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# Domestic Stalking, Violation of Protective Orders, and Homicide in Chicago: The Influence of Social Disorganization and Gender Inequality

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DOMESTIC STALKING, VIOLATION OF PROTECTIVE ORDERS, AND HOMICIDE IN CHICAGO: THE INFLUENCE OF SOCIAL DISORGANIZATION AND GENDER INEQUALITY

by

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# ABSTRACT

Domestic violence has been considered a serious issue for many decades. This problem manifests itself physically, sexually, and emotionally and can affect anyone. However, most of the domestic violence literature focuses specifically on physical intimate partner violence. Various theoretical frameworks have been utilized to explain the occurrence of domestic violence including social disorganization theory and gender inequality. These explanations are limited, however, with the former primarily extended to physical assault and the latter focusing on violence against women. This study is important as it extends our knowledge of how these two perspectives can be applied to domestic violence through the analysis of domestic stalking, violation of protective orders, and homicide at a structural level. Incident data for these crimes that occurred in 2016 were obtained from the Chicago data portal and demographic data were obtained from the 2016 American Community Survey's 5-year estimates. Univariate, multivariate, and spatial analyses were conducted at the census tract level to determine the associations between the two theoretical frameworks and each crime. Statistical results indicate that social disorganization theory and gender inequality can partially explain the occurrence of domestic stalking, violation of protective orders, and homicide. Concentrated disadvantage was one of the most consistent predictors of domestic violence, but the direction of the relationship varied across models. There were significant gender inequality factors, but the directions also varied. Spatial results demonstrate clustering of the crimes in areas characterized by increased social disorganization as well as areas possessive of certain indicators of gender inequality. This study is unique as it employed both social disorganization

and gender inequality frameworks at a structural level, employed various spatial analysis and

mapping techniques, and it analyzed understudied acts of domestic violence to set precedent

and open doors for future inquiry.

To the victims.

May this serve as one step in the marathon to end domestic violence.

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# CHAPTER ONE – INTRODUCTION

Domestic violence has been considered a serious issue for many decades and many

scholars have focused their efforts on studying this crime in the hopes of eradicating it.

According to a Bureau of Justice Statistics special report on nonfatal domestic violence from the

National Crime Victimization Survey (NCVS), domestic violence comprised 21% of all violent

crime from 2003 to 2012 (Truman & Morgan, 2014). That equates to approximately 1.5 million

women and more than 800,000 men that are victimized each year by an intimate partner

(Tjaden & Thoennes, 1998). Additionally, 76% of domestic violence is committed against

women and 24% is against men (Truman & Morgan, 2014). There is some variance in the

estimates of intimate partner violence. The National Survey of Families and Households

estimates that as few as three percent of couples in the United States engage in violence each

year (Brush, 1990) where other sources, such as the National Family Violence Survey, estimate

that more than 16% of couples partake in violence against each other (Straus, Gelles, &

Steinmetz, 2006). These differences can be attributed to the differing survey contexts (crime

survey vs survey about family, self-reports vs official reports, etc.)

Outcomes of various research studies have progressed the knowledge of many facets of

domestic violence including various psychological, sociological, biological, and feminist

components of perpetration and victimization. For example, the psychological literature states

that an individual's upbringing can influence the likelihood of being involved in domestic

violence as an adult (Fowler, Cantos, & Miller, 2016; Narayan, Labella, Englund, Calson, &

Egeland, 2017; Naughton, O'Donnell, & Muldoon, 2017). Sociological studies have presented

conclusions indicating that women who have some type of social support while suffering from domestic violence, suffer from fewer negative effects of that violence than those who lack social support (Campbell, Dworkin, & Cabral, 2009; Coker, Smith, Thompson, McKeown, Bethea, & Davis, 2002; Weiss, Johnson, Contractor, Peasant, Swan, & Sullivan, 2017). Biological literature has linked certain neurotransmitters to aggression and has studied their impact on domestic violence (Corvo & Dutton, 2015; Bueso-Izquierdo, Hard, Hidalgo-Ruzzante, Kropp, & Perez-Garcia, 2015). Feminist perspectives have specified how gender inequality promotes the subjugation of women, including their victimization by domestic partners (Alonso-Borrego, & Carrasco, 2017; Anderson, 1997; Guerin, & de Oliveira Ortolan, 2017). However, there is still more to be discovered.

Research on domestic violence has frequently examined crime through the scope of intimate partner violence specifically. Intimate partner violence differs from domestic violence as it focuses solely on crimes that have occurred between intimates; current/former spouses or current/former dating partners, for example. According to ten years of NCVS data, intimate partner violence accounted for 15% of all violent crime in the United States, while crimes by immediate family and other relatives only comprised four percent and two percent of crime, respectfully (Truman & Morgan, 2014). In a report from the National Intimate Partner and Sexual Violence Survey (NISVS), 37.3% of women and 30.9% of men in the United States have experienced contact sexual violence, physical violence, and/or stalking by an intimate partner in their lifetime (Smith, Chen, Basile, Gilbert, Merrick, Patel, Walling, & Jain, 2017). The cost of this intimate partner violence is estimated to be between $5.8 and $12.6 billion annually (World Health Organization, 2004).

In recent criminological history, researchers have discovered various correlates of domestic violence at the individual level with an emerging emphasis on structural-level correlates (e.g. Fox & Benson, 2006; Melton, 2007; Rosenfeld, 2014; Wright & Benson, 2011). Of importance to the structural-level explanation of criminal activity, social disorganization theory has linked socially disorganized areas to a rise in both domestic and traditional crime (Becker, 2016; Browning, Feinberg, & Dietz, 2004; Lacoe & Ellen, 2015; Osgood, 2000; Sampson, 2008). However, the domestic crimes that receive the most attention when studied under this framework are intimate partner violence in the form of assault, rape, and homicide. Other domestic crimes such as stalking and violating protective orders have received less attention. Since social disorganization has demonstrated explanatory power for the occurrence of some domestic crimes, this paper will explore if it can work in the same manner for other domestic crimes.

Gender inequality, as described by the feminist perspective, has also been pointed out as a crime catalyst. Many studies conclude that gender inequality, favoring male superiority, is a leading cause of gendered violence, both nationally and globally (e.g. Campbell, 1992; Fajnzylber, Lederman, & Loayza, 2002a; Vyas & Watts, 2009; Yodanis, 2004). However, the literature on the gender inequality perspective is limited as it largely focuses on woman battering, rape, and homicide. There is very little empirical evidence that can support or refute this perspective when it comes to other domestic violence crimes like stalking and violating protective orders. As a result, it is not known how the results of gender inequality manifests in domestic relationships outside of a positive correlation to individual level physical and

psychological outcomes. It is important that the relationship between gender inequality and different types of domestic crimes be explored to expand the knowledge of this interaction.

This study both fills in gaps and expands our limited current state of knowledge on domestic violence with the following research questions: how do structural factors indicative of social disorganization and structural gender inequality influence the occurrence of domestic violence at the census tract? Is there a difference when the crimes are parsed out by victim/offender relationship (intimate partner versus non-intimate partner)? Are these selected domestic crimes randomly distributed across space or are they spatially autocorrelated and cluster in certain areas of Chicago? If they cluster, are they in areas of social disorganization and/or gender inequality? Through the spatial and non-spatial analysis of domestic crimes, this study examines the applicability of the social disorganization and gender inequality frameworks to domestic stalking, violation of protective orders, and homicide in Chicago.

# CHAPTER TWO – THEORY AND LITERATURE

Domestic violence, not unlike violence in general or between strangers, occurs at an extremely high rate. Fortunately, researchers have a very broad bank of knowledge about domestic violence in general, including the different acts that comprise it (Bender, 2016; Berry, 2000; DeKeseredy & Schwartz, 2011), theoretical explanations (Anderberg, Rainer, Wadsworth, & Wilson, 2016; Heise, 2012; Vyas & Watts, 2009), and consequences (De Jong, 2016; Herman, 2015; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003). However, these researchers and many others have often tailored their focus toward individual-level characteristics of the survivors and/or perpetrators. In comparison to stranger violence, however, there is much less that is known about how more macro factors, such as structural characteristics, affect the occurrence of domestic violence. There have been recent, but limited, studies on structural-level correlates of domestic violence that have found support of a relationship between the two (Fox & Benson, 2006; Kiss, Schraiber, Heise, Zimmerman, Gouveia, & Watts, 2012; Rothman, Johnson, Young, Weinberg, & Molnar, 2011; Van Wyk, Benson, Fox, & DeMaris, 2003; Wright, 2011; Wright & Benson, 2011). The primary focus of these studies, and most other domestic violence studies, are on physical and/or sexual acts of violence. However, there are certain acts of domestic violence that have received little to no attention using a structural framework. Specifically, structural analyses of stalking, violation of protective orders, and homicide when committed by someone who is domestically (both intimately and non-intimately) related to the victim are warranted.

Discovering unknown facets of domestic violence is important to progress efforts to eliminate this crime because it is such a far-reaching problem with permanent, and often detrimental, consequences. When individuals are parties to domestic violence, they are not the only ones affected by the act(s). Violence affects the victims and offenders as well as third parties and children. Physical injury and emotional trauma are the two most common outcomes for victims of domestic violence (Benson, Fox, DeMaris, & Van Wyk, 2000; Caldwell, Swan & Woodbrown, 2012; Gelles & Straus, 1988; Holtzworth-Munroe & Stuart, 1994; Lacey, Sears, Matusko, & Jackson, 2015; Lacey & Mouzon, 2016; McCann, Sakheim, & Abrahamson, 1998; Pill, Day, & Mildren, 2017). For example, victims often experience anxiety, fear, shame, anger, confusion, and betrayal. Victims also often blame themselves and believe they deserved what happened to them which leads to lowered self-perception, depression, feeling powerless, and post-traumatic stress disorder (PTSD) (DeMaris & Kaukinen, 2005; Fleming & Resick, 2016; McCann, et al., 1988; Jackson & Gouseti, 2016; Weaver, Griffin, & Mitchell, 2014). As a result, victims may turn to drugs and/or alcohol as coping mechanisms and become reclusive from friends and family (Kaysen, Dilworth, Simpson, Waldrop, Larimer, & Resick, 2007; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1977; McCann et al., 1988; Overup, DiBello, Brunson, Acitelli, & Neighbors, 2015; Shorey, Stuart, & Cornelius, 2011). Disruption of family dynamics is also a common effect of domestic violence within families. This family disruption has been linked to future criminal perpetration (Sampson, & Laub, 1995) which can commence a cycle of violence (Godbout, Dutton, Lussier, & Sabourin, 2009; Lansford, Miller-Johnson, Berlin, Dodge, Bates, & Pettit, 2007; Roberts, Gilman, Fitzmaurice, Decker, & Koenen, 2010; White & Widom, 2003). Studies have shown that over 60 percent of intimate partner violence incidents are

witnessed by children in the home (Catalano, Smith, Snyder, & Rand, 2009; Clements, Oxtoby, & Ogle, 2008; Holt, Buckley, & Whelan, 2008). Witnessing intimate partner violence can result in a child exhibiting the same behaviors as the violence victim including PTSD, drugs and alcohol coping, depression, and violence perpetration themselves (Holt et al., 2008; White & Widom, 2003). Lastly, the occurrence of intimate partner violence can bring not only the offenders into the criminal justice system, but also the victims and the families. This can result in blocked opportunities for future job placements (Landerso, 2015; Rose & Clear, 1998) and further disintegrate any family cohesion and social exchanges that are still intact (Anderson, 1999; Rose & Clear, 1998; Wilson, 1987). It is important that other unexplored aspects of domestic violence be evaluated so that these negative effects can be reduced.

Utilizing a structural framework is beneficial for the both academic and applied realms. Academically, there is a wealth of research considering structural correlates of crime, but there is less of a focus specifically on domestic violence. It is important to further this area of knowledge because, while it is thought that researchers tend to be reluctant to study the link between the two (Benson, Fox, DeMaris, & Van Wyk, 2003), structural factors have been demonstrated as important to the study of domestic violence. Presently, a large portion of domestic violence research focuses on micro-level explanations, such as those found in the psychological and biological literature, (for example: Boyda, McFeeters, & Shevlin, 2015; George, Phillips, Doty, Umhau, & Rawlings, 2006; Liang, Goodman, Tummala-Narra, & Weintraub, 2005; Massey, 2008; Nayak, Byrne, Martin & Abraham, 2003; Pinto, Sullivan, Rosenbaum, Wyngarden, Umhau, Miller, & Taft, 2010; Raine, 2013; Walker, 1999) with macro-level studies making some headway in the last two decades. Criminological studies of domestic

violence have pointed to several individual and couple level factors which increase its occurrence including race/ethnicity, age, socioeconomic status, employment status, educational background, alcohol/drug use/abuse, traditional gender ideologies, accessibility of a social support network, marital status, length of relationship, presence/number of children in the household, and employment dynamics among partners (Anderberg, et al., 2016; Caetano, Vaeth, & Ramisetty-Miler, 2008; DeMaris, Benson, Fox, Hill, & Van Wyk, 2003; Fleming, McCleary-Sills, Morton, Levton, Heilman, & Barker, 2015; Flury, Nyberg, & Reicher-Rossler, 2010; Gomez, 2011; Kantor & Straus, 1987; Lockhart, 1987, Macmillian & Gartner, 1999; Low, Tiberio, Shortt, Capaldi, & Eddy, 2017; Plass, 1993; Reingle, Staras, Jennings, Branchini, & Maldonado, 2012; Sugarman & Frankel, 1996; Yllo & Straus, 1981; Yount, 2005; Yount & Li, 2009).

Combining all these characteristics, younger, racial/ethnic minority individuals with low socio-economic status, low educational achievement level, and low employment level who abuse drugs and/or alcohol, hold traditional gender role ideologies with little to no social support are at a significantly increased risk of being involved in domestic violence. Likewise, unmarried, cohabitating couples who have not been together very long, have children in the household and who hold non-egalitarian gender views are more likely to be involved in domestic violence.

Domestic violence, and particularly violence against women, is a growing national and global health problem (Bradbury-Jones, Taylor, Kroll, & Duncan, 2014; Garcia-Moreno & Watts, 2011; Garcia-Moreno, Zimmerman, Morris-Gehring, Geise, Amin, Abrahams, Montoya, Bhate-Deosthali, Kilonzo, & Watts, 2015; Guruge, 2012). Therefore, a macro-level/structural approach

that can be applied across individuals of differing demographics and cultures would greatly benefit the academic community to fill current research gaps and to serve as a base for further research. On that same note, a structural approach would greatly benefit the applied world of domestic violence. The discovery of macro-level explanations of violence perpetration, such as a lack of community engagement, concentrated disadvantage, or low levels of education, would allow for the evaluation and reallocation of current resources to better serve those in need. For example, if a domestic violence outreach center is located where little to no domestic violence offenses are occurring or if there is a lack of risk factors for domestic violence in the area, then policy makers can use the findings of studies such as this one and previous structural level inquiries to justify shifting a community's approach to domestic violence. This way, it is an entire community that can benefit from an intervention instead of only those individuals which have some individual-level predictor of violence; which can vary greatly within one area. Utilizing a structural approach, this study aims to achieve this.

The two frameworks utilized in this study, social disorganization theory and gender inequality, are two macro-level approaches that are not often employed in these contexts yet could provide valuable insight. The current study expands our knowledge of domestic violence by exploring under researched acts of domestic violence through the theoretical lenses of social disorganization and gender inequality. Below is a description of each type of crime, a summary of the theories, and how they have been applied to the crimes thus far.

Brief Background on Stalking

Stalking is a Part II crime as it is a type of simple assault where no weapon is used, and no injury is caused to the victim (Federal Bureau of Investigation, 2017). It is a crime of power and control in which the offender engages in "a course of conduct directed at a specific person that involves repeated (two or more occasions) visual or physical proximity, nonconsensual communication, or verbal, written, or implied threats, or a combination thereof, that would cause a reasonable person fear" (Tjaden & Thoennes, 1998, p. 13). Launched in 2010, the Centers for Disease Control and Prevention's National Intimate Partner and Sexual Violence Survey (NISVS) is an ongoing, nationally representative survey which evaluates sexual violence, stalking, and intimate partner violence experienced by men and women (Centers for Disease Control and Prevention, 2018). It is the most comprehensive survey that evaluates stalking to date. The NISVS defines stalking behaviors as

"Unwanted phone calls, voice or text messages, hang-ups; Unwanted emails, instant messages, messages through social media; Unwanted cards, letters, flowers, or presents; Watching or following from a distance, spying with a listening device, camera, or global positioning system (GPS); Approaching or showing up in places, such as the victim's home, workplace, or school when it was unwanted; Leaving strange or potentially threatening items for the victim to find; Sneaking into victims' home or car and doing things to scare the victim or let the victim know the perpetrator had been there; Damaging personal property or

belongings, such as in their home or car; Made threats of physical harm" (Smith, et al., 2017).

According to the NISVS and the Bureau of Justice Statistics' National Crime Victimization Survey (NCVS) (Black, Basile, Breiding, Smith, Walters, Merrick, Chen, & Stevens, 2011; Catalano, 2012; Smith, et al., 2017), one in six women and one in nineteen men experience stalking in their lifetime; a prevalence rate of 13.9 per 1,000 persons in the United States. In 2010 alone, 501 million women and 2.4 million men were victims of stalking in the United States (Breiding, Smith, Basile, Walters, Chen, & Merrick, 2014). Of those victims, 66.2% of female stalking victims and 44.0 % of male victims reported that their stalkers were current or former intimate partners. Therefore, stalking often occurs between related individuals which makes it a crime that is domestic in nature.

Stalkers primarily target younger adults; aged 18 to 29 years old with most victims being between 18 and 24 years old (Baum, Catalano, Rand, & Rose, 2013; Catalano, 2012). Victims of stalking also tend to be overwhelmingly female (Tjaden & Thoennes, 1998; Black, et al., 2011; Melton, 2007; Basile, Swahn, Chen, & Saltzman, 2006; Logan & Walker, 2010). The largest group of stalking offenders is intimate partners which include: boyfriends, ex-boyfriends, husbands, and ex-husbands (Logan & Walker, 2010; Melton, 2000; Sheridan, Blaauw, & Davies, 2003; Spitzberg, 2002; Spitzberg & Cupach, 2007; Tjaden & Theonnes, 1998;). This indicates that stalking is domestic in nature and warrants investigation with that in mind. The behaviors and threats that occur during a stalking episode have been shown to carry more weight when they are done by someone with whom the victim has a relationship history (Logan, Shannon, Cole, & Walker, 2006; Logan & Walker, 2009b). Additionally, stalking by someone with a close

relationship leads to higher levels of emotional and psychological abuse and more threats of violence are carried out as physical acts of violence (Logan, & Walker, 2010; Melton, 2007; Palarea, Zona, Lane, & Langhinrichsen-Rohling, 1999).

Stalking is also a considerably underreported crime. In one of the few criminal justice perspective studies on the crime, it was found that stalking incidents were dramatically underreported and when compared to other interpersonal crimes (Brady & Nobles, 2017). However, when the crime was reported, the follow through was minimal at best. Brady and Nobles (2017) utilized eight years of data in Houston and concluded that there was a total of 3,756 stalking calls for service placed, 66 stalking related incident reports created, but only 12 total arrests. Furthermore, not a single stalking call for service lead to in an incident report or arrest (Brady, & Nobles, 2017). Without incident reports, researchers will have limited to no knowledge of this crime due to the limited to no data available which to study.

Most importantly, stalking co-occurs with other forms of violence (Coleman, 1997; Davis, Ace, & Andra, 2000; Logan, Leukefeld, & Walker, 2000; McFarlane, Campbell, Wilt, Sachs, Ulrich, Xu, 1999; Mechanic, Uhlmansiek, Weaver, & Resick, 2000; Mechanic, Weaver, & Resick, 2000; Messing, O'Sullivan, Cavanaugh, Webster, & Campbell, 2017; Tjaden, 1997; Tjaden & Thoennes, 2000; White, Kowalski, Lyndon, & Valentine, 2000). For example, 81% of female stalking victims whose perpetrator was an intimate partner also indicated that they were physically assaulted by that same partner; 31% of women indicated they were sexually assaulted (Tjaden & Thoennes, 1998). Stalking has also been linked to other forms of lethal intimate partner violence (Campbell, Glass, Sharps, Laughon, & Bloom, 2007; Garcia, Soria, & Hurwitz, 2007; Wilson, Johnson, & Daly, 1995). There is a link between stalking one's female

partner and an increased chance of femicide and femicide-suicide (Koziol-McLain, Webster, McFarlane, Bock, Ulrich, Glass, & Campbell, 2007). Other figures show that 76% of women who were murdered by an intimate partner were stalked before their lethal encounter and 85% of women who survived one or multiple murder attempts were stalked beforehand. Additionally, 89% of femicide victims who were physically assaulted before their murder were also stalked within the previous year before their murder. Lastly, 54% of femicide victims reported that they were being stalked to law enforcement before they were ultimately killed by their stalkers. (McFarlane et al., 1999).

The vast majority of the studies discussed on stalking have a gendered focus; female victims and male perpetrators. However, since stalking is a gender-blind crime, it is important to conduct a gender-inclusive study of the crime. Also, the literature is lacking in any kind of structural explanation of this crime. This study will provide knowledge where this gap exists. Additionally, studying stalking and drawing conclusions on how to ameliorate it offers the potential to prevent psychological, physical, and lethal harm to both men and women.

Brief Background on Violation of Protective Orders

Depending on the jurisdiction, protective orders can have differing names; restraining order, peace bond, emergency protective order, and domestic violence order. However, they all serve the same purpose and are a legal intervention to prevent future domestic violence (Eigenberg, McGuffee, Berry, & Hall, 2003; Logan & Cole, 2007; Logan, Shannon, Walker, Faragher, 2006). Common reasons a protective order is sought after a domestic violence incident include: severe violence (such as punching, choking, forced sex, used a weapon against

the petitioner of the protective order, threatened to kill the person), violent acts (grabbed or

pushed petitioner, harmed or took children, hit with object, harmed or took pets, harmed other

the petitioner cared about), threats of violence/property damage (threatened with bodily

harm, threatened to take children, destroyed property, threated with a weapon, threw or

smashed an object, drove dangerously with petitioner in car), and psychological abuse (publicly

shamed, forced to stay at house, threatened to remove property, prevented petitioner from

going to work, harassed, followed around town, took money, stopped from using car or phone)

(Harrell & Smith, 1996). Once a judge grants a protective order, it mandates that a domestic

violence offender have no contact with the petitioner for an explicit, usually short-term, period

of time.

There are a number of studies on violation of protective orders and overall have found

that overwhelmingly, protective orders do "work." In other words, research has found support

that the protective order did prevent the accused from contacting the petitioner (Benitez,

McNiel, & Binder, 2010; Carlson, Harris, & Holden, 1999; Harrell & Smith, 1996; Keilitz,

Hannaford, & Efkeman, 1997; Logan, et al., 2006; Logan & Walker, 2009a; 2009b; McFarlane,

Malecha, Gist, Watson, Batten, Hall, & Smith, 2004; Tjaden & Thoennes, 2000). However, in

every single study, researchers found that a minority of protective orders were still violated.  It

has been found that individual victim and contextual factors associated with an increased risk

of violation include (1) low socioeconomic status (Carlson, et al., 1999; Mears, Carlson, Holden,

& Harris, 2001), (2) having biological children with the perpetrator (Carlson, et al., 1999; Harrell

& Smith, 1996), (3) being African American (re-abuse is 1.24 times more likely than for whites)

(Carlson, et al. 1999; Mears, et al., 2001), (4) and a history of substance use/abuse (Mears, et

al., 2001). It has also been found that violations occurred earlier on in the time frame of the protective order as opposed to toward the end (Holt, Kernic, Lumley, Wolf, & Rivara, 2002; Holt, Kernic, Wolf, & Rivara, 2003; Meloy, Cowett, Parker, Hofland, & Friedland, 1997; Harrel & Smith, 1996; Klein, 1996). Additionally, perpetrator characteristics include a history of violence, being younger, history of substance abuse, and having less than full-time employment (Chaudhuri & Daly, 1992; Harrell & Smith, 1996; Klein, 1996). Women who live in rural areas are four times more likely to have their protective order violated than those in urban areas (Logan, Shannon, & Walker, 2005). Lastly, women who were stalked prior to the implementation of a protective order are more likely to have that order violated (Logan & Walker, 2009a).

Mainly what the academic community knows about violation of protective orders is which individual circumstances lead to an increased chance of them being a victim or offender of the violation. More importantly, what is unknown is what factors may be out of an individual's control, or those at a structural level beyond an individual's direct control, that may be related to increasing or decreasing those chances. Filling this gap of knowledge can bring forth correlating factors that can be used at a more macro level of crime prevention. For example, if there is a hot spot of violations which coincide with one or multiple structural factors, structural level interventions, such as a reallocation of policing resources or other community interventions may prove helpful in reducing this crime. If policy makers are to create interventions based on individual level factors, other people who do not fall within the perpetrator stereotype would likely be overlooked as a potential offender. Therefore, this study seeks to explore this unknown dimension of the crime.

Brief Background on Homicide

According to the Federal Bureau of Investigation's Uniform Crime Report (UCR), there were 16,459 murders in the United States in 2016. This number is an 8.4% increase from 2015 (15,181 murders). This is the highest number recorded since 2006. While men have always had a higher risk of being a homicide victim in general, women are more likely to be victims of domestic homicide than men. Women are nine times more likely to be killed by an intimate partner than by a stranger (Campbell, et al., 2007) and therefore, the most common type of domestic homicide is domestic femicide, the killing of a familial female. From 1976 to 2002, female homicide victims were killed by an intimate (husband, ex-husband, boyfriend, ex-boyfriend) 30% of the time (Fox, 2005). In 2010, according to the Bureau of Justice Statistics, 39% of female homicides were committed by an intimate (Catalano, 2013). This number decreased to 35% in 2012 according to the Uniform Crime Reports (Hough & McCorkle, 2017) but is still historically higher than previous decades.

In a systematic review of intimate partner homicide, Campbell and colleagues (2007) found that the most predominant factor in predicting a homicide by an intimate partner, regardless of the gender of the victim, was a history of domestic violence. Specifically, intimate partner violence perpetrated against the female partner was reported in 67 to 75% of intimate partner homicides (Bailey, Kellermann, Somes, Banton, Rivara, & Rushford, 1997; Campbell, 1992; Campbell, Webster, Koziol-McLain, Block, Campbell, Curry, et al, 2003; McFarlane, et al., 1999; Mercy & Saltzman, 1989; Moracco, Runyan, Butts, 1998). Being stalked is also a risk factor for femicide. In 1999, McFarlane and colleagues found that stalking occurred in 70 to 90% of attempted and actual femicides in their study. Specifically, stalking behaviors such as

following the victim to their place of work or their school, destruction of private property, and

sending or leaving threatening messages were the strongest predictors of femicide (Campbell

et al, 2003). A history of estrangement is also a significant risk factor for femicide (Campbell, et

al., 2003; Dawson & Gartner, 1998; Johnson & Hotton, 2003; Sheehan, Murphy, Moynihan,

Dudley-Fennessey, & Stapleton, 2015; Websdale, 1999; Wilson, et al., 1995); the first three

months are the most dangerous. Lastly, the largest risk factor for domestic homicide is the

presence of a gun in the home. For example, ex-spouses are killed most often with guns (87%

for ex-husbands and 78% for ex-wives) than other victim/offender relationships. The next

relationship most often killed with a gun is a current spouse (70% for husbands and 68% for

wives) with dating partners being the least often killed with a gun (46% for boyfriends and 57%

for girlfriends). These figures are according to 13 years of Supplementary Homicide Report data

(Fox & Zawitz, 2004). More recently, 53% of female victims were killed with a gun in 2013.

