38.53	32.74	0	100
% African American	41.03	42.28	0	100
% American Indian/Alaska Native	.31	2.05	0	50
% Asian	4.62	9.33	0	89
% Hawaiian/Other Pacific Islander	.04	.44	0	10
% Other Race	13.91	19.32	0	100
Control Variables				
Total Population	3326.51	2523.91	18	15073
Population Density	17232.92	11399.43	15	84156
% Vacant Housing Units	14.53	10.81	0	90

Bivariate Analyses for Chicago Census Tracts

Bivariate analyses were conducted for each of the independent and control variables with the rate of domestic offenses. These results are presented in Table 3. The domestic offense rate was significantly correlated with all three of the control variables: total population, population density, and percent of vacant housing units. As the total population of a Chicago census tract increased, the rate of domestic offenses decreased ($r=-.354$, $p<.001$). As the population density increased, the rate of domestic offenses decreased ($r=-.282$, $p<.001$). As the percentage of vacant housing units in a Chicago census tract increased, the rate of domestic offenses increased ($r=.209$, $p<.001$).

There was a weak positive correlation between the concentrated disadvantage composite measure and the domestic offense rate ($r=.203$, $p<.001$). As a census tract becomes more disadvantaged there was an increase in the rate of domestic offenses. There were weak positive correlations between all of the individual variables included in the concentrated disadvantage measure and the rate of domestic offenses: percent of individuals receiving cash public assistance ($r=.098$, $p<.01$), percent of individuals below the poverty line ($r=.215$, $p<.001$), percent unemployed ($r=.164$, $p<.001$), percent of female headed households ($r=.224$, $p<.001$), and percent of the population under the age of 18 ($r=.068$, $p<.05$). As each of these measures of disadvantage increased, the rate of domestic offenses in Chicago census tracts increased as well.

There was a negative correlation between the concentration of immigrants in Chicago census tracts and the rate of domestic offenses ($r=-.165$, $p<.001$), indicating that the rate of domestic offenses was lower in census tracts that had a greater concentration of immigrants. There were also negative correlations between the two variables that comprise the immigrant

concentration measure and the rate of domestic offenses. As the percent of foreign born individuals in a census tract increased, the rate of domestic offenses decreased (r=-.202, p<.001). Furthermore, as the percentage of Hispanics in Chicago census tracts increased, the rate of domestic offenses decreased (r=-.106, p<.01).

There was a negative correlation between one of the measures of residential stability and the rate of domestic offenses in Chicago census tracts. As the percentage of owner-occupied housing units increased, the rate of domestic offenses in Chicago census tracts decreased (r=-.208, p<.001).

There was a negative correlation between the racial and ethnic heterogeneity composite measure and the rate of domestic offenses in Chicago census tracts (r=-.212, p<.001). As Chicago census tracts became more racially and ethnically heterogeneous the rate of domestic offenses decreased. As the percentages of Whites (r=-.273, p<.001), Asians (r=-.139, p<.001), and other races (r=-.123, p<.001) increased, the rate of domestic offenses within Chicago census tracts decreased. However, as the percentage of African Americans, (r=.273, p<.001) American Indian or Alaska Natives, (r=.623, p<.001) and Hawaiians or other Pacific Islanders (r=.092, p<.01) increased so too does the rate of domestic offenses.

Correlations were conducted for each of the independent and control variables with the rate of violent offenses in Chicago census tracts. These correlations were conducted in order to compare the significant relationships between the independent variables and domestic offense rate with the significant relationships between the independent variables and violent offense rate. Table 3 shows that there were differences in the relationships in the measures of social disorganization between the rates of domestic and violent offenses. The percent of individuals receiving cash public assistance and the percent of the population under the age of 18 were

significantly correlated with the domestic offense rate but not the violent offense rate.

Furthermore, the percentage of Hispanics in Chicago census tracts was correlated with the

domestic offense rate but not the violent offense rate. The percent of Hawaiian or other Pacific

Islander was not significantly correlated with the rate of violent offenses.

Table 3

Correlations between the Independent Variables and Control Variables and Domestic and Violent Offense Rates for Chicago Census Tracts, 2009, N = 850

	Domestic Offense Rate	Violent Offense Rate
Independent Variables		
Concentrated Disadvantage Composite Measure	0.203***	0.120***
% on Cash Public Assistance	0.098**	0.043
% of Individuals Below Poverty	0.215***	0.170***
% Unemployed	0.164***	0.125***
% Female Headed Households	0.224***	0.129***
% of the Population Under 18	0.068*	-0.027
Immigrant Concentration Composite Measure	-0.165***	-0.121***
% Foreign Born	-0.202***	-0.161***
% Hispanic	-0.106**	-0.067
Residential Stability		
% of Owner-Occupied Housing Units	-0.208***	-0.183***
% in Same House 1 Year	0.030	0.012
Racial and Ethnic Heterogeneity Composite Measure	-0.212***	-0.153***
% White	-0.273***	-0.186***
% African American	0.273***	0.169***
% American Indian/Alaska Native	0.623***	0.640***
% Asian	-0.139***	-0.094**
% Hawaiian/Other Pacific Islander	0.092**	0.051
% Other Race	-0.123***	-0.072*
Control Variables		
Total Population	-0.354***	-0.308***
Population Density	-0.282***	-0.248***
% Vacant Housing Units	0.209***	0.144***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Prior to this analysis, a check for multicollinearity was conducted with each of the variables that make up the concentrated disadvantage measure, the residential stability measure, and the immigrant concentration measure. Variance Inflation Factors (VIF) for all variables except for the percent of female headed households were between 1.31 and 2.69. The VIF for percent of female headed households was 3.07, however, it was combined with four other variables measuring concentrated disadvantage and it can be assumed that these types of variables may be related. Tolerance levels for all other variables were between 0.37 and 0.76; the tolerance level for percent of female headed households was 0.33.

It is common for Poisson regression and negative binomial regression models to incorporate an offset, or exposure, variable into the equation. Osgood (2000) notes that adding the natural logarithm of the population as an offset variable allows the researcher to interpret the results of the regression as "rates of events" rather than as a count (p. 27). With respect to this research, the total population of Chicago census tracts was added as an offset variable in the negative binomial regression models. It must be noted that because an offset variable for total population was included in each of the models, population density was not included as a control variable. Instead of population density, the percent of vacant housing units was used as a control variable to measure density.

Table 4 presents the results of a negative binomial regression with the independent variables and domestic offenses in Chicago census tracts.[6] The significant chi-square statistic for Table 4 shows that the variables fit the model better than no variables in the model at all (LR

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[6] N = 849 in Chicago census tract multivariate analyses because one census tract (2841) did not have data on the percent of the population that was unemployed. Therefore, the concentrated disadvantage variable was not computed and as a result of listwise deletion, the case was dropped.

chi^2=204.96, p<.001). This model included all characteristics that measure social

disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability,

and immigrant concentration. As Chicago census tracts became more racially and ethnically

heterogeneous, the rate of domestic offenses would be expected to decrease by a factor of 0.493,

holding all other independent variables in the model constant (p<.001). As disadvantage in

Chicago census tracts increased by one point, the rate of domestic offenses would be expected to

increase by a factor of 1.280, holding all other independent variables in the model constant

(p<.001). As the percentage of owner-occupied housing units increased by one point, the rate of

domestic offenses would be expected to decrease by a factor of 0.992, holding all other variables

in the model constant (p<.001). As the concentration of immigrants in Chicago census tracts

increased by one point, the rate of domestic offenses would be expected to decrease by a factor

of 0.854, holding all other independent variables in the model constant (p<.001). The percentage

of residents who lived in the same house for the past year, a measure of residential stability, was

not a significant predictor of the rate of domestic offenses in this model.

Table 4

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures in Chicago Census Tracts, 2009, N = 849

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-0.707	0.493 (0.087)***
Concentrated Disadvantage	0.247	1.280 (0.060)***
Residential Stability		
Owner-occupied housing units	-0.008	0.992 (0.001)***
Same house 1 year	-0.0002	0.999 (0.003)
Immigrant Concentration	-0.157	0.854 (0.035)***
Log of Total Population (exposure variable)	1	1
Constant	-1.670	0.188 (0.044)
LR Chi^2	204.96***	
Pseudo R^2	0.018	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5 presents a negative binomial regression with the independent and control variables and domestic offenses in Chicago census tracts. The significant chi-square statistic for the model indicates that the variables fit the model better than no variables in the model at all (LR chi^2=263.00, p<.001). This model included all the independent variables that measure social disorganization and the percent of vacant housing units as a control variable. As the percentage of vacant housing units increased by one point, the rate of domestic offenses would be expected to increase by a factor of 1.022, holding all other variables in the model constant (p<.001). As Chicago census tracts became more racially and ethnically heterogeneous, the rate of domestic offenses would be expected to decrease by a factor of 0.505, holding all other independent variables in the model constant (p<.001). As concentrated disadvantage within Chicago census tracts increased, the rate of domestic offenses would be expected to increase by a factor of 1.209, holding all other independent variables in the model constant (p<.001). As the percentage of owner-occupied housing units increased by one point, the rate of domestic offenses would be expected to decrease by a factor of 0.993, holding all other variables in the model constant (p<.001). As the concentration of immigrant in Chicago census tracts increased, the rate of domestic offenses would be expected to decrease by a factor of 0.883, holding all other independent variables in the model constant (p<.01). The percent of residents that had been in the same house for the past year was not a significant predictor of the rate of domestic offenses in this model.

Table 5

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures and Control Variable in Chicago Census Tracts, 2009, N = 849

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-0.683	0.505 (0.087)***
Concentrated Disadvantage	0.190	1.209 (0.056)***
Residential Stability		
Owner-occupied housing units	-0.007	0.993 (0.001)***
Same house 1 year	0.004	1.004 (0.003)
Immigrant Concentration	-0.124	0.883 (0.035)**
Log of Total Population (exposure variable)	1	1
Control Variable		
Percent of Vacant Housing Units	0.021	1.022 (0.003)***
Constant	-2.451	0.086 (0.021)
LR Chi^2	263.00***	
Pseudo R^2	0.023	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6 presents the results of a negative binomial regression with the independent variables and violent offenses in Chicago census tracts. Violent offenses were included in order to compare the effects of social disorganization between domestic and violent offenses in Chicago census tracts. The significant chi-square statistic for Table 6 shows that the variables fit the model better than no variables in the model at all (LR chi^2=176.36, p<.001). This model included characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. As Chicago census tracts become more disadvantaged, the rate of violent offenses would be expected to increase by a factor of 1.223, holding all other independent variables in the model constant (p<.001). As the percentage of owner-occupied housing units increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.991, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago census tracts increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.795, holding all other independent variables in the model constant (p<.001). Comparable to the negative binomial regression predicting domestic offenses, the percentage of residents who lived in the same house for the past year, a measure of residential stability, was not a significant predictor of the rate of violent offenses in this model. Racial and ethnic heterogeneity was also not a predictor of the rate of violent offenses in this model.

Table 6

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures in Chicago Census Tracts, 2009, N = 849

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-0.382	0.682 (0.135)
Concentrated Disadvantage	0.201	1.223 (0.059)***
Residential Stability		
Owner-occupied housing units	-0.009	0.991 (0.002)***
Same house 1 year	-0.005	0.995 (0.003)
Immigrant Concentration	-0.230	0.795 (0.037)***
Log of Total Population (exposure variable)	1	1
Constant	-2.135	0.118 (0.027)
LR Chi^2	176.36***	
Pseudo R^2	0.018	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7 presents the results of a negative binomial regression with the independent and control variables and violent offenses in Chicago census tracts. The significant chi-square statistic for Table 7 shows that the variables fit the model better than no variables in the model at all (LR chi^2=229.52, p<.001). This model included characteristics that measure social disorganization and the percent of vacant housing units as a control variable. As the percentage of vacant housing units in Chicago census tracts increased by one point, the rate of violent offenses would be expected to increase by a factor of 1.021, holding all other variables in the model constant (p<.001). As Chicago census tracts became more disadvantaged, the rate of violent offenses would be expected to increase by a factor of 1.155, holding all other independent variables in the model constant (p<.01). As the percentage of owner-occupied housing units increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.993, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago census tracts increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.802, holding all other independent variables in the model constant (p<.001). Racial and ethnic heterogeneity and the percentage of residents living in the same house for the past year were not significant predictors of the rate of violent offenses in this model.

In conclusion, racial and ethnic heterogeneity, concentrated disadvantage, the percentage of owner occupied housing units, and immigrant concentration were significantly associated with domestic offenses in Chicago census tracts. Racial and ethnic heterogeneity, the percentage of owner occupied housing units, and immigrant concentration significantly decreased the rate of domestic offenses while concentrated disadvantage significantly increased the rate of domestic offenses. When the control variable was included into the model, racial and ethnic

heterogeneity, concentrated disadvantage, the percentage of owner occupied housing units, and immigrant concentration were significantly associated with domestic offenses. Racial and ethnic heterogeneity, the percentage of owner occupied housing units, and immigrant concentration significantly decreased the rate of domestic offenses while concentrated disadvantage and the percentage of residents in the same house for the past year significantly increased the rate of domestic offenses. Concentrated disadvantage significantly increased the rate of violent offenses in Chicago census tracts while the percentage of owner occupied housing units, and immigrant concentration significantly decreased the rate of violent offenses in Chicago census tracts. When the control variable was included into the model, these three variables remained significantly associated with violent offenses.

Table 7

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures and Control Variable in Chicago Census Tracts, 2009, N = 849

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-0.316	0.729 (0.141)
Concentrated Disadvantage	0.144	1.155 (0.055)**
Residential Stability		
Owner-occupied housing units	-0.008	0.993 (0.001)***
Same house 1 year	-0.001	0.999 (0.003)
Immigrant Concentration	-0.220	0.802 (0.037)***
Log of Total Population (exposure variable)	1	1
Control Variable		
Percent of Vacant Housing Units	0.021	1.021 (0.003)***
Constant	-2.841	0.058 (0.014)
LR Chi^2	229.52***	
Pseudo R^2	0.023	

* $p < .05$. ** $p < .01$. *** $p < .001$.

CHAPTER SIX: CHICAGO NEIGHBORHOOD RESULTS

Descriptive Statistics for Chicago Neighborhoods

Data measuring the characteristics of socially disorganized areas and domestic and violent crimes that occurred in Chicago in 2009 were aggregated to the Chicago neighborhood level (N = 228). Table 8 presents the descriptive statistics for the dependent, independent, and control variables for Chicago neighborhoods. Chicago neighborhoods had a mean population of 30,521 (S.D. = 26,281.51) and 15,040 people per square mile (S.D. = 8,658.27). In 2009, an average of 12 percent of housing units in Chicago neighborhoods were vacant (S.D. = 7.45). On average, the rate of domestic offenses in Chicago neighborhoods was 54 per 1,000 people (S.D. = 53.31) while the rate of violent offenses in Chicago neighborhoods was 25 per 1,000 people (S.D. = 22.99). Two neighborhoods in Chicago had the lowest rate of domestic offenses reported to the Chicago Police Department in 2009 (3.53 per 1,000 people): Old Edgebrook and Wildwood. Both of these neighborhoods are in the northern part of the city. The Fifth City neighborhood (central Chicago) reported the highest rate of domestic offenses in 2009 with 308 per 1,000 people. Old Edgebrook and Wildwood also reported the lowest rate of violent offenses in with less than one per 1,000 people. Fifth City also reported the highest rate of violent offenses in 2009 with 143 per 1,000 people.

The concentrated disadvantage scale ranged from -1.37 (concentrated advantage) to 2.70 (concentrated disadvantage) with a mean value of zero (S.D. = 0.86). On average, about three percent of the population of Chicago neighborhoods were on cash public assistance in 2009 (S.D. = 2.50) and approximately 17 percent were living below the poverty line (S.D. = 11.42). In 2009, about 11 percent of the population in a Chicago neighborhood was unemployed (S.D. =

6.46) and 18 percent of households were headed by a female (S.D. = 12.10). Less than one quarter of the population was under 18 years old in Chicago neighborhoods in 2009 (22.53%; S.D. = 7.26).

The immigrant concentration measure ranged from -1.13 (low concentration of immigrants) to 2.43 (high concentration of immigrants) in Chicago neighborhoods. The immigrant concentration measure had a mean of zero (S.D. = 0.91). In 2009, 17 percent of the population of Chicago neighborhoods were foreign born (S.D. = 12.95) and 19 percent were Hispanic (S.D. = 20.36), on average.

The residential stability measure ranged from -1.70 (residential instability) to 1.93 (residential stability) with a mean of zero (S.D. = 0.91). In 2009, more than half of the housing units in Chicago neighborhoods were owner-occupied (53.94%; S.D. = 19.50). The majority of the population had lived in the same residence for the past year (83.32%; S.D. = 7.24).

The racial and ethnic heterogeneity measure ranged from zero (racially and ethnically homogeneous) to 0.75 (racially and ethnically heterogeneous). The mean for the racial and ethnic heterogeneity measure in Chicago neighborhoods was 0.39 (S.D. = 0.20). On average, approximately 46 percent of a Chicago neighborhood was White (S.D. = 30.78), 36 percent was African American (S.D. = 36.98), and less than one percent were American Indian or Alaska Native (S.D. = 0.53). In 2009, about six percent of a Chicago neighborhood was Asian (S.D. = 7.64), less than one percent were Hawaiian or other Pacific Islander (S.D. = 0.25), and 11 percent were another race (S.D. = 13.96).

Table 8

Descriptive Statistics for Chicago Neighborhoods, 2009, N = 228

	Mean	S.D.	Minimum	Maximum
Dependent Variables				
Domestic Offense Rate (per 1,000)	53.63	53.31	3.53	308.19
Violent Offense Rate (per 1,000)	25.38	22.99	0.21	142.65
Independent Variables				
Concentrated Disadvantage Composite				
Measure	0	0.86	-1.37	2.70
% on Cash Public Assistance	3.32	2.50	0	13
% of Individuals Below Poverty	16.98	11.42	0.66	58.87
% Unemployed	11.25	6.46	2.83	39.5
% Female Headed Households	18.49	12.10	1.55	54
% of the Population Under 18	22.53	7.26	4.13	41
Immigrant Concentration Composite				
Measure	0	0.91	-1.13	2.43
% Foreign Born	17.33	12.95	0	62.5
% Hispanic	18.77	20.36	0	79.4
Residential Stability Composite Measure	0	0.91	-1.70	1.93
% of Owner-Occupied Housing Units	53.94	19.50	9	100
% in Same House 1 Year	83.32	7.24	62.33	96.67
Racial and Ethnic Heterogeneity				
Composite Measure	0.39	0.20	0	0.75
% White	45.55	30.78	0	95
% African American	35.72	36.98	0	100
% American Indian/Alaska Native	0.27	0.53	0	4.64
% Asian	5.55	7.64	0	77.33
% Hawaiian/Other Pacific Islander	0.06	0.25	0	2
% Other Race	11.23	13.96	0	53
Control Variables				
Total Population	30520.72	26281.51	1673	173489
Population Density	15040.40	8658.27	1452.33	54125.38
% of Vacant Housing Units	12.39	7.45	0.60	44.90

<u>Bivariate Analysis for Chicago Neighborhoods</u>

Bivariate analyses were conducted for each of the independent and control variables with the rate of domestic offenses. The results of these analyses are presented in Table 9. Two of the control variables were significantly correlated with the domestic offense rate at the neighborhood-level: population density and the percent of vacant housing units. As the population density of Chicago neighborhoods increased, the rate of domestic offenses decreased ($r=-.179$, $p<.01$). As the percent of vacant housing units in Chicago neighborhoods increased, the rate of domestic offenses increased ($r=.531$, $p<.001$).

There was a strong positive correlation between the concentrated disadvantage composite measure and the rate of domestic offenses at the Chicago neighborhood-level. As a neighborhood became more disadvantaged, the rate of domestic offenses increased ($r=.738$, $p<.001$). There were also positive correlations between each of the individual variables that make up the concentrated disadvantage composite measure and the rate of domestic offenses at the neighborhood-level. Specifically, as the percent of individuals on cash public assistance increased, the rate of domestic offenses increased ($r=.712$, $p<.001$). As the percentage of individuals living below the poverty line increased, the rate of domestic offenses increased at the neighborhood-level ($r=.686$, $p<.001$). As the percentage of individuals that were unemployed increased, the rate of domestic offenses increased ($r=.619$, $p<.001$). As the percentage of female headed households in Chicago neighborhoods increased, the rate of domestic offenses increased ($r=.749$, $p<.001$). As the percentage of the population younger than 18 increased, the rate of domestic offenses at the neighborhood-level increased ($r=.393$, $p<.001$).

The immigrant concentration composite measure was also significantly correlated with the rate of domestic offenses in Chicago neighborhoods. As immigrant concentration within Chicago neighborhoods increased, the rate of domestic offenses decreased ($r=-.397$, $p<.001$). As the percentage of the population that was foreign born increased, the rate of domestic offenses decreased ($r=-.469$, $p<.001$). As the percentage of Hispanics increased, the rate of domestic offenses decreased ($r=-.250$, $p<.001$).

Residential stability was significantly correlated with the rate of domestic offenses in Chicago neighborhoods. As residential stability increased, the rate of domestic offenses at the neighborhood-level decreased ($r=-.394$, $p<.001$). Both of the variables that comprise the residential stability composite measure were significantly correlated with the rate of domestic offenses. As the percentage of owner-occupied housing units within a neighborhood increased, the rate of domestic offenses within the neighborhood decreased ($r=-.568$, $p<.001$). As the percentage of residents living in the same house for the past year increased, the rate of domestic offenses decreased ($r=-.147$, $p<.05$).

The racial and ethnic composition of Chicago neighborhoods was significantly correlated with the rate of domestic offenses. As Chicago neighborhoods became more racially and ethnically heterogeneous, the rate of domestic offenses at the neighborhood-level decreased ($r=-.350$, $p<.001$). As the percentage of Whites in Chicago neighborhoods increased, the rate of domestic offenses decreased ($r=-.682$, $p<.001$). As the percentage of African Americans in Chicago neighborhoods increased, the rate of domestic offenses increased ($r=.716$, $p<.001$). As the percentage of Asians within Chicago neighborhoods increased, the rate of domestic offenses decreased ($r=-.269$, $p<.001$). As the percentage of other races increased, the rate of domestic offenses decreased ($r=-.221$, $p<.001$).

Correlations were also conducted for each of the independent and control variables with the rate of violent offenses in Chicago neighborhoods. These correlations were conducted in order to compare the significant relationships between the independent variables and rate of domestic offenses with the significant relationships between the independent variables and the rate of violent offenses. All significant relationships at the neighborhood-level with the rate of domestic offenses remained significant, in the same direction, and equal strength when examining the rate of violent offenses except for one variable: population density. Population density was significantly correlated with the rate of domestic offenses but not the rate of violent offenses in Chicago neighborhoods.