Among those, 61% were murdered by male intimates (Violence Policy Center, 2013).

## Theoretical Frameworks

### Social Disorganization Theory

Social disorganization theory emerged in the early 20th century from the Chicago

School. It is an ecological, criminological theory which links factors external to the individuals

involved in a crime as correlates of the crime; particularly neighborhood characteristics. The

perspective was created to study how a city, much like an ecosystem, develops and changes

over time and how crime fits in. At its core, the theory states that location matters. Tracing its

roots, Park and Burgess (1925) established a theory of urban ecology in their renowned classic

book, *The City*, which states that cities are environments and as a city grows, and the population becomes more concentrated, people will disperse and establish suburbs. Over time, niches or "natural zones" are formed with people of like interests and as new people are introduced to these natural zones, competition arises, and more outward movement occurs. This is what is known as the concentric zone model and they predicted that once it was fully established, would consist of 5 concentric rings. The areas of physical and social deterioration are concentrated at the city center and the more prosperous areas are in the outer rings.

Expanding upon Park and Burgess' evolution of concentric zones, Edwin Sutherland and Donald Cressey (1934) utilized social disorganization theory to explain crime increases as societies go from preliterate to modern civilized ones. As society grows and takes on capitalistic ideals, disintegration of family occurs and leads to reduced agents of social control in the neighborhood, which in turn, leads to crime and delinquency. Sutherland and Cressey also concluded that crime does not exist in more organized areas. This organization is expressed through established common values which are enacted as law. Instead, "systematic" crime occurs where this organization is lacking. These were the areas characterized as socially disorganized and would be further explored by other scholars.

In 1942, Henry Shaw and Clifford McKay applied social disorganization theory based upon Sutherland's systematic criminal behavior idea to assert that crime and delinquency were normal responses in abnormal environments. Their primary findings of their renowned Chicago study concluded that certain areas of Chicago had large concentrations of delinquency while others did not. Particularly, their findings were consistent with Park and Burgess' concentric zones findings. The areas with the highest concentration of juvenile delinquency were the areas

zoned for industry and commerce; known as Zone 2 – the zone of transition. Additionally, they

discovered that delinquency was not random but occurred at the highest rate in the center of

the city and tapered off the more one was distanced from it. This led them to conclude that

juvenile delinquency, the focus of their study, was reduced as inner-city societies disappeared

and conventional social structures emerged. Further, they discovered that it was not an isolated

phenomenon, but was occurring alongside other community issues such as high infant

mortality rates, truancy, and a high concentration of mental disorders. Finally, they stressed the

connection between social values and social/economic processes in explaining the occurrence

of delinquency (Shaw & McKay, 1942).

As can be concluded from the timeline of the theoretical development and from the

following tenets of the theory, social disorganization theory was developed to explain street

crime. In fact, it has been quite successful at doing so, providing strong explanatory power for

crimes such as homicide (for example, Auerhahn, Henderson, McConnell, & Lockwood, 2017;

Kennedy, Silverman, & Forde, 1991; Lee & Martinez Jr, 2002; Osgood & Chamber, 2000; Pereira,

Mota, & Andresen, 2015; Regoeczi & Jarvis, 2013; Stansfield, Williams, & Parker, 2017), rape

(for example, Braithwaite, 2015; Frye, Blaney Cerda, Vlahov, Galea, & Ompad, 2014; Goodson &

Bouffard, 2017; Tewksbury, Mustaine, & Covington, 2010), and robbery (for example, Pacheco,

Oliveira, & Menezes, 2017; Petee & Kowalski, 1993; Snowden & Freiburger, 2015). However,

relatively little research employing the social disorganization framework has been used to evaluate non-street crimes, such as domestic violence.[1]

Domestic violence, and in this case, domestic stalking, violation of protective orders, and homicide, are crimes as well – however, social disorganization has not been used extensively to explore all of these. What makes them different from street crime besides the victim/offender relationship? Why do we expect social disorganization to explain non-domestic crimes but not as well for domestic ones? The current study explores this relationship. Do tenets of social disorganization provide the same explanatory power for selected understudied types of domestic violence? How does or does it not further our knowledge of domestic stalking, violation of protective orders, and homicide?

<u>Tenets of Social Disorganization and Crime</u>

Social disorganization pulls together multiple physical, social, and economic indicators to describe an area as organized or disorganized. Sampson and Groves (1989) were the first to test Shaw and McKay's social disorganization theory. Their work found support for the theory and that indicators such as concentrated disadvantage (for example a large proportion of residents living below the poverty line, on public assistance, unemployed, and a large proportion of female headed households), residential mobility, racial heterogeneity, and immigrant concentration influence the occurrence of crime. Subsequent researchers have also found support for the structural-level explanation of crime (Kubrin & Weitzer, 2003;

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[1] For exceptions, see Benson et al. (2000), Benson et al. (2003), Benson et al. (2004), Browning (2002), Miles-Doan (1998), Lauritsen & Schaum (2004), Lauritsen & White (2001), Li et al. (2010), Van Wyk et al. (2003), Wright and Benson (2010), and Wright (2011).

Lowenkamp, Cullen, & Pratt, 2003; Martinez Jr, Rosenfeld, & Mares, 2008; Osgood & Chambers, 2000; Sampson, 2012).

Concentrated disadvantage is one of the forefront characteristics of a socially disorganized area (Shaw & McKay, 1942; Sampson, 2012). In their seminal work, Shaw and McKay's study on juvenile delinquency found that areas with concentrated disadvantage in Chicago had significantly higher rates of juvenile delinquency. Sampson and Groves (1989) argue that this result is because areas of lower socioeconomic status have less organized events which allow for less supervision of teenagers and higher engagement in delinquency. Other studies have found that concentrated disadvantage was also associated with higher rates of homicide (Kubrin, & Weitzer, 2003; Morenoff, Sampson, & Raudenbush, 2001; Morgan, 2013). Residential mobility, or the flow of residents in and out of an area, is an important measure of social disorganization, particularly regarding social networks/community connectedness. In areas characterized by high residential mobility, residents are constantly changing, there is less opportunity to allow for roots to be established, and individuals may even experience anomie, or a sense of normlessness resulting in people not knowing how to act or react in certain situations (Durkheim, 1933). Therefore, there tends to be little to no investment in the community. As a result, as residential mobility increases, crime increases (Barnett & Mencken, 2002; Kposowa, Breault, & Harrison, 1995, Osgood & Chambers, 2000).

The racial make-up of an area, or racial heterogeneity, has been found to influence the occurrence of crime. In areas of higher racial heterogeneity, it is argued by Sampson and Groves (1989) that residents do not share common beliefs and values and that communication may be difficult. As a result, there are difficulties in resolving social issues such as various types of

crimes. Lastly, high immigrant concentration is also indicative of a socially disorganized area.

Similar to the argument of racial heterogeneity, when residents do not share common values

with those around them, conflict ensues. This conflict is often manifested as crime, usually by

gangs of differing races and ethnicities in urban areas. At the same time, crime is also utilized as

a means of conflict resolution among differing groups when they feel that formal interventions

(for example, involving the police) are not an option. Shaw and McKay's (1942) study found that

areas with the highest delinquency had the highest number of immigrant residents. However,

more recent studies have found opposite results which demonstrate that immigrant

concentration may lower crime rates (Adelman, Reid, Markle, Weiss, & Jaret, 2017; Kubrin

2009; Kubrin, Hipp, & Kim, 2016; Lee & Martinez, 2009; Kposowa et al., 1995; MacDonald, Hipp,

& Gill, 2013; Martinez & Lee, 2000; Martinez, Lee, & Nielsen, 2004; Ousey & Kubrin, 2009;

Sampson & Bean, 2006; Sampson, Morenoff, & Raudenbush, 2005; Wright & Benson, 2010).

Various researchers have provided explanations about this change. For example, it has been

suggested that many foreign born individuals tend to establish themselves where their family

and/or friends have established themselves beforehand (Chiswick & Miller, 2005; Desmond &

Kubrin, 2009). This close proximity helps form social ties and networks between residents.

Martinez and colleagues (2009), have suggested that the informal networks that are formed

serve as very strong inhibitor of crime while Desmond and Kubrin (2009) state these networks

increase human capital and employment opportunities and therefore lessening the opportunity

for crime. Based on these and other findings on the relationship between immigrant

concentration and crime, Martinez and Lee (2000) have concluded that a heightened immigrant

concentration instead stabilizes communities through the establishment of social and economic institutions.

<u>Social Disorganization and Domestic Stalking</u>

Females are victims of stalking at a higher rate than males and males perpetrate stalking at a higher rate than females (Mullen, Pathe, & Purcell, 2000; Tjaden & Thoennes, 1998). In fact, it occurs most often between intimates with between 50-60% of stalking victims pursued by a current or former partner (Douglas & Dutton, 2001; Haugaard & Seri, 2001; Spitzberg & Rhea, 1999). Still, most researchers have treated stalking as a phenomenon separate from domestic violence instead of regarding it as an act that can co-occur with domestic violence (Douglas & Dutton, 2001). While there is a lack of research connecting social disorganization theory and stalking both domestic and non-domestic, stalking has many commonalities with intimate partner violence which has been studied under this framework. Some commonalities include as a serial and repetitive nature that occurs both during and after a relationship (Browne, 1987; Campbell, 1992; Ellis & DeKeseredy, 1997; Kurz, 1996; Wilson & Daly, 1992). Not only has research connecting intimate partner violence to social disorganization theory been conducted, but many studies have provided predictive/explanatory support for the crime. This suggests that this particular theoretical framework can potentially be successful in explaining other similar types of domestic violence not previously studied with this perspective; i.e. stalking.

In US based samples, several studies have indicated that concentrated disadvantage is positively associated with the presence of intimate partner violence against women (Benson, et

al., 2003; Benson, Wooldredge, Thistlethwaite, & Fox, 2004; DeMaris, et al., 2003; Miles-Doan,

1998; Van Wyk, et al., 2003; Wright & Benson, 2010). These studies pointed to single-parent

and female-headed households, minority concentration, unemployment, percentage on public

assistance, and poverty as the factors that led to intimate partner violence. On the contrary,

collective efficacy and its components serve as a protective factor from violence (Browning,

2002; Caetano, Ramisetty-Mikler, & Harris, 2010; Wright & Benson, 2010). Based on these

results, it is logical to conclude that social disorganization theory can be successfully applied to

domestic stalking due to its similarity to intimate partner violence.

Social Disorganization and Domestic Homicide

Even though intimate partner homicide has been on the decline in the US since the

1980s (Catalano, 2006; Dugan, Nagin, & Rosenfeld, 1999; Fox & Fridel, 2017; Rosenfeld, 2014),

several studies have continued to investigate what influences this crime as it is still an ever-

present problem. Many of these studies have provided support for the social disorganization

framework. For example, some studies found that concentrated disadvantage, the most widely

measured factor among intimate partner and social disorganization research, increase the risk

of domestic homicide (Diem & Pizarro, 2010; Frye & Wilt, 2001; Wu, 2009). On the other hand,

there are others which find no significant associations between the two (Browning, 2002;

DeJong, Pizarro, & McGarrell, 2011; Frye, Galea, Tracy, & Wilt, 2008). These conflicting findings

are likely due to methodological discrepancies, such as areas of analyses (urban v. non-urban),

data source differences, micro vs macro level analyses, and operationalization of concentrated

disadvantage. Along with methodological differences, conflicting results could also be a result

of differences in which part of disadvantage was being emphasized (for example, economic vs social vs educational).

Concerning other components of social disorganization, ethnic heterogeneity, most commonly measured as immigrant concentration, has largely proven to be a protective factor against lethal domestic violence (Browning, 2002; Frye et al., 2008; Frye & Wilt, 2001; Graif & Sampson, 2009; Sampson, 2008; Sampson, et al., 2005). These findings are opposite of the early works of social disorganization pioneers, which claim that immigrant concentration increases criminal behavior (Park & Burgess, 1984; Shaw & McKay, 1942; Sutherland, 1947). Another heterogeneity measure, racial heterogeneity, is not often employed as a covariate due to evidence suggesting that areas of concentrated disadvantage are largely racially homogeneous (Browning, et al., 2004; Gibson, Sullivan, Jones, & Piquero, 2010; Maimon & Browning, 2010; Morenoff, et al., 2001). In other words, the inclusion of a race measure would not accurately reflect levels of disadvantage because it would imply that minorities are inherently disadvantaged; which is especially false in a city like Chicago.

Social disorganization is a well-rounded theory that has provided knowledge of the inner workings of crime and, to an extent, domestic violence. However, this theory is completely blind to any role that gender may play in the perpetration of violence. In an attempt to get a more complete picture of domestic violence at the structural level, gender inequality and its correlates warrant inclusion in this study.

Gender Inequality and Domestic Violence

It is important to first operationalize the concept of gender and how it is different from sex before discussing the role it plays in domestic violence. Gender is a socially constructed identity that is accompanied by certain behaviors, roles, attitudes, and characteristics that define femininity (attributed to women; submissive, docile, values emotions and relationship, timid, cooperative) and masculinity (attributed to men; values thinking and performance, aggressive, dominating, competitive, avoiding all things feminine). While numerous gender identities exist, this dichotomy is most commonly researched. These feminine and masculine attributes vary across cultures. Sex, on the other hand, is a biologically defined dichotomy, male and female, that is stable across cultures. The primary perspective concerned with gender and the differential experiences across genders is feminism. Gender inequality, or the gender gap, has been described as "a fundamental topic in feminist criminology" (Lei, Simons, Simons, & Edmond, 2014, p. 89) and has been since the emergence of the feminist perspective (Daly & Chesney-Lind, 1988).

Through this perspective, domestic violence is considered gender asymmetrical; offenders are overwhelmingly men and victims overwhelming women. Feminist researchers attribute this pattern to the culturally accepted system of coercive control by which men maintain a position of power over women (Dobash & Dobash, 1979; Dobash, Dobash, Wilson, & Daly, 1992; Dragiewicz & Lindgren, 2009; Martin, 1976; Stark & Flitcraft, 1996; Yllo, 1993). In particular, the aspect of patriarchy is of interest to this study. Freeman (1995) articulates that the social, legal, economic, and political climate of the US shows evident support for male dominance and male-centered hierarchy in most social settings and institutions. When these

male-favored systems and institutions interact, they result in gender-based inequality in a deeply rooted, systemic way which goes unquestioned by most individuals. Another way of defining this phenomenon of patriarchy is "any practices and systems that oppress, control, or dominate women" (Goldrick-Jones, 2002, p. 5). Patriarchy and patriarchal societies not only work in a male-focused manner, but also devalue women and all they do and are capable of (Andersen & Collins, 2004; Barak, Flavin, & Leighton, 2010; Johnson, 1997; 2000; Merlo & Pollock, 1995; Messerschmidt, 1997; Muraskin, 2007; Shelden, 2001; Schwartz & DeKeseredy, 1997). This dismissal is done both overtly and unconsciously. These actions are reinforced not just by a few malicious individuals, but it is deeply rooted in all social institutions that make up the social system (Johnson, 1997).

Patriarchy plays a key role in facilitating the perpetration of domestic violence, particularly violence against women, as it has been duly noted as the fundamental reason for male aggression and inclination to engage in physical violence as well as the consistent significant predictor of various forms of violence against women (Andersen & Collins, 2004; Barak, et al., 2010; Belknap, 2001; Johnson, 1997; 2000; Kilmartin, 2000; Merlo & Pollock, 1995; Messerschmidt, 1997; Muraskin, 2007; Shelden, 2001; Straus 1994; Yllo, 1983). The pervasiveness of patriarchy is achieved through the encouragement and socialization of traditional gender roles and attitudes. Research has strongly suggested that antagonistic attitudes toward women are strongly interrelated with traditional gender role attitudes for both men and women in the workplace and commonplace social behaviors (Bookwala, Frieze, Smith, & Ryan, 1992; Hilton, Harris, & Rice, 2000; 2003; Marciniak, 1998; Walker, Rowe, & Quinsey, 1993).

To bridge how external, social factors affect such a personal experience, Yodanis (2004) explains that "when men dominate family, political, economic, and other social institutions in both number and in power, the policies and practices of these institutions are likely to embody, reproduce, and legitimate male domination over women" (p. 657). This fosters work, political, and family environments which enforce the subordination of women. Another way patriarchy evokes domestic violence is that "in male-dominated institutions, violence is a tool that men can use to keep women out or subordinate and thereby maintain male power and control" (Yodanis, 2004, p. 657). In fact, it has been stated that due to the persistence of male power and dominance of various social institutions, violence is not only unlike to be stopped, but it is often condoned (Dobash & Dobash, 1979; MacKinnon, 1979; Martin, Vieraitis, & Britto, 2006; Walby, 1990).

There was a lack of domestic violence empirical support for feminist theory until the 1980s and after when researchers like Yllo (1983), Straus (1994), and others examined how structural gender inequality affected rates of violence against women. Using nation-wide samples, Yllo (1983) and Straus (1994) found that states with high levels of gender inequality also had high levels of violence against women and states with low rates of violence against women possessed higher status of women (Straus, 1994; Yllo, 1983). These findings, however, are not unique to the US. Using cross-national data (Yodanis, 2004) revealed that countries which had low status of women had high sexual violence against women. This finding has been supported by subsequent research (Archer, 2006; Heise & Kotsadam, 2015; VanderEnde, Yount, Dynes, & Sibley, 2012). Among social-structural components of our society, or the "the internal institutionalized relationships built up by persons living within a group (such as a family or

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community) especially with regard to the hierarchical organization of status and to the rules

and principles regulating behavior" (Merriam-Webster, 2018), differential access between men

and women to education and their employment status have been cited as evidence of gender

inequality. The structural perspective of gender posits that men and women are placed into

unequal social categories which influences opportunities and rewards for crime (Risman, 1998;

Anderson, 2005).

To tie it together, domestic violence is a cycle of power and control exerted by men

upon women supported by environments of inequality. Overall, it has been demonstrated that

societies with stronger ideologies of male dominance have higher levels of intimate partner

violence (Jewkes, Flood, & Land, 2015; Levinson, 1989; Yodanis, 2004).

<u>Gender Inequality and Domestic Stalking</u>

One of the primary pathways of maintaining gender inequity via the subordination of

women is through fear. Of all types of crimes, stalking is the only one that requires victims to

state that they are fearful or feel threated in order to qualify as a victim (Dunn, 2002). Stalking

is a common way that fear is not only instilled in women but reinforced repeatedly. Phillips,

Quirk, Rosenfeld, and O'Connor (2004) found that when a male perpetrates stalking behaviors,

it is much more likely to be considered stalking and evokes a greater concern for safety. Other

studies have supported this finding (Cupach & Spitzberg, 2000; Campbell et al., 2003; Hills &

Taplin, 1998). There have been numerous studies on stalking in the context of domestic or

intimate partner violence, such as types of abuse and the persistence of stalking (Coleman,

1997; Mechanic, et al., 2000; Mechanic, et al., 2000; Melton, 2007). However, other than noting

gender differences in victims and offenders, there has been a lack of research on how gender inequality factors, like differential economic and employment status which uphold patriarchal views, protect from, or worsen, the occurrence of stalking.

Gender Inequality and Domestic Homicide

Patriarchal gender systems presume that when men have heightened status and power over women, violence may be used as a control mechanism. In other words, in areas of higher gender inequality, higher violence ensues. This is also related specifically to homicide as higher levels of gender inequality place women at a structural disadvantage in relation to men (Brownmiller, 1975; Davis, 1975; Jaggar, 1983; Sanday, 1981).

For example, Vieraitis, Britto, and Kovandzic (2007), found that more gender equity in the form of equal access to employment, income, etc., contributed to a decrease in female violent victimization, including femicide. Bailey (1999) explained that, based upon a woman's economic status and professional attainment, women are differentially exposed to persons which plays a role in whether they are victimized. Further, Bailey and Peterson (1995) studied cities across the US and found moderate support that increased female socioeconomic status was a protective factor against femicide. In Titterington's (2006) study of 217 central US cities over a three-year period, she found strong positive associations between socioeconomic inequality and female homicide levels. Additionally, this study found that when laws are less favorable to women, femicide increases. Avakame (1998) had similar findings: gender inequality as well as economic deprivation, social disorganization, and a culture accepting of

violence were contributory factors of domestic homicide. Other studies have provided support for previous findings (DeWees & Parker, 2003; Vieraitis, Kovandzic, & Britto, 2008).

On the contrary, Russell (1975) provided an explanation for why men kill their female partners when the genders are more or less equal or when gender inequality favors women. Backlash, the name of this theory, posits that men respond violently to a loss of status or power in their relationships with women. It is also hypothesized to be the way for men to maintain or regain their status, power, and control (Gillespie & Reckdenwald, 2017; Whaley & Messner, 2002). More recently, Chon (2016) studied amelioration and backlash homicide and how gender inequality affected female homicide rates. Amelioration can be seen by a reduction in gendered violence when gender inequality is lowered (gender equality is heightened). Chon's findings were significant for both amelioration and backlash homicide explanations which indicate that gender inequality may have a spurious relationship to female homicide victimization. This idea is supported by previous research (Austin & Kim, 2000; DeWees & Parker, 2003; Dugan, et al., 1999; Eriksson & Mazerolle, 2013; Straus, 1994; Titterington, 2006; Whaley & Messner, 2002). Further research is needed to uncover more facets of gender inequality and femicide.

While the aforementioned studies propose important findings and relationships among structural gender inequality and violence against women, there are still many gaps to fill. Unfortunately, gender inequality has not been consistently measured, but this study looks to explore the most common components used in previous research.

## The Present Study

### Current Limitations and Research Question

While both social disorganization theory and feminist theory have been used to understand more about domestic violence, there is still a great deal that remains undiscovered. Additionally, the studies that have been conducted have limitations that need to be addressed. First, stalking is very similar to general intimate partner violence but has yet to studied with the framework of social disorganization theory and minimally within feminist theoretical frameworks. Due to their similarity, one can conclude that social disorganization can be successfully utilized to explain domestic violence stalking events. On the other hand, while stalking research has highlighted gender differences in perpetration, there have been virtually no attempts to use inequality as an explanation for its occurrence.

Second, there is virtually no research on the violation of protective orders outside of those which measure its efficacy, or effectiveness, regarding the criminal justice process. According to the research, protective orders are effective most of the time, but we do not know which structural correlates are associated with violating these orders. While obtaining a protective order can be viewed as a personal and individual decision, this study is the first to explore if there are structural factors that can predict the act of violating that order.

Third, homicide, since it is viewed as the most serious crime that can be committed, has received much attention. However, the majority of studies have utilized the Supplementary Homicide Reports from the Uniform Crime Reports and those specifically on Chicago have used the Project on Human Development in Chicago Neighborhoods (PHDCN). This data set was

originally designed by Earls, Brooks-Gunn, Raudenbush, and Sampson (2002) as a "large-scale

interdisciplinary study of how families, schools, and neighborhoods affect child and adolescent

development" (Earls, Brooks-Gunn, Raudenbush, & Sampson, 2002). This data was the largest

of its kind, completed in three waves, and include a wealth of survey data on topics such as

language, routine activities, household composition, physical development scale, youth self-

reports, life history calendar, and exposure to violence to name a few. The knowledge that has

been gained from this data set has proven invaluable to the criminological community as it has

been exhaustively utilized (to name only a few: Austin, Roberts, Corliss, & Molnar, 2008;

Browning, Gardner, Maimon, & Brooks-Gunn, 2014; Cagney & Browning, 2004; Jain & Cohen,

2013; Sampson, 2015; Thomas, Torrone, & Browning, 2010; Weijters, Scheepers, & Gerris,

2007; Winter & Sampson, 2017). However, these data are now over twenty years old and

therefore, may not be as reliable as a source for further inquiry as they once were. It may prove

fruitful to use other sources of data to provide continued support or to find conflicting evidence

of previous literature.

## Why Chicago Census Tracts?

For this project, the area of analysis is Chicago, Illinois and the unit of analysis is census

tracts. The primary reason Chicago was chosen as the area of analysis was for the availability

and ease of access to crime data. The City of Chicago data portal houses an array of data

available about the city. The Chicago police department provides case information for crimes

that occur in their dataset titled "Crimes 2001 to present," which is updated daily, that is

housed in this data portal. This dataset contains information on each crime including the

primary type of offense it was, when it occurred, and if the offense was domestic in nature.

Additionally, the portal contains data conducive for spatial analysis. Included in the

aforementioned dataset are X,Y coordinates of the block level within which an offense

occurred. These coordinates are not exact locations to protect the identity of crime victims.

Shapefiles of Chicago census tracts and hydrology are readily available from the portal as well.

The United States Census Bureau's American Community Survey, which contains

variables pertinent for the measurements of the theoretical frameworks, has survey estimates

for Chicago for every estimate year which is not the case with all cities. These data are available

at the census tract level which can easily be joined with the spatial data from the data portal to

create a visual representation of the social geography of the city. Therefore, all data necessary

for analyses were readily available on the internet or were able to be released following a

Freedom of Information Act request. Confidentiality laws in the state of Florida, where this

dissertation was executed, prohibit the release of case information for domestic crimes for any

unit of analysis smaller than a zip code. If a study like this were to be conducted at that unit of

analysis, the ecological fallacy would be an overwhelming issue. Additionally, such a macro level

of analysis is not ideal for a structural analysis; the little nuances and differences between

smaller units would be masked and lead to an incorrect classification of a larger area that is

likely heterogenous in the various theoretical measures at the more micro level of analysis.

Research Questions

Based upon previous literature and the lack of knowledge of how domestic stalking,

violation of protective orders, and homicide are structurally related, the research questions

guiding this study are simplistic ones:

*RQ₁: How do structural social disorganization factors and structural gender inequality influence the occurrence of domestic violence at the census tract level?*

*RQ₂: Is there a difference when the crimes are parsed out by victim/offender relationship (intimate partner versus non-intimate partner)?*

*RQ₃: Are these selected domestic crimes randomly distributed across space or are they spatially autocorrelated and cluster in certain areas?*

*RQ₄: If they cluster, are they in areas of social disorganization and/or gender inequality?*

Hypotheses

While this study is exploratory in nature and there is not much evidence upon which to base any hypotheses, certain patterns can be anticipated. Primarily, areas with higher levels of social disorganization characteristics are expected to contain higher levels of all three types of domestic violence. However, following some previous studies, one component of social disorganization, immigrant concentration, should serve as a protective factor against domestic violence. Likewise, census tracts with higher levels of gender inequality are expected to contain more domestic violence cases. Specifically, it is not only areas of gender inequality that are predicted to lead to more violence, but areas whose gender inequity favor males over females. Areas of gender equality and inequality favoring females are expected to contain lower amounts of domestic violence cases. Combined, the effects of social disorganization and gender inequality are expected to increase the occurrence of all domestic violence even more. These hypotheses are visualized in Figures 1 and 2.