Table 9

Correlations between the Independent Variables and Control Variables and Domestic and Violent Offense Rates in Chicago Neighborhoods, 2009, N = 228

	Domestic Offense Rate	Violent Offense Rate
Independent Variables		
Concentrated Disadvantage Composite Measure	0.738***	0.641***
% on Cash Public Assistance	0.712***	0.647***
% of Individuals Below Poverty	0.686***	0.646***
% Unemployed	0.619***	0.553***
% Female Headed Households	0.749***	0.655***
% of the Population Under 18	0.393***	0.241***
Immigrant Concentration Composite Measure	-0.397***	-0.417***
% Foreign Born	-0.469***	-0.475***
% Hispanic	-0.250***	-0.280***
Residential Stability Composite Measure	-0.394***	-0.488***
% of Owner-Occupied Housing Units	-0.568***	-0.590***
% in Same House 1 Year	-0.147*	-0.295***
Racial and Ethnic Heterogeneity Composite Measure	-0.350***	-0.294***
% White	-0.682***	-0.646***
% African American	0.716***	0.680***
% American Indian/Alaska Native	-0.023	-0.004
% Asian	-0.269***	-0.194**
% Hawaiian/Other Pacific Islander	-0.051	-0.032
% Other Race	-0.221***	-0.251***
Control Variables		
Total Population	0.040	0.028
Population Density	-0.179**	-0.121
% of Vacant Housing Units	0.531***	0.539***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Multivariate Analysis for Chicago Neighborhoods

Prior to this analysis, a check for multicollinearity was conducted with each of the variables that make up the concentrated disadvantage measure, the residential stability measure, and the immigrant concentration measure. The Variance Inflation Factor (VIF) for immigrant concentration (percent Hispanic and percent foreign born) was 1.70 and the tolerance level was 0.59. The VIF for residential stability (percent owner-occupied housing units and percent same house for the past year) was 1.72 and the tolerance level was 0.58. According to these values, there were no issues of multicollinearity for the immigrant concentration or residential stability measures.

On the other hand, there were multicollinearity issues with the variables comprising the concentrated disadvantage measure (percent of the population under 18, percent unemployed, percent on cash public assistance, percent below poverty line, and percent of female headed households) indicating that these variables are highly correlated with each other. VIFs ranged from 2.12 to 6.05 for these five variables and tolerance levels ranged from 0.17 to 0.47. A common method of addressing multicollinearity is to combine the collinear variables. In this study, these five variables were combined and measure concentrated disadvantage within Chicago neighborhoods.

It is common for Poisson regression and negative binomial regression models to incorporate an offset, or exposure, variable into the equation. Osgood (2000) suggests adding the natural logarithm of the population as an offset variable. This allows the researcher to interpret the results of the regression as "rates of events" rather than as a count (Osgood, 2000, p. 27). With respect to this research, the total populations of Chicago neighborhoods were added as

an offset variable in the negative binomial regression models. It must be noted that because an offset variable for total population was included in each of the models, population density was not included as a control variable. Instead of population density, the percent of vacant housing units was used as a control variable to measure density.

Table 10 presents the results of a negative binomial regression for domestic offenses and the independent variables in Chicago neighborhoods. The significant chi-square statistic for Table 10 shows that the variables fit the model better than no variables in the model at all (LR chi^2=313.40, p<.001). This model included all characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. As disadvantage in Chicago neighborhoods increased by one point, the rate of domestic offenses would be expected to increase by a factor of 1.162, holding all other independent variables in the model constant (p<.001). As residents of Chicago neighborhoods became more stable, the rate of domestic offenses would be expected to decrease by a factor of 0.850, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago neighborhoods increased by one point, the rate of domestic offenses would be expected to decrease by a factor of 0.929, holding all other independent variables in the model constant (p<.01). Racial and ethnic heterogeneity was not a significant predictor of the rate of domestic offenses in this model.

Table 10

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures in Chicago Neighborhoods, 2009, N = 228

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	0.403	1.496 (0.335)
Concentrated Disadvantage	0.150	1.162 (0.010)***
Residential Stability	-0.163	0.850 (0.017)***
Immigrant Concentration	-.073	0.929 (0.022)**
Log of Total Population (exposure variable)	1	1
Constant	-3.376	0.034 (0.003)
LR Chi^2	313.40***	
Pseudo R^2	0.086	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 11 presents the results of a negative binomial regression for domestic offenses with the independent variables and control variable in Chicago neighborhoods. The significant chi-square statistic for Table 9 shows that the variables fit the model better than no variables in the model at all (LR chi^2=313.78, p<.001). This model included all characteristics that measure social disorganization and the percent of vacant housing units as a control variable. As concentrated disadvantage in Chicago neighborhoods increased by one point, the rate of domestic offenses would be expected to increase by a factor of 1.159, holding all other independent variables in the model constant (p<.001). As residents of Chicago neighborhoods became more stable, the rate of domestic offenses would be expected to decrease by a factor of 0.856, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago neighborhoods increased by one point, the rate of domestic offenses would be expected to decrease by a factor of 0.932, holding all other independent variables in the model constant (p<.01). Racial and ethnic heterogeneity and the percent of vacant housing units were not significant predictors of the rate of domestic offenses in this model.

Table 11

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures and Control Variable in Chicago Neighborhoods, 2009, N = 228

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	0.379	1.461 (0.331)
Concentrated Disadvantage	0.148	1.159 (0.011)***
Residential Stability	-0.155	0.856 (0.020)***
Immigrant Concentration	-0.070	0.932 (0.023)**
Log of Total Population (exposure variable)	1	1
Control Variable		
Percent of Vacant Housing Units	0.004	1.004 (0.007)
Constant	-3.419	0.033 (0.004)
LR Chi^2	313.78***	
Pseudo R^2	0.086	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 12 presents the results of a negative binomial regression and violent offenses in Chicago neighborhoods. Violent offenses were included in order to compare the effects of social disorganization between domestic and violent offenses in Chicago neighborhoods. The significant chi-square statistic shows that the variables fit the model better than no variables in the model at all (LR chi^2=216.91, p<.001). This model included all characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. Racial and ethnic heterogeneity was a significant predictor of violent offenses in Chicago neighborhoods; however, this measure of disorganization was not a significant predictor of domestic offenses. As Chicago neighborhoods became more racially and ethnically heterogeneous, the rate of violent offenses would be expected to increase by a factor of 2.528, holding all other independent variables in the model constant (p<.01). As disadvantage in Chicago neighborhoods increased by one point, the rate of violent offenses would be expected to increase by a factor of 1.135, holding all other independent variables in the model constant (p<.001). As residents of Chicago neighborhoods become more stable, the rate of violent offenses would be expected to decrease by a factor of 0.765, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago neighborhoods increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.874, holding all other independent variables in the model constant (p<.001).

Table 12

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures in Chicago Neighborhoods, 2009, N = 228

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	0.927	2.528 (0.770)**
Concentrated Disadvantage	0.127	1.135 (0.012)***
Residential Stability	-0.269	0.765 (0.020)***
Immigrant Concentration	-0.134	0.874 (0.028)***
Log of Total Population (exposure variable)	1	1
Constant	-4.316	0.013 (0.002)
LR Chi^2	216.91***	
Pseudo R^2	0.065	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 13 presents the results of a negative binomial regression with the independent and control variable and violent offenses in Chicago neighborhoods. Violent offenses were included in order to compare the effects of social disorganization between domestic and violent offenses in Chicago neighborhoods. The significant chi-square statistic shows that the variables fit the model better than no variables in the model at all (LR chi^2=217.29, p<.001). This model included all characteristics that measure social disorganization and the percent of vacant housing units as a control variable. Racial and ethnic heterogeneity was a significant predictor of violent offenses in Chicago neighborhoods; however, this measure of disorganization was not a significant predictor of domestic offenses. As Chicago neighborhoods became more racially and ethnically heterogeneous, the rate of violent offenses would be expected to increase by a factor of 2.433, holding all other independent variables in the model constant (p<.01). As disadvantage in Chicago neighborhoods increased by one point, the rate of violent offenses would be expected to increase by a factor of 1.131, holding all other independent variables in the model constant (p<.001). As residents of Chicago neighborhoods became more stable, the rate of violent offenses would be expected to decrease by a factor of 0.773, holding all other variables in the model constant (p<.001). As the concentration of immigrants in Chicago neighborhoods increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.878, holding all other independent variables in the model constant (p<.001). The percent of vacant housing units in Chicago neighborhoods was not a significant predictor of violent offenses in this model.

In conclusion, concentrated disadvantage, residential stability, and immigrant concentration were significantly associated with domestic offenses in Chicago neighborhoods. Residential stability and immigrant concentration significantly decreased the rate of domestic

offenses while concentrated disadvantage significantly increased the rate of domestic offenses. When the control variable was included into the model, these three measures of social disorganization remained significant in the same direction. Racial and ethnic heterogeneity, residential stability, concentrated disadvantage, and immigrant concentration were significantly associated with violent offenses in Chicago neighborhoods. When the control variable was included into the model all four measures of social disorganization remained significantly associated with violent offenses. Racial and ethnic heterogeneity and concentrated disadvantage significantly increased the rate of violent offenses while residential stability and immigrant concentration significantly decreased the rate of violent offenses.

Table 13

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures and Control Variable in Chicago Neighborhoods, 2009, N = 228

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	0.889	2.433 (0.755)**
Concentrated Disadvantage	0.123	1.131 (0.014)***
Residential Stability	-0.258	0.773 (0.024)***
Immigrant Concentration	-0.130	0.878 (0.028)***
Log of Total Population (exposure variable)	1	1
Control Variable		
Percent of Vacant Housing Units	0.006	1.006 (0.009)
Constant	-4.370	0.013 (0.002)
LR Chi^2	217.29***	
Pseudo R^2	0.065	

* $p < .05$. ** $p < .01$. *** $p < .001$.

CHAPTER SEVEN: ILLINOIS COUNTY RESULTS

Descriptive Statistics for Illinois Counties

Census variables and crime data were collected for each of the 102 counties in the State of Illinois. Descriptive statistics for Illinois counties are presented in Table 14. Many counties in Illinois (N=14) reported a rate of zero domestic offenses per 100,000 people in 2009[7]; these counties have small populations and are mostly rural. Sangamon County reported the highest rate of domestic offenses with 3,059 per 100,000 people. On average, counties in Illinois had a rate of 448 domestic offenses per 100,000 people (S.D. = 528.76). Pope County had the lowest rate of violent offenses with 25 per 100,000 people while Alexander County had the highest with 2,173 per 100,000 people.

Seven control variables were included in the county-level analysis: total population of the county, population density, the percent of vacant housing units, whether the county was urban or rural, whether there were domestic violence resources or programs within the county, whether there was a military base in the county, and the number of registered firearm owners in the county.   On average, in 2009 there were 125,344 people in an Illinois county (S.D. = 533,068.8) and about 194 people per square mile in each county (S.D. = 632.82).   On average, about 11 percent of housing units in Illinois counties in 2009 were vacant (S.D. = 4.40). Out of the 102 counties, 45 (44%) had a total population less than 20,000 people and were considered rural. There were domestic violence resources or programs in 41 of 102 Illinois counties. Counties that had domestic violence resources or programs had an average of 2,699 domestic offenses in 2009 (S.D. = 11,192.15); counties that did not have these resources or programs had

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[7] These counties are: DeWitt, Scott, Calhoun, Bond, Henderson, Johnson, Hamilton, Edwards, Wabash, Hardin, Pope, Putnam, Pike, and Pulaski.

an average of 87 domestic offenses in 2009 (S.D. = 186.32). Only three of 102 Illinois counties

had a military base within the county limits. Counties that had a military bases within its limits

had an average of 1,661 domestic offenses in 2009 (S.D. = 803.82) while counties that did not

have a military base had an average of 1,121 domestic offenses (S.D. = 7,268.72). In 2009,

Illinois counties in had an average of 12,382 firearm owners (S. D. = 29,206.99). Putnam

County had the lowest number of registered firearm owners in 2009 with 1,269 and Cook County

had the highest with 279,154.

The concentrated disadvantage measure ranged from -6.40 (concentrated advantage) to

12.92 (concentrated disadvantage). The mean for the concentrated disadvantage measure was

zero (S.D. = 3.08). On average, less than two percent of the population of Illinois counties were

on cash public assistance (S.D. = 0.89) and approximately 11 percent were living below the

poverty line (S.D. = 3.83). About seven percent of the population of Illinois counties were

unemployed and less than 10 percent (S.D. = 2.51) of households were headed by females. On

average, about one quarter of the population of Illinois counties was less than 18 years old

(22.96%; S.D. = 2.58).

The immigrant concentration measure ranged from -1.56 (low concentration of

immigrants) to 8.35 (high concentration of immigrants). The mean for this measure was zero

(S.D. = 1.94). On average, about three percent of the population of Illinois counties were foreign

born (S.D. = 3.86) while almost four percent were Hispanic (S.D. = 5.08).

The residential stability measure ranged from -7.28 (residential instability) to 2.40

(residential stability) with a mean of zero (S.D. = 1.83). On average, 76 percent of housing units

were owner-occupied in 2009 (S.D. = 5.84). On average, the majority of the population in

Illinois counties in 2009 had been in the same house at least one year (86.09%; S.D. = 4.92).

The measure of racial and ethnic heterogeneity ranged from 0.02 (racially and ethnically homogeneous) to 0.62 (racially and ethnically heterogeneous) with an average per Illinois county of 0.15 (S.D. = 0.13). On average, in 2009 Illinois counties were approximately 91 percent White (S.D. = 8.43), 4.67 percent African American (S.D. = 6.75), less than one percent Asian (S.D. = 1.64), less than one percent American Indian or Alaska Native (S.D. = 0.14), zero percent Hawaiian or other Pacific Islander (S.D. = 0), and 1.27 percent was another race (S.D. = 2.26).

Table 14

Descriptive Statistics for Illinois Counties, 2009, N = 102

	Mean	S.D.	Minimum	Maximum
Dependent Variables				
Domestic Offense Rate (per 100,000)	447.55	528.76	0	3059.50
Violent Offense Rate (per 100,000)	333.57	287.82	25.10	2173.40
Independent Variables				
Concentrated Disadvantage Composite				
Measure	0	3.08	-6.40	12.92
% on Cash Public Assistance	1.75	.89	0	6
% of Individuals Below Poverty	11.04	3.83	3.24	25.45
% Unemployed	7.12	1.83	4	14
% Female Headed Households	9.77	2.51	4	20
% of the Population Under 18	22.96	2.58	15	30
Immigrant Concentration Composite				
Measure	0	1.94	-1.56	8.35
% Foreign Born	3.11	3.86	0	21
% Hispanic	3.86	5.08	0	28
Residential Stability Composite Measure	0	1.83	-7.28	2.40
% of Owner-Occupied Housing Units	75.64	5.84	51	86
% in Same House 1 Year	86.09	4.92	70	93
Racial and Ethnic Heterogeneity				
Composite Measure	.15	.13	.02	.62
% White	91.42	8.43	54	99
% African American	4.67	6.75	0	34
% American Indian/Alaska Native	.02	.14	0	1
% Asian	.98	1.64	0	10
% Hawaiian/Other Pacific Islander	0	0	0	0
% Other Race	1.27	2.26	0	13
Control Variables				
Total Population	125343.6	533068.8	4071	5257001
Population Density	194.18	632.82	11	5559
% of Vacant Housing Units	11.06	4.40	5.22	28.06
Rurality	.44			
Military Base in County	.03			
Domestic Violence Resources/Programs	.40			
Registered Firearm Owners in County	12381.93	29206.99	1269	279154

Bivariate Analysis for Illinois Counties

Bivariate analyses were conducted for each of the independent and control variables with domestic offenses. These results are presented in Table 15. The percent of individuals living below the poverty line was the only measure of concentrated disadvantage that was significantly correlated with the domestic offense rate. As the percentage of individuals living below the poverty line increased, the rate of domestic offenses in Illinois counties increased (r=.220, p<.001).

The residential stability composite measure was significantly correlated with the rate of domestic offenses in Illinois counties. As counties became more stable, the rate of domestic offenses decreased (r=-.335, p<.001). Both of the variables that comprise the residential stability composite measure were also significantly correlated with the rate of domestic offenses. As the percentage of owner-occupied housing units increased, the rate of domestic offenses within Illinois counties decreased (r=-.363, p<.001). In addition, as the percentage of residents living in the same house for the past year increased, the rate of domestic offenses decreased (r=-.249, p<.05).

Racial and ethnic heterogeneity within Illinois counties had a weak positive correlation with the rate of domestic offenses. As Illinois counties became more racially and ethnically heterogeneous, the rate of domestic offenses increased (r=.281, p<.01). There was a weak negative correlation between the percentage of Whites within a county and the number of domestic offenses. Specifically, as the percentage of Whites within Illinois counties increased, the rates of domestic offenses decreased (r=-.261, p<.01). On the other hand, as the percentage

of African Americans within Illinois counties increased, the rate of domestic offenses increased also (r=.222, p<.05).

Correlations were conducted with domestic offenses and seven control variables: total population, population density, percent of vacant housing units, whether the county was urban or rural, whether there was a military base in the county, whether there were domestic violence resources or programs in the county, and the number of registered firearm owners in the county. As the percentage of vacant housing units increased, the rate of domestic offenses decreased (r=-.237, p<.05). In rural counties the rate of domestic offenses decreased compared to urban counties (r=-.316, p<.01). In counties in which there was a domestic violence resource or program, the rate of domestic offenses increased compared to counties with no domestic violence resources or programs (r=.367, p<.001). As the number of registered firearm owners within a county increased, the rate of domestic offenses increased (r=.259, p<.01).

Correlations were also conducted for each of the independent and control variables with the rate of violent offenses in Illinois counties. These correlations were conducted in order to compare the significant relationships between the independent variables and the rate of domestic offenses with the significant relationships between the independent variables and the rate of violent offenses. Table 15 shows that many significant relationships between the independent and control variables and the rate of domestic offenses were relationships that were also significant, in the same direction, and equal strength between the independent and control variables and the rate of violent offenses; however, there were some differences. The concentrated disadvantage composite measure (r=.534, p<.001), the percentage on cash public assistance (r=.487, p<.001), the percentage of individuals that were unemployed (r=.320, p<.01), and the percentage of female headed households (r=.463, p<.001) were all significantly

correlated with an increase in the rate of violent offenses. Unlike the rate of domestic offenses, the percentage of residents living in the same house for the past year, the percentage of vacant housing units, rurality, and the number of registered firearm owners in the county were not significantly correlated with the rate of violent offenses in Illinois counties.

Table 15

Correlations between the Independent Variables and Control Variables and Domestic and Violent Offense Rates in Illinois Counties, 2009, N = 102

	Domestic Offense Rate	Violent Offense Rate
Independent Variables		
Concentrated Disadvantage Composite Measure	0.164	0.534***
% on Cash Public Assistance	0.063	0.487***
% of Individuals Below Poverty	0.220*	0.480***
% Unemployed	0.094	0.320**
% Female Headed Households	0.149	0.463***
% of the Population Under 18	-0.019	-0.102
Immigrant Concentration Composite Measure	0.069	-0.030
% Foreign Born	0.101	0.014
% Hispanic	0.033	-0.073
Residential Stability Composite Measure	-0.335***	-0.330***
% of Owner-Occupied Housing Units	-0.363***	-0.371***
% in Same House 1 Year	-0.249*	-0.233
Racial and Ethnic Heterogeneity Composite Measure[a]	0.281**	0.424***
% White	-0.261**	-0.470***
% African American	0.222*	0.561***
% American Indian/Alaska Native	-0.116	-0.146
% Asian	0.192	0.099
% Other Race	0.083	-0.001
Control Variables		
Total Population	0.179	0.128
Population Density	0.148	0.089
% of Vacant Housing Units	-0.237*	0.147
Rurality	-0.316**	-0.105
Military Base in County	0.045	0.166
Domestic Violence Resources/Programs	0.367***	0.276**
Registered Firearm Owners in County	0.259**	0.174

[a] *Hawaiian/Other Pacific Islander not included in bivariate analysis because there are no Hawaiian/Other Pacific Islanders that reside in the State of Illinois.*
* p < .05. ** p < .01. *** p < .001.

<u>Multivariate Analysis for Illinois Counties</u>

Prior to these analyses, a check for multicollinearity was conducted with each of the variables in the residential stability measure, the immigrant concentration measure, and the concentrated disadvantage measure. Variance Inflation Factors (VIF) ranged between 1.45 and 2.74 for all variables except percent Hispanic and percent foreign born. The VIFs for these two variables was 4.47, indicating multicollinearity. However, one solution to dealing with multicollinearity is to combine the variables that are multicollinear. Percent Hispanic and percent foreign born in Illinois counties were combined together in order to measure the concentration of immigrants within the county. Tolerance levels for all variables were between 0.36 and 0.69; the tolerance level for percent Hispanic and percent foreign born was 0.22.

It is common for Poisson regression and negative binomial regression models to incorporate an offset, or exposure, variable into the equation. Osgood (2000) notes that adding the natural logarithm of the population as an offset variable allows the researcher to interpret the results of the regression as "rates of events" rather than as a count (p. 27). The total population of Illinois counties was added as an offset variable in the negative binomial regression models. It must be noted that because an offset variable for total population was included in each of the models, population density was not included as a control variable. Instead of population density, the percent of vacant housing units was used as a control variable to measure density.

Table 16 presents the results of a negative binomial regression with the dependent variable, domestic offenses, and the main independent variables, measures of social disorganization. None of the independent variables in the model were significant.

Table 16

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures in Illinois Counties, 2009, N = 102

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	1.319	3.740 (9.547)
Concentrated Disadvantage	0.600	1.061 (0.078)
Residential Stability	-0.087	0.917 (0.093)
Immigrant Concentration	-0.195	0.823 (0.084)
Log of Total Population (exposure variable)	1	1
Constant	-4.988	0.007 (0.003)
LR Chi^2	5.91	
Pseudo R^2	0.004	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 17 presents the results of a negative binomial regression with domestic offenses and measures of social disorganization and the control variables in Illinois counties. This model included all characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. In addition, the percent of vacant housing units, rurality, whether there was a military base in the county, domestic violence resources or programs within the county, and how many registered firearm owners were in the county were included as control variables. The significant chi-square statistic shows that the variables fit the model better than no variables in the model at all (LR chi^2=64.28, p<.001). As the concentration of immigrants in Illinois counties increased, the rate of domestic offenses would be expected to be decrease by a factor of 0.800, holding all other independent variables in the model constant (p<.01). This was the only measure of social disorganization that was significant in this model; however, two of the control variables were significant. As the percentage of vacant housing units in Illinois counties increased, the rate of domestic offenses would be expected to decrease by a factor of 0.842, holding all other variables in the model constant (p<.001). When having domestic violence resources or programs in the county, the rate of domestic offenses would be expected to increase by a factor of 4.621, holding all other variables in the model constant (p<.001).