Social disorganization hypotheses:

$H_1$: *Areas with higher levels of social disorganization are significantly associated with an increase in domestic violence offenses.*

$H_2$: *Areas with higher levels of social disorganization are significantly associated with an increase in intimate partner violence offenses.*

$H_3$: *Areas with higher levels of social disorganization are significantly associated with an increase in non-intimate partner violence offenses.*

Gender inequality hypotheses:

$H_4$: *Areas with higher levels of gender inequality are significantly associated with an increase in domestic violence.*

$H_5$: *Areas with higher levels of gender inequality are significantly associated with an increase in intimate partner violence offenses.*

$H_6$: *Areas with higher levels of gender inequality are significantly associated with an increase in non-intimate partner violence offenses.*
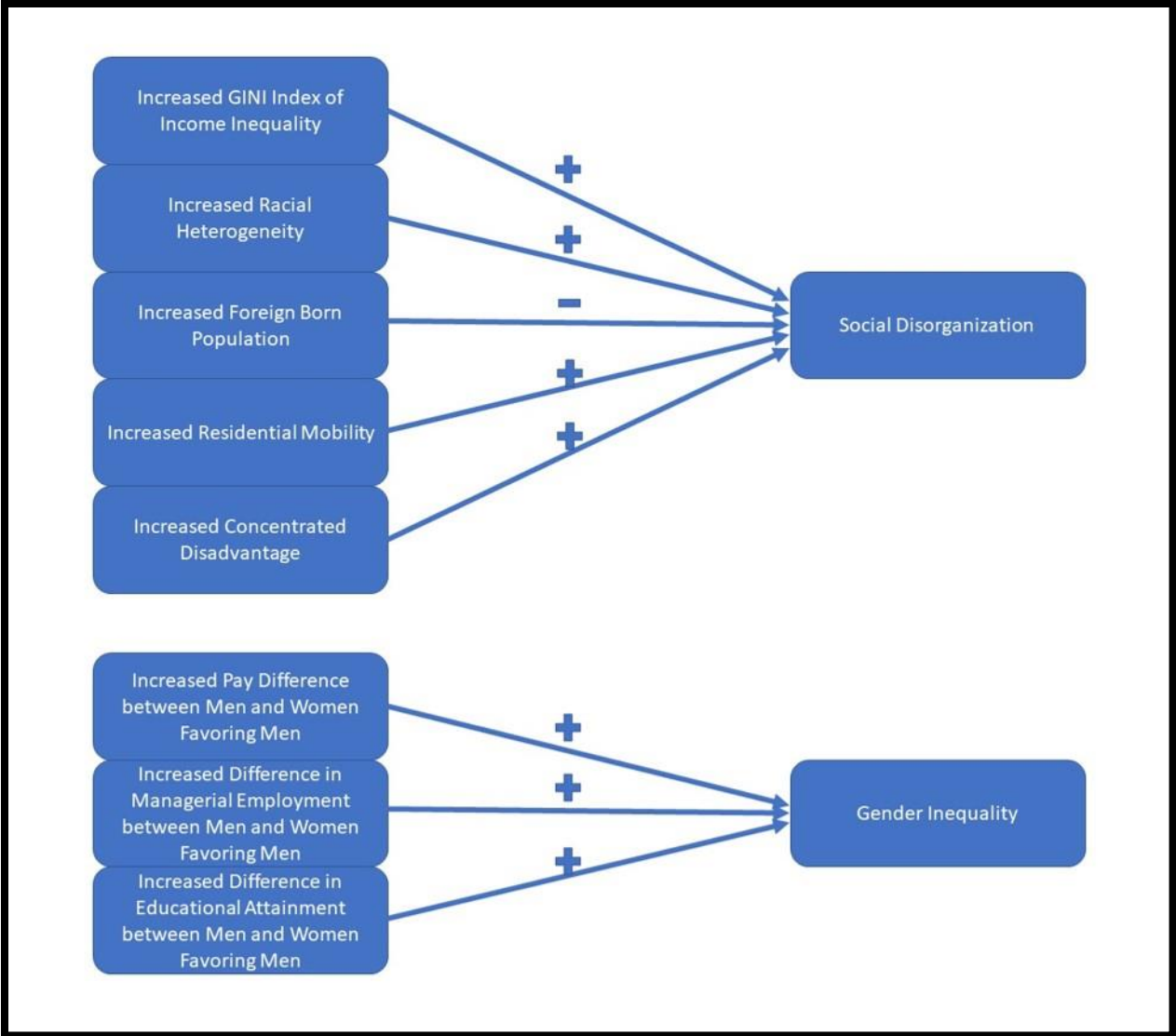
Figure 1. Theoretical Hypotheses Flow Cart #1.
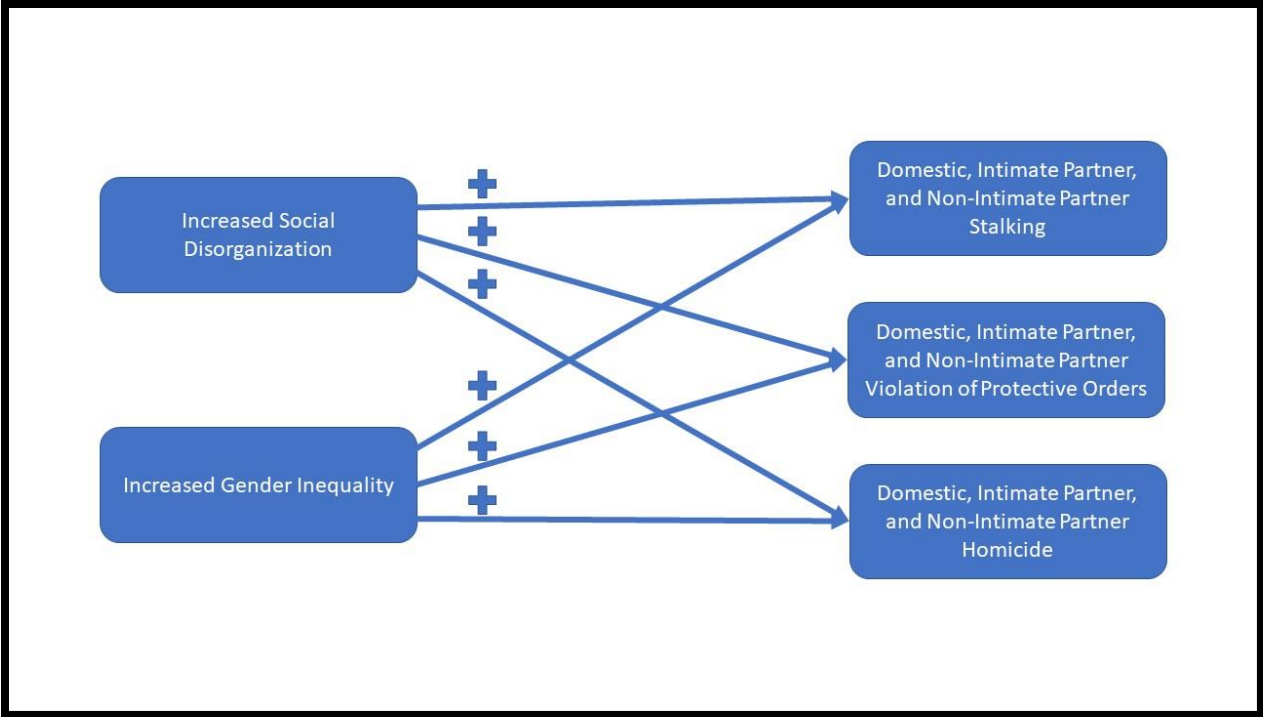
Figure 2. Theoretical Hypothesis Flow Chart #2.

Spatially, the locations of each domestic crime will likely be clustered instead of spaced evenly across the city with a strong association between socially disorganized areas and all three crimes as well as areas of heightened gender inequality and all three crimes. This is consistent with previous assertions that increased disorganization and relative deprivation is associated with increased crime (Miles-Doan, 1998; Morgan & Jasinski, 2017) The advantage of looking at these crimes spatially will allow stakeholders in eradicating domestic violence make empirically sound decisions on where to allocate resources for individuals who are at a heightened risk of becoming a victim of domestic violence as well as recommend programs to shift the structural climate of opportunities towards more gender equality in the hopes of achieving the same. Based on previous domestic violence research, it is anticipated that domestic stalking, violation of protective orders, and homicide can be predicted by utilizing tenets of both social disorganization and gender inequality and will also spatially interrelated.

Spatial hypotheses:

$H_7$: *Domestic stalking incidents will be spatially clustered.*

$H_8$: *Domestic violation of protective order incidents will be spatially clustered.*

$H_9$: *Domestic homicide incidents will be spatially clustered.*

$H_{10}$: *All crimes will cluster in areas of social disorganization and gender inequality.*

# CHAPTER THREE – METHODOLOGY

The Present Study

The present study contributes to the current state of knowledge of domestic violence by using the theoretical frameworks of social disorganization and gender inequality to examine domestic[2] stalking, violation of protective orders, and homicide incidents. Specifically, this research utilizes spatial and non-spatial data to study the specified domestic crimes in Chicago, IL. The city of Chicago was chosen as the area of study due to its wealth of publicly available data, both spatial and non-spatial, through the City of Chicago Data Portal and the US Census Bureau's American Community Surveys (ACS) at the census tract level. Additionally, Chicago has served as the study area for many criminological inquiries; particularly those utilizing social disorganization theory (e.g., Wright & Benson, 2011; Becker, 2016; Browning, et al., 2004; Bursik & Grasmick, 1993; Lacoe & Ellen, 2015; Morgan, 2013; Osgood & Chambers, 2000). This study differs however, from most Chicago crime studies. Numerous criminological studies conducted with Chicago as the area of analysis have used data from the Project on Human Development in Chicago Neighborhoods (PHDCN) (Earls, et al., 2002) which is now more than 20 years old; developed in 1995. However, the current study used recent police data from the years 2012 to 2016. Even though the study of violence in Chicago is common (e.g. Adler, 2009; Bell & Jenkins, 1993; Block & Zimring, 1973; Hughes & Short, 2014; Morenoff, et al., 2001; Morgan & Jasinski, 2017; Wilson & Daly, 1985), the study of domestic violence is more limited.

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[2] Both intimate partner and non-intimate partner violence is included.

As a result, no study has examined domestic stalking, violation of protective orders, and homicide in Chicago all at the same time.

Data

The data utilized in this study were collected from multiple sources: The City of Chicago Data Portal, the Chicago Police Department, and the US Census Bureau's American Community Survey (ACS). Domestic stalking, violation of protective orders, and homicide crime incidents were obtained from the City of Chicago Data Portal's "Crimes 2001 to present" data set (https://data.cityofchicago.org/Public-Safety/Crimes-2001-to-present/ijzp-q8t2). These incidents are from the Chicago Police Department's Citizen Law Enforcement Analysis and Reporting (CLEAR) system and therefore do not reflect crimes that are unreported. Spatial data was also obtained from the data portal including the shapefiles of Chicago's census tracts (https://data.cityofchicago.org/Facilities-Geographic-Boundaries/Boundaries-Census-Tracts-2010/5jrd-6zik) and hydrology (https://data.cityofchicago.org/Parks-Recreation/Waterways/eg9f-z3t6).

Victim demographic data for the crimes under study, stalking, violation of protective orders, and homicides, were obtained from the Chicago Police Department via a Freedom of Information Act (FOIA) request. Requesting this data was important for this study as there is no demographic information available in the "Crimes 2001 to present" data set. Social disorganization and gender inequality indicators were obtained from the US Census Bureau's American Community Survey (https://www.census.gov/programs-surveys/acs/) five-year estimates for the years 2012 through 2016 (estimate years 2008-2012, 2009-2013, 2010-2014,

2011-2015, and 2012-2016). The five-year survey estimates were utilized for all years of data as they contain the largest sample size and are the most reliable of the survey estimates produced by the census bureau (https://www.census.gov/programs-surveys/acs/guidance/estimates.html).

Measures

Dependent Variables

The total number, or counts, of each crime, domestic stalking, violation of protective order, and homicide served as the dependent variable in non-spatial analyses. According to the Illinois state attorney general's office:

Any person who hits, chokes, kicks, threatens, harasses, or interferes with the personal liberty of another family or household member has broken Illinois Domestic Violence law. Under Illinois law family or household members are defined as: family members related by blood; people who are married or used to be married; people who share or used to share a home, apartment, or other common dwelling; people who have or allegedly have child in common or a blood relationship through a child in common; people who are dating or engaged or used to date, including same sex couples; and people with disabilities and their personal assistants (Illinois Attorney General, 2010).

To obtain the correct data, the domestic crime incidents for the years 2012 through 2016 were selected from the "Crimes 2001 to present" data set. Then, cases indicated as stalking, violation of protective order, and homicide incidents were extracted from there to

create the working data set. This produced a data set containing these specific domestic crimes committed between individuals that matched the legal definition stated above as a domestic relationship. This data was put into an SPSS (version 20) file.

Once the FOIA data request was fulfilled and returned, the case information provided in the request was entered in to SPSS and then matched to the incident data obtained from the City of Chicago Data Portal. This was completed through merging the two SPSS files based on the case number. Based on the victim and offender relationship provided in the FOIA data, each case was coded as "intimate partner" or "non-intimate partner." Unfortunately, not every incident had corresponding FOIA data (14 stalking cases, 1 violation of protective order case, and 2 homicide cases were not returned) and those that did not, were not classified by relationship and were listwise deleted from the analyses that considered relationship. From here, two data sets were extracted: one that contained only cases classified as intimate partner in nature and one that contained only cases classified as non-intimate partner in nature. All three data sets, the domestic (all cases), intimate partner, and non-intimate partner, were put into ArcGIS version 10.4.1 along with the census tract and hydrology shapefiles. The crime incidents were displayed as point data in ArcGIS based on the X,Y coordinates provided in the data set. As a note, not all cases provided coordinates and those incidents were listwise deleted in statistical multivariate and spatial analyses. A total count of each type of crime incident per census tract was calculated and recorded. These nine total counts per census tract variables (domestic stalking, domestic violation of protective order, domestic homicide, intimate partner stalking, intimate partner violation of protective order, intimate partner homicide, non-intimate

partner stalking, non-intimate partner violation of protective order, and non-intimate partner

homicide) served as the dependent variables for analyses.

<center>Independent Variables[34]</center>

<u>Social disorganization framework</u>

GINI Index of income inequality

The ACS provides the GINI Index of income inequality by census tract. The Gini index is a

summary measure of inequality of the distribution of income. Among research across various

topics, the GINI Index is the one of the most commonly utilized measures of inequality (Kaplan,

Pamuk, Lynch, Cohen, & Balfour, 1996; Lynch, Kaplan, Pamuk, Cohen, Heck, Balfour, & Yen,

1998; Kawachi, Kennedy, & Wilkinson, 1999) and has been utilized in various criminological

studies (e.g., Brush, 2007; Fajnzylber, Lederman, & Loayza., 2002b; Kwon & Cabrera, 2017;

Metz & Burdina, 2018; Roberts & Willits, 2015). The coefficient ranges from 0 (complete

income equality – all income is disbursed equally) to 1 (complete income inequality – all income

is received by one individual). No statistical calculation was required for this variable.

Racial heterogeneity

Utilizing the race variables available in the ACS, the variable of racial heterogeneity was

calculated for each census tract following the formula outlined by Osgood and Chambers

(2000). The races that were included in the calculation are White alone, Black or African

American alone, American Indian and Alaska Native alone, Asian alone, Native Hawaiian and

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[3] Every independent variable was calculated as described for each year, 2012 – 2016, using that year's ACS 5-year estimate. Therefore, for every independent variable, there was a total of five variables produced.
[4] All variables were calculated at the census tract level.

Other Pacific Islander alone, some other race alone, and two or more races. First, the

proportion of each race in each census tract was calculated. Each proportion was squared,

summed, and subtracted from one. This produced a number, between 0 and 1, which

represents the heterogeneity of that census tract with numbers closer to one representing

more heterogeneous populations and numbers closer to zero representing more homogeneous

populations. The equation is as follows (Osgood & Chambers, 2000):

$$\text{Racial heterogeneity} = 1 - (\sum p_i^2)$$

Foreign born population

From the ACS, the foreign born variable was used for this measure. This is the same

measure that is commonly used in other criminological studies called "immigrant

concentration." This measure was obtained by summing the total number of residents who

were born outside of the United States, dividing it by the total number of residents in the area,

and then multiplying that by 100. This produced a percentage indicative of the how many

individuals in a census tract were foreign born. The higher the percentage, the more foreign

born. The equation is as follows:

$$\text{Foreign born} = (n_f / N) * 100$$

Residential mobility

Residential mobility was measured by combining two separate measures found in the

ACS. The first measure is the percentage of renter-occupied housing and the second is the

percentage of individuals who lived in a different house last year. The percentages obtained

were turned into a Z-score and then added together for the measure of residential mobility. Higher numbers represent higher mobility.

Concentrated disadvantage

Earls, Raudenbush, Reiss, and Sampson (1997) developed a measure of concentrated disadvantage that was initially used with the PHDCN data. It 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 American (Sampson, 2012; Sampson, Raudenbush & Earls, 1997). This study used all of these elements, as they can be found in the ACS, except for percent African American. As it has been noted, including this component may imply that African Americans are intrinsically poor and disadvantaged (Morgan, 2013). Additionally, the African American population in Chicago is much higher than the national average, 36.55% in 2016 compared 12.63% nation-wide (Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates). While, there are several African American neighborhoods in Chicago that are disadvantaged, there are also several that are middle and upper class (Morgan, 2013). Including this variable in the concentrated disadvantage measure would be inappropriate. The measure of concentrated disadvantage that was used in this study is a scale of totaled Z-scores of percent on cash assistance, percent living below poverty line, percent unemployed, percent female-headed households, and percent of the population that is under the age of 18.

<u>Gender inequality framework</u>

Pay gap

As the primary measure of gender inequality, the difference between male and female

median income was calculated. The ACS provides median earnings by sex. The pay gap is

therefore measured as the income difference between men and women. A positive number

indicates that, on average, men earn "x" amount more than women in that census tract and a

negative number indicates that women earn "x" amount more than men in that census tract. A

value of 0 represents equality. Gender inequality is typically viewed as men dominating women

and that is why a positive number is equivalent to more male income over females. However,

women having more income is also inequality, but, for the sake of this paper, more inequality

will be equated to more male income compared to females. To obtain this statistic, the

following equation was used:

$$\text{Pay gap} = i_m - i_w$$

Employment

As another measure of gender inequality, the difference between the percent of males

to females employed in professional or managerial jobs was calculated utilizing the ACS. A

positive number indicates that "x" percent more males hold managerial occupations than

females and a negative number indicates that "x" percent more females hold managerial

occupations than males. A value of 0 represents equality. The equation to obtain this statistic is

as follows:

$$\text{Employment} = e_m - e_w$$

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Educational Attainment

Utilizing the same equation as the employment variable, educational attainment was used as a measure of gender inequality. The difference between the percentage of the male to female population with a high school diploma was calculated. Positive numbers indicate that "x" percent more males hold a high school diploma than females and a negative number indicates that "x" percent more females hold a high school diploma than males. A value of 0 represents equality.

Table 1. Summary Table of Independent Variables.

| Independent Variable | Description |
|---|---|
| Social Disorganization | |
| GINI Index | 0 to 1 scaled measure of income inequality |
| Racial Heterogeneity | 0 to 1 scaled measure of racial make-up of the population |
| Foreign Born Population | 0 to 100 percentage of the population born outside of the US |
| Residential Mobility | 0 to 1 index of population turnover |
| Concentrated Disadvantage | 0 to 1 index of the level of disadvantage |
| | |
| Gender Inequality | |
| Pay Gap | Raw value of the difference of income between men and women |
| Employment | Difference in the percentage of men to women employed in managerial occupations |
| Educational Attainment | Difference in the percentage of men to women who hold a high school diploma |

## Analytic Strategy

Univariate and multivariate statistical analyses were conducted for this study. Univariate analyses include descriptive statistics of each dependent variable and independent variable across Chicago's census tracts. Negative binomial Poisson regressions were used for the multivariate analyses because the dependent variables, incidents of domestic, intimate partner, and non-intimate partner stalking, violation of protective orders, and homicide, were count variables. Using this statistical test compensates for potentially false significant coefficients that a regular Poisson regression could produce if the data are over dispersed due to the mean not being equal to the variance. After running each model, the alpha statistic was checked and a decision to utilize a negative binomial or a Poisson regression was made. In total, 27 regression models were analyzed; each of the nine crime types had 3 theoretical models (social disorganization, gender inequality, and a full model containing all theoretical predictors). All variable calculations were done in SPSS version 20 and all statistical analyses were done in STATA 13.

## Geospatial Analysis

In addition to non-spatial analyses, spatial analyses were conducted in ArcGIS 10.4. Geographic information systems (GIS) mapping is used across disciplines to visualize various types of spatial data; including intimate partner violence (Murray, Bunch, & Hunt, 2016; Hetling & Zhang, 2010). In addition to detecting and analyzing spatial patterns of domestic violence, it has enabled researchers to suggest policy amendments to current legislation and response to such incidents. Looking at the big picture, GIS allows for researchers to enhance our current

state of knowledge by analyzing spatial patterns of any given phenomenon (Andresen, 2011; Paulsen & Robinson, 2009; Weisburd, Groff, & Yang, 2012).

As described above, GIS was used in the calculation of the dependent variables. In addition, this program was used to produce maps to visualize where these crimes are occurring across Chicago census tracts. Point data shows the location of a crime incident and were used to produce maps of each crime location from 2012 to 2016. Kernel density maps, commonly known as hot spot or heat maps, display raster data (a grid comprised of pixels) which defines areas of high to low occurrences of a given phenomenon. The maps can be used to identify high risk areas for each crime as well as low risk areas. This spatial technique was also employed to show the crime hot spots across Chicago.

Census data was also entered into GIS. This was completed by adding the data set of census variables, once calculations were completed, into the program. A spatial join was performed to join the census tract shapefile with the attribute table of the census data through matching the census tract numbers. All but one census tract was validated to have census data, number 8214.02, and that tract was therefore eliminated. The symbology function allowed for the visualization of census data to see which areas of the city were more or less socially disorganized and which areas demonstrated gender inequality. Each variable was mapped.

GIS also has powerful analytical functions. One spatial component that GIS measures is spatial autocorrelation; when one variable is highly correlated with itself at the unit of analysis that is being measured (Anselin, 1995; Baller, Anselin, Messner, Deane, & Hawkins, 2001; Cliff & Ord, 1973). Visually, this looks like all the events being measured are occurring in the same

general area; concentrated in one spatial unit and those units immediately adjacent. Local Moran's I, or Local Indicators of Spatial Autocorrelation (LISA), one of the most common ways to test for spatial autocorrelation, was run to analyze the spatial distribution patterns of the dependent variables. Specifically, this analysis tested whether the nine dependent variables of domestic, intimate partner, and non-intimate partner stalking, violation of probation, and homicide incidents are spatially autocorrelated and identify the local clusters with high crime incidences in the Chicago census tracts.

Following LISA analyses, geographically weighted regressions (GWR) were run to account for the effect of spatial autocorrelation. The GWR was developed as a way for researchers to work with non-stationary data by allowing regression model parameters to vary across space (Brunsdon, Fotheringham, & Charlton, 2002; Fotheringham, Charlton, & Brunsdon, 2001). As a result, a GWR produces a unique beta coefficient for each spatial unit (census tract) and in most cases, provides more accurate results than a traditional regression.

In the realm of domestic violence, it is imperative that researchers continue to incorporate the use of GIS as only a few studies have done. Apart from its statistical advantages, its inclusion allows researchers to relay information to stakeholders about where domestic violence is most often occurring and what can be done about it. Various statistical techniques and maps allow for policy makers to conclude how and where to better allocate resources, from the police force to shelters and outreach programs, for potential victims as this study hopes to accomplish.

# CHAPTER FOUR – RESULTS

## Descriptive Statistics

### Stalking

Descriptive statistics results for the dependent variables are displayed in Tables 1 through 3. Table 2 contains the descriptive statistics for the stalking incidents included in the analyses. There was a total of 286 domestic[5] stalking events between 2012 and 2016 across all of Chicago's census tracts. The minimum number of incidents per census tract was zero and the maximum count was four, with an average of .36 incidents per tract (SD = .66). The breakdown of each year for domestic stalking counts are also displayed in Table 1. Total counts ranged from 47 to 73 per year with a minimum of zero and maximum between two and four incidents per census tract. The mean counts per census tract ranged from .06 to .09. A total of 251 incidents of domestic stalking between 2012 and 2016 were coded as being between intimate partners while 21 incidents were between non-intimate partners. For intimate partner stalking, there was an average of .31 incidents per census tract (SD = .64) with a minimum count of zero and maximum count of four. The breakdown of intimate partner stalking incidents from 2012 to 2016 are displayed in Table 2. There was a total count ranging from 42 to 59 incidents per year, with a minimum of zero and a maximum between two and four incidents per census tract. The mean counts per census tract ranged from .05 to .07. For the non-intimate partner stalking cases, there was an average of .03 incidents per census tract (SD = .16) with a minimum count of zero and a maximum count of one incident. The breakdown of non-intimate partner stalking

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[5] The term domestic means that events that are both intimate and non-intimate in nature are included.

incidents from 2012 to 2016 are displayed in Table 2. There was a total count ranging from one

to six incidents per year, with a minimum of zero and maximum of one incident per census

tract. The mean counts per census tract ranged from .00 to .01. As a note, the intimate and

non-intimate count totals do not equal the domestic total due to missing cases in the data

received from the Chicago Data Portal from the Freedom of Information Act (FOIA) request.

This is the case for all three crimes.

Table 2. Descriptive Statistics for the Stalking Dependent Variables for Chicago Census Tracts; N = 799.

| | Count N[123] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Domestic Stalking Total | 286 | .36 | .66 | 0 | 4 |
| Domestic Stalking 2012 | 73 | .09 | .30 | 0 | 2 |
| Domestic Stalking 2013 | 49 | .06 | .26 | 0 | 2 |
| Domestic Stalking 2014 | 47 | .06 | .25 | 0 | 2 |
| Domestic Stalking 2015 | 57 | .07 | .30 | 0 | 4 |
| Domestic Stalking 2016 | 60 | .08 | .30 | 0 | 3 |
| | | | | | |
| Intimate Partner Stalking Total | 251 | .31 | .64 | 0 | 4 |
| Intimate Partner Stalking 2012 | 54 | .07 | .26 | 0 | 2 |
| Intimate Partner Stalking 2013 | 42 | .05 | .24 | 0 | 2 |
| Intimate Partner Stalking 2014 | 46 | .06 | .24 | 0 | 2 |
| Intimate Partner Stalking 2015 | 50 | .06 | .29 | 0 | 4 |
| Intimate Partner Stalking 2016 | 59 | .07 | .31 | 0 | 4 |
| | | | | | |
| Non-Intimate Partner Stalking Total | 21 | .03 | .16 | 0 | 1 |
| Non-Intimate Partner Stalking 2012 | 6 | .01 | .09 | 0 | 1 |
| Non-Intimate Partner Stalking 2013 | 6 | .01 | .09 | 0 | 1 |
| Non-Intimate Partner Stalking 2014 | 1 | .00 | .04 | 0 | 1 |
| Non-Intimate Partner Stalking 2015 | 5 | .01 | .08 | 0 | 1 |
| Non-Intimate Partner Stalking 2016 | 3 | .00 | .06 | 0 | 1 |

[1]Count N is the total number of incidents for each dependent variable; the minimum and maximum are the total incident counts per census tract.