Table 17

Negative Binomial Regression of Domestic Offenses with the Social Disorganization Measures and Control Variables in Illinois Counties, 2009, N = 102

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-3.763	0.023 (0.046)
Concentrated Disadvantage	0.076	1.079 (0.052)
Residential Stability	-0.154	0.857 (0.079)
Immigrant Concentration	-0.223	0.800 (0.065)**
Control Variables		
% of Vacant Housing Units	-0.171	0.842 (0.031)***
Rurality	0.147	1.158 (0.330)
Military Base in County	0.328	1.388 (1.089)
Domestic Violence Resources/Programs	1.531	4.621 (1.533)***
Registered Firearm Owners in County[1]	0.000	1.000 (0.000)
Log of Total Population (exposure variable)	1	1
Constant	-3.794	0.023 (0.011)
LR Chi^2	64.28***	
Pseudo R^2	0.050	

[1] Coefficient was 0.000014 and IRR (S.E.) was 1.000014 (7.32e-06)

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 18 presents the results of a negative binomial regression with violent offenses and measures of social disorganization in Illinois counties. Violent offenses were included in order to compare the effects of social disorganization between domestic and violent offenses in Illinois counties. This model included all characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. As the concentration of immigrants in Illinois counties increased by one point, the rate of violent offenses would be expected to decrease by a factor of 0.829, holding all other independent variables in the model constant ($p<.05$). Racial and ethnic heterogeneity, concentrated disadvantage, and residential instability were not significant predictors of the rate of violent offenses in this model.

Table 18

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures in Illinois Counties, 2009, N = 102

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	1.087	2.964 (5.256)
Concentrated Disadvantage	0.020	1.021 (0.048)
Residential Stability	0.013	1.012 (0.071)
Immigrant Concentration	-0.188	0.829 (0.061)*
Log of Total Population (exposure variable)	1	1
Constant	-5.333	0.005 (0.001)
LR Chi^2	7.30	
Pseudo R^2	0.006	

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 19 presents the results of a negative binomial regression with violent offenses and measures of social disorganization and the control variables in Illinois counties. This model included all characteristics that measure social disorganization: racial and ethnic heterogeneity, concentrated disadvantage, residential stability, and immigrant concentration. In addition, the percent of vacant housing units, rurality, whether there was a military base in the county, domestic violence resources or programs in the county, and how many registered firearm owners were in the county in 2009 were included as control variables. The significant chi-square statistic shows that the variables fit the model better than no variables in the model at all (LR chi^2=89.58, p<.001). As Illinois counties became more disadvantaged, the rate of violent offenses would be expected to be increase by a factor of 1.076, holding all other independent variables in the model constant (p<.05). As Illinois counties had a greater concentration of immigrants, the rate of violent offenses would be expected to decrease by a factor of 0.776, holding all other independent variables in the model constant (p<.001). For rural counties, the rate of violent offenses would be expected to increase by a factor of 1.589 compared to urban counties, holding all other variables in the model constant (p<.05). For Illinois counties that had a military base in the county compared to counties that do not have a military base, the rate of violent offenses would be expected to increase by a factor of 6.691, holding all other variables in the model constant (p<.001). For counties that had domestic violence resources or programs in the county compared to counties that do not have resources or programs, the rate of violent offenses would be expected to increase by a factor of 2.633, holding all other variables in the model constant (p<.001). As the number of registered firearm owners within a county increased, the rate of violent offenses would be expected to increase by a factor of 1, holding all other variables in the model constant (p<.05).

In conclusion, none of the social disorganization measures were significantly associated with domestic offenses in Illinois counties. When the control variables were included into the model, immigrant concentration significantly decreased the rate of domestic offenses. In addition, immigrant concentration significantly decreased the rate of violent offenses in Illinois counties. When the control variables were included into the model concentrated disadvantage and immigrant concentration were significantly associated with violent offenses. Concentrated disadvantage significantly increased the rate of violent offenses while immigrant concentration significantly decreased the rate of violent offenses.

Table 19

Negative Binomial Regression of Violent Offenses with the Social Disorganization Measures and Control Variables in Illinois Counties, 2009, N = 102

	Coefficients	IRR (S.E.)
Independent Variables		
Racial and Ethnic Heterogeneity	-1.016	0.362 (0.437)
Concentrated Disadvantage	0.073	1.076 (0.033)*
Residential Stability	-0.098	0.907 (0.055)
Immigrant Concentration	-0.254	0.776 (0.041)***
Control Variables		
% of Vacant Housing Units	-0.018	0.982 (0.024)
Rurality	0.463	1.589 (0.317)*
Military Base in County	1.900	6.691 (3.612)***
Domestic Violence Resources/Programs	0.968	2.633 (0.606)***
Registered Firearm Owners in County[1]	0.000	1.000 (0.000)*
Log of Total Population (exposure variable)	1	1
Constant	-6.099	0.002 (0.001)
LR Chi^2	89.58***	
Pseudo R^2	0.071	

[1] Coefficient was 0.0000171 and IRR (S.E.) was 1.000017 (7.96e-06).
* p < .05. ** p < .01. *** p < .001.

CHAPTER EIGHT: GIS AND SPATIAL AUTOCORRELATION ANALYSES

GIS Mapping and Spatial Autocorrelation

Geographic information systems (GIS) mapping is often used in the analysis of crime. GIS mapping incorporates the use of spatial characteristics of crime, or location, in order to determine if patterns exist in the distribution of these crimes. Spatial analysis allows researchers to extend the use of their data and allows for a better understanding of a particular phenomenon (Paulsen & Robinson, 2009) by analyzing the relationships between geographic areas (Andresen, 2011). There are a variety of techniques and analyses that may be conducted in accordance with spatial analysis; however, this research study focuses on spatial autocorrelation.

Spatial autocorrelation is used to "determine the degree to which aggregate level data, such as crime rates at the census block or census tract level, are clustered within a city" (Paulsen & Robinson, 2004, p. 259). In other words, spatial autocorrelation occurs when a variable is correlated with itself at a particular spatial level or geographic unit of analysis (Anselin, 1995; Baller, Anselin, Messner, Deane, & Hawkins, 2001; Cliff & Ord, 1973). There are two types of spatial autocorrelation: positive spatial autocorrelation and negative spatial autocorrelation. Positive spatial autocorrelation exists when high values of the variable are correlated with high values of neighboring areas (Andresen, 2011). In addition, positive spatial autocorrelation exists when low values of the variable are correlated with low values in other neighboring areas (Andresen, 2011). Areas with positive spatial autocorrelation are often considered to be "clustered," meaning that the variable is concentrated within a specific geographic area (Paulsen & Robinson, 2009, p. 306). Negative spatial autocorrelation occurs when high values of the

variable are correlated with low values of neighboring areas or low values of the variable are correlated with high values in neighboring areas (Andresen, 2011). As opposed to clustering, areas with negative spatial autocorrelation are considered to be "spatially independent or uniformly dispersed" (Paulsen & Robinson, 2009, p. 306). No spatial autocorrelation exists when the variable exhibits a random pattern. Spatial autocorrelation was used in this research study in order to examine the distribution of domestic offenses in Chicago census tracts, Chicago neighborhoods, and Illinois counties.

Global Moran's I and Anselin's Local Moran's I

One of the primary methods of analyzing the degree of spatial autocorrelation is by using the global or local Moran's I. The global Moran's I assesses spatial autocorrelation within the general study area (Andresen, 2011; Anselin, 1995). In other words, the global Moran's I determines if there is clustering or a random dispersion of the variable of interest within the entire geographic area that is being examined by presenting one statistic (Anselin, Cohen, Cook, Gorr, & Tita, 2000). The Local Moran's I, or Anselin's Local Moran's I, was developed by Anselin (1995) in order to calculate a measure of spatial autocorrelation for each geographic unit of interest, instead of one statistic for the entire geographic area being examined (Andresen, 2011; Anselin, 1995). Anselin (1995) termed this analysis of spatial autocorrelation "LISA," or local indicators of spatial association. LISA analysis will be used in this research study in order to determine how the distribution of domestic offenses in Chicago census tracts, Chicago neighborhoods, and Illinois counties differ from other areas within each unit of analysis.

In his 1995 article introducing researchers to the Local Moran's I, Anselin notes that local indicators of spatial association (LISA) are defined by two statements: (1) the LISA for each observation gives an indication of the extent of significant spatial clustering of similar values around that observation; and (2) the sum of LISAs for all observations is proportional to a global indicator of spatial association (Anselin, 1995, p. 94). The null hypothesis when testing the Local Moran's I assumes that either the observations (values of the variable being tested for spatial autocorrelation) are: (1) "[the observations are] random independent drawings from one (or separate identical) normal population;" or (2) "[the observations are] random independent drawings from one (or separate identical) population with unknown distribution function, so that the set of all random permutations may be considered" (Cliff & Ord, 1973, p. 29).

The formula for calculating the LISA statistic is (Anselin, 1995, p. 95):

$$L_i = f(y_i\, yj_i)$$

"where f is a function, and the yj_i are the values observed in the neighborhood [e.g., a specific Chicago census tract, specific Chicago neighborhood, or specific county in Illinois] J_i of i" (Anselin, 1995, p. 95). The LISA statistic presents a value that determines if positive spatial autocorrelation, negative spatial autocorrelation, or no spatial autocorrelation exists. The values range from -1 (perfect negative spatial autocorrelation) to +1 (perfect positive spatial autocorrelation); a value of 0 indicates no spatial autocorrelation or the variable is randomly distributed (Andresen, 2011; Anselin, 1995).

When examining the Local Moran's I values, Anselin, Syabri, and Kho (2006) conceptualize four different types of relationships: high-high, low-low, low-high, and high-low.

In this study, these four relationships will indicate a high or low domestic offense rate in Chicago census tracts, Chicago neighborhoods, or Illinois counties. Anselin, Syabri, and Kho (2006) present these types as having high or low *crime* rates; however, this study will utilize rates of domestic offenses. High-high relationships are geographic areas that have *high* domestic offense rates with neighboring areas that have *high* domestic offense rates; low-low indicates geographic areas with *low* domestic offense rates with neighboring areas that have *low* domestic offense rates; high-low geographic areas have *high* domestic offense rates and the neighboring areas have *low* domestic offense rates; and low-high areas have *low* domestic offense rates with neighboring areas having *high* domestic offense rates (Anselin, Syabri, & Kho, 2006). The high-high, low-low, low-high, and high-low relationships are statistically significant at the 0.05 alpha level.

Spatial Autocorrelation and Count Data

There is an issue with the use of spatial autocorrelation and the examination of domestic offense counts in Chicago census tracts, Chicago neighborhoods, and Illinois counties that must be noted. The use of count data in spatial autocorrelation is argued against and most often rates are used instead in order to adjust for population size (Assuncao & Reis, 1999); although some researchers have argued against the use of rates for a variety of reasons. Zhang and Lin (2007) note that one of the most common explanations against the use of rates is when populations are heterogeneous among the spatial units (e.g., Chicago census tracts or Chicago neighborhoods) These researchers state that, "converting counts to rates often leads to variance inflation and biased type I error probabilities" (Zhang & Lin, 2007, p. 294). Furthermore, including a weight for the population heterogeneity does not solve the problem (Zhang & Lin, 2007). In essence, all

95

options for testing of spatial autocorrelation influence the analysis and create some type of statistical bias; therefore, the results of any option must be interpreted with caution.

<u>GIS Analyses</u>

Two sets of GIS chloropleth maps created in ArcGIS 10 are presented for each unit of analysis: Chicago census tracts, Chicago neighborhoods, and Illinois counties. The first set of maps show the characteristics of social disorganization and rate of domestic offenses in Chicago census tracts (Figures 1-6), Chicago neighborhoods (Figures 7-15) and counties in Illinois (Figures 16-20). These figures simply present a visualization of the dependent variable and main independent variables examined in this study. The second set of chloropleth maps present results of the Anselin's Local Moran's I analyses for rates of domestic offenses in Chicago census tracts, Chicago neighborhoods, and Illinois counties.

<u>Chicago Census Tract GIS Analysis</u>

In looking at Figure 1, the rate of domestic offenses (per 1,000 people) in Chicago census tracts in 2009 appears to be concentrated in the central and southern portions of the city. All other areas of Chicago appear to have lower rates of domestic offenses. Figure 2 presents a map showing the measure of concentrated disadvantage in Chicago census tracts in 2009. Greater concentrated disadvantage appears to be concentrated in the same areas that show the greatest rates of domestic offenses.

Figures 3 and 4 present the percentage of residents in the same house for the past year and percentage of owner occupied housing units in Chicago census tracts. Both of these variables comprise residential stability, a measure of social disorganization. Researchers have reported that residential stability may decrease crime rates (Barnett & Mencken, 2002) while residential instability may increase crime rates (Kposowa et al., 1995; Martinez et al., 2008; Osgood and Chambers, 2000; Smith & Jarjoura, 1998; Sun et al., 2004). Therefore, when looking at Figures 3 and 4, lighter shades of red indicate residential *instability* within the census tract. A clearer pattern exists for Figure 4 compared to Figure 3 when examining patterns in the locations of domestic offenses. Chicago census tracts with lower percentages of owner occupied housing units coincide with areas of Chicago census tracts that have greater rates of domestic offenses. It is not as easy to compare the patterns between rates of domestic offenses and percent of Chicago residents living in the same house for the past year.

Figure 5 shows the GIS map presenting the measure of immigrant concentration within Chicago census tracts. The distribution of immigrants in Chicago census tracts coincides with the distribution of domestic offense rates: Chicago census tracts with greater concentrations of immigrants are areas within the city that had lower rates of domestic offenses in 2009. Chicago census tracts that were racially and ethnically diverse in 2009 (Figure 6) also appear to be concentrated in portions of the city that had a high concentration of immigrants, were not disadvantaged, and had lower rates of domestic offenses.
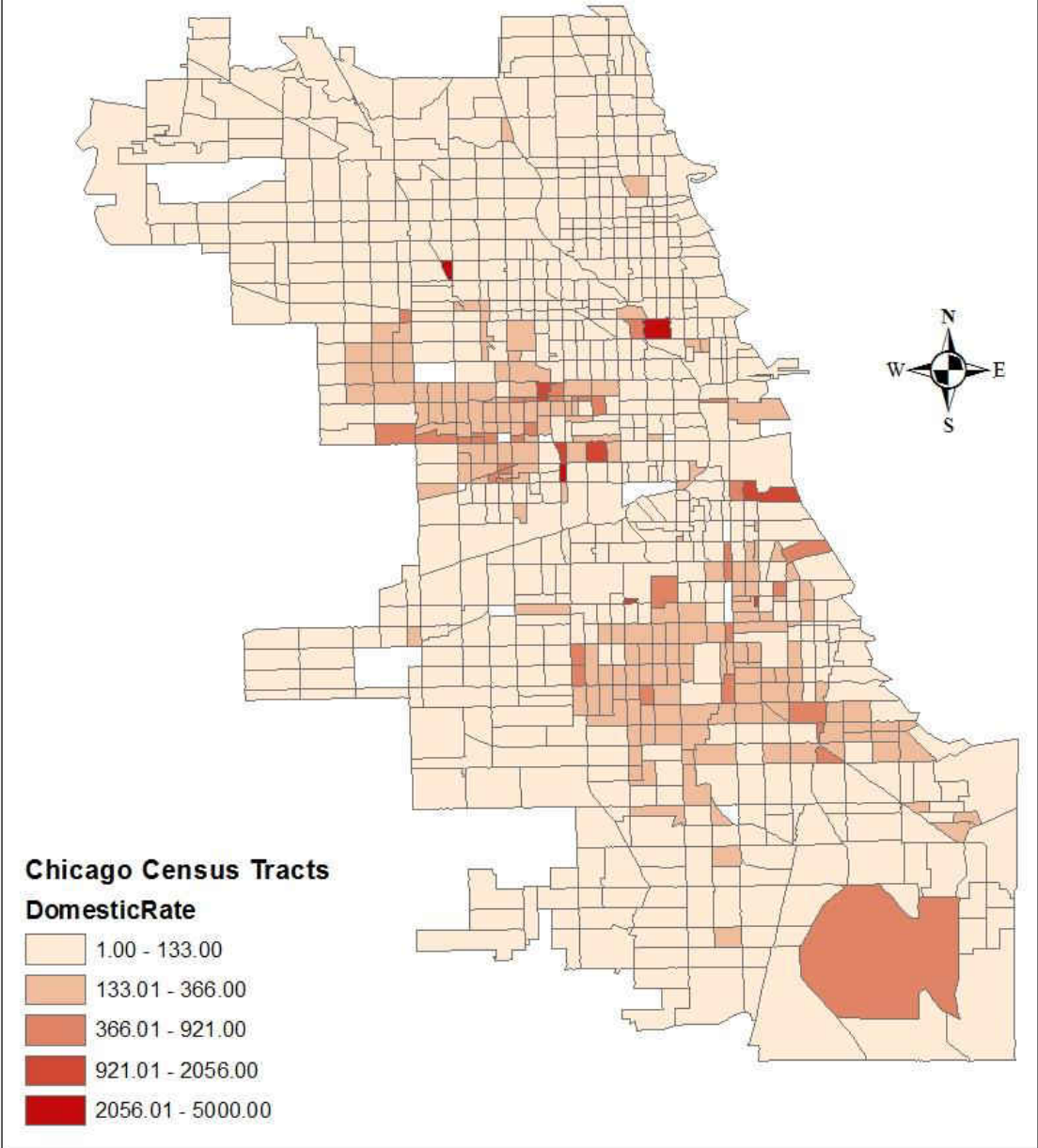
Figure 1. Rate of Domestic Offenses in Chicago Census Tracts, 2009, N = 852
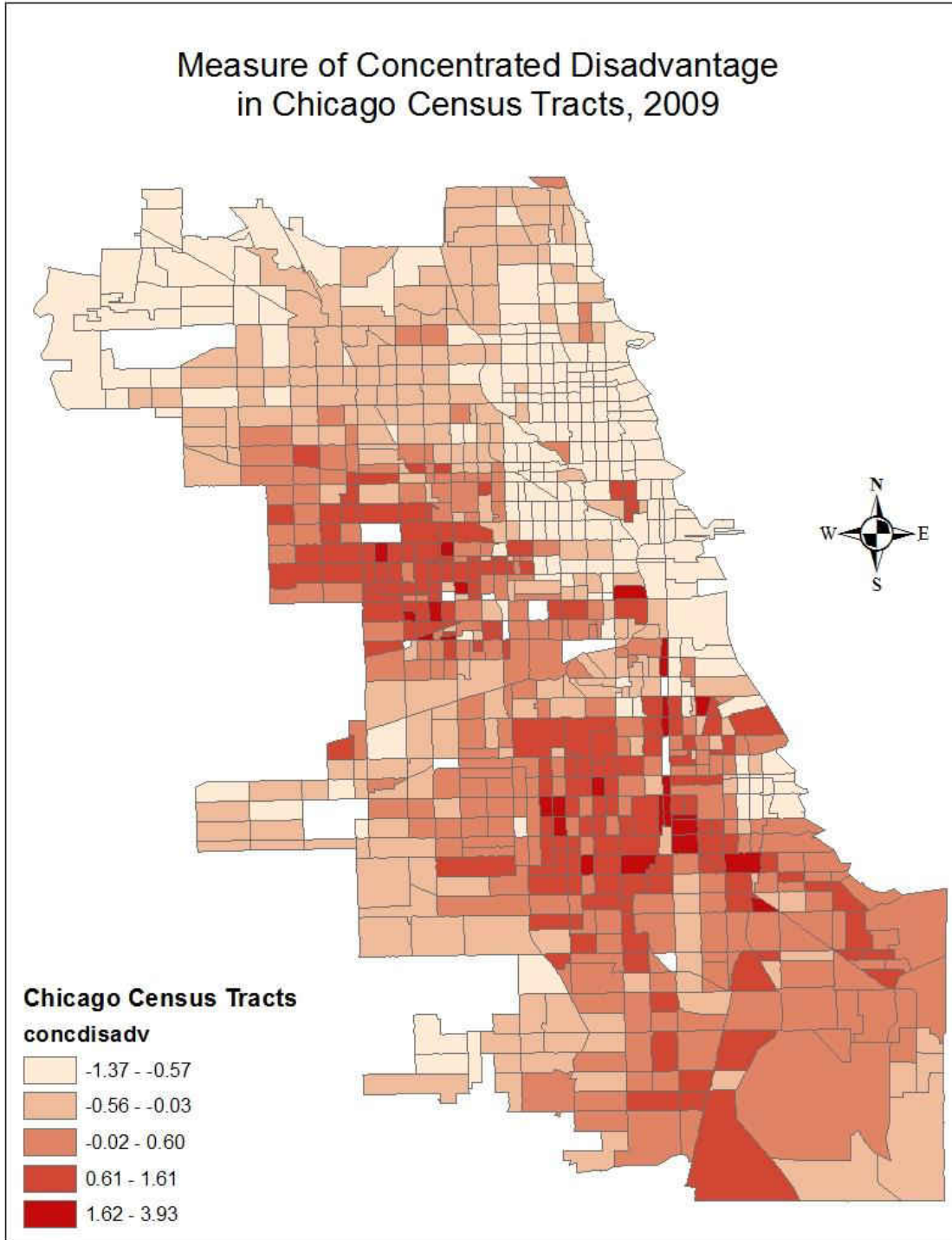
Figure 2. Measure of Concentrated Disadvantage in Chicago Census Tracts, 2009, N = 852
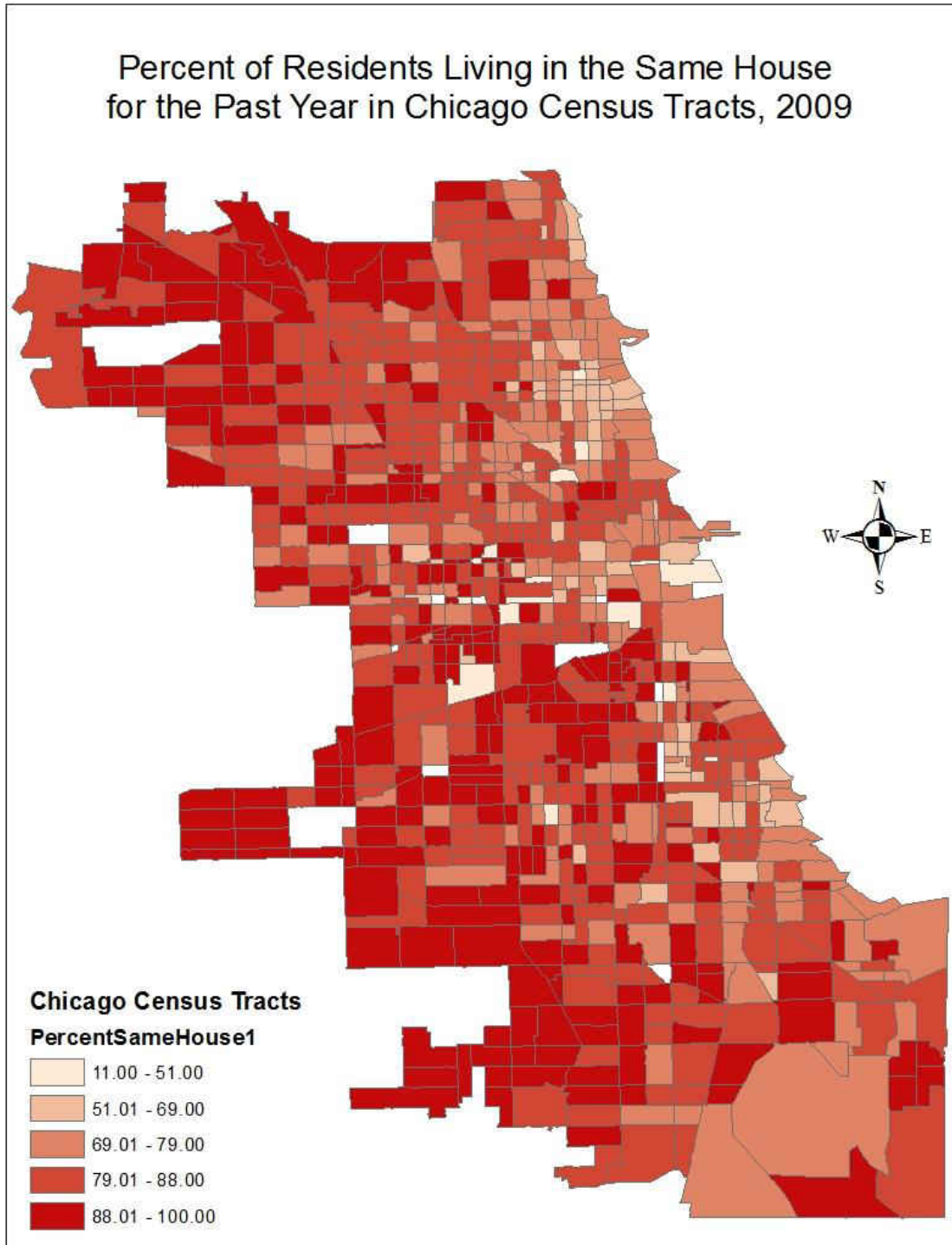
Figure 3. Percent of Residents Living in the Same House for the Past Year in Chicago Census Tracts, 2009, N = 852
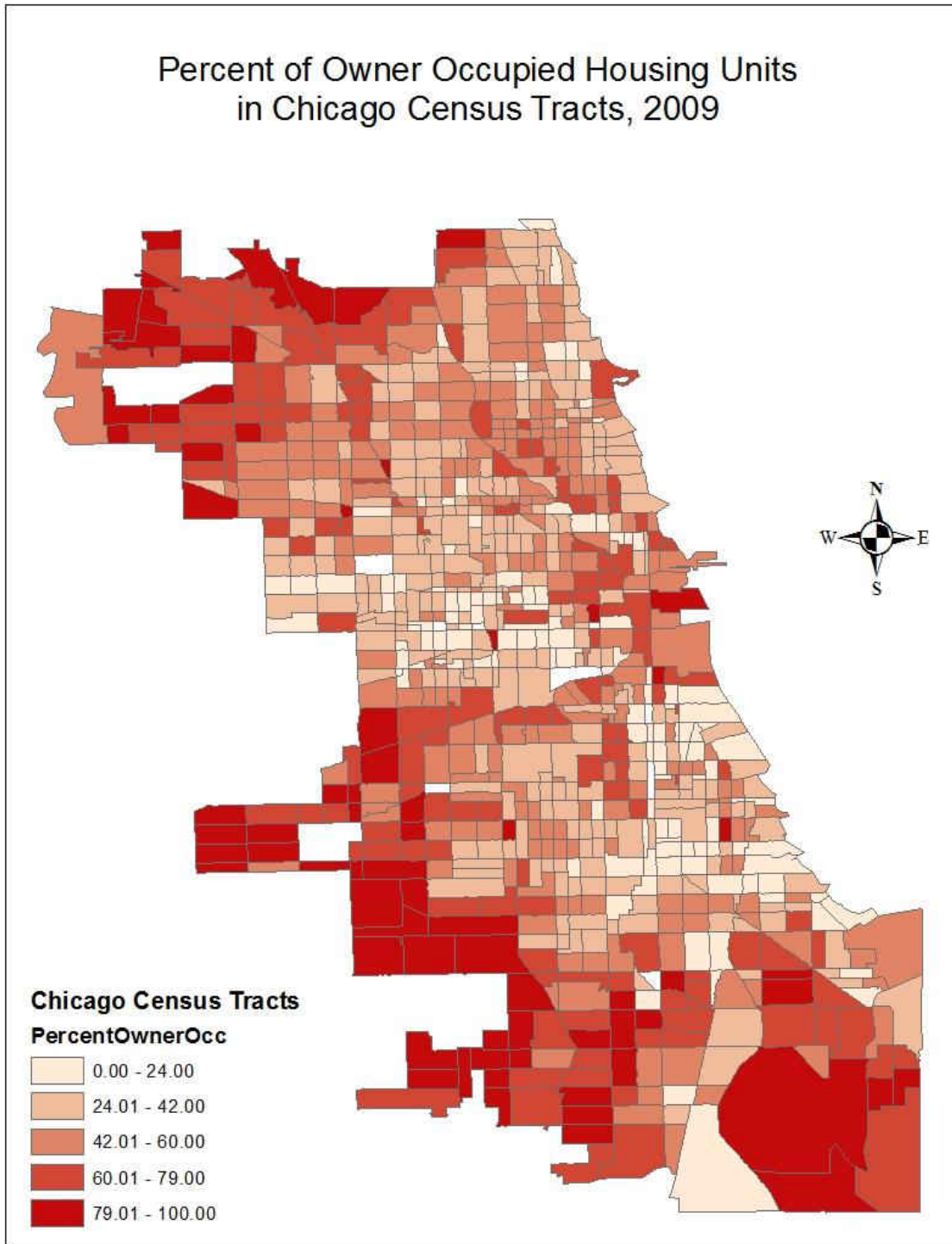
Figure 4. Percent of Owner Occupied Housing Units in Chicago Census Tracts, 2009, N = 852
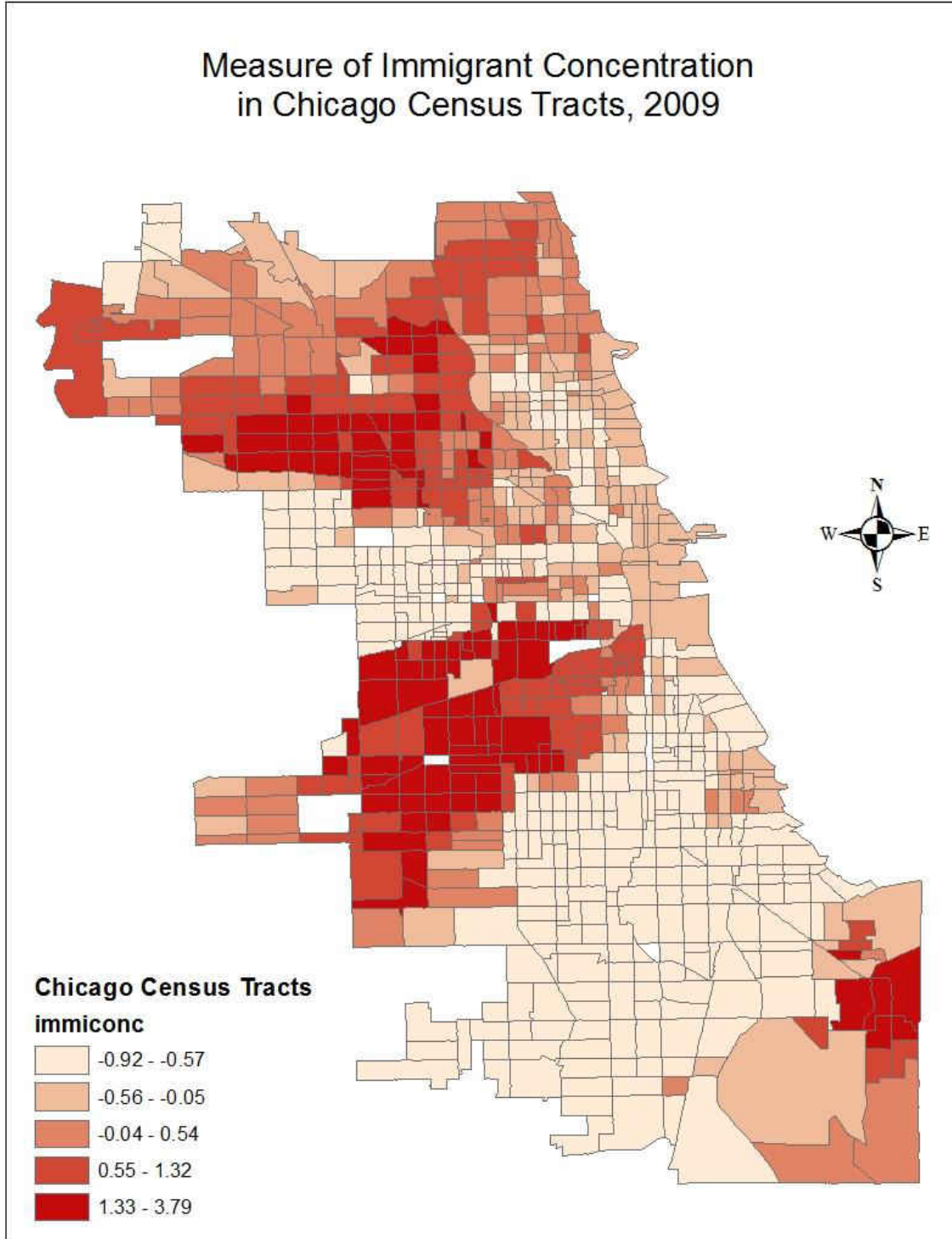
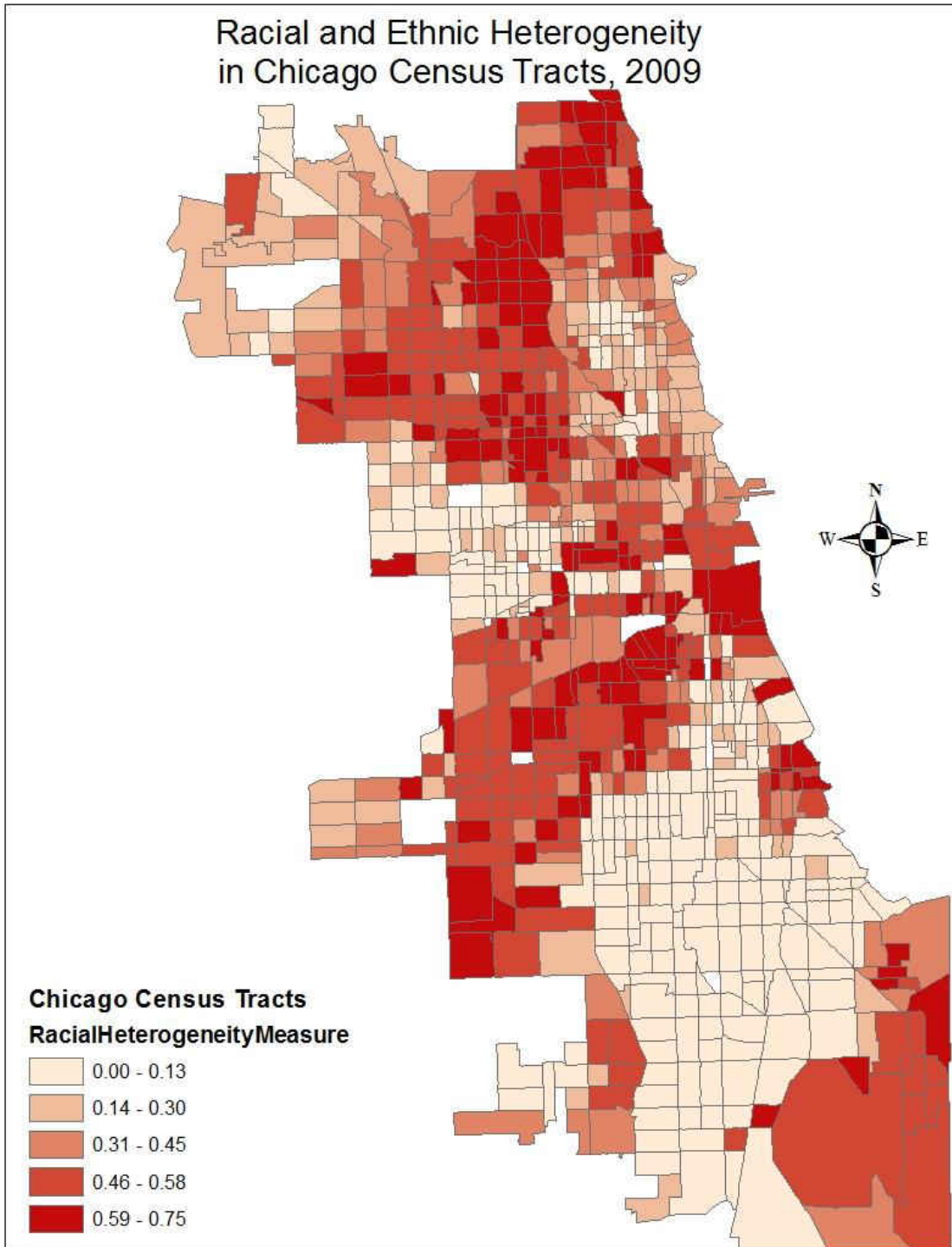Figure 5. Measure of Immigrant Concentration in Chicago Census Tracts, 2009, N = 852

Figure 6. Racial and Ethnic Heterogeneity in Chicago Census Tracts, 2009, N = 852

Chicago Neighborhood GIS Analysis

Figure 7 presents the rate of domestic offenses (per 1,000 people) in Chicago neighborhoods in 2009. The rate of domestic offenses in Chicago neighborhoods appear to be concentrated in the central and southern portions of the city. Neighborhoods in the northern portion of the city appear to have lower rates of domestic offenses. Figure 8 presents a map showing the measure of concentrated disadvantage in Chicago neighborhoods in 2009. Greater concentrated disadvantage appears to be concentrated in the same areas that show the greatest rates of domestic offenses: in neighborhoods located in the central and southern portions of the city. Figure 9 presents an overlay of these variables in order to see the neighborhoods that these phenomena are concentrated in.

Figure 10 presents a map of the measure of residential stability, a measure of social disorganization, for Chicago neighborhoods. When looking at Figure 10, lighter shades of red indicate residential *instability* within the neighborhood. Chicago neighborhoods with less residential stability coincide with areas of Chicago neighborhoods that have greater rates of domestic offenses, as can be seen in Figure 11. Figure 12 shows a Chloropleth map presenting the measure of immigrant concentration within Chicago neighborhoods. Chicago neighborhoods with greater concentrations of immigrants (shades of dark red) are areas within the city that had lower rates of domestic offenses in 2009 (see Figure 13). Chicago neighborhoods that were racially and ethnically diverse in 2009 (Figure 14) also appear to be concentrated in portions of the city that had a high concentration of immigrants, were not disadvantaged, and had lower rates of domestic offenses. Figure 15 presents an overlay of racial and ethnic heterogeneity and the rate of domestic offenses in Chicago neighborhoods in 2009.
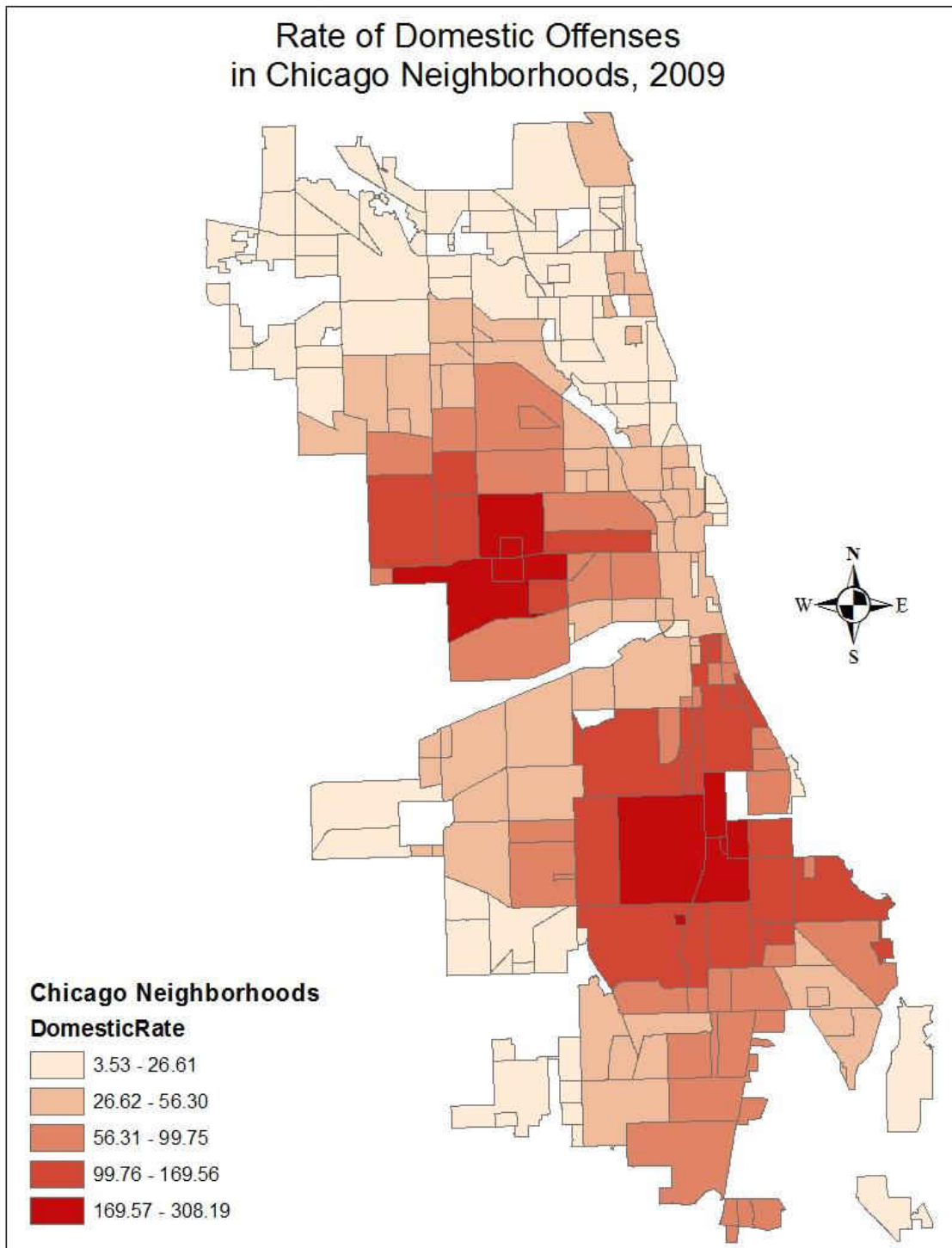
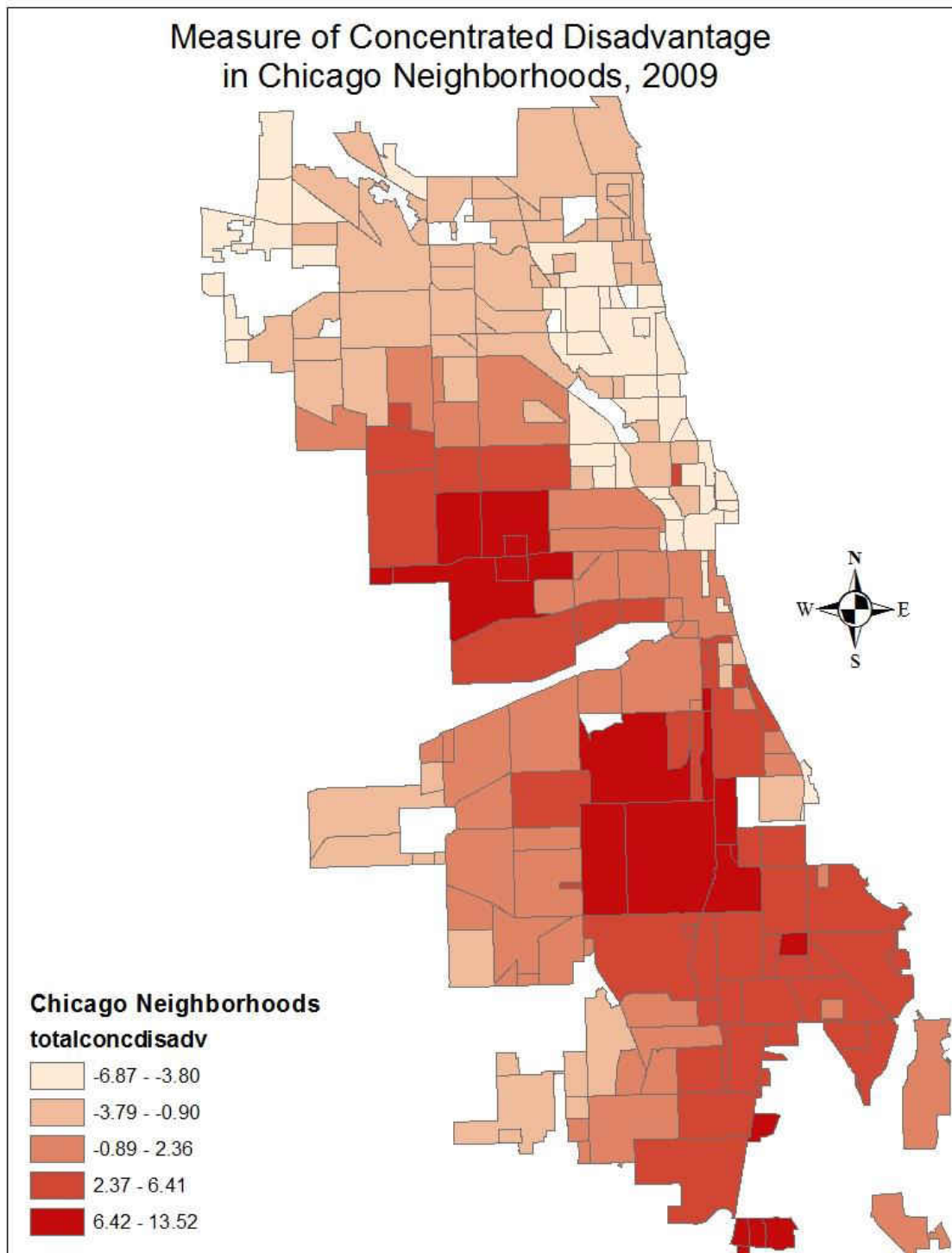Figure 7. Rate of Domestic Offenses in Chicago Neighborhoods, 2009, N = 228