[2]These totals include only incidents containing X,Y coordinates.

[3]Intimate partner and non-intimate partner totals do no equal domestic total due to missing relationships in FOIA data.

Figures 3 through 5 are point maps which exhibit the location of the domestic, intimate partner, and non-intimate partner stalking crimes included in the analyses. Each dot is one incident. While it was decided to aggregate the analyses to include all years, the dots are color coded to see where the incidents occurred across the years. The domestic incidents (Figure 3) appear to be relatively spread out across Chicago with the center of the city seeming to be more concentrated with dots than the north or south ends and more dots along the east side of the city than on the west. The intimate partner stalking incidents (Figure 4) hold a similar pattern of being scattered across the city with more incidents occurring in the center of the city. The very few incidents of non-intimate partner stalking (Figure 5) seem to have no spatial pattern. Each year within the maps appear scattered and do not seem to follow a pattern.

Figure 6 displays the kernel density analysis results for domestic stalking. The results for the analysis shows where incidents are concentrated (darkest spots) and where they dissipate to less concentrated areas (lightest spots).
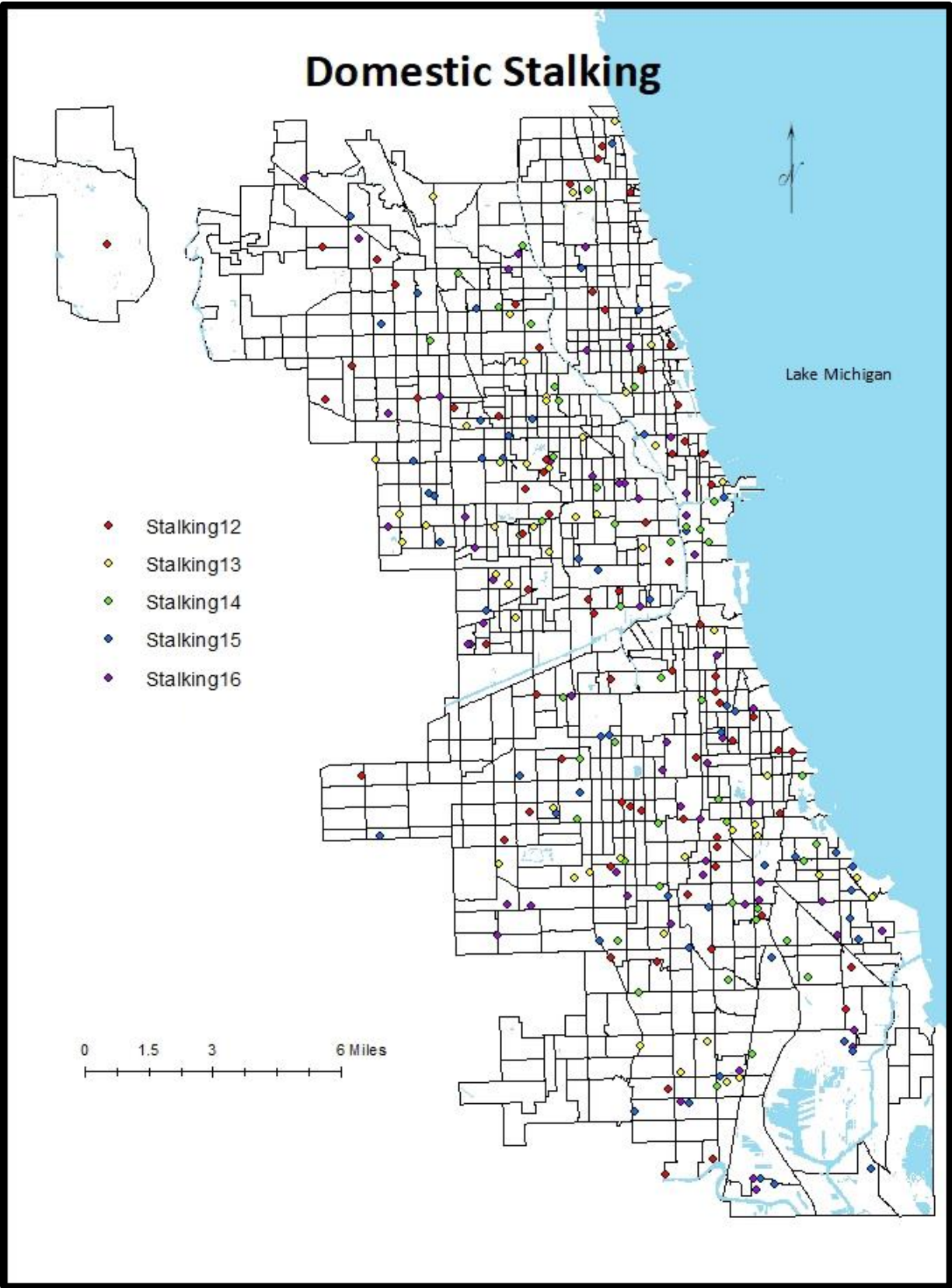
Figure 3. Domestic Stalking Incidents Across Chicago Census Tracts, 2012 - 2016.
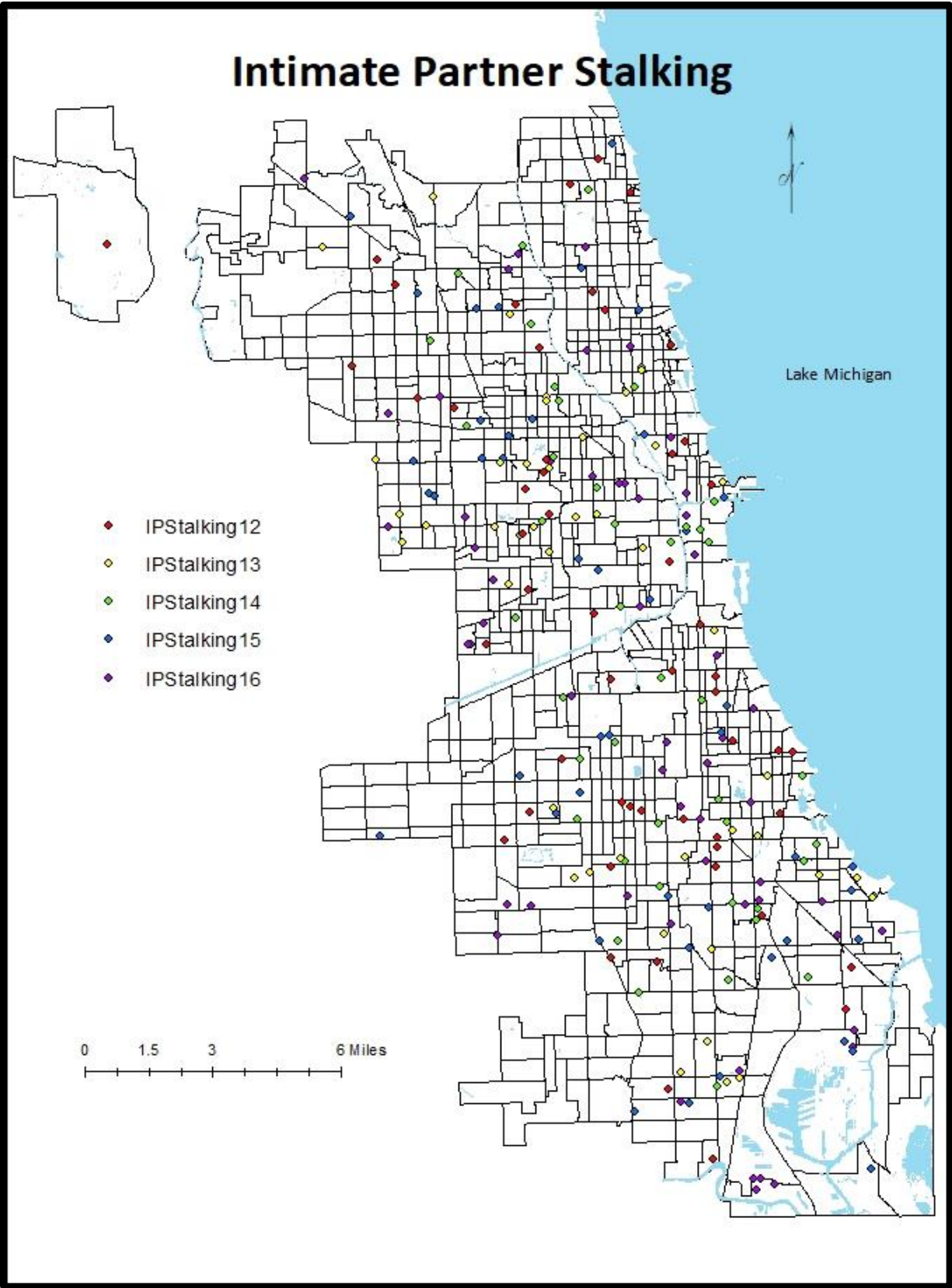
Figure 4. Intimate Partner Stalking Incidents Across Chicago Census Tracts, 2012 - 2016.
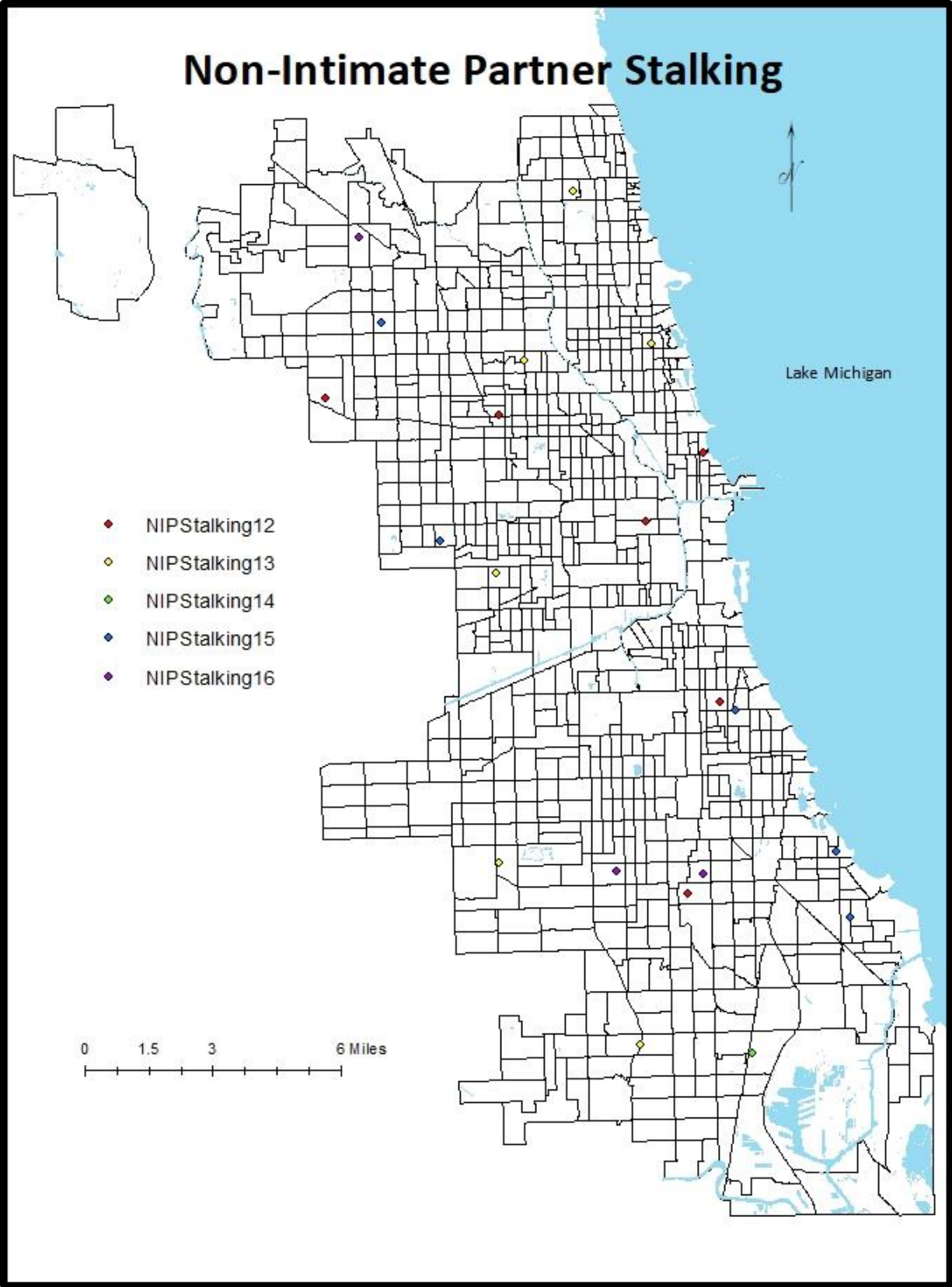
Figure 5. Non-Intimate Partner Stalking Incidents Across Chicago Census Tracts, 2012 - 2016.
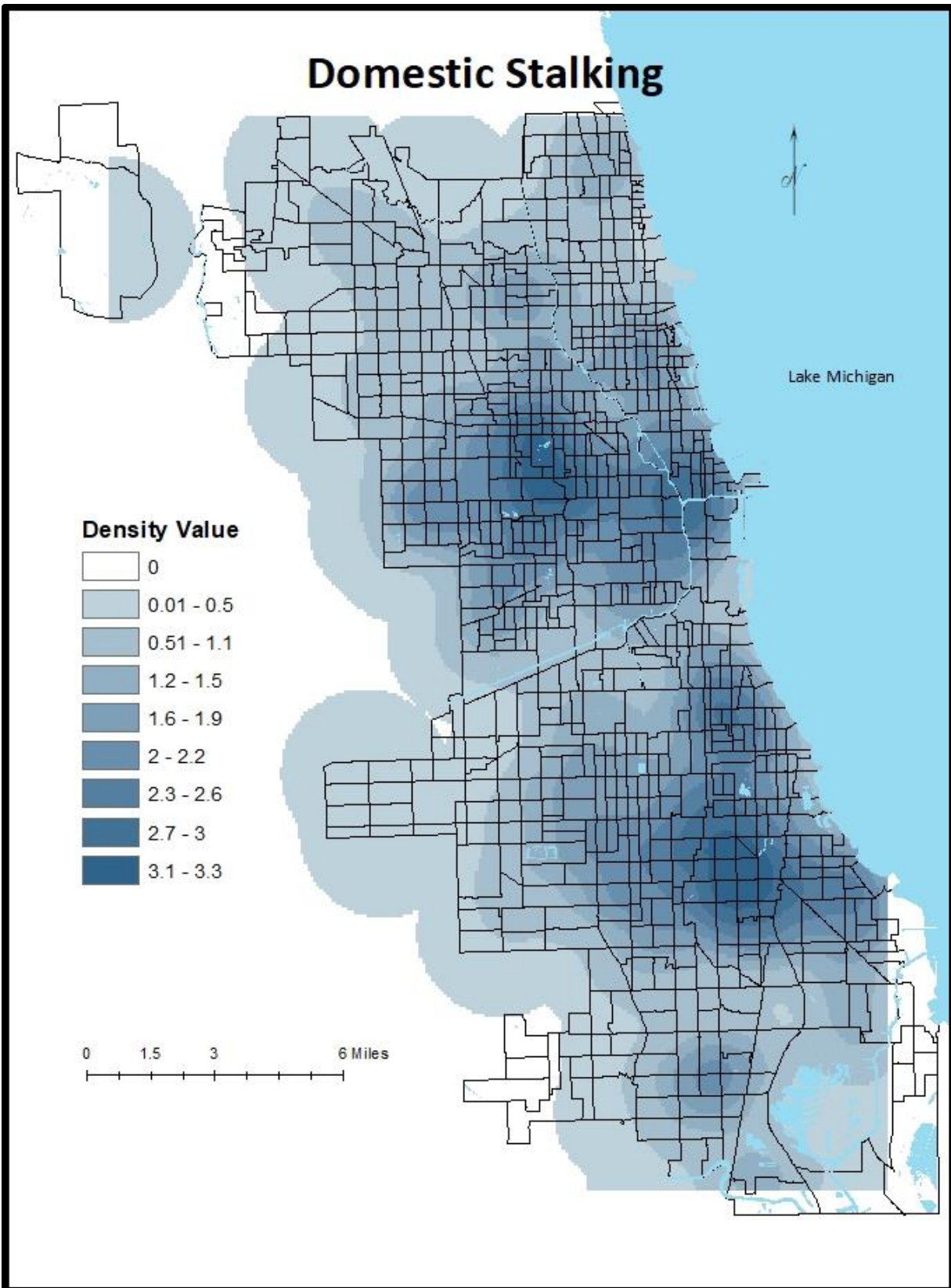
Figure 6. Kernel Density Analysis of Domestic Stalking Across Chicago Census Tracts, 2012 -
2016.

Violation of Protective Order

Table 3 contains the descriptive statistics for the violation of protective order incidents

included in analyses. There was a total of 6,278 domestic violation of protective order events

between 2012 and 2016 across all of Chicago's census tracts. The minimum number of incidents

per census tract was zero and the maximum count was 59, with an average of 7.86 incidents

per tract (SD = 6.09). The breakdown of each year for domestic violation of protective order

counts are also displayed in Table 2. Total counts ranged from 1,057 to 1,404 per year with a

minimum of zero and maximum between 14 and 22 incidents per census tract. The mean

counts per census tract ranged from 1.32 to 1.76. A total of 5,152 incidents of domestic

violation of protective order between 2012 and 2016 were coded as being between intimate

partners and 1,125 incidents were between non-intimate partners. For intimate partner

violation of protective order, there was an average of 6.44 incidents per census tract (SD = 5.95)

with a minimum count of zero and maximum count of 52 incidents. The breakdown of intimate

partner violation of protective order incidents from 2012 to 2016 are displayed in Table 3.

There was a total count ranging from 873 to 1,133 incidents per year, with a minimum of zero

and a maximum between 10 and 16 incidents per census tract. The mean counts per census

tract ranged from 1.09 to 1.42. For the non-intimate partner violation of protective order cases,

there was an average of 1.41 incidents per census tract (SD = 2.07) with a minimum count of

zero and a maximum count of 19 incidents. The breakdown of non-intimate partner violation of

protective order incidents from 2012 to 2016 are displayed in Table 3. There was a total count

ranging from 177 to 261 incidents per year, with a minimum of zero and maximum ranging

between five and 11 incidents per census tract. The mean counts per census tract ranged from

.22 to .33.

Table 3. Descriptive Statistics for the Violation of Protective Order Dependent Variables for Chicago Census Tracts; N = 799.

| | Count N[123] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Domestic VPO Total | 6278 | 7.86 | 6.09 | 0 | 59 |
| Domestic VPO 2012 | 1404 | 1.76 | 2.08 | 0 | 16 |
| Domestic VPO 2013 | 1170 | 1.46 | 1.89 | 0 | 15 |
| Domestic VPO 2014 | 1057 | 1.32 | 1.75 | 0 | 14 |
| Domestic VPO 2015 | 1309 | 1.64 | 2.17 | 0 | 16 |
| Domestic VPO 2016 | 1338 | 1.67 | 2.20 | 0 | 22 |
| | | | | | |
| Intimate Partner VPO Total | 5152 | 6.44 | 5.95 | 0 | 52 |
| Intimate Partner VPO 2012 | 1133 | 1.42 | 1.72 | 0 | 13 |
| Intimate Partner VPO 2013 | 970 | 1.21 | 1.69 | 0 | 14 |
| Intimate Partner VPO 2014 | 873 | 1.09 | 1.52 | 0 | 10 |
| Intimate Partner VPO 2015 | 1084 | 1.36 | 1.91 | 0 | 16 |
| Intimate Partner VPO 2016 | 1092 | 1.36 | 1.92 | 0 | 14 |
| | | | | | |
| Non-Intimate Partner VPO Total | 1125 | 1.41 | 2.07 | 0 | 19 |
| Non-Intimate Partner VPO 2012 | 261 | .33 | .78 | 0 | 5 |
| Non-Intimate Partner VPO 2013 | 208 | .26 | .65 | 0 | 7 |
| Non-Intimate Partner VPO 2014 | 177 | .22 | .64 | 0 | 7 |
| Non-Intimate Partner VPO 2015 | 231 | .29 | .80 | 0 | 11 |
| Non-Intimate Partner VPO 2016 | 248 | .31 | .71 | 0 | 8 |

[1]Count N is the total number of incidents for each dependent variable; the minimum and maximum are the total incident counts per census tract.
[2]These totals include only incidents containing X,Y coordinates.
[3]Intimate partner and non-intimate partner totals do no equal domestic total due to missing relationships in FOIA data.

The next set of three figures shows locations of violation of protective order incidents. Domestic violation of protective order incidents (Figure 7) are numerous across the city and are heavily concentrated in the north east corner, central west, and lower central east portions of the city. The intimate partner violation of protective order incidents (Figures 8) holds the same spatial pattern. Non-intimate partner violation of protective order incidents (Figure 9), although there are far fewer incidents, seem to also be concentrated in the central west and lower central east portions of the city. Each year within the maps appear scattered and do not seem to follow a pattern.

Figure 10 contains the kernel density analysis results for the domestic violation of protective order incidents. Census tracts that contain darker shading are more heavily concentrated with violation of protective order incidents and the concentration of incidents, and therefore risk, diminishes as census tracts become lighter.
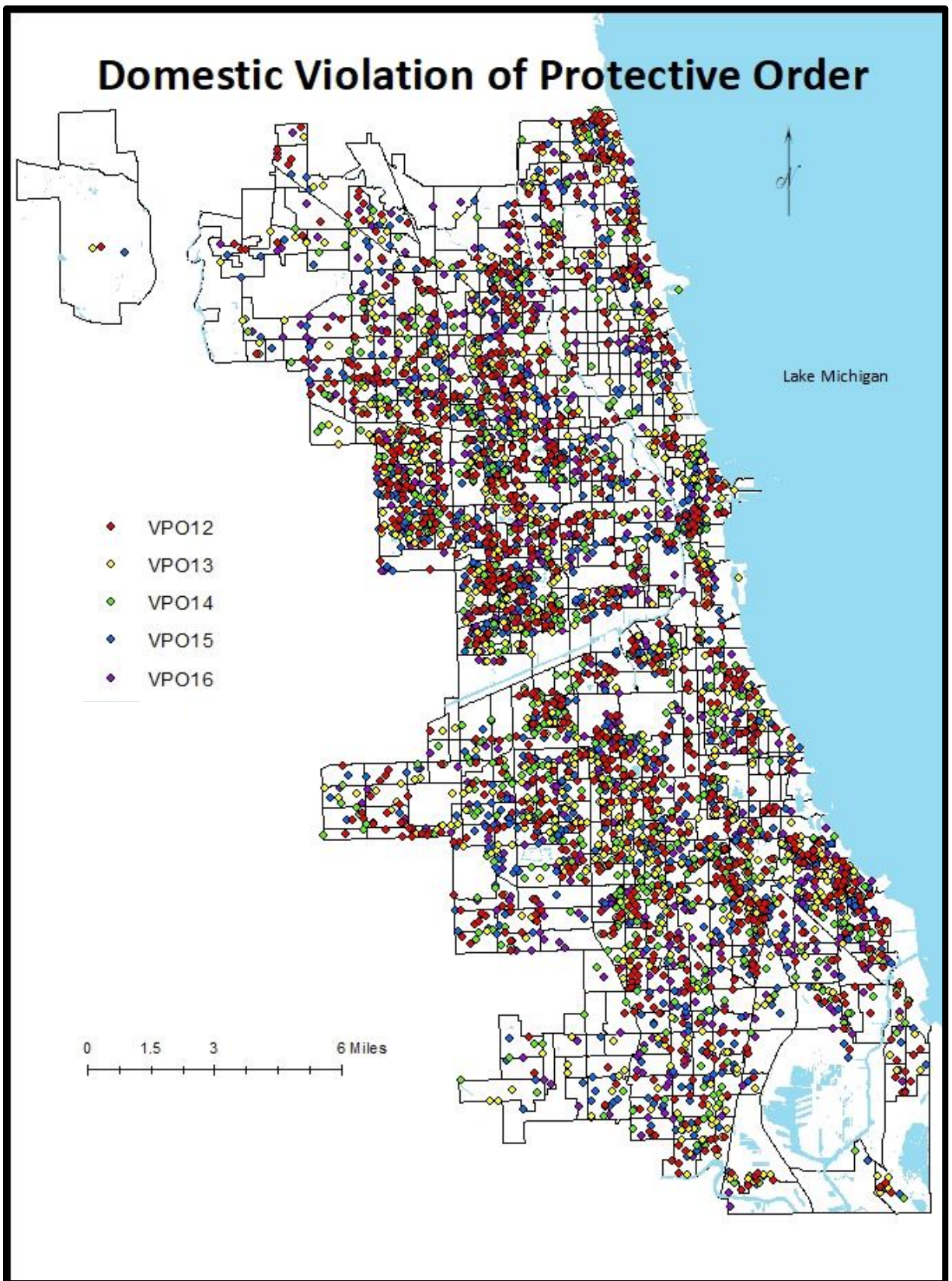
Figure 7. Domestic Violation of Protective Order Incidents Across Chicago Census Tracts, 2012 -
2016.
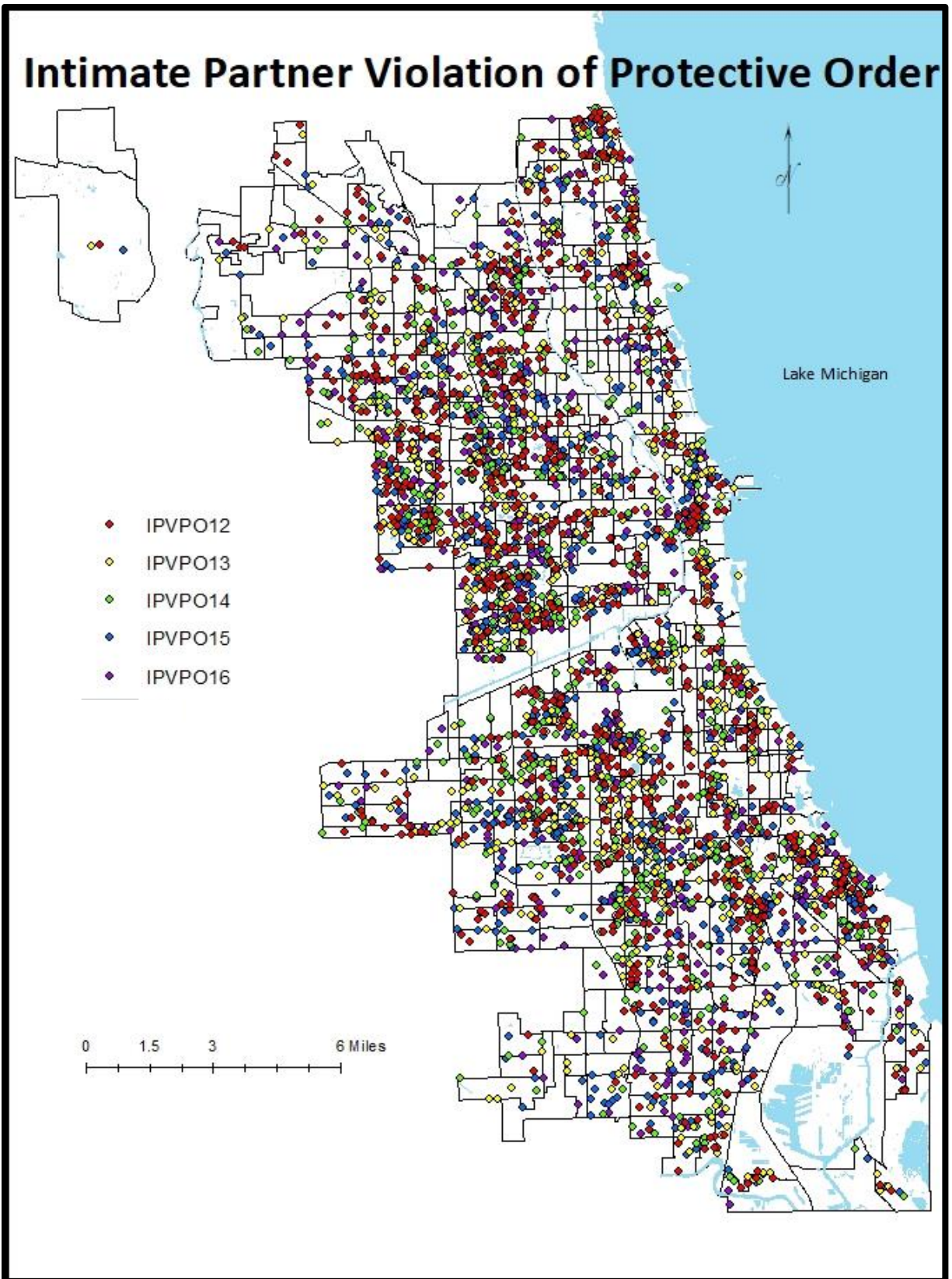
Figure 8. Intimate Partner Violation of Protective Order Incidents Across Chicago Census Tracts, 2012 - 2016.

Figure 9. Non-Intimate Partner Violation of Protective Order Incidents Across Chicago Census Tracts, 2012 - 2016.

Figure 10. Kernel Density Analysis of Domestic Violation of Protective Order Across Chicago Census Tracts, 2012 - 2016.

Homicide

Table 4 contains the descriptive statistics for the homicide incidents included in analyses. There was a total of 168 domestic violation of protective order events between 2012 and 2016 across all of Chicago's census tracts. The minimum number of incidents per census tract was zero and the maximum count was four, with an average of .21 incidents per tract (SD = .52). The breakdown of each year for domestic homicide counts are also displayed in Table 3. Total counts ranged from 30 to 37 per year with a minimum of zero and maximum of two incidents per census tract. The mean counts per census tract ranged from .04 to .05. A total of 77 incidents of domestic homicide between 2012 and 2016 were coded as being between intimate partners and 77 incidents were between non-intimate partners. For intimate partner homicide, there was an average of .10 incidents per census tract (SD = .31) with a minimum count of zero and maximum count of three incidents. The breakdown of intimate partner homicide incidents from 2012 to 2016 are displayed in Table 4. There was a total count ranging from 13 to 17 incidents per year, with a minimum of zero and a maximum of one incident per census tract. The mean counts per census tract were all .02. For the non-intimate partner homicide cases, there was an average of .10 incidents per census tract (SD = .32) with a minimum count of zero and a maximum count of two incidents. The breakdown of non-intimate partner homicide incidents from 2012 to 2016 are displayed in Table 4. There was a total count ranging from 11 to 21 incidents per year, with a minimum of zero and maximum between one and two incidents per census tract. The mean counts per census tract ranged from .01 to .03. Due to the low Ns when both the stalking and homicide counts were parsed out by year, the aggregate counts across all years for all crimes were used in analyses.

Table 4. Descriptive Statistics for the Homicide Dependent Variables for Chicago Census Tracts; N = 799.

| | Count N[123] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Domestic Homicide Total | 168 | .21 | .52 | 0 | 4 |
| Domestic Homicide 2012 | 35 | .04 | .22 | 0 | 2 |
| Domestic Homicide 2013 | 31 | .04 | .21 | 0 | 2 |
| Domestic Homicide 2014 | 30 | .04 | .21 | 0 | 2 |
| Domestic Homicide 2015 | 35 | .04 | .21 | 0 | 2 |
| Domestic Homicide 2016 | 37 | .05 | .24 | 0 | 2 |
| | | | | | |
| Intimate Partner Homicide Total | 77 | .10 | .31 | 0 | 3 |
| Intimate Partner Homicide 2012 | 16 | .02 | .14 | 0 | 1 |
| Intimate Partner Homicide 2013 | 17 | .02 | .14 | 0 | 1 |
| Intimate Partner Homicide 2014 | 14 | .02 | .13 | 0 | 1 |
| Intimate Partner Homicide 2015 | 13 | .02 | .13 | 0 | 1 |
| Intimate Partner Homicide 2016 | 17 | .02 | .14 | 0 | 1 |
| | | | | | |
| Non-Intimate Partner Homicide Total | 77 | .10 | .32 | 0 | 2 |
| Non-Intimate Partner Homicide 2012 | 16 | .02 | .14 | 0 | 1 |
| Non-Intimate Partner Homicide 2013 | 11 | .01 | .12 | 0 | 1 |
| Non-Intimate Partner Homicide 2014 | 13 | .02 | .13 | 0 | 1 |
| Non-Intimate Partner Homicide 2015 | 21 | .03 | .16 | 0 | 1 |
| Non-Intimate Partner Homicide 2016 | 16 | .02 | .15 | 0 | 2 |

[1]Count N is the total number of incidents for each dependent variable; the minimum and maximum are the total incident counts per census tract.

[2]These totals include only incidents containing X,Y coordinates.

[3]Intimate partner and non-intimate partner totals do no equal domestic total due to missing relationships in FOIA data.

The next set of three figures contain the homicide data. Domestic homicides (Figure 11) are most visible in the central west portion of the city. Intimate partner homicides (Figure 12) appear to have a similar pattern as the domestic homicides while non-intimate partner homicides (Figure 13) does not have any visible spatial patterns. Each year within the maps appear scattered and do not seem to follow a pattern.

Figure 14 contains the kernel density analysis results for the domestic homicide incidents. Census tracts that contain darker shading are more heavily concentrated with violation of protective order incidents and the concentration of incidents, and therefore risk, diminishes as census tracts become lighter.
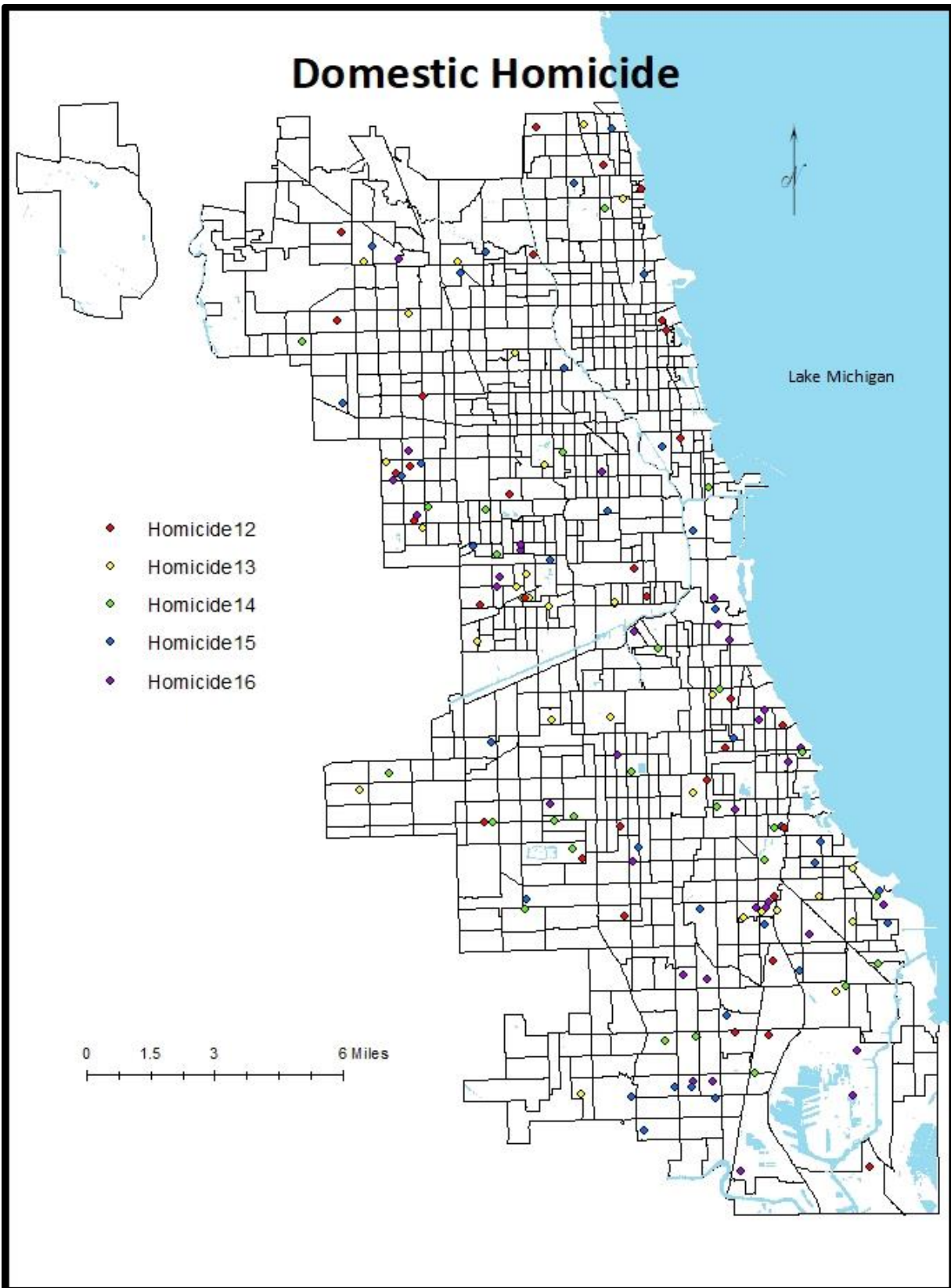
Figure 11. Domestic Homicide Incidents Across Chicago Census Tracts, 2012 - 2016.

# Intimate Partner Homicide

Lake Michigan

IPHomicide12
IPHomicide13
IPHomicide14
IPHomicide15
IPHomicide16

0   1.5   3   6 Miles
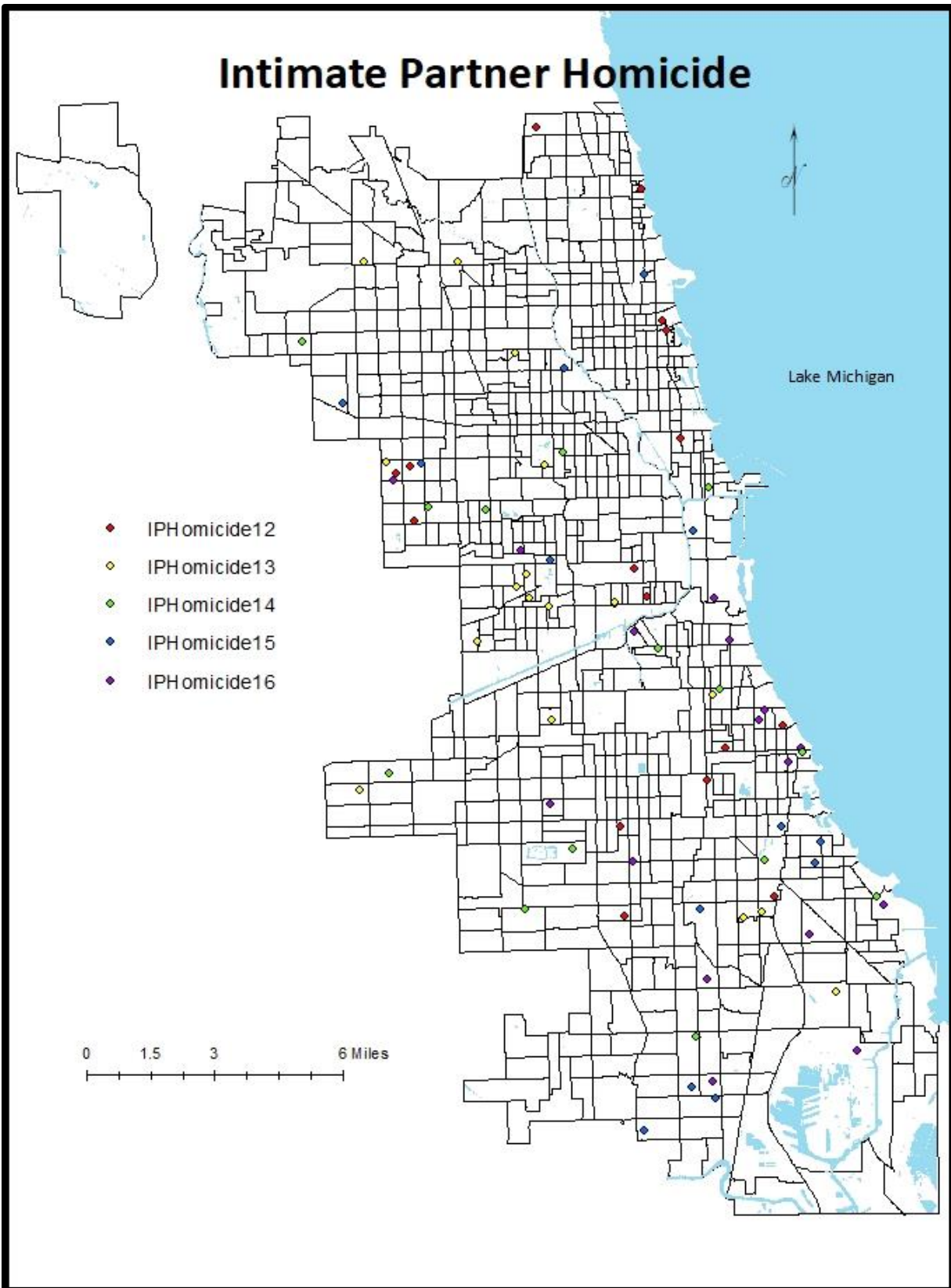
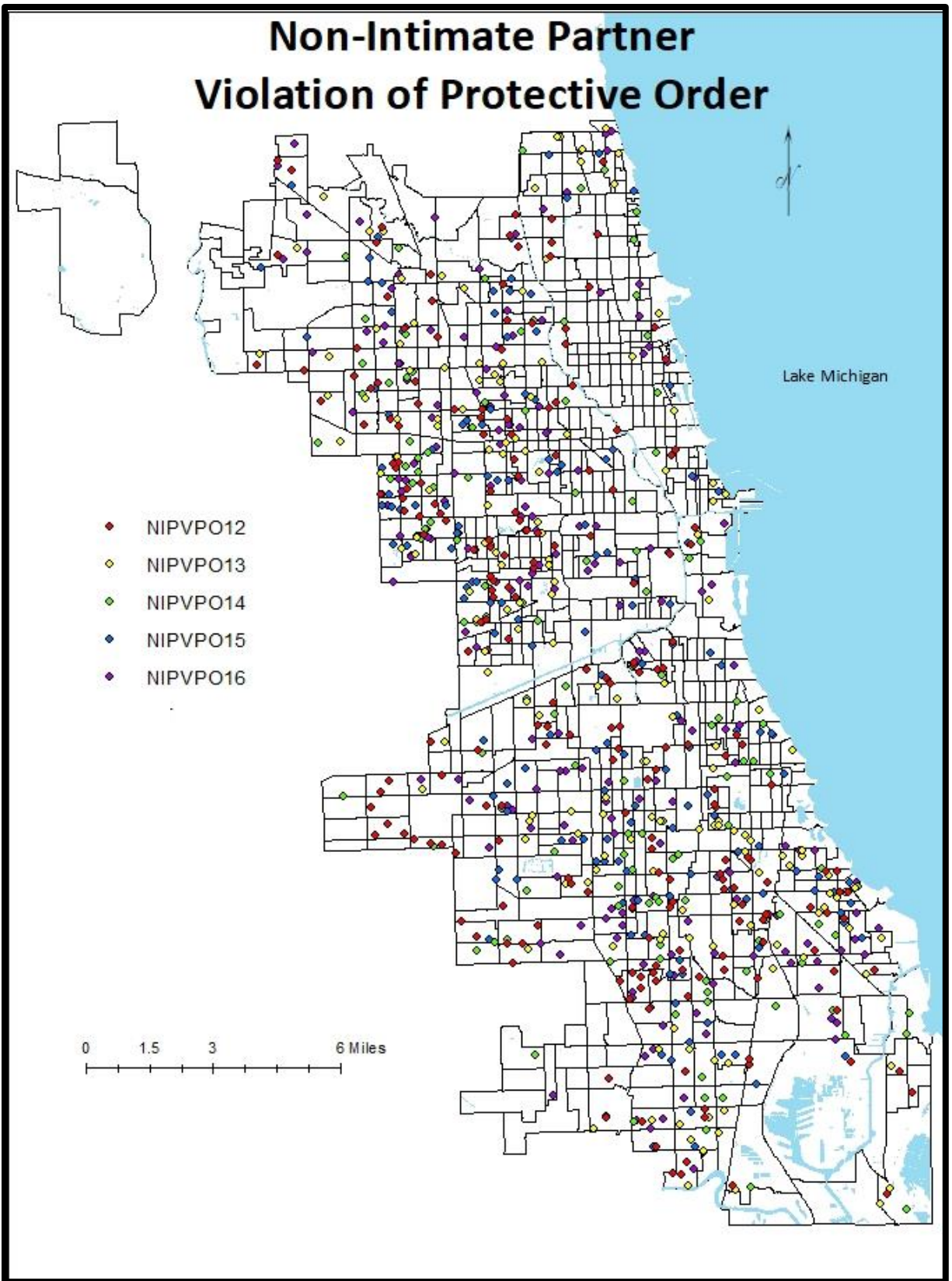Figure 12. Intimate Partner Homicide Incidents Across Chicago Census Tracts, 2012 - 2016.
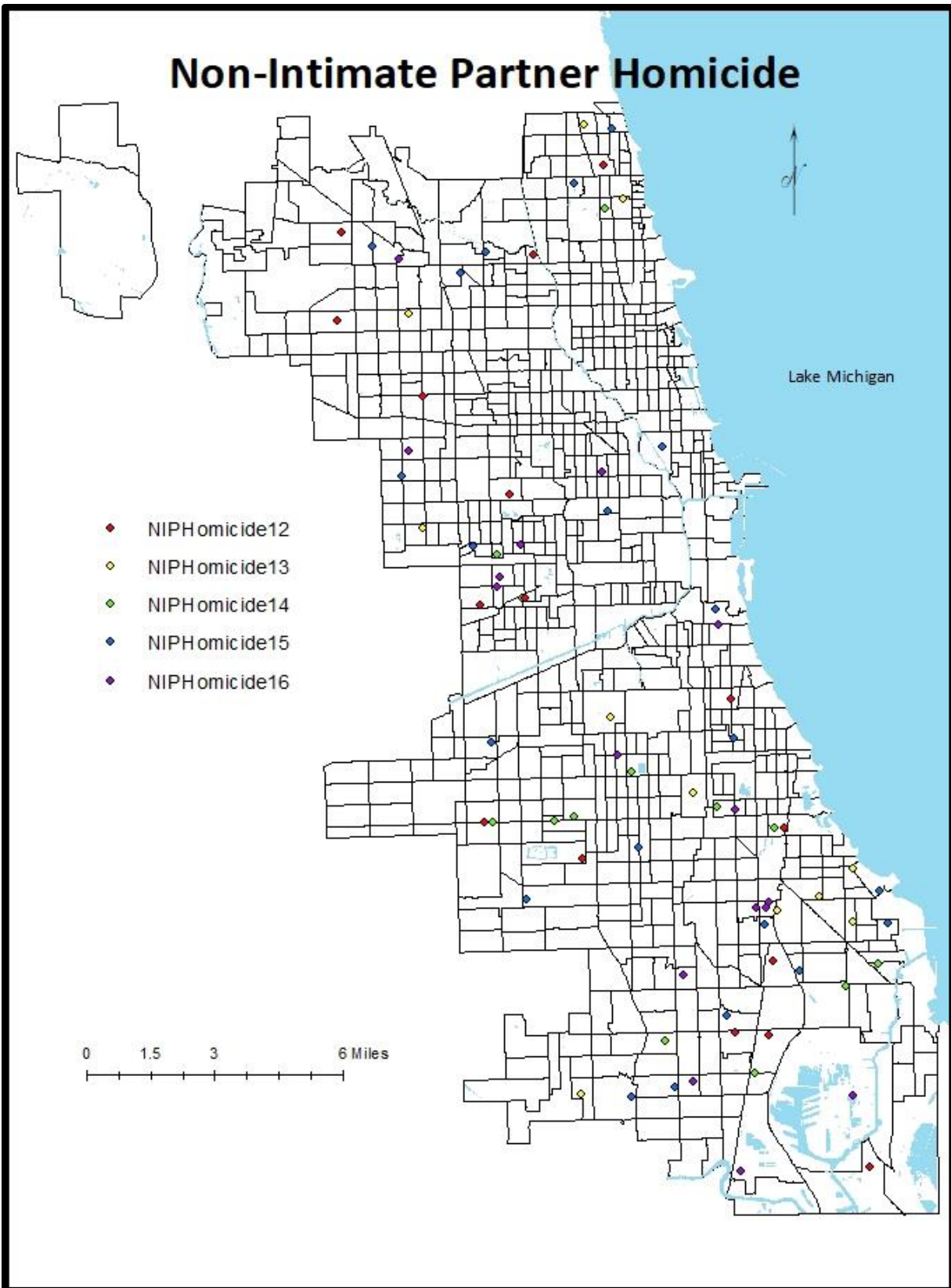
Figure 13. Non-Intimate Partner Homicide Incidents Across Chicago Census Tracts, 2012 - 2016.

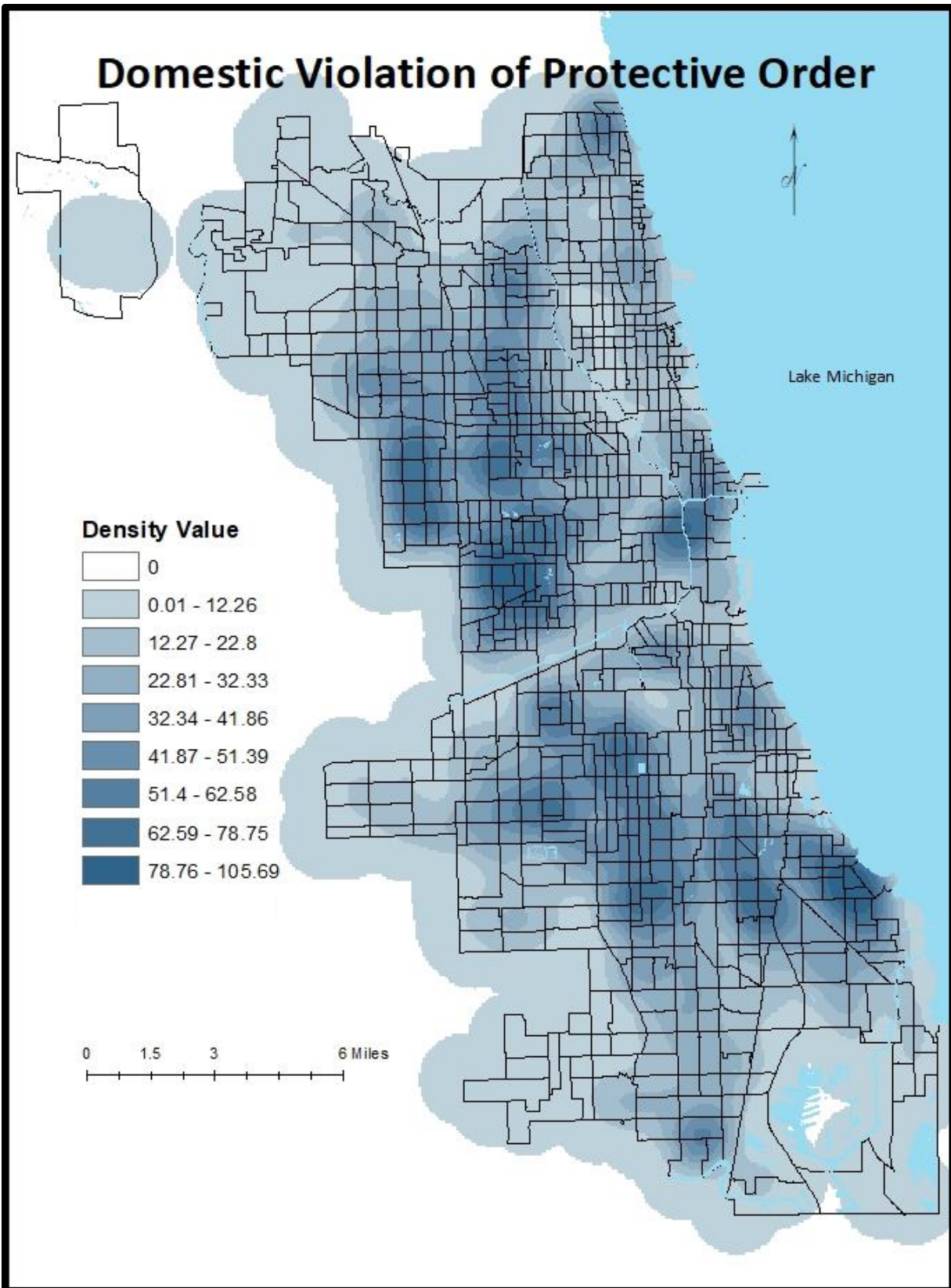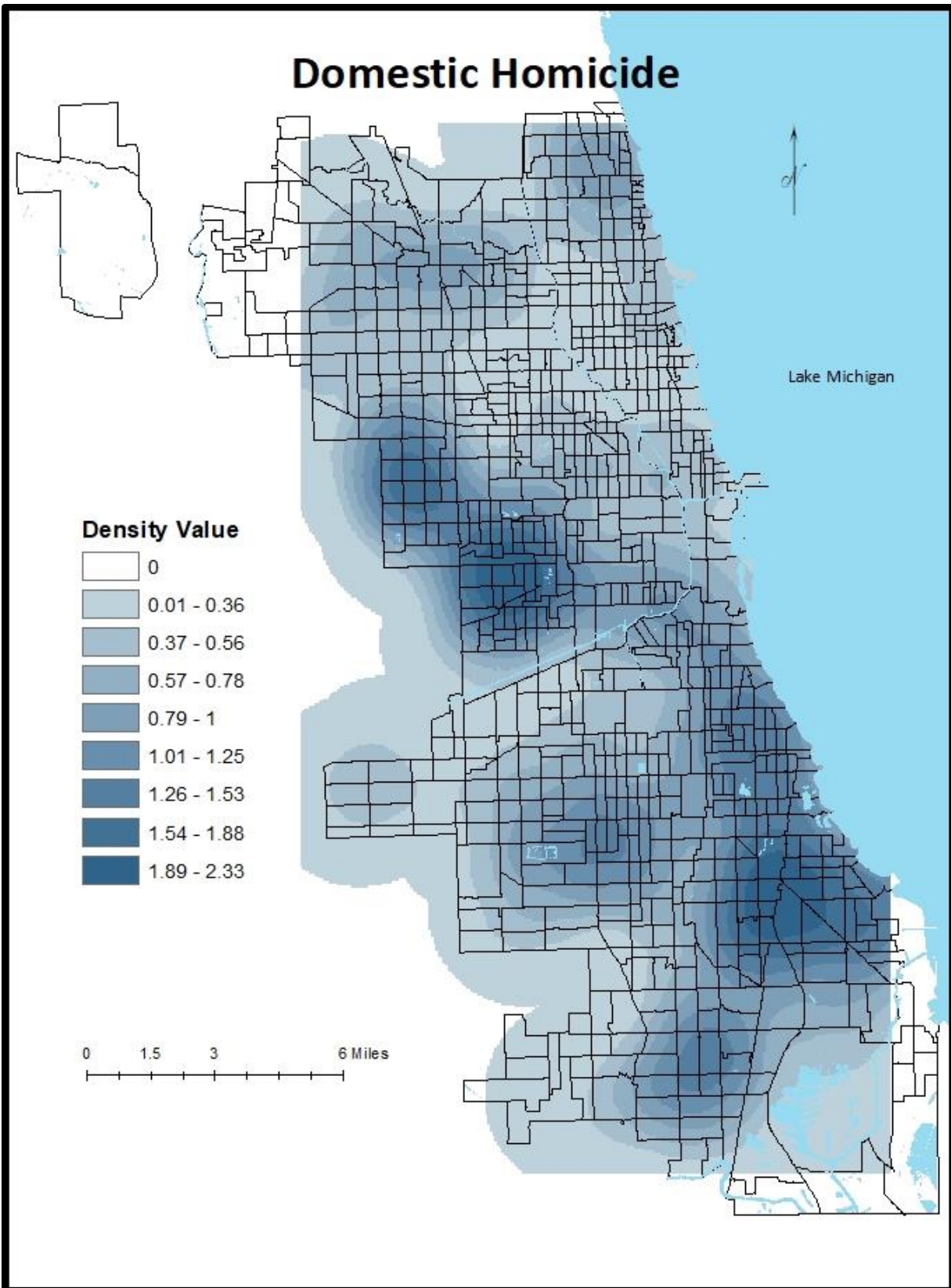Figure 14. Kernel Density Analysis of Domestic Homicide Across Chicago Census Tracts, 2012 - 2016.