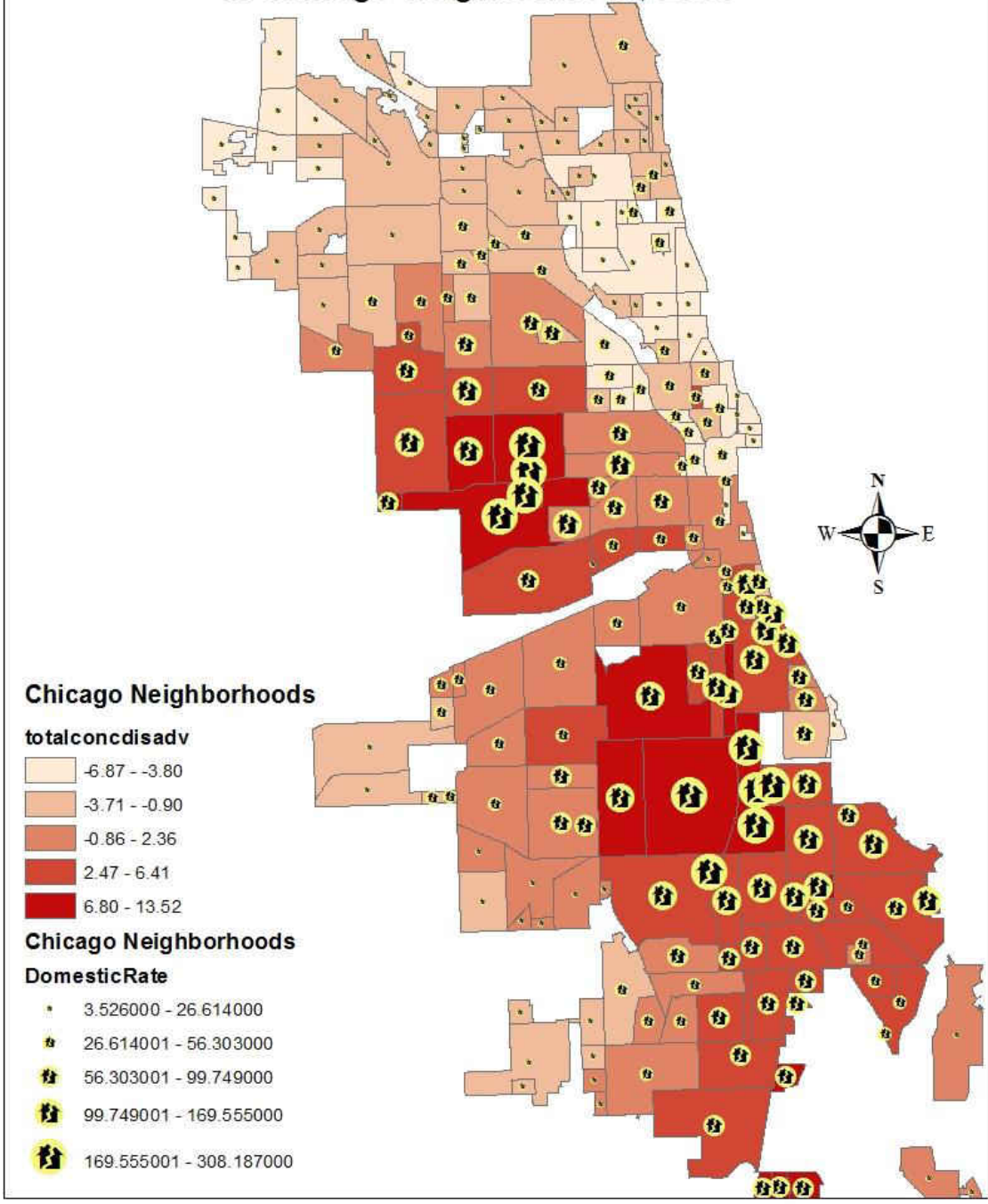Figure 8. Measure of Concentrated Disadvantage in Chicago Neighborhoods, 2009, N = 228

Figure 9. Rate of Domestic Offenses and Measure of Concentrated Disadvantage in Chicago Neighborhoods, 2009, N = 228
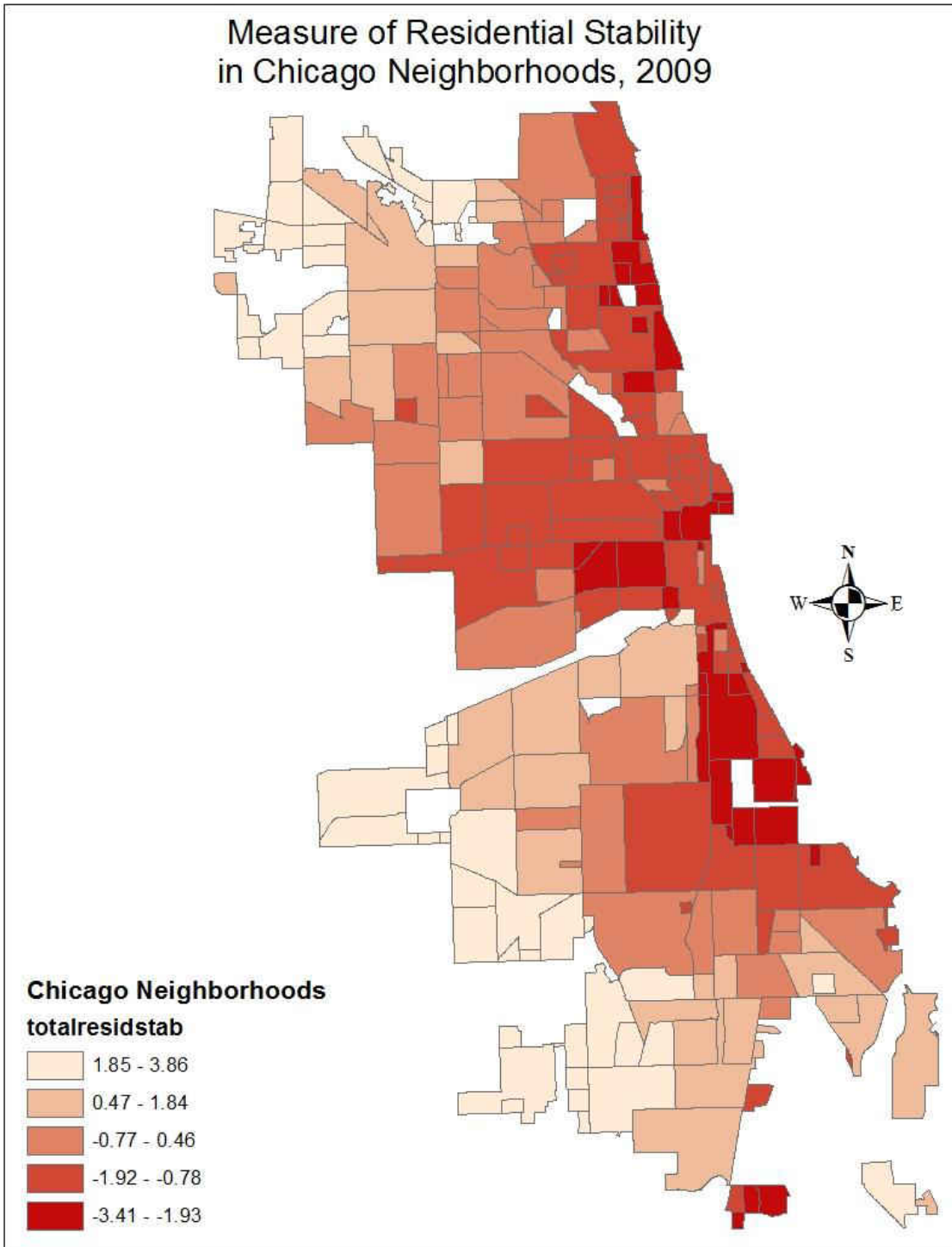
Figure 10. Measure of Residential Stability in Chicago Neighborhoods, 2009, N = 228

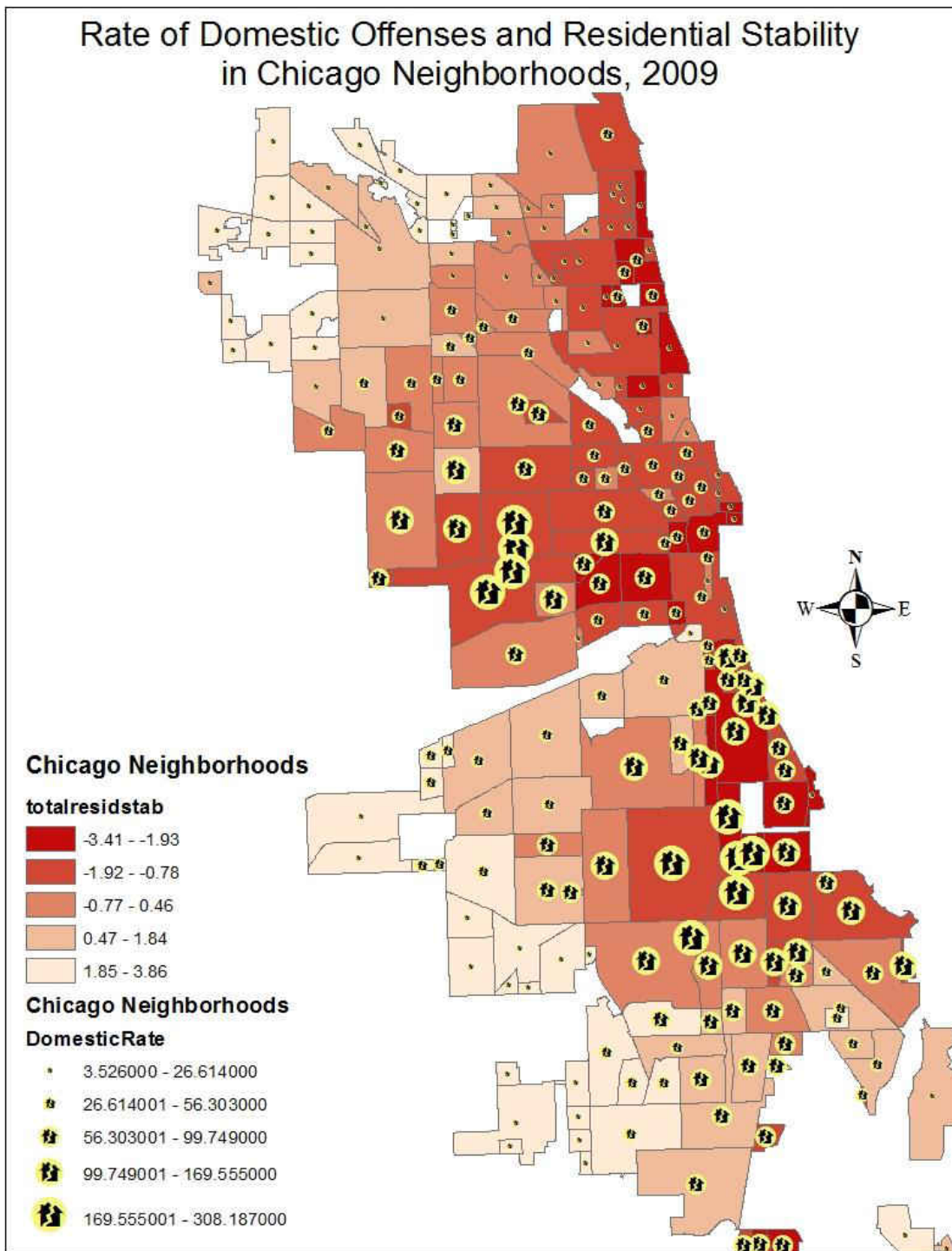Figure 11. Rate of Domestic Offenses and Measure of Residential Stability in Chicago Neighborhoods, 2009, N = 228
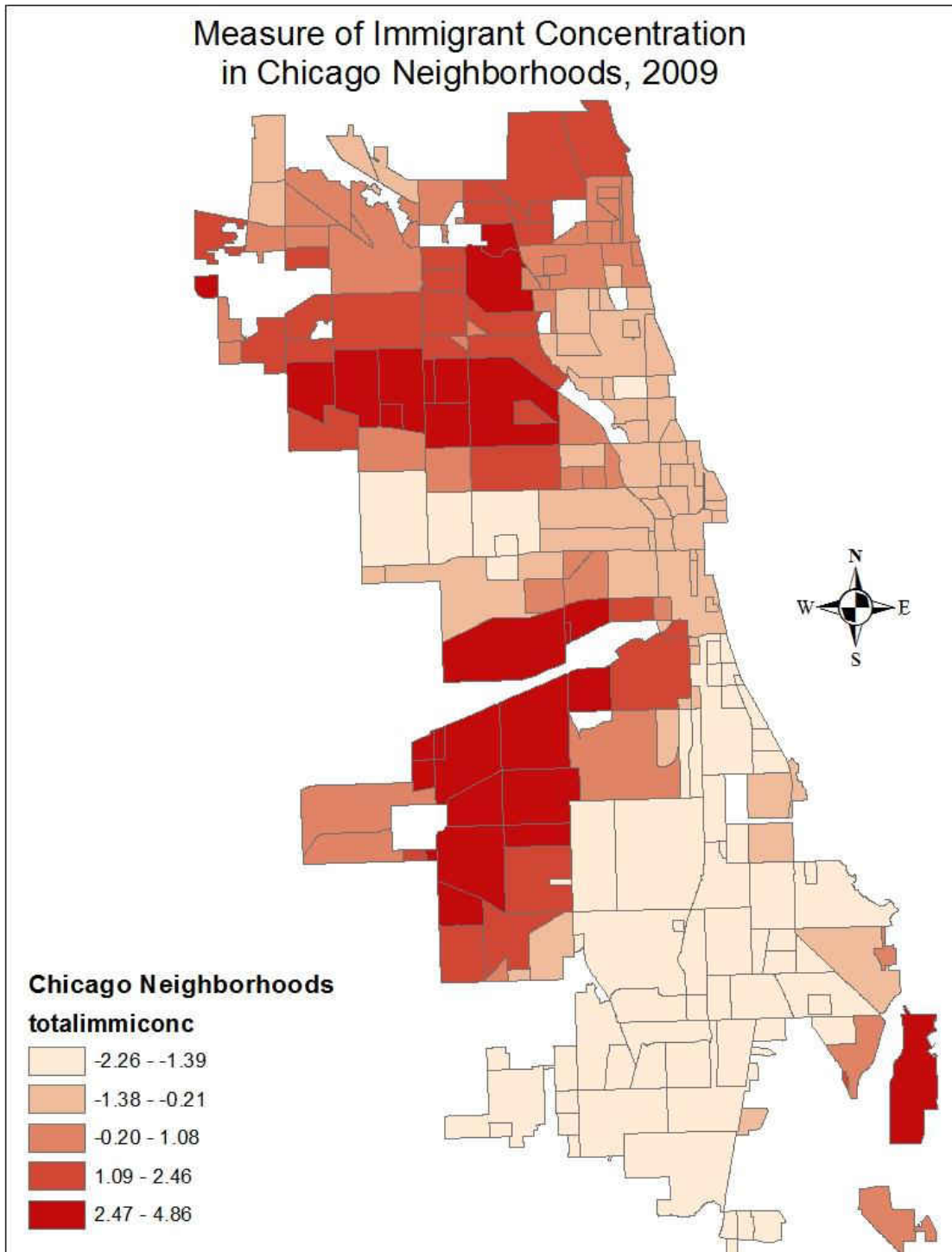
Figure 12. Measure of Immigrant Concentration in Chicago Neighborhoods, 2009,
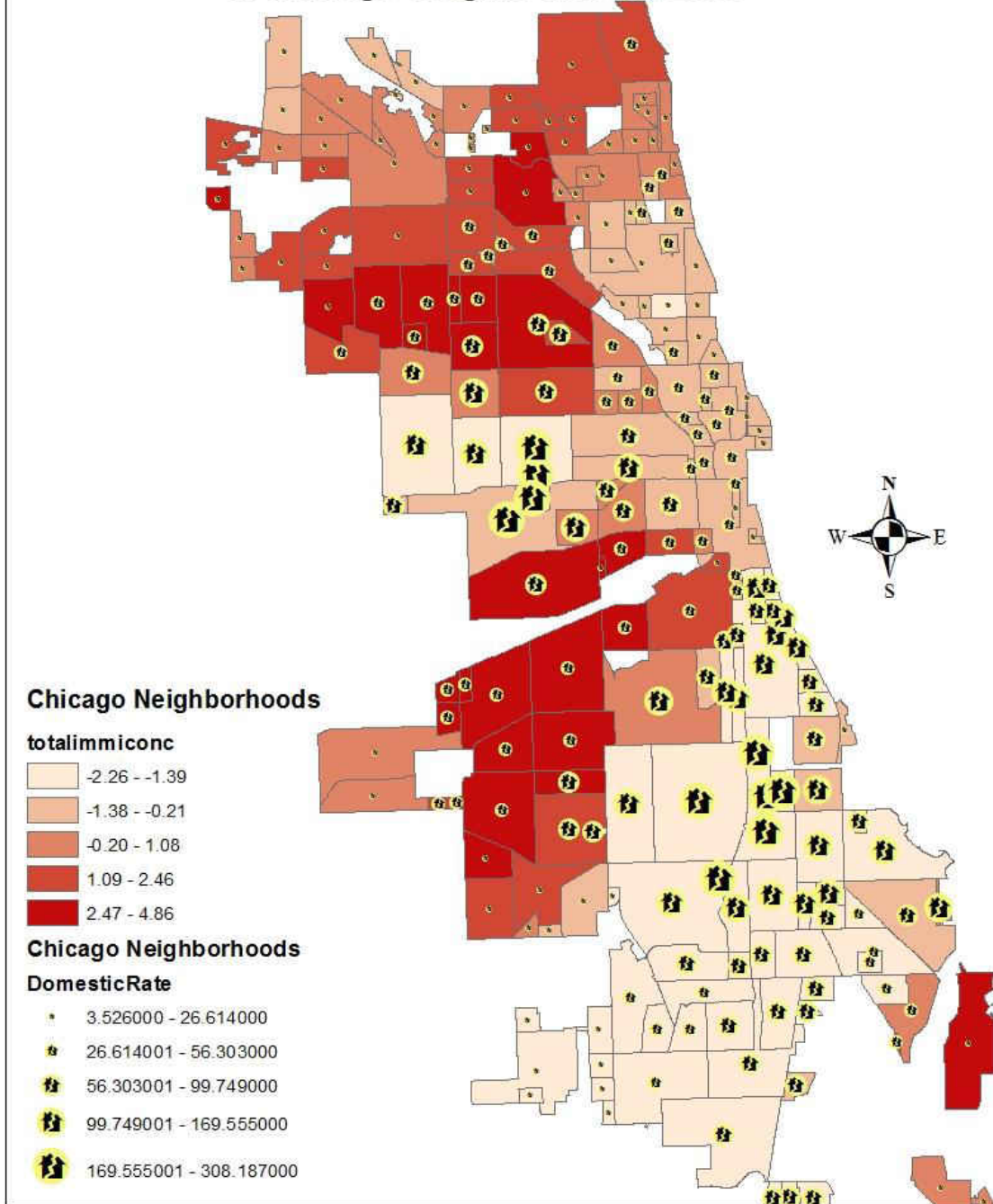
N = 228

Figure 13. Rate of Domestic Offenses and Measure of Immigrant Concentration in Chicago Neighborhoods, 2009, N = 228
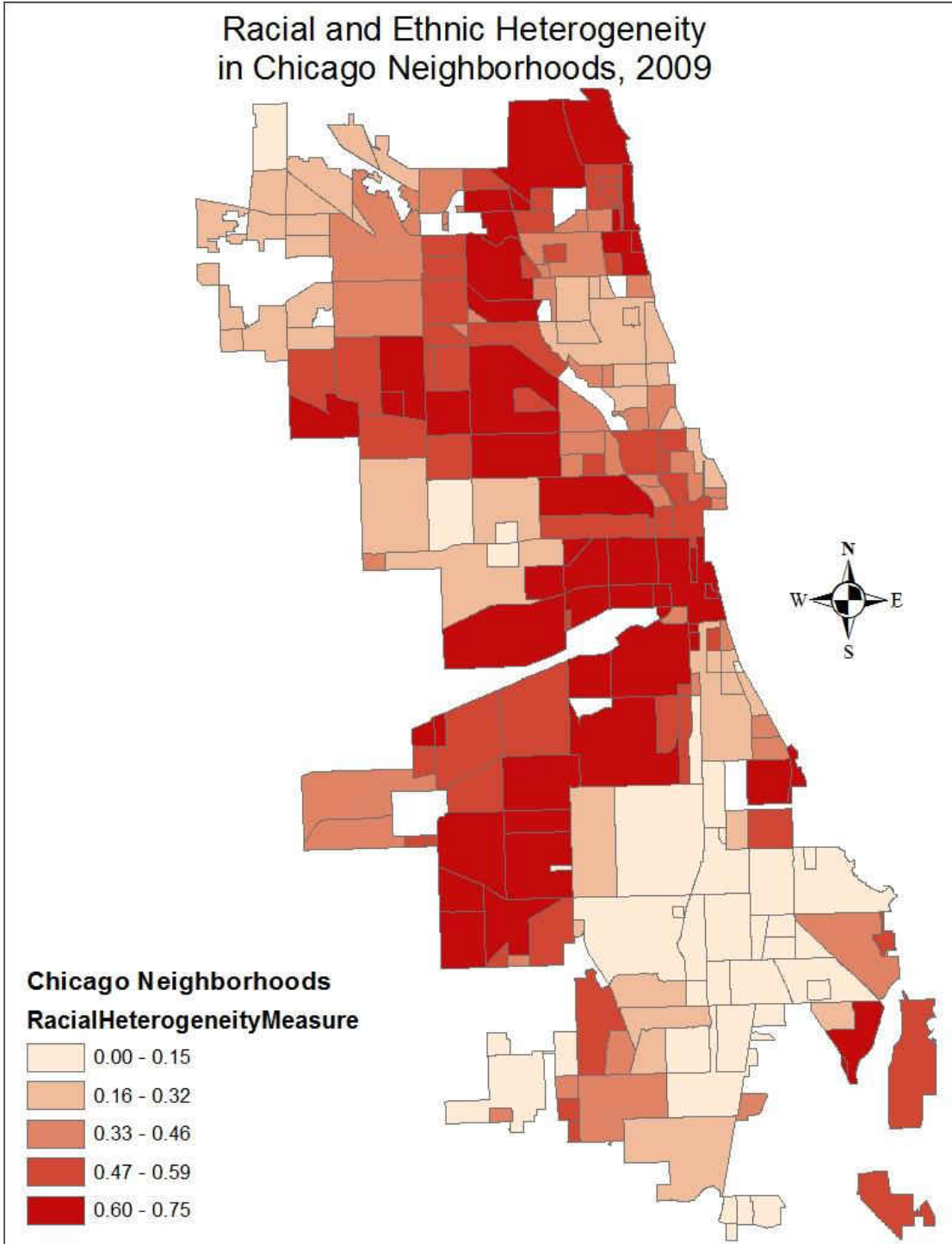
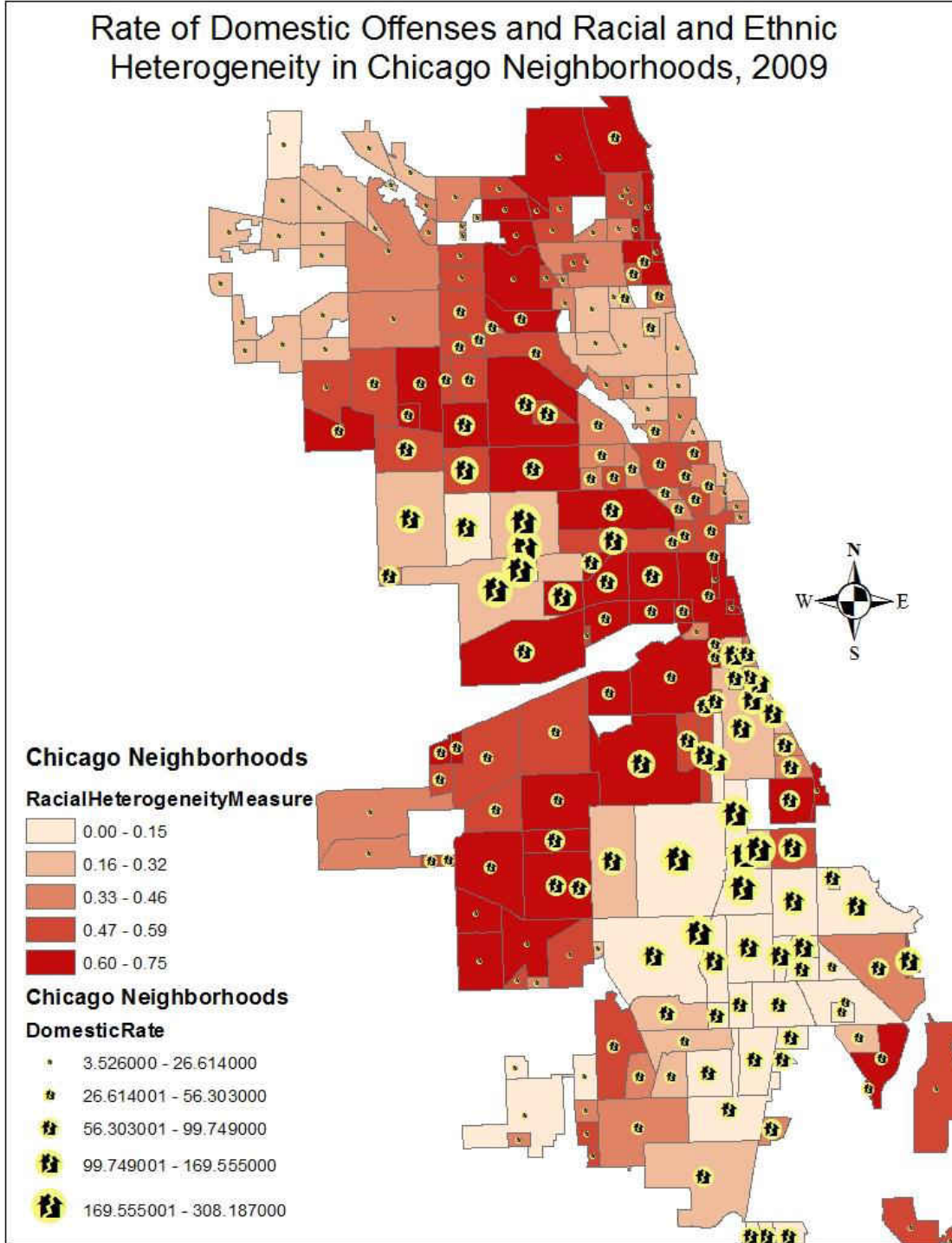Figure 14. Racial and Ethnic Heterogeneity in Chicago Neighborhoods, 2009, N = 228