Descriptive statistic results for the independent variables are displayed in Tables 5 and 6. The variables are broken down by year. However, as it can be seen in both tables, there is not much variance from year to year. This, coupled with the previous assertion of low Ns in the count data, supported the decision to focus on analyzing the five years of data as a whole instead of individually. The American Community Survey 5-year estimate utilized in analyses is the 2016 estimate since the years of data included to produce the estimate are 2012 through 2016. Therefore, only the 2016 estimates will be discussed for all Chicago census tracts (N = 796). Table 5 contains the independent variables that correspond to the social disorganization framework of this paper. The GINI Index scores for all census tracts ranged from .25 to .72 with a mean score of .46 (SD = .07). The heterogeneity z-score composite measure based on these values ranged from zero (completely homogeneous) to .74 with a mean score of .34 (SD = .20). On average, the population of each census tract is 18.52% foreign born (SD = 15.49) ranging from 0% to 69.64% immigrants. The z-score composite measure for mobility averages .02 across all census tracts (SD = 1.69) and ranges from -3.89 to 5.70. The concentrated disadvantage measure ranged from -7.53 (concentrated advantage) to 9.10 (concentrated disadvantage) with a mean score of .00 (SD = 2.61).

Table 6 contains the breakdown of the three composite variables in the social disorganization framework to demonstrate what values made up the coefficients used in analyses. On average, Chicago census tracts were 45.48% White (SD = 33.29), 36.55% Black (SD = 40.26), .27% American Indian/Alaska Native (SD = .62), 5.47% Asian (SD = 9.34), .03% Pacific Islander/Hawaiian (SD = .17), 9.83% Other (SD = 14.59), and 2.38% 2 or more races (SD = 2.02).

All together, these values comprised the racial heterogeneity measure. Residential mobility was

composed two variables: renter occupied housing and whether or not an individual was in the

same house last year. On average, 56.45% (SD = 20.31) of occupied housing units were

occupied by renters and 16.23% of residents lived in a different house last year (SD = 9.25).

While a high number of renters indicates a residentially unstable, high turnover, population, the

low number of individuals who moved houses in the last year indicates residential stability.

Concentrated disadvantage was determined based on five components. On average, 4.33% of

the Chicago population on cash assistance (SD = 3.87) while 23.36% were living below the

poverty line (SD = 14.22). Almost 1 in 5 households, 19.63%, were headed by a female (SD =

13.95) and 13.31% of the population was unemployed (SD = 10.07). Lastly, on average, 22.13%

of the population was under the age of 18 (SD = 8.31).

Table 5. Descriptive Statistics for the Social Disorganization Independent Variables for Chicago Census Tracts, 2012 – 2016.

| | N[1] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| GINI Index | | | | | |
| 2012 | 795 | .45 | .07 | .25 | .72 |
| 2013 | 796 | .45 | .07 | .22 | .70 |
| 2014 | 796 | .45 | .07 | .22 | .65 |
| 2015 | 796 | .46 | .07 | .31 | .67 |
| 2016 | 796 | .46 | .07 | .31 | .69 |
| | | | | | |
| Racial Heterogeneity | | | | | |
| 2012 | 795 | .33 | .21 | 0 | .74 |
| 2013 | 796 | .33 | .21 | 0 | .72 |
| 2014 | 796 | .33 | .21 | 0 | .71 |
| 2015 | 796 | .34 | .20 | 0 | .71 |
| 2016 | 796 | .34 | .20 | 0 | .74 |
| | | | | | |
| Foreign Born Population | | | | | |
| 2012 | 795 | 18.86 | 16.36 | 0 | 65.10 |
| 2013 | 796 | 18.73 | 16.20 | 0 | 67.37 |
| 2014 | 796 | 18.61 | 15.96 | 0 | 68.54 |
| 2015 | 796 | 18.69 | 15.82 | 0 | 71.26 |
| 2016 | 796 | 18.52 | 15.49 | 0 | 69.64 |
| | | | | | |
| Residential Mobility | | | | | |
| 2012 | 795 | 1.64e-15 | 1.72 | -4.09 | 7.07 |
| 2013 | 796 | 3.45e-15 | 1.73 | -4.20 | 6.58 |
| 2014 | 796 | 2.00e-16 | 1.71 | -4.09 | 5.91 |
| 2015 | 796 | 2.16e-15 | 1.70 | -4.17 | 5.72 |
| 2016 | 796 | .02 | 1.69 | -3.89 | 5.70 |
| | | | | | |
| Concentrated Disadvantage | | | | | |
| 2012 | 795 | .00 | 2.61 | -7.53 | 9.10 |
| 2013 | 796 | -2.90e-16 | 4.11 | -6.69 | 15.49 |
| 2014 | 796 | 4.37e-16 | 4.14 | -6.76 | 22.33 |
| 2015 | 796 | -2.88e-15 | 4.16 | -7.05 | 20.14 |
| 2016 | 796 | .02 | 4.15 | -7.12 | 19.19 |

[1]Three census tracts were missing data for the years 2013 – 2016 and four were missing data for 2012.

Table 6. Descriptive Statistics for the Social Disorganization Composite Independent Variables for Chicago Census Tracts, 2016.

|  | N | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Racial Heterogeneity 2016 |  |  |  |  |  |
| % White | 796 | 45.48 | 33.29 | 0 | 97.90 |
| % Black | 796 | 36.55 | 40.26 | 0 | 100.00 |
| % American Indian/Alaska Native | 796 | .27 | .62 | 0 | 4.96 |
| % Asian | 796 | 5.47 | 9.34 | 0 | 89.68 |
| % Pacific Islander/Hawaiian | 796 | .03 | .17 | 0 | 2.69 |
| % Other | 796 | 9.83 | 14.59 | 0 | 68.90 |
| % 2 or more races | 796 | 2.38 | 2.02 | 0 | 14.38 |
|  |  |  |  |  |  |
| Residential Mobility 2016 |  |  |  |  |  |
| % Renter Occupied Housing | 796 | 56.45 | 20.31 | .78 | 100 |
| % Different House Last Year | 796 | 16.23 | 9.25 | .76 | 67.03 |
|  |  |  |  |  |  |
| Concentrated Disadvantage 2016 |  |  |  |  |  |
| % Cash Assistance | 796 | 4.33 | 3.87 | 0 | 27.1 |
| % Below Poverty Line | 796 | 23.36 | 14.22 | .6 | 71.7 |
| % Female Headed Households | 796 | 19.63 | 13.95 | 0 | 65.69 |
| % Unemployment | 796 | 13.31 | 10.07 | 0 | 91.6 |
| % Population Under 18 Years Old | 796 | 22.13 | 8.31 | 1.4 | 50 |

[1]Three census tracts were missing data for the 2016.

Two sets of choropleth maps were created as a way to visualize the independent

variables across Chicago census tracts. The first set of choropleth maps display the five

predictor variables in the social disorganization framework. Figure 15 maps the GINI Index

values. The census tracts with the lighter shade of red are those with a lower score index score

indicating more income equality whereas the darker red tracts have more income inequality.

The census tracts along Lake Michigan and across the center of the city as well as those toward

the center of the lower half of the city have higher scores of income inequality. Figure 16 shows

the racial heterogeneity of Chicago. The darker shaded census tracts, indicating a more

heterogeneous population, can be found through the center of the city as well as along the

north edge, northwest side, and southwest edge. The area predominantly homogenous areas

are in the south half of the city as well as the center west part of the city with a small portion of

the northern east side along Lake Michigan. The areas that are more racially homogenous are

also consistent with areas of more crime incidents. Figure 17 maps the percent of the

population that is foreign born. The darker areas have a higher percentage of foreign born

residents (seen predominantly across the center of the city and in the northern quarter of the

city as well as a few census tracts in the southeast along Lake Michigan) while a large portion of

the census tracts have 7.5% or fewer foreign born individuals. The three crimes mostly occur

within the areas of fewer foreign born residents. Figure 18 visualizes residential mobility,

comprised of the percent of renter occupied housing and the percent of individuals that resided

in a different house in the last year. The vast majority of the residentially mobile population,

shaded the darkest shades of red, are located along Lake Michigan, across the center of the city

and in the center of the southern half of the city. Those that are less mobile are mostly along

the northern border, the west side, and south side of the city. While a large portion of all crimes

occurred in areas of high residential mobility, there were also numerous census tracts of low

residential mobility where crimes had occurred. The final social disorganization component,

concentrated disadvantage, is displayed in Figure 19. Areas of the most disadvantage are

shaded darker red and are primarily located in the western central part of the northern half of

the city as well as the center of the southern half, and very southern parts of the city. All three

crimes appear to have occurred in larger numbers in the more disadvantaged areas.
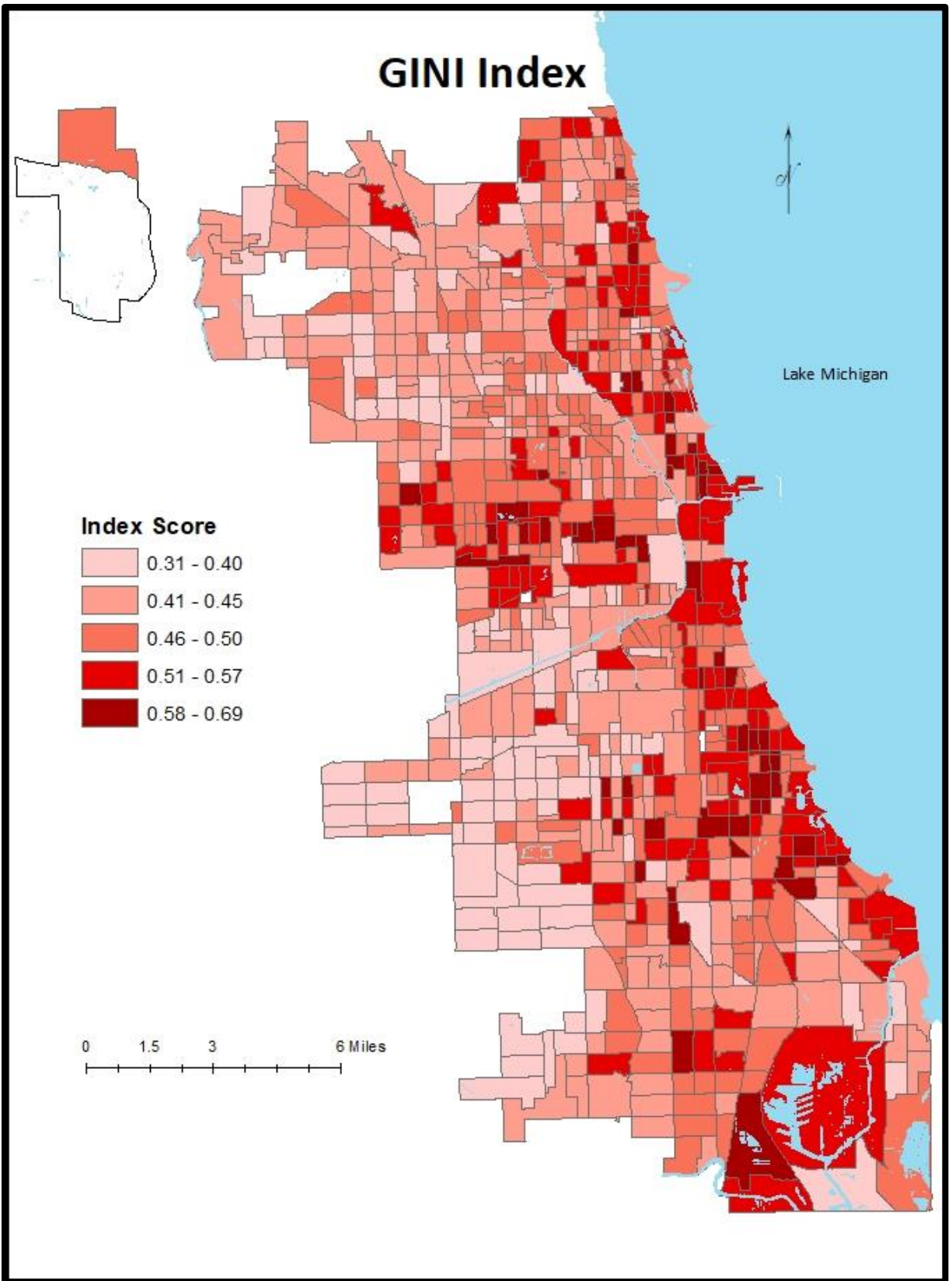
Figure 15. GINI Index Scores Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
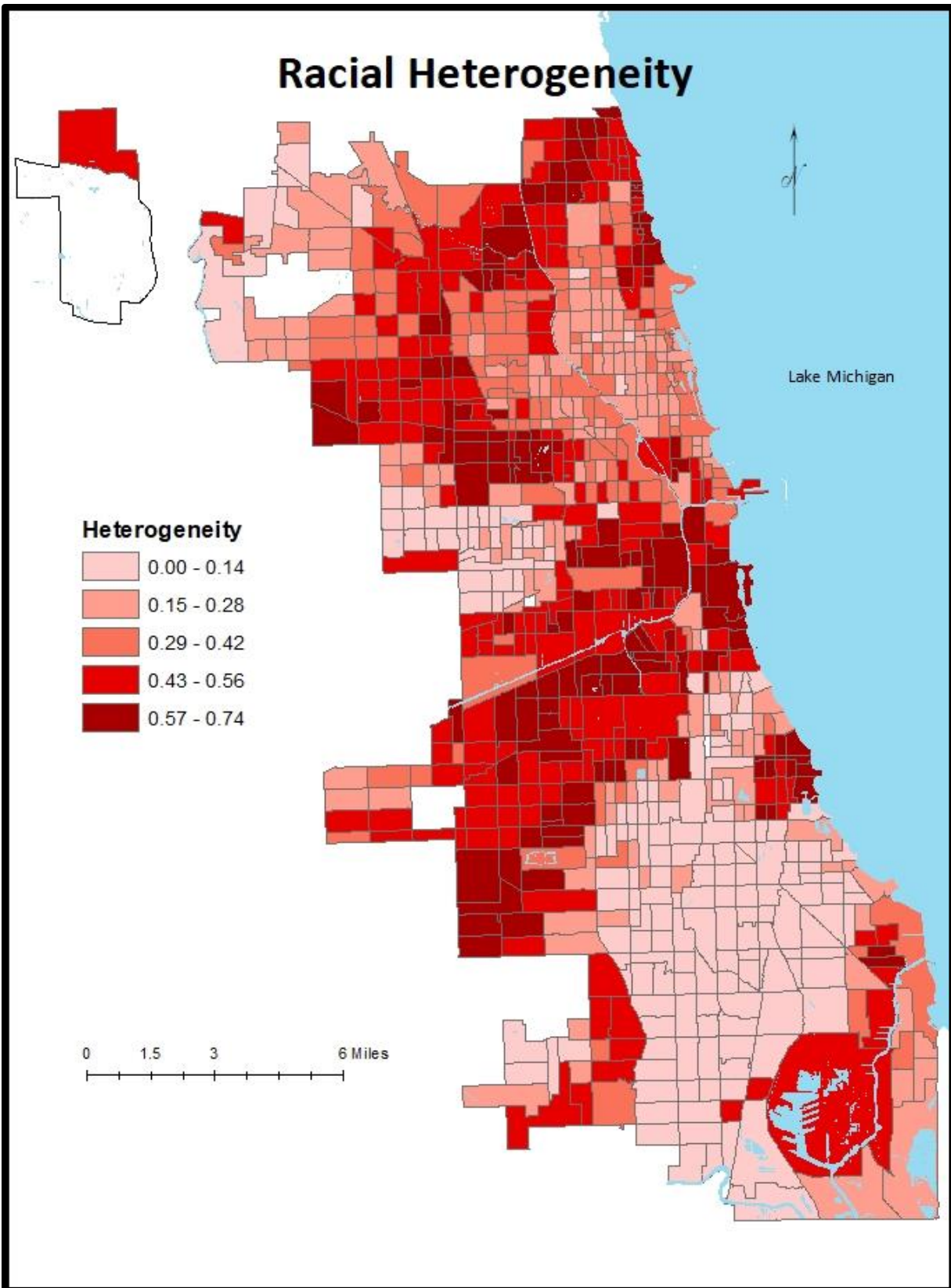
Figure 16. Racial Heterogeneity Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
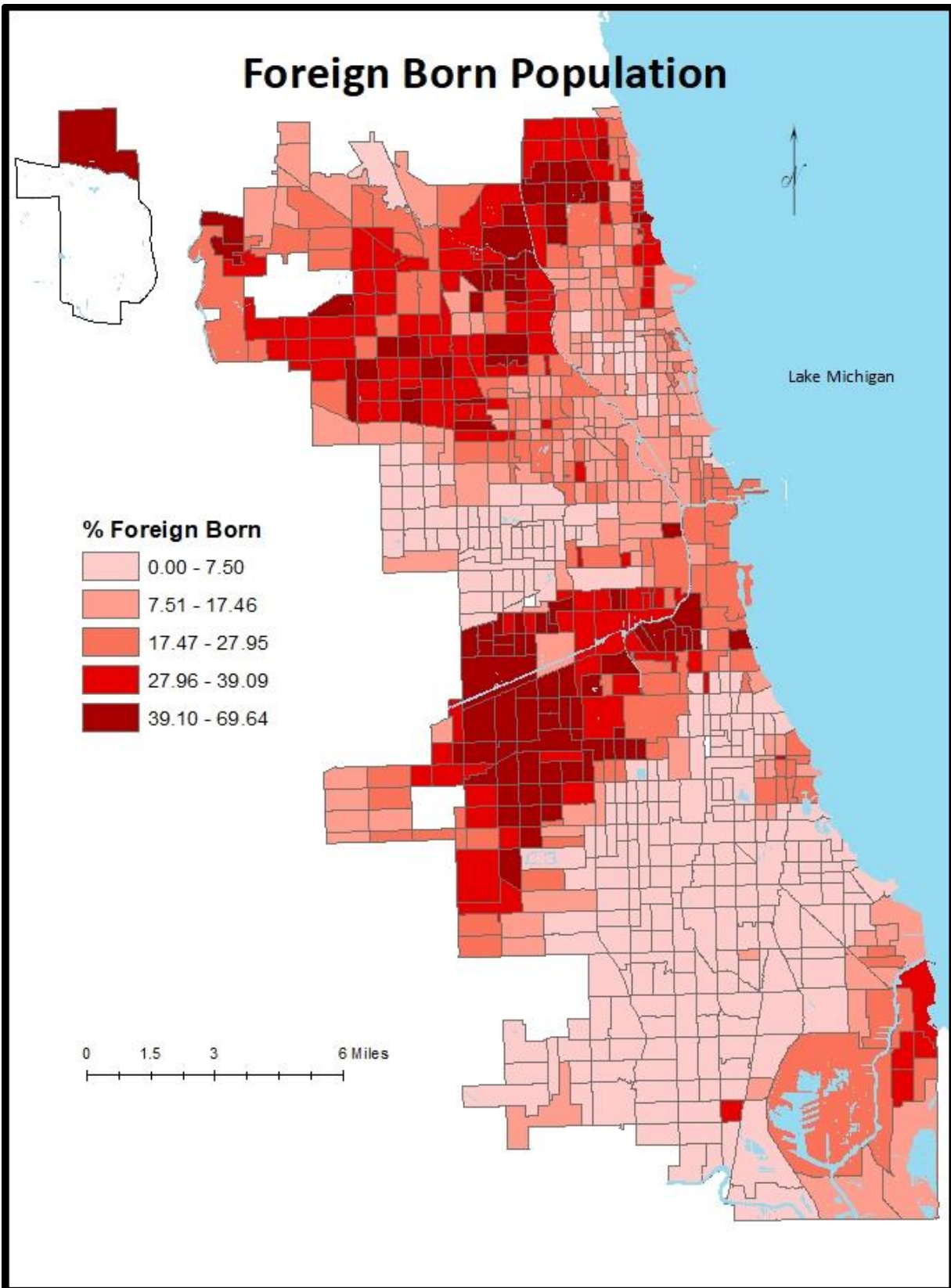
Figure 17. Foreign Born Population Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
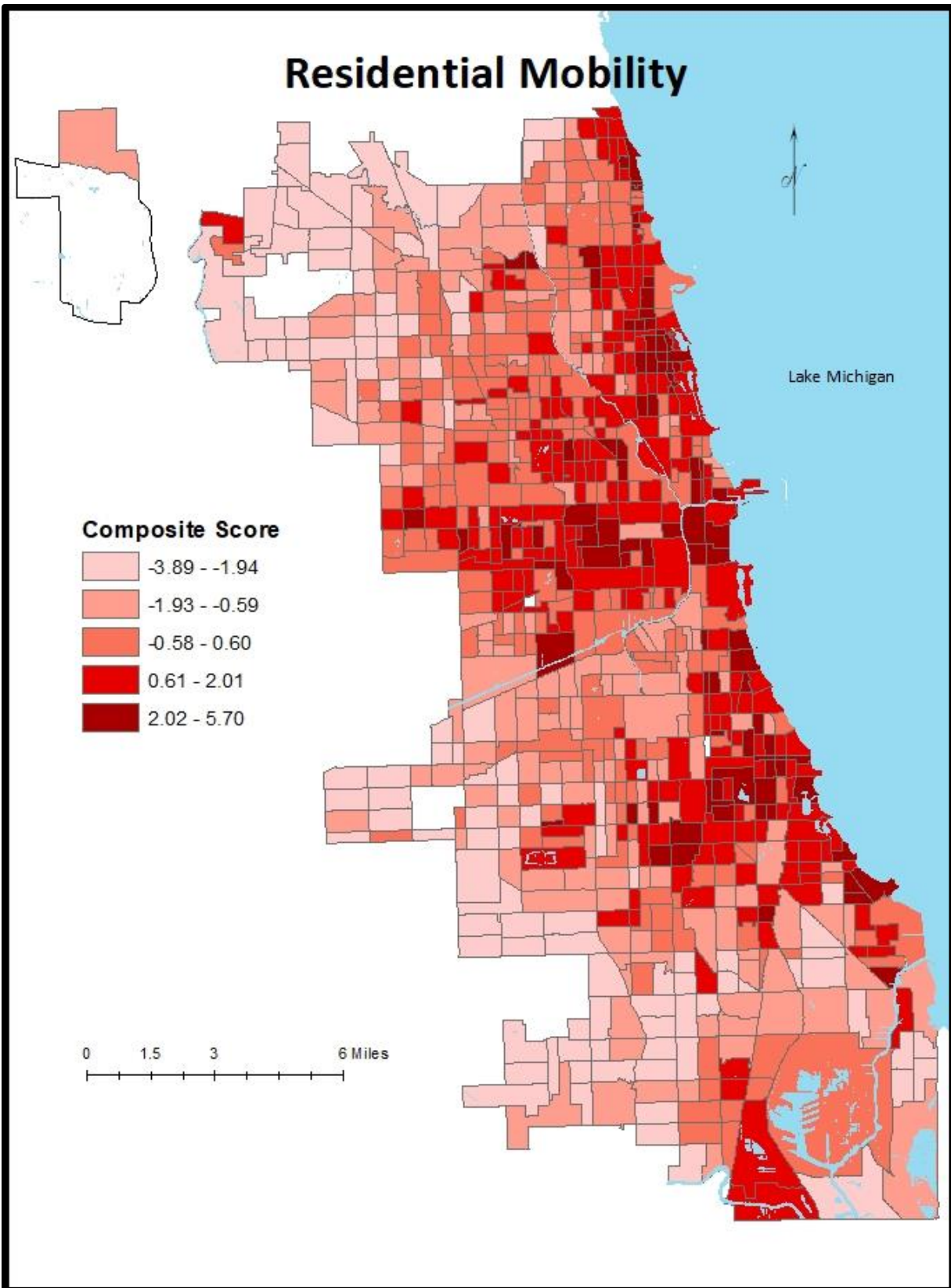
Figure 18. Residential Mobility Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
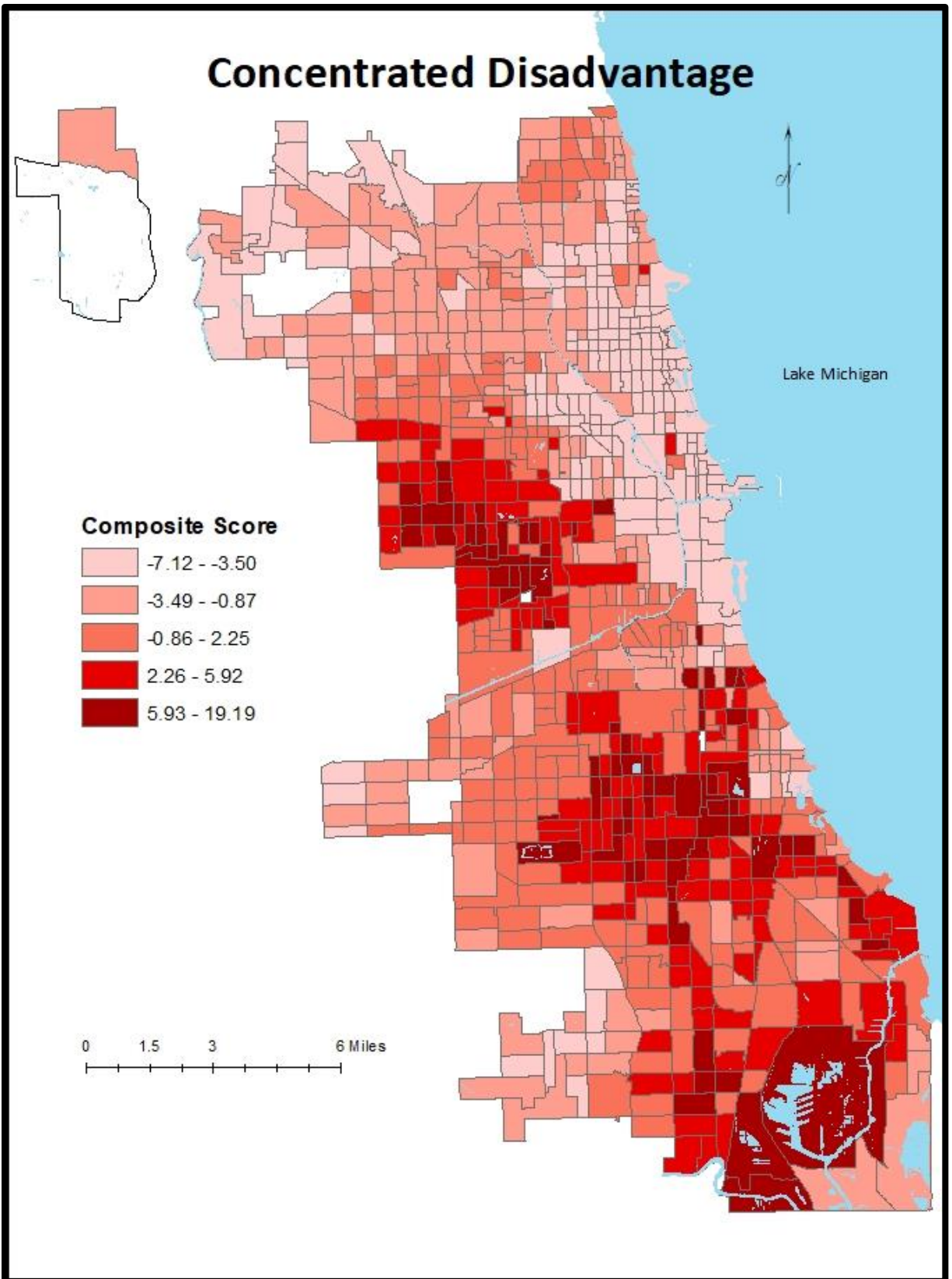
Figure 19. Concentrated Disadvantage Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.