Figure 15. Rate of Domestic Offenses and Racial and Ethnic Heterogeneity in Chicago Neighborhoods, 2009, N = 228

Illinois County GIS Analysis

Figure 16 presents the rate of domestic offenses (per 100,000 people) in Illinois counties in 2009. The greatest rates of domestic offenses in Illinois counties appear to be concentrated in a few counties located in the central portion of the state: Sangamon, Macon, and Champaign. Stephenson County in the north and Crawford County in the east also had high rates of domestic offenses in 2009. Figure 17 presents a map showing the measure of concentrated disadvantage in Illinois counties in 2009. In 2009, the greatest measure of concentrated disadvantage in the State of Illinois was in Alexander and Pulaski counties in the southern portion of the state. These two counties (Alexander and Pulaski) had relatively low rates of domestic offenses in 2009. One of the counties that had a high rate of domestic offenses in 2009, Crawford County, also had a high measure of concentrated disadvantage. The other four counties that had high rates of domestic offenses in 2009 (Sangamon, Macon, Champaign, and Stephenson) had moderate measures of concentrated disadvantage, indicating that the county was not disadvantaged but was not advantaged either.

Figure 18 presents a map of the measure of residential stability, a measure of social disorganization, for Illinois counties. When looking at Figure 18, lighter shades of red indicate residential *instability* within the county. Sangamon, Stephenson, and Crawford counties, the three counties with high rates of domestic offenses, also exhibited residential instability in 2009. Macon and Champaign counties, which also reported high rates of domestic offenses, were exhibited residential stability in 2009. Figure 19 shows a map of the measure of immigrant concentration in Illinois counties. In 2009, the greatest concentration of immigrants in Illinois was located in the northeastern quadrant of the state in Lake, Cook, and Kane counties. These

three counties (Lake, Cook, and Kane) reported moderate rates of domestic offenses in 2009. Figure 20 shows racial and ethnic heterogeneity in Illinois counties. The greatest racial and ethnic diversity appears to be concentrated in the same counties that have high immigrant concentration, low residential stability, higher measures of concentrated disadvantage, and high rates of domestic offenses: Sangamon, Macon, Crawford, Stephenson, and Champaign counties.
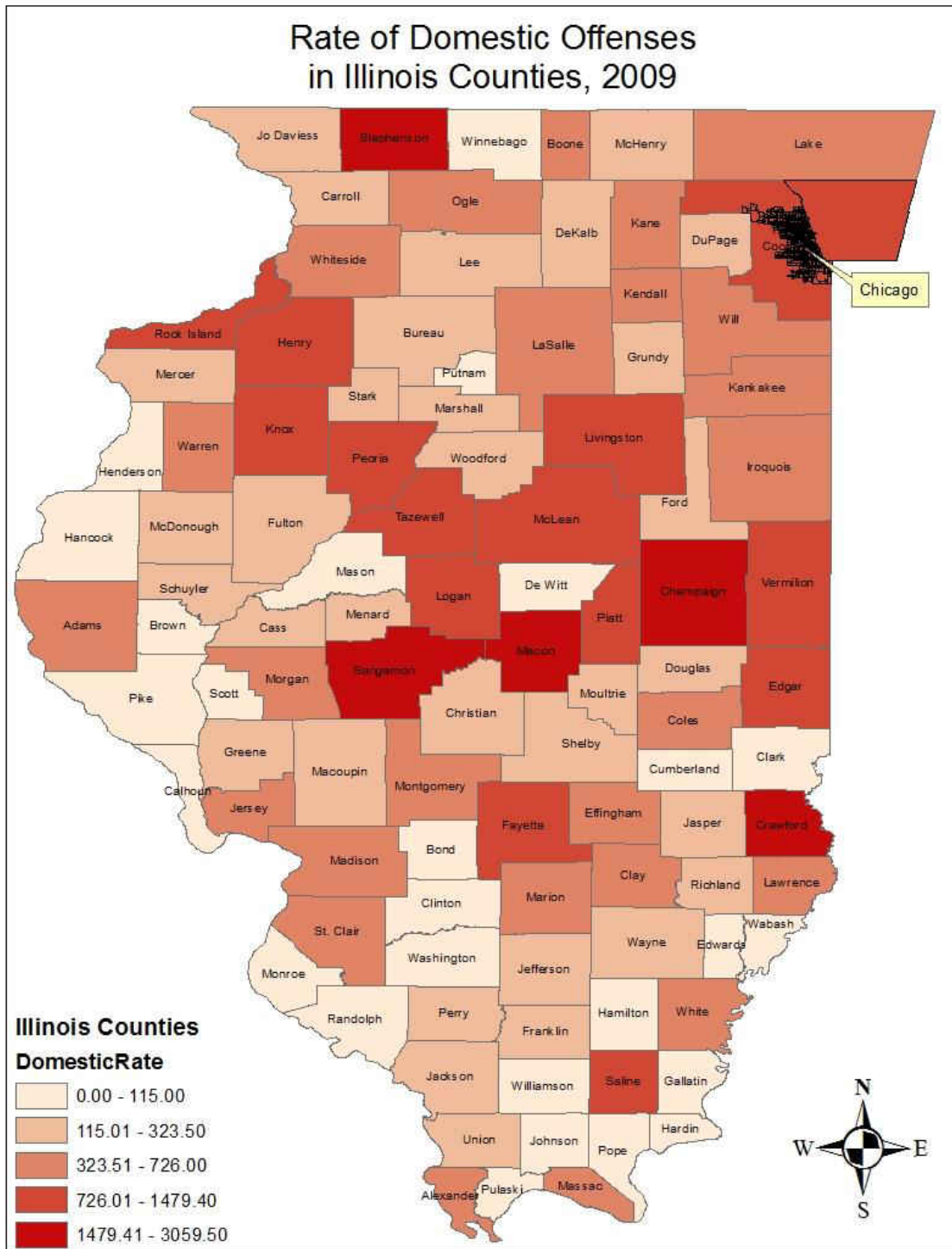
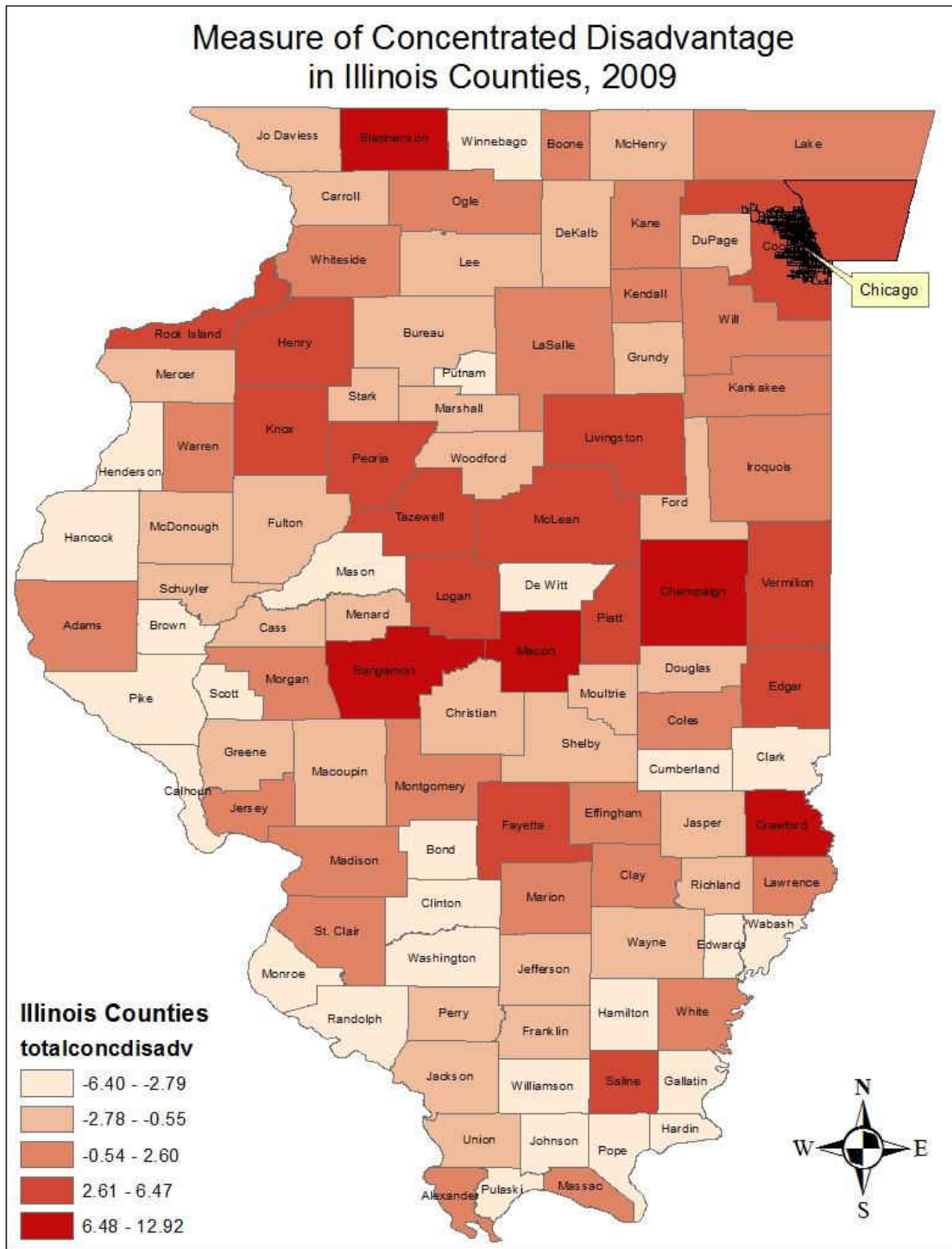Figure 16. Rate of Domestic Offenses in Illinois Counties, 2009, N = 102

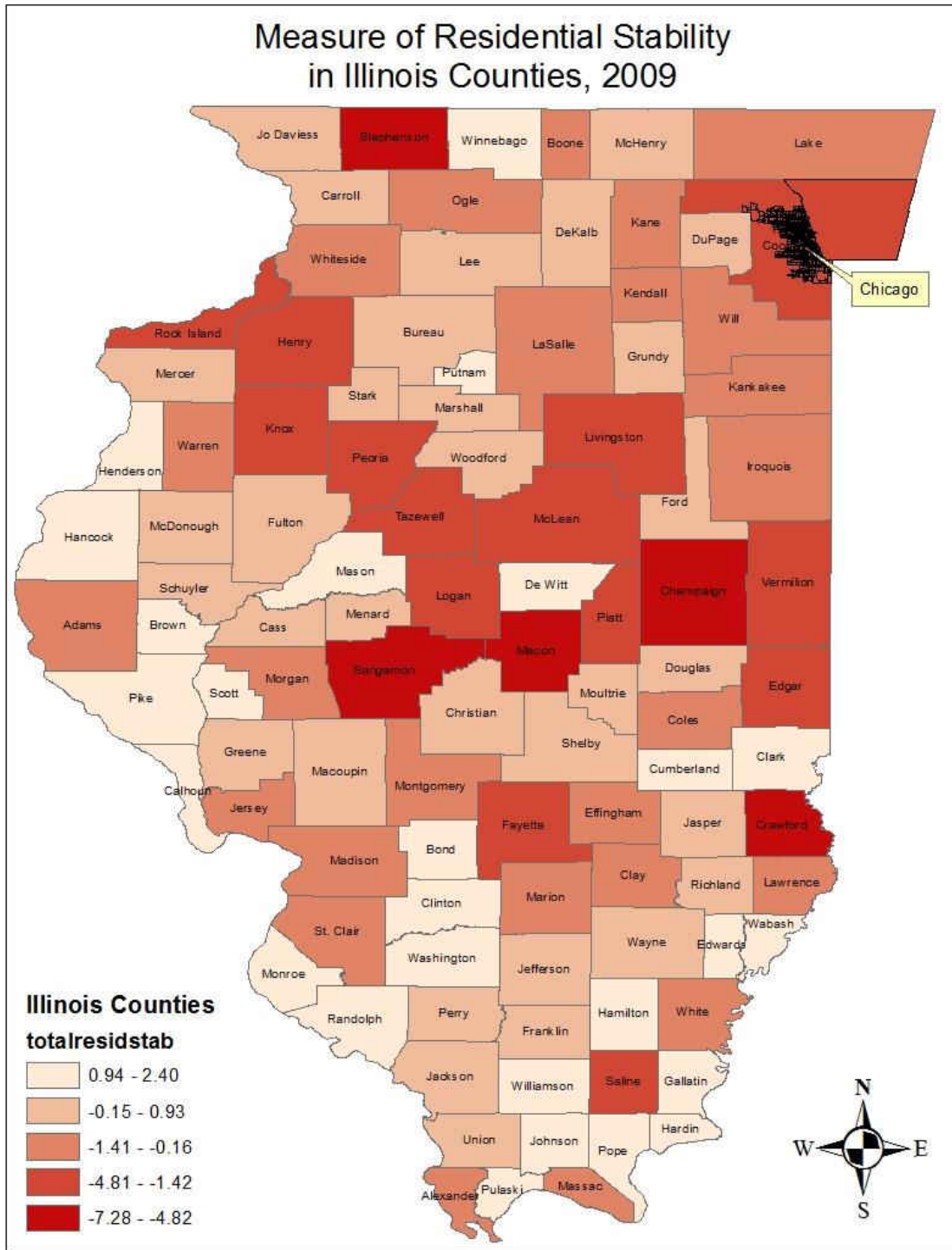Figure 17. Measure of Concentrated Disadvantage in Illinois Counties, 2009, N = 102

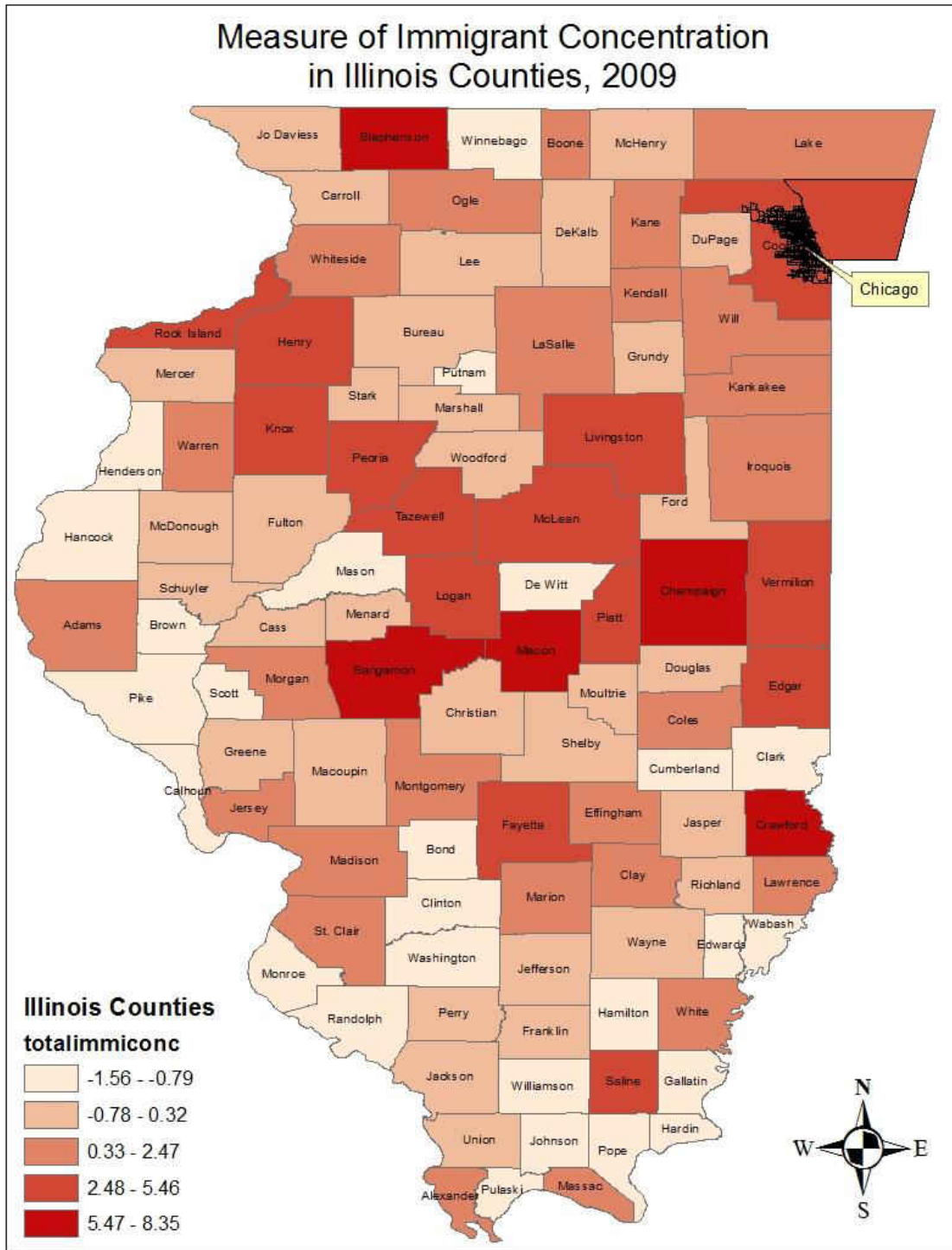Figure 18. Measure of Residential Stability in Illinois Counties, 2009, N = 102

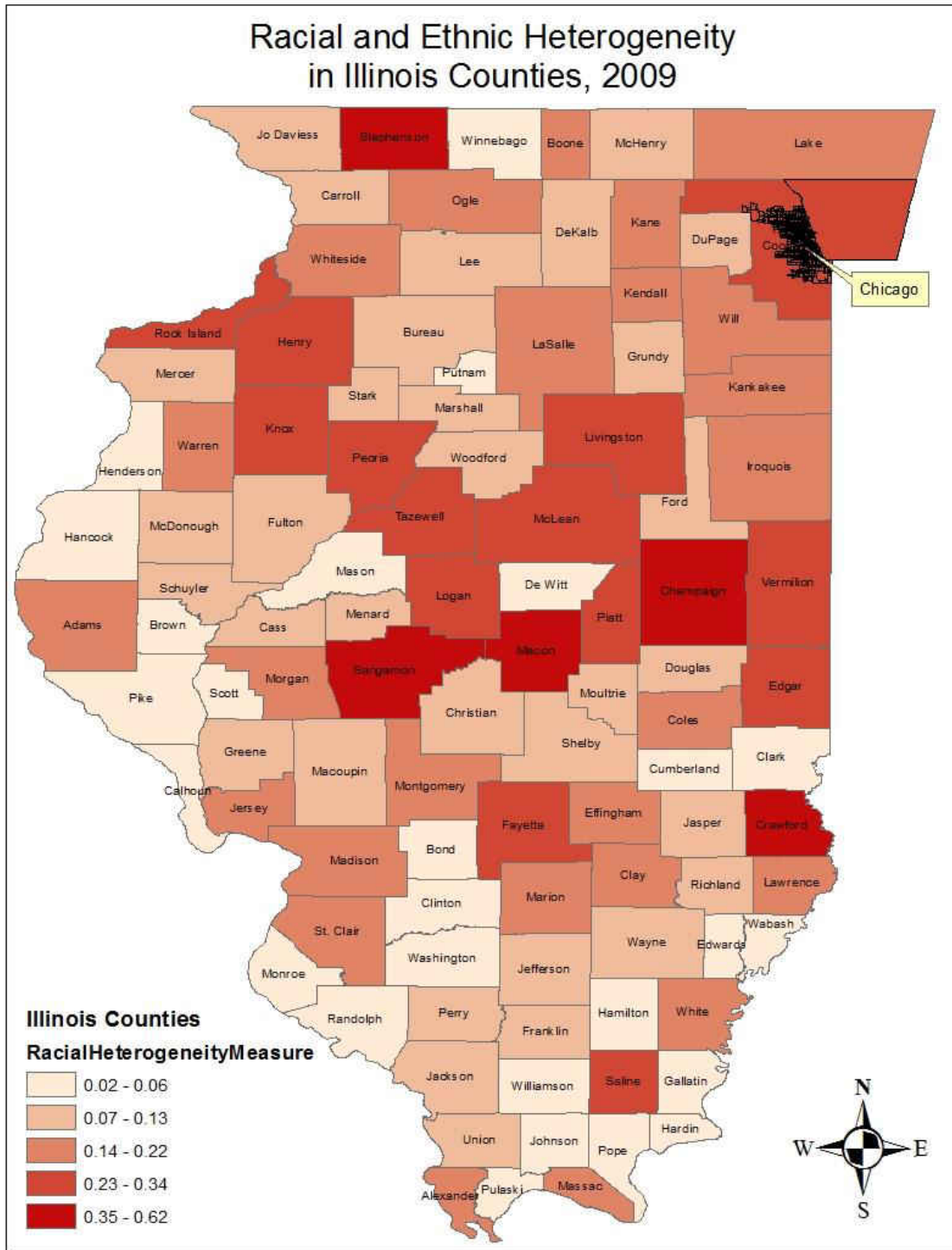Figure 19. Measure of Immigrant Concentration in Illinois Counties, 2009, N = 102

Figure 20. Racial and Ethnic Heterogeneity in Illinois Counties, 2009, N = 102

Spatial Autocorrelation Analyses

Prior to the analysis of the LISA statistics, global Moran's I analyses were conducted using the rate of domestic offenses in Chicago census tracts, Chicago neighborhoods, and Illinois counties. As stated previously, the global Moran's I assesses spatial autocorrelation within the general study area and is often analyzed prior to the LISA (Andresen, 2011; Anselin, 1995). For Chicago census tracts, the pattern of the domestic offense rate was not statistically significant, indicating that the pattern does not appear to be significantly different than random (i=-.001). The null hypothesis was not rejected. The global Moran's I statistic was statistically significant at the .01 level for Chicago neighborhoods, indicating that there is less than a one percent likelihood that the clustered pattern of the rate of domestic offenses could be the result of a random chance (i=.196, p<.01). The null hypothesis was rejected. Finally, in Illinois counties, the global Moran's I was statistically significant at the .01 level, indicating that there is less than a one percent likelihood that the result could be random (i=.010, p<.01). The null hypothesis was also rejected for the Illinois county analysis.