Table 7 contains the independent variables that correspond to the gender inequality framework of this paper. The pay gap variable ranges from -25,689 to 65,509 and is the difference in dollar amount of income between males and females. Positive numbers indicate that males make more money than females and negative numbers indicate females make more money than males. The mean pay gap across census tracts with available data (N = 773) was $7,387.83 (SD = 11,105.68). The employment variable, ranging from -14.25 to 11.14, indicates the percentage difference in management positions held between males and females. Positive numbers indicate that males hold more management positions than females and negative numbers indicate females hold more management positions than males. The mean job composite variable for all census tracts is .41 (SD = 3.22). Lastly, education was measured as the percentage difference in high school diplomas held between males and females. Positive numbers indicate that more males hold a high school diploma than females and negative numbers indicate more females hold a high school diploma than males. Ranging from -33.7 and 27.5, the mean difference in percentage between males and females with high school diplomas across Chicago census tracts is -.95.

Table 8 contains the breakdown of the three composite variables in the social disorganization framework to demonstrate what values made up the coefficients used in analyses. The pay gap variable was the difference between male and female income. On average, females made $30,540.21 (SD = 13,296.79) and males made $37,988.50 (SD = 19,308.72). For the employment variable, the difference between the percentage of males and females who held a management position was calculated. On average, there were 4.03% of

females in management occupations (SD = 2.95) and 4.44% of males in management

occupations (SD = 3.59). Educational attainment was based on the difference between the

percent of males and females with a high school diploma. On average, 82.78% of females hold a

high school diploma (SD = 16.62) and 81.82% of males hold a high school diploma (SD = 13.49).

Table 7. Descriptive Statistics for the Gender Inequality Independent Variables for Chicago Census Tracts, 2012 – 2016.

| | N[1] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Pay Gap | | | | | |
| 2012 | 795 | 7,087.42 | 11,111.68 | -38,560 | 66,410 |
| 2013 | 795 | 6,384.65 | 10,989.07 | -21,207 | 74,350 |
| 2014 | 795 | 6,683.70 | 10,697.33 | -22,089 | 55,787 |
| 2015[2] | - | - | - | - | - |
| 2016 | 773 | 7,387.83 | 11,105.68 | -25,689 | 65,509 |
| | | | | | |
| Employment | | | | | |
| 2012 | 795 | .16 | 3.59 | -15.55 | 20.54 |
| 2013 | 795 | .19 | 3.73 | -16.37 | 18.39 |
| 2014 | 795 | .22 | 3.35 | -12.89 | 11.35 |
| 2015 | 796 | .33 | 3.31 | -11.59 | 11.91 |
| 2016 | 796 | .41 | 3.22 | -14.25 | 11.14 |
| | | | | | |
| Educational Attainment | | | | | |
| 2012 | 795 | -1.28 | 8.23 | -47.8 | 25.7 |
| 2013 | 796 | -1.20 | 8.19 | -34.1 | 77.9 |
| 2014 | 796 | -1.13 | 7.47 | -35.9 | 30.8 |
| 2015 | 796 | -1.20 | 6.96 | -39.9 | 26.9 |
| 2016 | 796 | -.95 | 6.73 | -33.7 | 27.5 |

[1]The varying Ns are due to missing census tract data.
[2]There was no census data available for the pay gap variable for the year 2015.

Table 8. Descriptive Statistics for the Gender Inequality Composite Independent Variables for Chicago Census Tracts, 2016.

| | N[1] | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|
| Pay Gap 2016 | | | | | |
|   Female Pay | 788 | 30,540.21 | 13,296.79 | 3,954 | 81,926 |
|   Male Pay | 780 | 37,988.50 | 19,308.72 | 4,084 | 113,109 |
| | | | | | |
| Employment 2016 | | | | | |
|   Females in Management | 796 | 4.03 | 2.95 | 0 | 18.25 |
|   Males in Management | 796 | 4.44 | 3.59 | 0 | 18.12 |
| | | | | | |
| Educational Attainment 2016 | | | | | |
|   Females with HS diploma | 796 | 82.78 | 12.62 | 35.0 | 100 |
|   Males with HS diploma | 796 | 81.82 | 13.49 | 34.9 | 100 |

[1]The varying Ns are due to missing census tract data.

The second set of choropleth maps display the three predictor variables in the gender inequality framework. Figure 20 shows the distribution of the pay difference between men and women. The blue census tracts indicate pay inequality favorable to men with darker shades of blue indicating tracts where men make more money than women, up to $65,509 more than women. In contrast, the pink census tracts indicate pay inequality favorable to women. The darker the shade of pink, the more money women make than men, up to $25,689 more than men. There are far fewer pink census tracts than blue census tracts indicating that generally across Chicago, men make more money than women. The areas of denser crime incidents line up with bluer census tracts with a few pink census tracts having clusters of incidents. Figure 21 shows the percentage difference between men and women who hold managerial jobs. The city seems relatively split in half with the northern half having more blue tracts, meaning a higher percentage of men in management than women, and the southern half of the city being mostly pink and therefore having a higher percentage of women in management. The final gender inequality variable, educational attainment, is seen in Figure 22. Most census tracts across Chicago are pink and represent that a higher percentage of females hold a high school diploma than males. However, there are quite a few census tracts across the center of the city that are blue. Since there are so many pink census tracts, most of the crime incidents fall in pink census tracts.
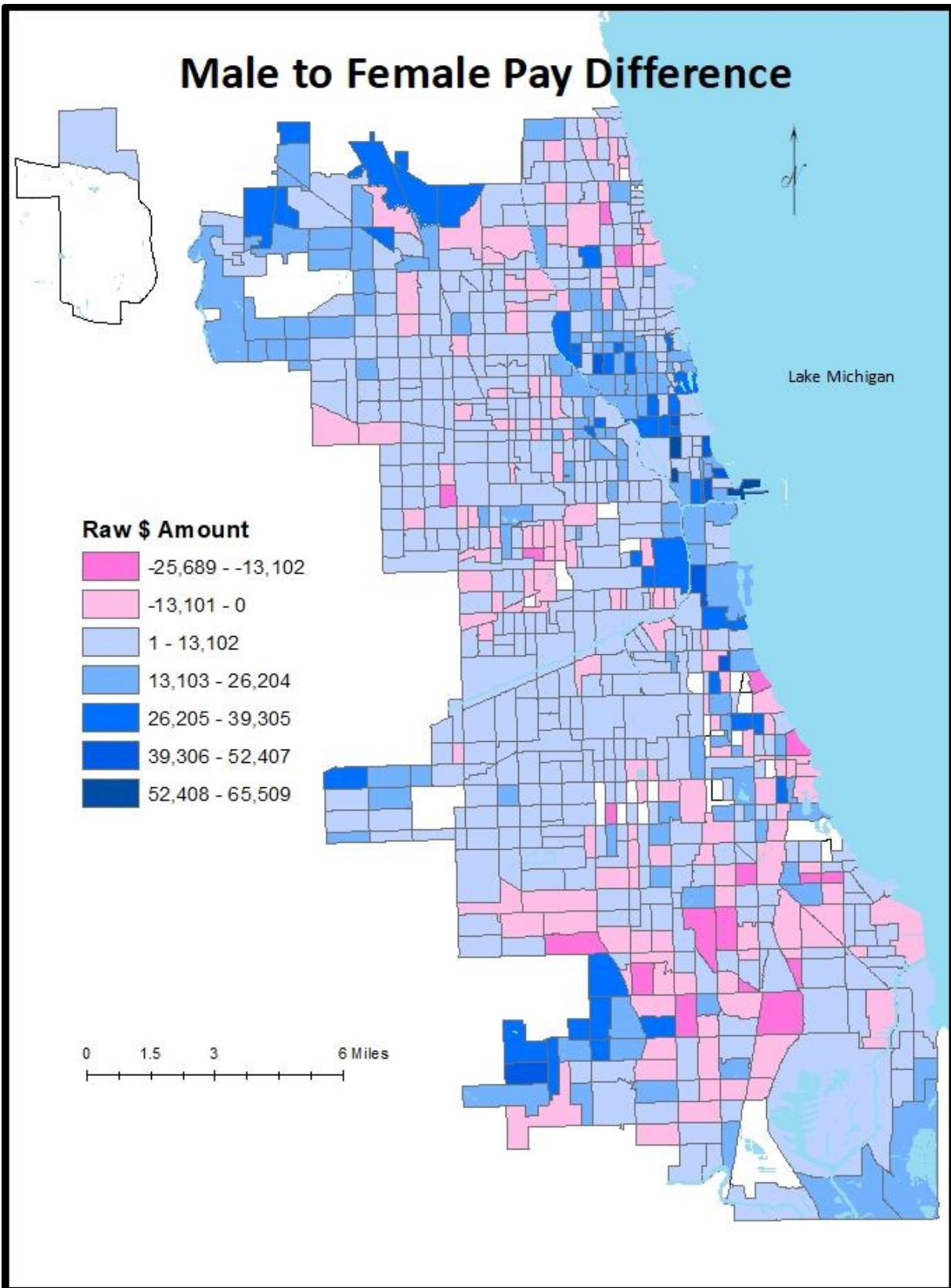
Figure 20. Pay Difference by Gender Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
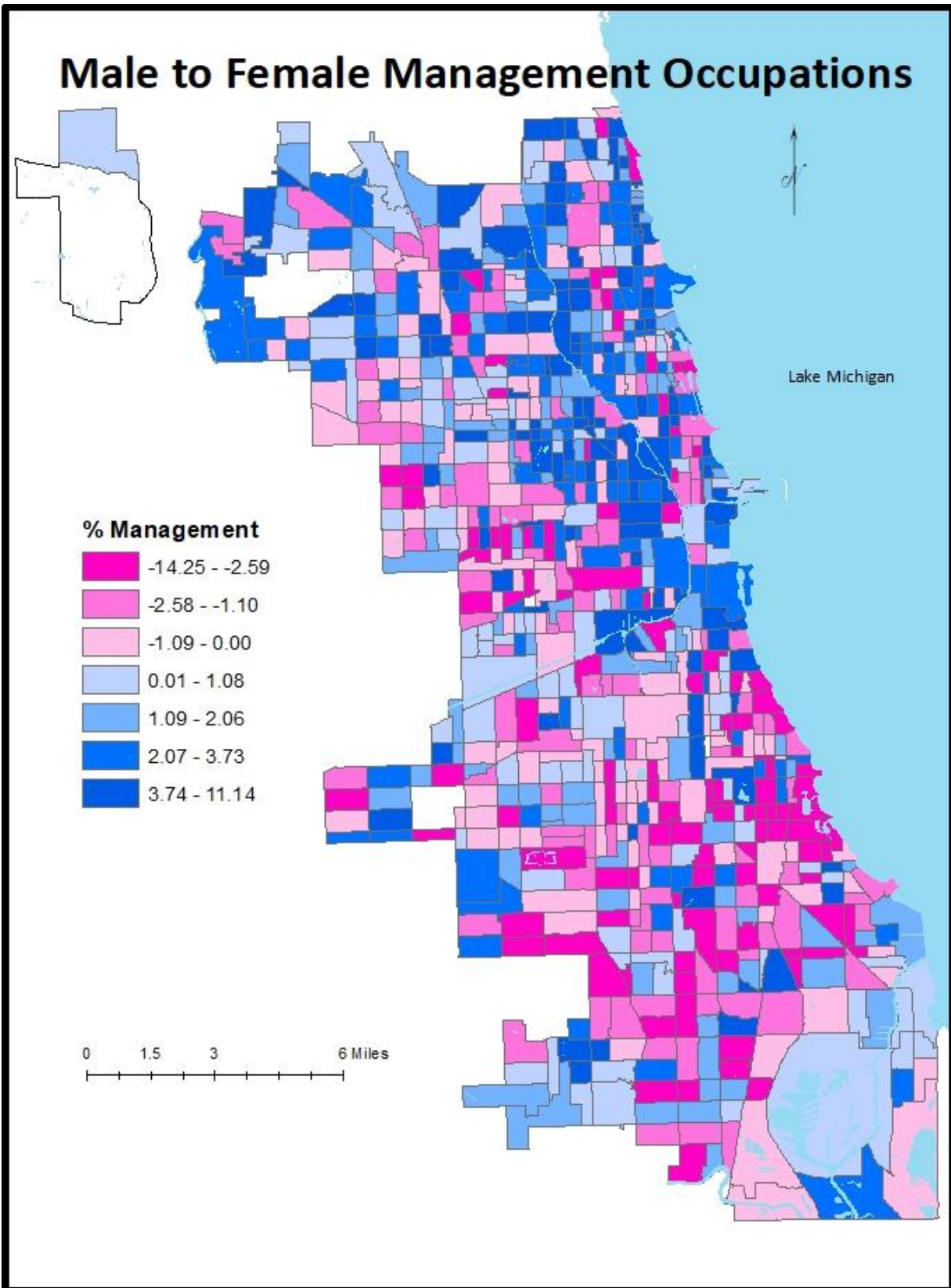
Figure 21. Employment Difference by Gender Across Chicago Census Tracts, 2016 ACS 5-Year Estimate.
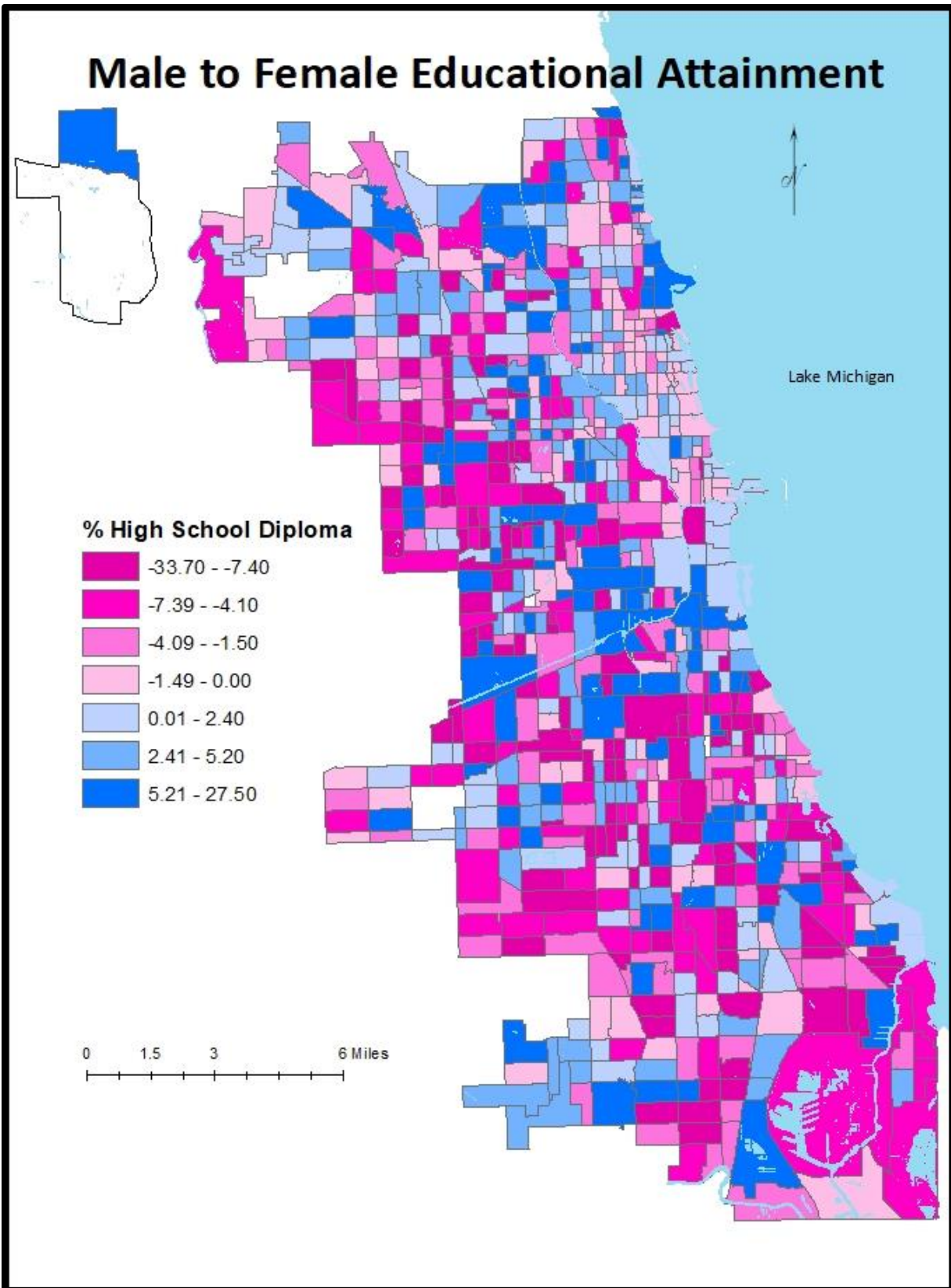
Figure 22. Educational Attainment Difference by Gender Across Chicago Census Tracts, 2016
ACS 5-Year Estimate.

Frequency Statistics

Tables 9 through 11 contain frequencies of incident characteristics based upon the data

received from the Chicago Police Department resulting from the Freedom of Information Act

request. The N for total incidents varies from the previous tables because the following are all

incidents which were able to be coded with a relationship and does not include those that have

no relationship data available, regardless of whether they had an X,Y coordinate or not. These

data were not included in analyses as predictor variables because the level of analysis (case

level) does not match up with the level of analyses in the regressions (census tract level). It was

also determined that the data were best suited to serve this dissertation in a supplemental,

descriptive manner.

Table 9 breaks down the demographic data of the stalking incidents. There was a total

of 288 intimate partner stalking incidents with a total of 312 victims. The number of White

victims totaled 124, with 171 of the victims being Black, four were categorized as other, and 13

victims' race was unknown. Most victims were female, 270 total, with 36 males and three

genders unknown. The average age for the intimate partner stalking victims was 32.90 and

ranged from zero to 72. There was a total of 41 non-intimate partner stalking incidents with a

total of 49 victims. The number of White victims totaled 23, with 21 of the victims being Black,

one was categorized as other, and four victims' race was unknown. Most victims were female,

34 total, with 15 males and zero genders unknown. The average age for the non-intimate

partner stalking victims was 35.96 and ranged from four to 79.

Table 10 breaks down the demographic data of the violation of protective order incidents. There was a total of 5,233 intimate partner violation of protective order incidents with a total of 5,581 victims. The number of White victims totaled 2,451, with 2,794 of the victims being Black, 88 were categorized as other, and 248 victims' race was unknown. Most victims were female, 4,789 total, with 727 males and 65 genders unknown. The average age for the intimate partner violation of protective order victims was 33.90 and ranged from 0 to 89. There was a total of 1,132 non-intimate partner violation of protective order incidents with a total of 1,293 victims. The number of White victims totaled 487, with 684 of the victims being Black, 15 were categorized as other, and 84 victims' race was unknown. Most victims were female, 884 total, with 385 males and 24 genders unknown. The average age for the non-intimate partner violation of protective order victims was 44.70 and ranged from 0 to 89.

Table 11 breaks down the demographic data of the homicide incidents. There was a total of 78 intimate partner homicide incidents with a total of 103 victims. The number of White victims totaled 32, with 69 of the victims being Black, two were categorized as other, and zero victims' race was unknown. Most victims were female, 68 total, with 35 males and zero genders unknown. The average age for the intimate partner homicide victims was 36.96 and ranged from five to 83. There was a total of 78 non-intimate partner homicide incidents with a total of 99 victims. The number of White victims totaled 35, with 63 of the victims being Black, one was categorized as other, and zero victims' race was unknown. Females were the minority of victims, 26 total, with 73 males and zero genders unknown. The average age from the non-intimate partner homicide victims was 40.84 and ranged from one to 86.

Table 9. Frequency Statistics of Intimate and Non-Intimate Partner Stalking Incidents in Chicago, 2012 – 2016.

|  | N | Minimum | Maximum |
| --- | --- | --- | --- |
| Intimate Partner Stalking Incidents | 288 | | |
| Intimate Partner Stalking Victims Total | 312 | | |
| White* Victims | 124 | | |
| Black* Victims | 171 | | |
| Other Race Victims | 4 | | |
| Unknown* Race Victims | 13 | | |
| Female Victims | 270 | | |
| Male Victims | 36 | | |
| Unknown* Gender Victims | 3 | | |
| Victim Age | Mean = 32.90 | 0 | 72 |
| | | | |
| Non-Intimate Partner Stalking Incidents | 41 | | |
| Non-Intimate Partner Stalking Victims Total | 49 | | |
| White* Victims | 23 | | |
| Black* Victims | 21 | | |
| Other Race Victims | 1 | | |
| Unknown* Race Victims | 4 | | |
| Female Victims | 34 | | |
| Male Victims | 15 | | |
| Unknown* Gender Victims | 0 | | |
| Victim Age | Mean = 35.96 | 4 | 79 |

*White Hispanic was combined with White, Black Hispanic was combined with Black, Blank was combined with Unknown.

Table 10. Frequency Statistics of Intimate and Non-Intimate Partner Violation of Protective Order Incidents in Chicago, 2012 – 2016.

|  | N | Minimum | Maximum |
| --- | --- | --- | --- |
| Intimate Partner VPO Incidents | 5233 | | |
| Intimate Partner VPO Victims Total | 5581 | | |
| White* Victims | 2451 | | |
| Black* Victims | 2794 | | |
| Other Race Victims | 88 | | |
| Unknown* Race Victims | 248 | | |
| Female Victims | 4789 | | |
| Male Victims | 727 | | |
| Unknown* Gender Victims | 65 | | |
| Victim Age | Mean = 33.90 | 0 | 89 |
| | | | |
| Non-Intimate Partner VPO Incidents | 1132 | | |
| Non-Intimate Partner VPO Victims Total | 1293 | | |
| White* Victims | 487 | | |
| Black* Victims | 684 | | |
| Other Race Victims | 15 | | |
| Unknown* Race Victims | 84 | | |
| Female Victims | 884 | | |
| Male Victims | 385 | | |
| Unknown* Gender Victims | 24 | | |
| Victim Age | Mean = 44.70 | 0 | 98 |

*White Hispanic was combined with White, Black Hispanic was combined with Black, Blank was combined with Unknown.

Table 11. Frequency Statistics of Intimate and Non-Intimate Partner Homicide Incidents in Chicago, 2012 – 2016.

|  | N | Minimum | Maximum |
|---|---|---|---|
| Intimate Partner Homicide Incidents | 78 | | |
| Intimate Partner Homicide Victims Total | 103 | | |
| White* Victims | 32 | | |
| Black* Victims | 69 | | |
| Other Race Victims | 2 | | |
| Unknown* Race Victims | 0 | | |
| Female Victims | 68 | | |
| Male Victims | 35 | | |
| Unknown* Gender Victims | 0 | | |
| Victim Age | Mean = 36.96 | 5 | 83 |
| | | | |
| Non-Intimate Partner Homicide Incidents | 78 | | |
| Non-Intimate Partner Homicide Victims Total | 99 | | |
| White* Victims | 35 | | |
| Black* Victims | 63 | | |
| Other Race Victims | 1 | | |
| Unknown* Race Victims | 0 | | |
| Female Victims | 26 | | |
| Male Victims | 73 | | |
| Unknown* Gender Victims | 0 | | |
| Victim Age | Mean = 40.84 | 1 | 86 |

*White Hispanic was combined with White, Black Hispanic was combined with Black, Blank was combined with Unknown.