Maps presenting local indicators of spatial association, or LISAs, were created using ArcGIS 10 software in order to further examine the relationship between spatial autocorrelation and the rate of domestic offenses in Chicago census tracts, Chicago neighborhoods, and Illinois counties. The LISA statistics measure spatial autocorrelation within each geographic area in a given unit of analysis. The LISA maps were created based on the rate of domestic offenses in each unit of analysis included in study: Chicago census tracts (Figure 21), Chicago neighborhoods (Figure 22), and Illinois counties (Figure 23).

Figure 21 presents the results of a LISA analysis for rates of domestic offenses in Chicago census tracts for the year 2009 (N = 852). The majority of Chicago census tracts, represented by the color grey, were not statistically significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating that domestic offenses were randomly dispersed in most Chicago census tracts in 2009. A number of Chicago census tracts concentrated in the central portion of the city, however, were statistically significant at the 0.05 alpha level and did exhibit clustering. The darker green color indicated high values of domestic offense rates in these census tracts and high values of domestic offense rates in neighboring census tracts. This indicates positive spatial autocorrelation in these census tracts. One census tract, represented by the color orange, had a low rate of domestic offenses; however, neighboring census tracts have high rates of domestic offenses indicating negative spatial autocorrelation. Two census tracts in Chicago had high rates of domestic offenses with neighboring tracts having low rates of domestic offenses; these census tracts are the light green color. These two census tracts exhibited negative spatial autocorrelation. No census tracts in Chicago exhibited the form low-low indicating low rates of domestic offenses and low rates of domestic offenses in neighboring tracts.

Figure 22 presents the results of a LISA analysis for rates of domestic offenses in Chicago neighborhoods for the year 2009 (N = 228). The majority of Chicago neighborhoods, represented by the color grey, were not statistically significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating that domestic offenses were randomly dispersed in most Chicago neighborhoods in 2009. However, 11 Chicago neighborhoods concentrated in the central portion of the city were statistically significant at the 0.05 level and did exhibit positive spatial autocorrelation. In addition, a number of neighborhoods on the south

side of Chicago also exhibited high-high clustering. The darker green color represented high values of domestic offense rates in these neighborhoods and high values of domestic offense rates in surrounding neighborhoods. No neighborhoods in Chicago exhibited the remaining three types of relationships: high-low, low-high, or low-low.

Figure 23 presents the results of a LISA analysis for rates of domestic offenses in Illinois counties for the year 2009 (N = 102). The majority of Illinois counties, represented by the color grey, were not statistically significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating that domestic offenses were randomly dispersed in most Illinois counties in 2009. However, five Illinois counties were statistically significant at the 0.05 level and did exhibit spatial autocorrelation. The darker green color indicated high values of domestic offense rates in three counties and high values of domestic offense rates in surrounding counties. Logan, Champaign, and Vermilion counties exhibited positive spatial autocorrelation. One county in the state, DeWitt, had a low rate of domestic offenses but was surrounded by counties that had high rates of domestic offenses, signifying negative spatial autocorrelation. Crawford County had a high rate of domestic offenses; however, neighboring counties had low rates of domestic offenses representing negative spatial autocorrelation.
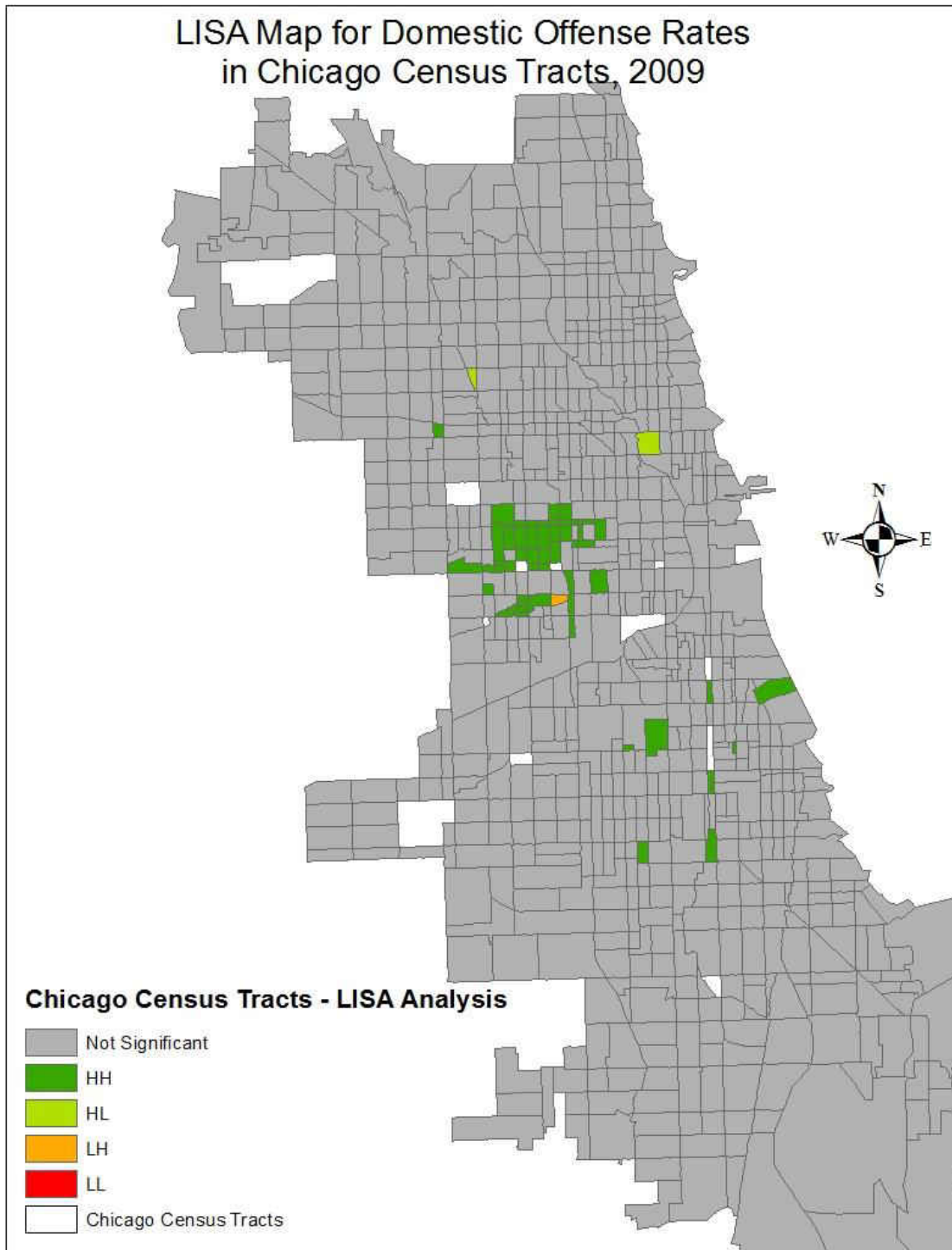
Figure 21. Results of LISA Cluster Analysis (Local Moran's I) for Chicago Census Tracts, 2009, N = 852
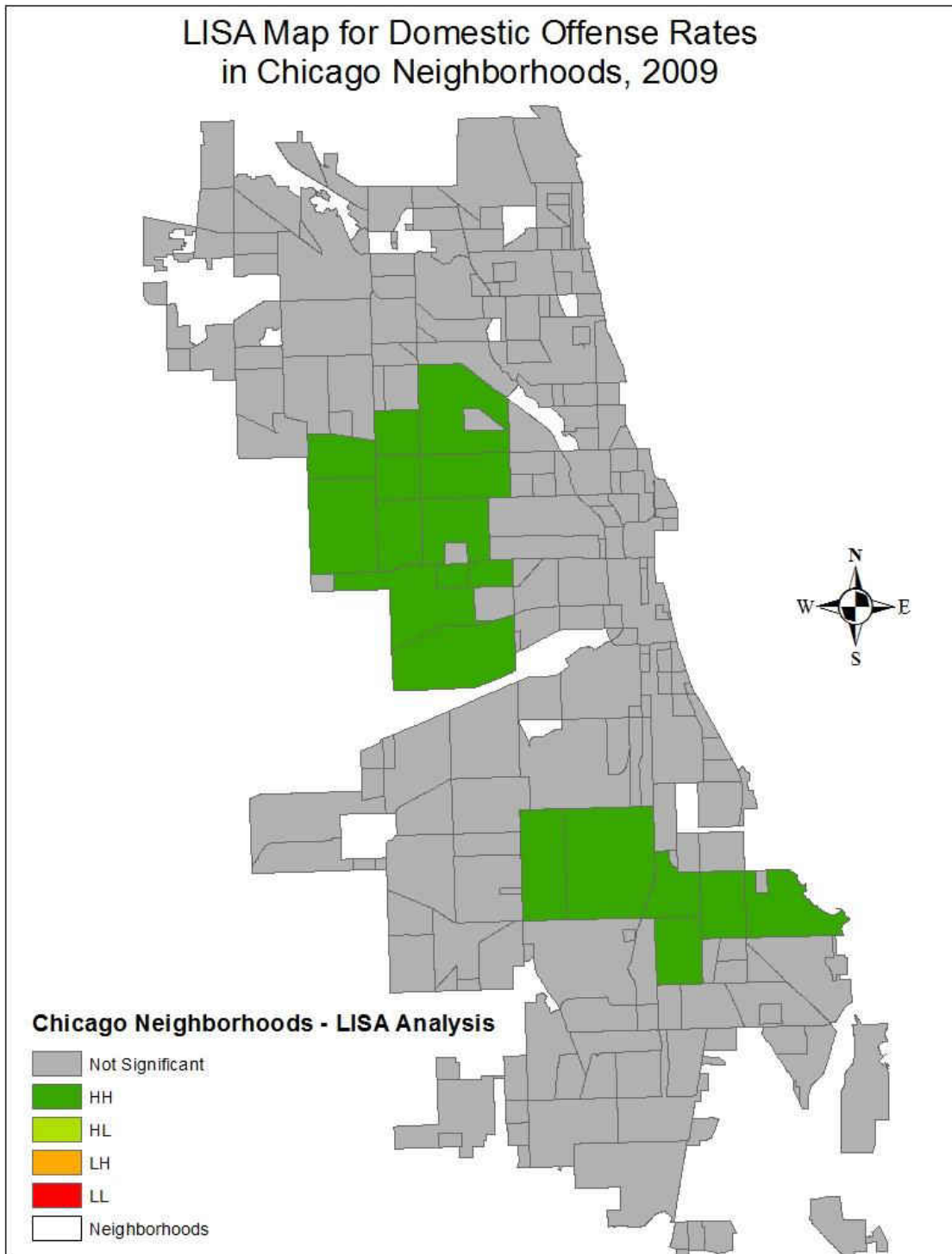
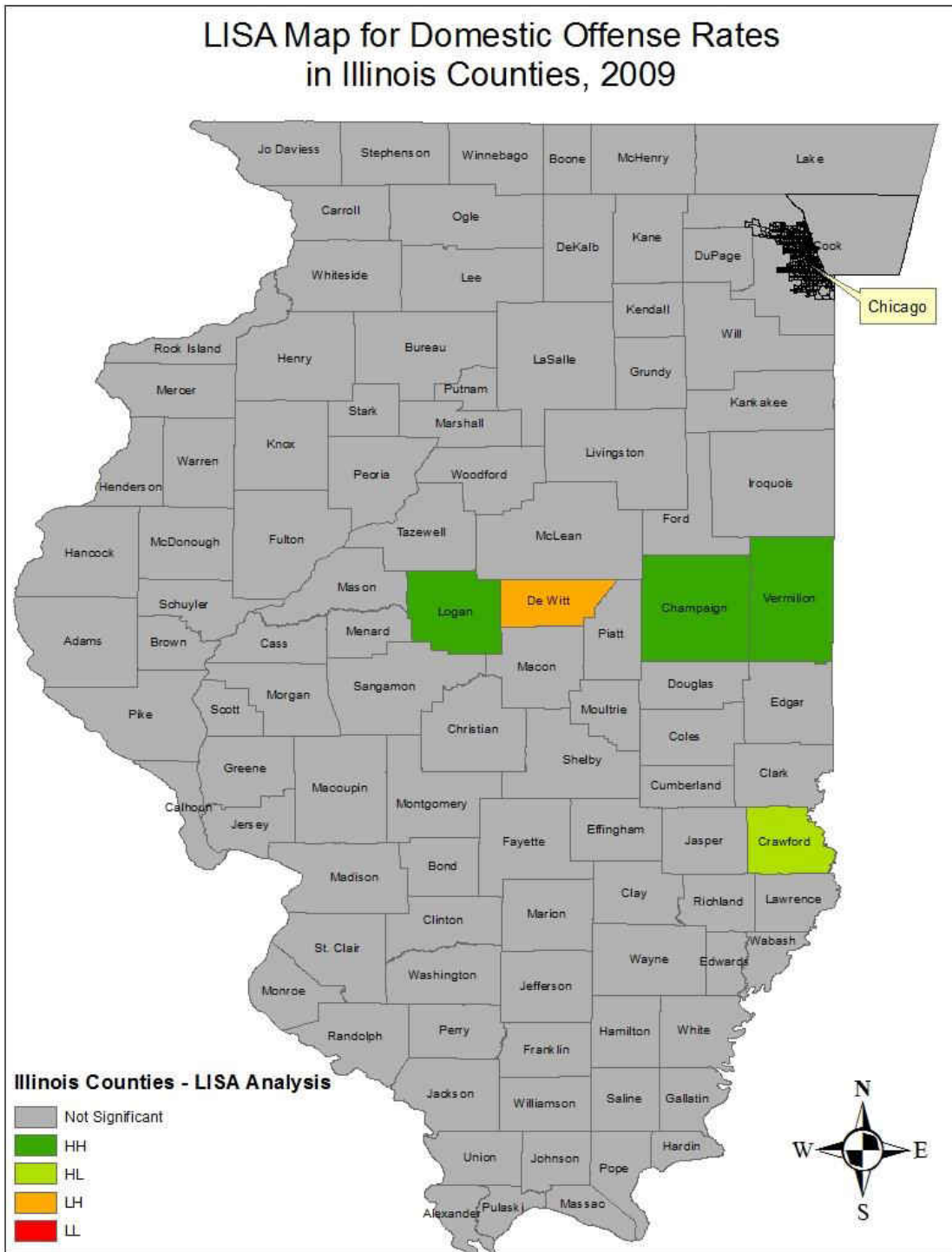Figure 22. Results of LISA Cluster Analysis (Local Moran's I) for Chicago Neighborhoods, 2009, N = 228

Figure 23. Results of LISA Cluster Analysis (Local Moran's I) for Illinois Counties, 2009,

N = 102

CHAPTER NINE: CONCLUSIONS

Discussion

This study examined the effects of social disorganization measures and domestic violence in Chicago census tracts, Chicago neighborhoods, and Illinois counties. In addition, this study included the effects of social disorganization measures on violent offenses that occurred in Chicago census tracts, Chicago neighborhoods, and Illinois counties in order to compare the effects of the disorganization measures on public and private crimes. Measures of social disorganization included racial and ethnic heterogeneity, concentrated disadvantage, residential instability, and immigrant concentration.

Four research questions were answered in this study: (1) What characteristics of social disorganization are associated with domestic offenses in Chicago at the census tract-level; (2) What characteristics of social disorganization are associated with domestic offenses in Chicago at the neighborhood-level; (3) What characteristics of social disorganization are associated with domestic offenses in Illinois at the county-level; and (4) Is there a difference in what measures of social disorganization are associated with a greater number of domestic offenses across different units of analysis?

The first research question aimed to understand what characteristics of social disorganization were associated with domestic offenses in Chicago census tracts. When controlling for the percent of vacant housing units within a Chicago census tract, racial and ethnic heterogeneity, concentrated disadvantage, immigrant concentration, and residential instability were significantly associated with domestic offenses. When the control variable,

percent of vacant housing units, was removed from the model, these measures of social disorganization were significant. Although racial and ethnic heterogeneity was significantly associated with domestic offenses, it was significantly associated with a decrease in domestic offenses. Therefore, full support was only found for Hypothesis 1 (concentrated disadvantage) in Chicago census tracts. Partial support was found for Hypothesis 2 (residential instability) because only one measure of residential instability was significantly associated with an increase in domestic offenses.

The second research question aimed to understand what characteristics of social disorganization were associated with domestic offenses in Chicago neighborhoods. When controlling for the percent of vacant housing units, concentrated disadvantage and residential instability were significantly associated with an increase in domestic offenses while immigrant concentration was significantly associated with a decrease in domestic offenses. These measures of social disorganization remained significant when the control variable was not included in the model. Therefore, Hypothesis 5 (concentrated disadvantage) and Hypothesis 6 (residential instability) were fully supported in the multivariate analysis; Hypothesis 7 (immigrant concentration) and Hypothesis 8 (racial and ethnic heterogeneity) were not supported.

The third research question aimed to understand what characteristics of social disorganization were associated with domestic offenses in Illinois counties. When the control variables were included in the model immigrant concentration was the only measure of social disorganization that was significantly associated with domestic offenses. When the control variables were not included in the model, none of the measures of social disorganization were significantly associated with domestic offenses. Hypothesis 11 (immigrant concentration) was partially supported in the multivariate analysis.

The final research questions aimed to understand if a difference existed in what measures of social disorganization were associated with domestic offenses at different levels of aggregation. Based on the results of this study, there were differences in what measures of social disorganization were significantly associated with an increase in domestic offenses. Greater concentrated disadvantage and greater residential instability were associated with an increase in domestic offenses in Chicago census tracts. Greater concentrated disadvantage and greater residential instability were also associated with an increase in domestic offenses in Chicago neighborhoods. Finally, a greater concentration of immigrants was the only measure of social disorganization that was associated with domestic offenses in Illinois counties; however, it significantly decreased the number of domestic offenses in Illinois counties. Table 20 presents an overview of which measures of social disorganization were significantly associated with domestic offenses in each unit of analysis.

Table 20

Measures of Social Disorganization Significantly Associated with Domestic Offenses in Chicago Census Tracts, Chicago Neighborhoods, and Illinois Counties

	Chicago Census Tracts	Chicago Neighborhoods	Illinois Counties
Independent Variables (Social Disorganization Measures)			
Concentrated Disadvantage Measure	(+)	(+)	
Immigrant Concentration Measure	(-)	(-)	(-)
Residential Stability Measure		(-)	
% of Owner Occupied Housing Units	(-)		
% Same House for the Past Year			
Racial and Ethnic Heterogeneity	(-)		

Note: (+) indicates a significant increase in the rate of domestic offenses while (-) indicates a significant decrease in the rate of domestic offenses.

<u>Limitations</u>

There are a few limitations to this study that may be important directions for future researchers. First, because this study utilized a secondary data analysis, there was no way to measure collective efficacy as a characteristic of socially disorganized areas. Collective efficacy is commonly defined as "social cohesion combined with shared expectations for social control" (Sampson, 2012, p. 27). The use of collective efficacy measures are important to the study of social disorganization and domestic violence and are welcomed in future research studies to contribute to the existing literature on the topic.

Another limitation to the examination of neighborhood characteristics and the ability to predict an increase in aggregated crime rates concerns the ecological fallacy. The ecological fallacy assumes that conclusions about individuals are drawn from the observation of groups (Babbie, 2007). Paulsen and Robinson (2009) note that the behaviors of individuals are often drawn from aggregated crime data and this can lead to erroneous decisions involving public policy regarding the cessation of crime. It makes sense to look for aggregate characteristics that are associated with crime rates, however, future researchers must remember that aggregating crime data the findings are for the unit of aggregation and not predictions of individual-level behaviors.

The final limitation of this study is that it only focuses on the City of Chicago and the State of Illinois and therefore researchers generalizing the findings of this study must use caution. This study concludes that particular characteristics of socially disorganized census tracts, neighborhoods, and counties influence rates of domestic violence. However, these findings may not be consistent with research in other geographic areas. Future research

131

examining other urban, suburban, and rural areas would contribute to the literature in this area in order to determine if these effects are unique to Chicago and the State of Illinois.

<u>Theoretical and Policy Implications</u>

This study applied social disorganization theory to the examination of domestic violence in Chicago census tracts, Chicago neighborhoods, and Illinois counties. In addition, this study also examined measures of social disorganization to the examination of violent crimes in Chicago census tracts, Chicago neighborhoods, and Illinois counties in order to compare the effects of the disorganization measures between two different types of crimes. The results of this study provide theoretical implications and contributions to researchers examining these phenomena.

Findings from this study indicated that there were measures of social disorganization that were associated with an increase in domestic violence in Chicago census tracts and Chicago neighborhoods, therefore, concluding that there are some neighborhood characteristics that do impact the rate of domestic violence. Concentrated disadvantage and residential instability were the measures of social disorganization that were associated with an increased rate of domestic violence. Previous researchers have also reported that communities plagued with concentrated disadvantage have increased rates of domestic violence compared to communities that are not disadvantaged (Benson et al., 2003; Benson et al., 2004; Fox & Benson, 2006; Hetling & Zhang, 2010; Reed et al., 2008; Wright, 2011; Wright & Benson, 2011). There has been limited research indicating that a relationship exists between residential instability and rates of domestic violence. However, the findings have been mixed with some researchers concluding that residential instability may increase domestic violence (Li et al., 2010) and others reporting the

opposite (Browning, 2002). Overall, it appears that particular characteristics of socially disorganized areas may be a good predictor of domestic violence and violent crime rates in these smaller units of aggregation.

In addition to contributing to the research examining measures of social disorganization and domestic violence, this study also examined the relationship between measures of social disorganization and violent crimes (e.g., murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault) and contributes to the literature in this area.   Many researchers examining violent crime and socially disorganized areas have reported significant relationships between these measures of social disorganization (racial and ethnic heterogeneity, immigrant concentration, concentrated disadvantage, and residential instability) and an increase in violent crime rates (Kposowa et al., 1995; MacDonald, Hipp, & Gill, 2012; Martinez et al., 2008; Morenoff et al., 2001; Osgood & Chambers, 2000; Ousey & Kubrin, 2009; Smith & Jarjoura, 1988; Sun et al., 2004). Racial and ethnic heterogeneity, the percent of owner occupied housing units (one measure of residential instability), and immigrant concentration were significantly associated with violent offenses in Chicago census tracts. As racial and ethnic heterogeneity, the percent of owner occupied housing units, and the concentration of immigrants all increased, the violent crime rate decreased. All measures of social disorganization employed in this study were associated with violent crime rates in Chicago neighborhoods. Racial and ethnic heterogeneity, concentrated disadvantage, and residential instability were associated with an increase in violent crime rates while immigrant concentration was associated with a decrease in violent crime rates.

As can be seen from the analyses, particular measures of social disorganization were associated with an increase in domestic violence and violent crimes in Chicago census tracts and neighborhoods. However, the results of the Illinois county analysis did not support the tenets of

133

social disorganization theory as the census tract and neighborhood analyses did. Previous researchers applying social disorganization theory to the county-level have found support for its ability to predict crime rates (Lee, Maume, & Ousey, 2003; Osgood & Chambers, 2000). In this study, none of the measures of social disorganization were associated with an increase in rates of domestic violence in Illinois counties. Concentrated disadvantage was the only measure of social disorganization that was associated with an increase in the violent crime rate in Illinois counties. These results indicate that characteristics of socially disorganized areas may not be a good predictor of crime rates when examining larger units of aggregation. Furthermore, researchers should shy away from generalizing the effects of social disorganization on crime rates at different aggregates as the results of this study indicate that different measures were significant at different levels of aggregation.

There are also policy implications that are relevant to the results of this study that aim at decreasing rates of domestic violence. Cook County, the county in which Chicago is located, has 20 different resources for victims of domestic violence and many of these resources are located in the City of Chicago. The results of the census tract-level and neighborhood-level analyses may provide these domestic violence shelters and resources with valuable insight that may allow them to focus on the areas of Chicago that are plagued with high rates of domestic violence. Additional resources or a redistribution of resources, into areas of Chicago that are disadvantaged and experience a high degree of residential mobility may be important in an effort to decrease rates of domestic violence.

Furthermore, the policy implications of this research may be extended to the county-level. The county-level analysis indicated that counties with domestic violence programs and resources were expected to have an increased rate of domestic offenses compared to counties

with no programs and resources. It may be that domestic violence programs in the county raises

public awareness of the problem and helps to define it as a crime. Increased interactions

between domestic violence professionals and local law enforcement may aid in increased

reporting of domestic crimes to the police.

APPENDIX: IRB LETTER

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901, 407-882-2012 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

From : **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To : **Rachel E. Morgan**

Date : **September 28, 2012**

Dear Researcher:

On 9/28/2012 the IRB determined that the following proposed activity is not human research as defined by DHHS regulations at 45 CFR 46 or FDA regulations at 21 CFR 50/56:

Type of Review:	Not Human Research Determination
Project Title:	Tracking Violence: Using Neighborhood-Level Characteristics in the Analysis of Domestic Offenses in Chicago and the State of Illinois
Investigator:	Rachel E. Morgan
IRB ID:	SBE-12-08699
Funding Agency:	
Grant Title:	
Research ID:	N/A

University of Central Florida IRB review and approval is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are to be made and there are questions about whether these activities are research involving human subjects, please contact the IRB office to discuss the proposed changes.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 09/28/2012 04:17:25 PM EDT

IRB Coordinator

REFERENCES

Akers, R. L., & Sellers, C. S. (2009). *Criminological theories: Introduction, evaluation, and application.* New York, NY: Oxford University Press.

Andresen, M. A. (2011). Estimating the probability of local crime clusters: The impact of immediate spatial neighbors. *Journal of Criminal Justice, 39*(5), 394-404.

Anselin, L. (1995). Local indicators of spatial autocorrelation – LISA. *Geographical Analysis, 27*(2), 93-115.

Anselin, L., Cohen, J., Cook, D., Gorr, W., & Tita, G. (2000). *Spatial analysis of crime.* In D. Dufee (Ed.), *Criminal Justice 2000, Volume 4, Measurement and Analysis of Crime and Justice* (pp.213-262). Washington, DC: National Institute of Justice. Retrieved from National Institute of Justice website:

https://www.ncjrs.gov/criminal_justice2000/vol_4/04e.pdf

Anselin, L., Syabri, I., & Kho, Y. (2006). GeoDa: An introduction to spatial data analysis. *Geographical Analysis, 38*(1), 5-22.

Assuncao, R. M., & Reis, E. A. (1999). A new proposal to adjust Moran's I for population density. *Statistics in Medicine, 18*(16), 2147-2162.

Babbie, E. (2007). *The practice of social research, 11th edition.* Belmont, CA: Thomson Higher Education.

Baller, R. D., Anselin, L., Messner, S. F., Deane, G., & Hawkins, D. F. (2001). Structural covariates of U.S. county homicide rates: Incorporating spatial effects. *Criminology, 39*(3), 561-590.

Barnett, C., & Mencken, F. C. (2002). Social disorganization theory and the contextual nature of crime in nonmetropolitan counties. *Rural Sociology, 67*(3), 372-393.

Baron, L., & Straus, M. A. (1989). *Four theories of rape in American society: A state-level analysis.* New Haven, CT and London: Yale University Press.

Bellair, P. E. (1997). Social interaction and community crime: Examining the importance of neighbor networks. *Criminology, 35*(4), 677-703.

Belsky, J. (1980). Child maltreatment: An ecological integration. *American Psychologist, 35*(4), 320-335.

Benson, M. L., Fox, G. L., DeMaris, A., & Van Wyk, J. (2003). Neighborhood disadvantage, individual economic distress and violence against women in intimate relationships. *Journal of Quantitative Criminology 19*(3), 207-235.

Benson, M. L., Wooldredge, J., Thistlethwaite, A. B., & Fox, G. L. (2004). The correlation between race and domestic violence is confounded with community context. *Social Problems, 51*(3), 326-342.

Black, M.C., Basile, K.C., Breiding, M.J., Smith, S.G., Walters, M.L., Merrick, M.T., Chen, J., & Stevens, M.R. (2011). The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

Block, C. R., & Skogan, W. G. (2002). Do collective efficacy and community capacity make a difference "behind closed doors?" Washington, DC: U.S. Department of Justice.

Bowker, L. H., Arbitell, M., & McFerron, J. R. (1988). On the relationship between wife beating and child abuse. In K. Yllo & M. Bograd (Eds.), *Feminist Perspectives on Wife Abuse* (pp. 158-174). Newbury Park, CA: Sage Publications, Inc.

Browning, C. R. (2002). The span of collective efficacy: Extending social disorganization theory to partner violence. *Journal of Marriage and Family 64*(4), 833-850.

Browning, C. R., Feinberg, S. L., & Dietz, R. D. (2004). The paradox of social organization: Networks, collective efficacy, and violent crime in urban neighborhoods. *Social Forces, 83*(2), 503-534.

Burgess, E. (1925). The growth of a city. In Park, R., Burgess, E., & McKenzie, D. (Eds.), *The City.* Chicago, IL: University of Chicago Press.

Bursik Jr., R. J., & Grasmick, H. G. (1993). *Neighborhoods and crime: The dimensions of effective community control.* New York, NY: Lexington Books.

Carlson, B. E. (1984). Causes and maintenance of domestic violence: An ecological analysis. *Social Service Review, 58*(4), 569-587.

Carlson, B. E., Worden, A. P., van Ryn, M., & Bachman, R. (2003). Violence Against Women: Synthesis of Research for Practitioners. Washington, DC: U.S. Department of Justice.

Cliff, A. D., & Ord, J. K. *Spatial autocorrelation.* New York, NY: Methuen, Inc.

Coker, A. L., Smith, P. H., Bethea, L., King, M. R., & McKeown, R. E. (2000). Physical health consequences of physical and psychological intimate partner violence. *Archives of Family Medicine, 9,* 451-457.

Cunradi, C. B., Caetano, R., Clark, C., & Schafer, J. (2000). Neighborhood poverty as a predictor of intimate partner violence among white, black, and Hispanic couples in the United States: A multilevel analysis. *Annals of Epidemiology 10*(5), 297-308.

DeKeseredy, W. S., & Schwartz, M. D. (2011). Theoretical and definitional issues in violence against women. In Renzetti, C. M., Edleson, J. L., & Bergen, R. K. (Eds.), *Sourcebook on Violence Against Women* (pp. 3-20). Thousand Oaks, CA: Sage Publications, Inc.

Earls, F. J., Raudenbush, S. W., Reiss Jr., A. J., & Sampson, R. J. (1995). *Project on human development in Chicago neighborhoods (PHDCN): Systematic social observation, 1995* (ICPSR 13578). Retrieved from University of Michigan, Inter-University Consortium for Political and Social Research website:

http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/13578?archive=ICPSR&q=phdcn

Emery, C. R., Jolley, J. M., & Wu, S. (2011). Desistance from intimate partner violence: the role of legal cynicism, collective efficacy, and social disorganization in Chicago neighborhoods. *American Journal of Community Psychology, 48*(3-4), 373-383.

Fantuzzo, J., Boruch, R., Beriama, A., Atkins, M., & Marcus, S. (1997). Domestic violence and children: Prevalence and risk in five major U.S. cities. *Journal of the American Academy of Child & Adolescent Psychiatry, 36*(1), 116-122.

Fantuzzo, J. W., & Fusco, R. A., (2007). Children's direct exposure to types of domestic violence crime: A population-based investigation. *Journal of Family Violence 22*(7), 543-552.

Federal Bureau of Investigation. (2011). *Violent Crime. Uniform Crime Report – Crime in the United States, 2010.* U.S. Department of Justice, Federal Bureau of Investigation. Retrieved from http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/violent-crime/violentcrimemain.pdf

Flake, D. F. (2005). Individual, family, and community risk markers for domestic violence in Peru. *Violence Against Women, 11*(3), 353-373.

Fox, G. L., & Benson, M. L. (2006). Household and neighborhood contexts of intimate partner violence. *Public Health Reports, 121*(4), 419-427.

Golding, J. M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence, 14*(2), 99-132.

Hamby, S., Finkelhor, D., Turner, H., & Ormrod, R. (2010). The overlap of witnessing partner violence with child maltreatment and other victimizations in a nationally representative survey of youth. *Child Abuse & Neglect, 34*(10), 734-741.

Hetling, A., & Zhang, H. (2010). Domestic violence, poverty, and social services: Does location matter? *Social Science Quarterly 91*(5), 1144-1163.

Hotaling, G. T., & Sugarman, D. B. (1986). An analysis of risk markers in husband to wife violence: The current state of knowledge. *Violence and Victims, 1*(2), 101-124.

Hotaling, G. T., & Sugarman, D. B. (1990). A risk marker analysis of assaulted wives. *Journal of Family Violence, 5*(1), 1-13.

Hunnicutt, G. (2007). Female status and infant and child homicide victimization in rural and urban counties in the U.S. *Gender Issues, 24*(3), 35-50.

Jacob, J. C. (2006). Male and female youth crime in Canadian communities: Assessing the applicability of social disorganization theory. *Canadian Journal of Criminology and Criminal Justice, 48*(1), 31-60.

Jain, S., Buka, S. L., Subramanian, S. V., & Molnar, B. E. (2010). Neighborhood predictors of dating violence victimization and perpetration in young adulthood: A multilevel study. *American Journal of Public Health 100*(9), 1737-1744.

Jasinski, J. L., Wesely, J. K., Wright, J. D., & Mustaine, E. E. (2010). *Hard lives, mean streets. Violence in the lives of homeless women.* Boston, MA: Northeastern University Press.

Jewkes, R., Levin, J., & Penn-Kekana, L. (2002). Risk factors for domestic violence: findings from a South African cross-sectional study. *Social Science & Medicine, 55*(9), 1603-1617.

Johnson, M. P., & Ferraro, K. J. (2000). Research on domestic violence in the 1990s: Making Distinctions. *Journal of Marriage and the Family, 62*(4), 948-963.

Kaufman Kantor, G., & Jasinski, J. L. (1998). Dynamics and risk factors in partner violence. In Jasinski, J. L., & Williams, L. M. (Eds.), *Partner Violence: A comprehensive review of 20 years of research* (pp. 1-43). Thousand Oaks, CA: Sage Publications, Inc.

Kposowa, A. J., Breault, K. D., & Harrison, B. M. (1995). Reassessing the structural covariates of violent and property crimes in the USA: a county level analysis. *British Journal of Sociology, 46*(1), 79-105.

Krivo, L. J., & Peterson, R. D. (1996). Extremely disadvantaged neighborhoods and urban crime. *Social Forces, 75*(2), 619-650.

Kubrin, C. E., & Weitzer, R. . (2003a). New directions in social disorganization theory. *Journal of Research in Crime and Delinquency 40*(4), 374-402.

Kubrin, C. E., & Weitzer, R. (2003b). Retailatory homicide: Concentrated disadvantage and neighborhood culture. *Social Problems, 50*(2), 157-180.

Kyriacou, D. N., Anglin, D., Taliaferro, E., Stone, S., Tubb, T., Linden, J. A., Muelleman, R., Barton, E., & Kraus, J. F. (1999). Risk factors for injury to women from domestic violence. *The New England Journal of Medicine, 341*(25), 1892-1898.

Lanier, C., & Maume, M. O. (2009). Intimate partner violence and social isolation across the rural/urban divide. *Violence Against Women, 15*(11), 1311-1330.

Laurikkala, M. K. (2011). *Juvenile homicides: A social disorganization perspective.* El Paso, TX: LFB Scholarly Publishing LLC.

Lee, M. R., Maume, M. O., & Ousey, G. C. (2003). Social isolation and lethal violence across the metro/nonmetro divide: The effects of socioeconomic disadvantage and poverty concentration on homicide. *Rural Sociology, 68*(1), 107-131.

Leone, J. M., Johnson, M. P., Cohan, C. L., & Lloyd, S. E. (2004). Consequences of male partner violence for low-income minority women. *Journal of Marriage and Family, 66*(2), 472-490.

Lersch, K. M., & Hart, T. C. (2011). *Space, time, and crime. Third Edition.* Durham, NC: Carolina Academic Press.

Li, Q., Kirby, R. S., Sigler, R. T., Hwang, S., LaGory, M. E., & Goldenberg, R. L. (2010). A multilevel analysis of individual, household, and neighborhood correlates of intimate partner violence among low-income pregnant women in Jefferson County, Alabama. *American Journal of Public Health 100*(3), 531-539.

Lowenkamp, C. T., Cullen, F. T., & Pratt, T. C. (2003). Replicating Sampson and Groves's test of social disorganization theory: Revisiting a criminological classic. *Journal of Research in Crime and Delinquency, 40*(4), 351-373.

MacDonald, J. M., Hipp, J. R., & Gill, C. (2012). The effects of immigrant concentration on changes in neighborhood crime rates. *Journal of Quantitative Criminology,* 1-25.

Macmillan, R., & Gartner, R. (1999). When she brings home the bacon: Labor-force participation and the risk of spousal violence against women. *Journal of Marriage and Family, 61*(4), 947-958.

Martinez Jr., R., Rosenfeld, R., & Mares, D. (2008). Social disorganization, drug market

    activity, and neighborhood violent crime. *Urban Affairs Review, 43*(6), 846-874.

McFarlane, J., Willson, P., Malecha, A., & Lemmey, D. (2000). Intimate partner violence: A

    gender comparison. *Journal of Interpersonal Violence, 15*(2), 158-169.

Miles-Doan, R. (1998). Violence between spouses and intimates: Does neighborhood context

    matter? *Social Forces 77*(2), 623-645.

Miles-Doan, R., & Kelly, S. (1997). Geographic concentration of violence between intimate

    partners. *Public Health Reports 112*(2), 135-141.

Morenoff, J. D., Sampson, R. J., & Raudenbush, S. W. (2001). Neighborhood inequality,

    collective efficacy, and the spatial dynamics of urban violence. *Criminology, 39*(3), 517-

    559.

Olson, C. P., Laurikkala, M. K., Huff-Corzine, L., & Corzine, J. (2009). Immigrant and violent

    crime: Citizenship status and social disorganization. *Homicide Studies, 13*(3), 227-241.

Osgood, D. W. (2000). Poisson-based regression analysis of aggregate crime rates. *Journal of*

    Quantitative Criminology, 16(1), 21-43.

Osgood, D. W., & Chambers, J. M. (2000). Social disorganization outside the metropolis: An

    analysis of rural youth violence. *Criminology, 38*(1), 81-116.

Ousey, G. C. (1999). Homicide, structural factors, and the racial invariance assumption.

    Criminology, 37(2), 405-426.

Ousey, G. C., & Kubrin, C. E. (2009). Exploring the connection between immigration and

    violent crime rates in U.S. cities, 1980-2000. *Social Problems, 56*(3), 447-473.

Paulsen, D. J., & Robinson, M. B. (2009). *Crime mapping and spatial aspects of crime. Second*

    Edition. Upper Saddle River, NJ: Pearson Education Inc.

Pinchevsky, G. M., & Wright, E. M. (2012). The impact of neighborhoods on intimate partner violence and victimization. *Trauma, Violence, & Abuse, 13*(2), 112-132.

Raghavan, C., Mennerich, A., Sexton, E., & James, S. E. (2006). Community violence and its direct, indirect, and mediating effects on intimate partner violence. *Violence Against Women, 12*(12), 1132-1149.

Reed, E., Silverman, J. G., Raj, A., Rothman, E. F., Decker, M. R., Gottlieb, B. R., Molnar, B. E., & Miller, E. (2008). Social and environmental contexts of adolescent and young adult male perpetrators of intimate partner violence: A qualitative study. *American Journal of Men's Health 2*(3), 260-271.

Riggs, D. S., Caulfield, M. B., & Street, A. E. (2000). Risk for domestic violence: Factors associated with perpetration and victimization. *Journal of Clinical Psychology, 56*(10), 1289-1316.

Rose, D. R., & Clear, T. R. (1998). Incarceration, social capital, and crime: Implications for social disorganization theory. *Criminology, 36*(3), 441-479.

Rothman, E. F., Johnson, R. M., Young, R., Weinberg, Azrael, D., & Molnar, B. E. (2011). Neighborhood-level factors associated with physical dating violence perpetration: Results of a representative survey conducted in Boston, MA. *Journal of Urban Health 88*(2), 201-213.

Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighborhood effect.* Chicago, IL: The University of Chicago Press.

Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology, 94*(4), 774-802.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*(5328), 918-924.

Shaw, C. R., & McKay, H. D. (1969). *Juvenile Delinquency and Urban Areas*. Chicago, IL: University of Chicago Press.

Shoemaker, D. J. (2010). *Theories of delinquency: An examination of explanations of delinquent behavior.* New York, NY: Oxford University Press.

Smith, D. A., & Jarjoura, G. R. (1988). Social structure and criminal victimization. *Journal of Research in Crime and Delinquency, 25*(1), 27-52.

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The conflict tactics (CT) scales. *Journal of Marriage and the Family, 41*(1), 75-88.

Straus, M. A., Hamby, S. L., Boney-McCoy, S., & Sugarman, D. B. (1996). The revised conflict tactics scales (CTS2): Development and preliminary psychometric data. *Journal of Family Issues, 17*(3), 283-316.

Sun, I. Y., Triplett, R., & Gainey, R. R. (2004). Neighborhood characteristics and crime: A test of Sampson and Groves' model of social disorganization. *Western Criminology Review, 5*(1), 1-16.

Tjaden, P., & Thoennes, N. (2000). *Extent, nature, and consequences of intimate partner violence: Findings from the National Violence Against Women Survey.* Washington, DC: U.S. Department of Justice.

U.S. Census Bureau. (2012). *Residence One Year Earlier.* Retrieved from U.S. Census Bureau website*:* http://quickfacts.census.gov/qfd/meta/long_POP715210.htm

U.S. Census Bureau. (2012). *QuickFacts from the U.S. Census Bureau – State & County QuickFacts. Chicago (city), Illinois.* Retrieved from U.S. Census Bureau website: http://quickfacts.census.gov/qfd/states/17/1714000.html

Van Wyk, J. A., Benson, M. L., Fox, G. L., & DeMaris, A. (2003). Detangling individual-, partner-, and community-level correlates of partner violence. *Crime & Delinquency 49*(3), 412-438.

Veysey, B. M., & Messner, S. F. (1999). Further testing of social disorganization theory: An elaboration of Sampson and Groves's "community structure and crime." *Journal of Research in Crime and Delinquency, 36*(2), 156-174.

Weatherburn, D. (2011, August). *Personal stress, financial stress and violence against women* (Issue Brief No. 151). New South Wales, AU: Bureau of Crime Statistics and Research.

Wingood, G. M., DiClemente, R. J., & Raj, A. (2000). Adverse consequences of intimate partner abuse among women in non-urban domestic violence shelters. *American Journal of Preventive Medicine, 19*(4), 270-275.

Wolfe, D. A., Crooks, C. V., Lee, V., McIntrye-Smith, A., & Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review, 6*(3), 171-187.

Wright, E. M. (2011). *Neighborhoods and intimate partner violence.* El Paso, TX: LFB Scholarly Publishing LLC.

Wright, E. M., & Benson, M. L. (2010). Immigration and intimate partner violence: Exploring the immigrant paradox. *Social Problems, 57*(3), 480-503.

Wright, E. M., & Benson, M. L. (2011). Clarifying the effects of neighborhood context on violence "behind closed doors." *Justice Quarterly, 28*(5), 775-798.

Zhang, T., & Lin, G. (2008). Identification of local clusters for count data: A model-based

    Moran's I test. *Journal of Applied Statistics, 35*(3), 293-306.