## Multivariate Analyses

Prior to running the analyses, every variable was tested for multicollinearity including the variables which make up the composite residential mobility and concentrated disadvantage variables. The Variance Inflation Factors (VIF) for all variables in the models were between 1.06 and 2.25 (mean VIF = 1.48). The VIFs for the variables that compose the residential mobility variable are both 1.24 and the VIFs for the concentrated disadvantage variables range from 1.71 and 2.70. The VIF for female headed households is 3.67, however, it was still combined with the other variables and it can be assumed that each measure is related to a certain degree. Tolerance levels for all variables were between .37 and .94 with the female headed household tolerance being .27. Listwise deletion was done for census tracts that were missing census data; three census tracts[6] (.003%) were missing a social disorganization predictor and an additional 23[7] (.03%) were missing a gender inequality predictor for a total of 26 census tracts with missing data. This produced an analytic data set with an N of 773.

## Domestic Crimes

Negative binomial regression results for the selected domestic crimes in Chicago are displayed in Table 12. Three models were run for each crime, a social disorganization model (SD), a gender inequality model (GI), and a full model (FM) which includes both theoretical frameworks. Every model in this table had a significant alpha statistic, indicating over-dispersion of the data. It also signifies that the negative binomial regression is the appropriate

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[6] Census tracts 3817, 9800, and 9801.
[7] Census tracts 105.03, 301.03, 2804, 3406, 3511, 3602, 3801, 3812, 3815, 4005, 4106, 4301.01, 5401.02, 6702, 6705, 6707, 6709, 6805, 8329, 8345, 8357, 8433, and 8439.

test for these models. Focusing on the domestic stalking models, the first model includes the

variables within the social disorganization framework. The significant LR chi-square statistic

demonstrates that the variables fit the model better than no variables in the model at all (LR $X^2$

= 10.20, marginally significant p ≤ .10). The alpha statistic (α = .52) is significantly different than

zero. As disadvantage in Chicago census tracts increased, the number domestic stalking

incidents decreased significantly by a factor of .96 (p ≤ .05) holding all other independent

variables in the model constant. No other social disorganization predictors were significant or

marginally significant. The gender inequality model for domestic stalking has a non-significant

LR chi-square value indicating that the variables did not fit the model better than a model with

no variables at all. The full model for domestic stalking has a significant LR chi-square statistic

demonstrating that the variables fit the model better than no variables in the model at all (LR $X^2$

= 13.81, marginally significant p ≤ .10). The alpha statistic (α = .50) is significantly different than

zero. As residents became more mobile, the number of domestic stalking incidents increased

significantly by a factor of 1.08 (marginally significant p ≤ .10) holding all other independent

variables in the model constant. As a census tract became more disadvantaged, the number of

domestic stalking incidents decreased significantly by a factor of .97 (marginally significant p ≤

.10) holding all other independent variables in the model constant. No other social

disorganization variables and no gender inequality variables were significant or marginally

significant.

In the domestic violation of protective order models, the social disorganization model

has a non-significant LR chi-square value indicating that the variables did not fit the model

better than a model with no variables at all. The gender inequality model has a non-significant

LR chi-square value indicating that the variables did not fit the model better than a model with no variables at all. The full model for domestic violation of protective order has a non-significant LR chi-square value indicating that the variables did not fit the model better than a model with no variables at all.

For the domestic homicide social disorganization model, the LR chi-square value is non-significant indicating that the variables did not fit the model better than a model with no variables at all. The gender inequality model has a non-significant LR chi-square value indicating that the variables did not fit the model better than a model with no variables at all. The full model has a non-significant LR chi-square value indicating that the variables did not fit the model better than a model with no variables at all.

Table 12. Negative Binomial Poisson Regression Results for total Domestic Crimes, 2012 – 2016.

| | Stalking | | | Violation of Protective Order | | | Homicide | | |
|---|---|---|---|---|---|---|---|---|---|
| | SD | GI | FM | SD | GI | FM | SD | GI | FM |
| GINI Index | 1.07 | - | 1.03 | .66 | - | .60 | .94 | - | .81 |
| | (1.25) | | (1.23) | (.32) | | (.30) | (1.53) | | (1.32) |
| Heterogeneity | .84 | - | .80 | .83 | - | .84 | .74 | - | .75 |
| | (.39) | | (.37) | (.16) | | (.16) | (.47) | | (.48) |
| Foreign Born | 1.01 | - | 1.01 | 1.00 | - | 1.00 | 1.01 | - | 1.01 |
| | (.01) | | (.01) | (.00) | | (.00) | (.01) | | (.01) |
| Mobility | 1.08 | - | **1.08**$^†$ | 1.03 | - | 1.03 | 1.01 | - | 1.00 |
| | (.05) | | (.05) | (.02) | | (.02) | (.06) | | (.06) |
| Disadvantage | **.96***  | - | **.97**$^†$ | 1.01 | - | 1.02 | .99 | - | .99 |
| | (.02) | | (.02) | (.01) | | (.01) | (.02) | | (.03) |
| Pay Gap | - | 1.00 | 1.00 | - | 1.00 | 1.00 | - | 1.00 | 1.00 |
| | | (.00) | (.00) | | (.00) | (.00) | | (.00) | (.00) |
| Job | - | 1.04 | 1.03 | - | 1.01 | 1.01 | - | 1.02 | 1.02 |
| | | (.02) | (.02) | | (.01) | (.01) | | (.03) | (.03) |
| Education | - | .99 | .99 | - | 1.00 | 1.00 | - | 1.01 | 1.01 |
| | | (.01) | (.01) | | (.00) | (.00) | | (.01) | (.01) |
| Constant | .32$^†$ | .34*** | .31* | 9.92*** | 7.94*** | 10.25*** | .21$^†$ | .21*** | .23$^†$ |
| | (.19) | (.03) | (.18) | (2.41) | (.26) | (2.50) | (.17) | (.02) | (.19) |
| | | | | | | | | | |
| Alpha | .52 | .55 | .50 | .41 | .42 | .41 | 1.31 | 1.30 | 1.29 |
| Log likelihood | -606.97 | -609.59 | -605.17 | -2327.69 | -2330.46 | -2326.23 | -435.30 | -434.99 | -434.62 |
| LR Chi-Square | 10.20$^†$ | 4.97 | 13.81$^†$ | 6.85 | 1.32 | 9.76 | 1.33 | 1.95 | 2.70 |
| N | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 |

Note: Coefficients presented are Incident Risk Ratios with Standard Errors in parentheses.

SD = Social Disorganization model, GI = Gender Inequality model, FM = Full model

***$p ≤ .001$, **$p ≤ .01$, *$p ≤ .05$, $^†p ≤ .10$

Intimate Partner Crimes

Negative binomial regression results for the selected intimate partner crimes in Chicago

are displayed in Table 13. Three models were run for each crime, a social disorganization model

(SD), a gender inequality model (GI), and a full model (FM) which includes both theoretical

frameworks. Every model in this table had a significant alpha statistic, indicating over dispersion

of the data. It also signifies that the negative binomial regression is the appropriate test for

these models. Focusing on the intimate partner stalking models, the first model includes the

variables within the social disorganization framework. The significant LR chi-square statistic

demonstrates that the variables fit the model better than no variables in the model at all (LR $X^2$

= 30.01, p ≤ .001). The alpha statistic (α = .64) is significantly different than zero. As

disadvantage in Chicago census tracts increased, the number intimate partner stalking incidents

increased significantly by a factor of 1.06 (p ≤ .01) holding all other independent variables in the

model constant. No other social disorganization predictors were significant or marginally

significant. The gender inequality model for intimate partner stalking has a non-significant LR

chi-square value indicating that the variables did not fit the model better than a model with no

variables at all. The full model for intimate partner stalking has a significant LR chi-square

statistic demonstrating that the variables fit the model better than no variables in the model at

all (LR $X^2$ = 31.79, p ≤ .001). The alpha statistic (α = .63) is significantly different than zero. As

disadvantage increased, the number of intimate partner stalking incidents increased

significantly by a factor of 1.06 (p ≤ .001) holding all other independent variables in the model

constant. No other social disorganization variables and no gender inequality variables were

significant or marginally significant.

In the intimate partner violation of protective order models, the social disorganization model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 141.52, p ≤ .001). The alpha statistic (α = .52) is significantly different than zero. As the GINI Index for a census tract increased, the number of intimate partner violation of protective order incidents decreased significantly by a factor of .32 (p ≤ .05) holding all other independent variables in the model constant. As the level of heterogeneity increased, the number of intimate partner violation of protective order incidents increased significantly by a factor of 1.94 (p ≤ .01) holding all other independent variables in the model constant. As disadvantage increased, the number of intimate partner violation of protective order incidents significantly increased by a factor of 1.11 (p ≤ .001). No other social disorganization variables in the model were significant or marginally significant. The gender inequality model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 26.93, p ≤ .001). The alpha statistic (α = .63) is significantly different than zero. As the pay gap from men to women increased, the number of intimate partner violation of protective order incidents increased significantly by a factor or 1.00 (p ≤ .05) holding all other independent variables in the model constant. As the difference in percentage from men and women in managerial occupations increased, the number of intimate partner violation of protection order incidents decreased significantly by a factor of .96 (p ≤ .001) holding all other independent variables in the model constant. The full model for intimate partner violation of protective order has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 144.36, p ≤ .001). The alpha statistic (α = .52) is significantly different than zero. As the GINI Index for a

census tract increased, the number of intimate partner violation of protective order incidents decreased significantly by a factor of .32 (p ≤ .05) holding all other independent variables in the model constant. As the level of heterogeneity increased, the number of intimate partner violation of protective order incidents increased significantly by a factor of 1.94 (p ≤ .01) holding all other independent variables in the model constant. As disadvantage increased, the number of intimate partner violation of protective order incidents significantly increased by a factor of 1.10 (p ≤ .001) holding all other independent variables in the model constant. No gender inequality variables were significant or marginally significant.

For the intimate partner homicide social disorganization model, the LR chi-square value is significant indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 16.52, p ≤ .01). The alpha statistic (α = .09) is significantly different than zero. As disadvantage increased, the number of intimate partner homicides increased significantly by a factor of 1.08 (p ≤ .01) holding all other independent variables in the model constant. No other social disorganization variables were significant or marginally significant. The gender inequality model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 7.00, marginally significant p ≤ .10). The alpha statistic (α = .17) is significantly different than zero. No gender inequality variables were significant or marginally significant. The full model has a significant LR chi-square indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 19.10, p ≤ .05). The alpha statistic (α = .07) is significantly different than zero. As disadvantage increased the number of intimate partner homicide incidents increased significantly by a factor of 1.06 (marginally significant p ≤ .10) holding all other independent variables in the model constant.

There were no other social disorganization variables and no gender inequality variables that

were significant or marginally significant.

Table 13. Negative Binomial Poisson Regression Results for total Intimate Partner Crimes, 2012 – 2016.

| | Stalking | | | Violation of Protective Order | | | Homicide | | |
|---|---|---|---|---|---|---|---|---|---|
| | SD | GI | FM | SD | GI | FM | SD | GI | FM |
| GINI Index | 2.40 | - | 2.88 | .32* | - | .32* | 11.48 | - | 15.25 |
| | (2.99) | | (3.65) | (.17) | | (.17) | (22.56) | | (30.41) |
| Heterogeneity | 1.25 | - | 1.22 | 1.94** | - | 1.94** | 2.06 | - | 2.21 |
| | (.64) | | (.63) | (.42) | | (.42) | (1.69) | | (1.82) |
| Foreign Born | .99 | - | .99 | 1.00 | - | 1.00 | .98 | - | .98 |
| | (.01) | | (.01) | (.00) | | (.00) | (.01) | | (.01) |
| Mobility | 1.08 | - | 1.08 | 1.00 | - | 1.00 | .97 | - | .97 |
| | (.05) | | (.05) | (.02) | | (.02) | (.08) | | (.08) |
| Disadvantage | 1.06*** | - | 1.06** | 1.11*** | - | 1.10*** | 1.08** | - | 1.06$^{\dagger}$ |
| | (.02) | | (.02) | (.01) | | (.01) | (.03) | | (.03) |
| Pay Gap | - | 1.00 | 1.00 | - | 1.00* | 1.00 | - | 1.00 | 1.00 |
| | | (.00) | (.00) | | (.00) | (.00) | | (.00) | (.00) |
| Job | - | .99 | 1.01 | - | .96*** | .98 | - | .94 | .97 |
| | | (.02) | (.02) | | (.01) | (.01) | | (.04) | (.04) |
| Education | - | .98 | .99 | - | .99 | 1.00 | - | 1.00 | 1.00 |
| | | (.01) | (.01) | | (.00) | (.00) | | (.02) | (.02) |
| Constant | .22* | .32*** | .20** | 8.69*** | 6.85*** | 8.47*** | .03*** | .11*** | .03*** |
| | (.14) | (.03) | (.13) | (2.31) | (.27) | (2.25) | (.03) | (.01) | (.03) |
| | | | | | | | | | |
| Alpha | .64 | .85 | .63 | .52 | .63 | .52 | .09 | .17 | .07 |
| Log likelihood | -545.26 | -558.13 | -544.37 | -2182.03 | -2239.33 | -2180.61 | -244.70 | -249.46 | -243.41 |
| LR Chi-Square | 30.01*** | 4.27 | 31.79*** | 141.52*** | 26.93*** | 144.36*** | 16.52** | 7.00$^{\dagger}$ | 19.10* |
| N | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 |

Note: Coefficients presented are Incident Risk Ratios with Standard Errors in parentheses.

SD = Social Disorganization model, GI = Gender Inequality model, FM = Full model

***$p \leq .001$, **$p \leq .01$, *$p \leq .05$, $^{\dagger}p \leq .10$

Non-Intimate Partner Crimes

Negative binomial regression results for the selected non-intimate partner crimes in

Chicago are displayed in Table 14. Three models were run for each crime, a social

disorganization model (SD), a gender inequality model (GI), and a full model (FM) which

includes both theoretical frameworks. When the negative binomial regressions were run, the

three non-intimate partner stalking models had a non-significant alpha statistic, indicating that

the data were not over dispersed, and a negative binomial regression was inappropriate for

these models. Instead, Poisson regressions were run for these models and the results from

those tests are shown in the table. The other models for the non-intimate partner violation of

protective order incidents and the non-intimate partner homicide had significant alpha

statistics, indicating over dispersion of the data. It also signifies that the negative binomial

regression is the appropriate test for these models. Focusing on non-the intimate partner

stalking models, the first model includes the variables within the social disorganization

framework. The non-significant LR chi-square statistic demonstrates that the variables do not fit

the model better than no variables in the model at all. The gender inequality model for non-

intimate partner stalking has a non-significant LR chi-square value indicating that the variables

did not fit the model better than a model with no variables at all. The full model for non-

intimate partner stalking has a non-significant LR chi-square value indicating that the variables

did not fit the model better than a model with no variables at all.

In the non-intimate partner violation of protective order models, the social

disorganization model has a significant LR chi-square value indicating that the variables fit the

model better than a model with no variables at all (LR $X^2$ = 110.57, p ≤ .001). The alpha statistic

($\alpha$ = .93) is significantly different than zero. As the GINI Index for a census tract increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .10 (p ≤ .01) holding all other independent variables in the model constant. As the percentage of the foreign born population increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .98 (p ≤ .001) holding all other independent variables in the model constant. As residential mobility increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .87 (p ≤ .001) holding all other independent variables in the model constant. As disadvantage increased across census tracts, the number of non-intimate partner violation of protective order incidents increased significantly by a factor of 1.11 (p ≤ .001) holding all other independent variables in the model constant. The gender inequality model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 39.70, p ≤ .001). The alpha statistic ($\alpha$ = 1.15) is significantly different than zero. As the pay gap from men to women increased, the number of non-intimate partner violation of protective order incidents increased significantly by a factor or 1.00 (p ≤ .01) holding all other independent variables in the model constant. As the difference in percentage from men and women in managerial occupations increased, the number of non-intimate partner violation of protection order incidents decreased significantly by a factor of .95 (p ≤ .01) holding all other independent variables in the model constant. As the difference in percentage from men to women who hold a high school diploma increases, the number of non-intimate partner violation of protective order incidents decreases significantly by a factor of .98 (p ≤ .001) holding all other independent variables in the model constant. The full model has a

significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 118.66, p ≤ .001). The alpha statistic (α = .91) is significantly different than zero. As the GINI Index for a census tract increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .13 (p ≤ .05) holding all other independent variables in the model constant. As the percentage of the foreign born population increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .98 (p ≤ .001) holding all other independent variables in the model constant. As residential mobility increased, the number of non-intimate partner violation of protective order incidents decreased significantly by a factor of .88 (p ≤ .001) holding all other independent variables in the model constant. As disadvantage increased across census tracts, the number of non-intimate partner violation of protective order incidents increased significantly by a factor of 1.10 (p ≤ .001) holding all other independent variables in the model constant. As the difference in percentage from men to women who hold a high school diploma increases, the number of non-intimate partner violation of protective order incidents decreases significantly by a factor of .98 (p ≤ .05) holding all other independent variables in the model constant. No other gender inequality variables were significant or marginally significant.

For the non-intimate partner homicide social disorganization model, a significant LR chi-square value indicates that the variables fit the model better than a model with no variables at all (LR $X^2$ = 31.63, p ≤ .001). The alpha statistic (α = .04) is significantly different than zero. As the GINI Index for a census tract increased, the number of non-intimate partner homicide incidents decreased significantly by a factor of .03 (p ≤ .10) holding all other independent

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variables in the model constant. As the percentage of the foreign born population increased, the number of non-intimate partner homicide incidents decreased significantly by a factor of .97 (p ≤ .05) holding all other independent variables in the model constant. As a Chicago census tract became more disadvantaged, the number of non-intimate partner homicide incidents increased significantly by a factor of 1.11 (p ≤ .001) holding all other independent variables in the model constant. No other social disorganization variables were significant or marginally significant. The gender inequality model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 6.46, marginally significant p ≤ .10). The alpha statistic (α = .35) is significantly different than zero. As the pay gap from men to women increased, the number of non-intimate partner homicide incidents increased significantly by a factor or 1.00 (p ≤ .01) holding all other independent variables in the model constant. No other gender inequality variables were significant or marginally significant. The full model has a significant LR chi-square value indicating that the variables fit the model better than a model with no variables at all (LR $X^2$ = 32.96, p ≤ .001). The alpha statistic (α = .03) is significantly different than zero. As the percentage of the foreign born population increased, the number of non-intimate partner homicide incidents significantly decreased by a factor of .97 (p ≤ .05) holding all other independent variables in the model constant. As disadvantage increased, the number of non-intimate partner homicide incidents significantly increased by a factor of 1.13 (p ≤ .001) holding all other independent variables in the model constant. No other social disorganization variables and no gender inequality variables were significant or marginally significant.

Table 14. Negative Binomial Poisson Regression Results for total Non-Intimate Partner Crimes, 2012 – 2016.

| | Stalking | | | Violation of Protective Order | | | Homicide | | |
|---|---|---|---|---|---|---|---|---|---|
| | SD[1] | GI[1] | FM[1] | SD | GI | FM | SD | GI | FM |
| GINI Index | 1.39 | - | .37 | .10** | - | .13* | .03† | - | .03 |
| | (5.34) | | (1.43) | (.09) | | (.11) | (.06) | | (.07) |
| Heterogeneity | 1.61 | - | 1.27 | 1.46 | - | 1.49 | 1.96 | - | 2.06 |
| | (2.54) | | (2.02) | (.50) | | (.52) | (1.65) | | (1.74) |
| Foreign Born | .97 | - | .97 | .98*** | - | .98*** | .97* | - | .97* |
| | (.02) | | (.03) | (.00) | | (.00) | (.01) | | (.01) |
| Mobility | .94 | - | .96 | .87*** | - | .88*** | .98 | - | .97 |
| | (.14) | | (.14) | (.03) | | (.03) | (.08) | | (.08) |
| Disadvantage | 1.05 | - | 1.11 | 1.11*** | - | 1.10*** | 1.13*** | - | 1.13*** |
| | (.06) | | (.07) | (.02) | | (.02) | (.04) | | (.04) |
| Pay Gap | - | 1.00 | 1.00 | - | 1.00** | 1.00 | - | 1.00* | 1.00 |
| | | (.00) | (.00) | | (.00) | (.00) | | (.00) | (.00) |
| Job | - | 1.02 | 1.07 | - | .95** | .98 | - | .97 | 1.01 |
| | | (.07) | (.08) | | (.02) | (.02) | | (.04) | (.04) |
| Education | - | .99 | 1.00 | - | .98*** | .98* | - | 1.00 | 1.01 |
| | | (.03) | (.03) | | (.01) | (.01) | | (.02) | (.02) |
| Constant | .03† | .02*** | .04† | 4.35*** | 1.52*** | 3.87*** | .57 | .11*** | .58 |
| | (.06) | (.01) | (.08) | (1.84) | (.09) | (1.63) | (.61) | (.01) | (.61) |
| | | | | | | | | | |
| Alpha | 2.92e-15 | 2.92e-15 | 2.92e-15 | .93 | 1.15 | .91 | .04 | .35 | .03 |
| Log likelihood | -93.98 | -95.74 | -92.03 | -1214.44 | -1249.87 | -1210.39 | -234.98 | -247.57 | -234.32 |
| LR Chi-Square | 5.48 | 1.97 | 9.38 | 110.57*** | 39.70*** | 118.66*** | 31.63*** | 6.46† | 32.96*** |
| N | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 | 773 |

Note: Coefficients presented are Incident Risk Ratios with Standard Errors in parentheses.

SD = Social Disorganization model, GI = Gender Inequality model, FM = Full model

[1]The alpha test statistic is not significant and results displayed are that of a Poisson regression.

***p ≤ .001, **p ≤ .01, *p ≤ .05, †p ≤ .10

Multivariate Analyses Summary

A summary of findings from the 37 multivariate regression models in the three previous tables is presented in Table 15. Concentrated disadvantage was shown to be a protective factor for domestic stalking in the social disorganization and full models but was a risk factor for intimate partner stalking in the same models. Residential mobility was the only other social disorganization variable to be significant and it increased domestic stalking incidents in the full model. The violation of protective order models showed some consistent patterns across relationship breakdowns, but the models were not consistent with either theory in its entirety as not all variables were significant or in the predicted manner. An increase in the GINI Index was a protective factor for both intimate and non-intimate partner violation of protective order incidents in both the social disorganization and full models while increased heterogeneity and concentrated disadvantage led to an increase of intimate partner violation of protective orders in the social disorganization and full models. As men made more money and as females held more managerial positions, the intimate partner violation of protective order incidents increased, but only in the gender inequality model. The non-intimate partner models were the most telling of how the theories predict these crimes. A lower GINI Index, fewer foreign born, less residential mobility, and increased concentrated disadvantage increased the non-intimate partner violation of protective order incidents in both the social disorganization and full models. Higher male pay, a greater proportion of female managers, and more females with high school diplomas increased the non-intimate partner violation of protective order incidents in the gender inequality model and only the educational attainment variable remained from the previous model as a negative, significant variable in the full model. Concentrated disadvantage

was a risk factor for intimate partner homicide in both the social disorganization and full

models. It was also a risk factor in the same models for non-intimate partner homicide along

with a decreasing foreign born population. Higher male income over females was the only

predictor of non-intimate partner homicide in the gender inequality model.

Table 15. Summary Table of Regression Models for all Crimes, 2012 – 2016.

| | SD | GI | FM |
|---|---|---|---|
| **Stalking** | | | |
| Domestic | CD - | - | RM +<br>CD - |
| Intimate Partner | CD + | - | CD + |
| Non-Intimate Partner | - | - | - |
| **VPO** | | | |
| Domestic | - | - | - |
| Intimate Partner | GINI -<br>Hetero +<br>CD + | PG +<br>Job - | GINI -<br>Hetero +<br>CD + |
| Non-Intimate Partner | GINI -<br>FB -<br>RM -<br>CD + | PG +<br>Job -<br>Edu - | GINI -<br>FB -<br>RM -<br>CD +<br>Edu - |
| **Homicide** | | | |
| Domestic | - | - | - |
| Intimate Partner | CD + | - | CD + |
| Non-Intimate Partner | FB -<br>CD + | PG + | FB -<br>CD + |

GINI = GINI Index, Hetero = Racial Heterogeneity, FB = Foreign Born, RM = Residential Mobility,
CD = Concentrated Disadvantage, PG = Pay Gap, Job = Employment, Edu = Educational Attainment.

Local Indicators of Spatial Autocorrelation

The following are results of a Local Moran's I, or Local Indicators of Spatial

Autocorrelation (LISA), analysis. A LISA is utilized to measure spatial autocorrelation within each

geographic area, census tracts in this case, in a given unit of analysis, Chicago in this case. Three

LISAs were conducted utilizing each domestic crime included in statistical analyses. Figure 23

displays results for the number of domestic stalking incidents across Chicago census tracts. The

majority of Chicago census tracts, represented by the color beige, were not statistically

significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating

that domestic stalking incidents were randomly dispersed in most Chicago census tracts.

Several census tracts across the city, however, were statistically significant at the 0.05 alpha

level and exhibited clustering. The light red areas on the map indicate that there was a high

number of domestic stalking incidents in these census tracts and the neighboring census tracts

also had a high number of domestic stalking occurrences (high-high). In other words, there is

positive spatial autocorrelation among these census tracts. These census tracts were

predominantly in the southern half of the city. The dark red census tracts indicate that there

were a high number of domestic stalking incidents in these census tracts, but the neighboring

census tracts had a low number of domestic stalking occurrences (low-high). This is negative

spatial autocorrelation. These areas were predominantly in the northern half of the city. The

dark blue census tracts indicate that there was a low number of domestic stalking incidents in

these areas, but the neighboring census tracts had a high number of incidents (low-high). This is

also negative spatial autocorrelation. All three of these census tracts were in the southern part

of the city. There were no light blue census tracts that had low counts of incidents with low incident neighbors (low-low).

Figure 24 displays results for the number of domestic violation of protective order incidents. Many Chicago census tracts, represented by the color beige, were not statistically significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating that domestic stalking incidents were randomly dispersed in most Chicago census tracts. However, there were numerous census tracts that were statistically significant at the 0.05 alpha level and exhibited clustering. Several census tracts in the central southern area as well as the western center area contain high-high clusters, positive spatial autocorrelation, of domestic violation of protection order incidents. There were also a few census tracts, mostly in the northern portion of city that had high-low clusters, negative spatial autocorrelation, of domestic violation of protective orders. Mixed among the high-high cluster census tracts are a few low-high tracts, negative spatial autocorrelation, of domestic violation of protective order incidents. In the northeast corner are low-low clusters of domestic violation of protective order incidents. There are also a few more areas of low-low clusters, positive spatial autocorrelation, in the central eastern part of the city.

Figure 25 displays results for the number of domestic homicide incidents. The majority of Chicago census tracts, represented by the color beige, were not statistically significant at the 0.05 alpha level. In other words, the null hypothesis was accepted indicating that domestic stalking incidents were randomly dispersed in most Chicago census tracts. Several census tracts across the city, however, were statistically significant at the 0.05 alpha level and exhibited clustering. Spread across the central and southern census tracts in the city are areas of high-

high clustering, positive spatial autocorrelation, of domestic homicide. There are also several census tracts of high-low clustering, negative spatial autocorrelation, mainly located in the central and northern part of the city. There were no low-high or low-low clustering of domestic homicide census tracts.
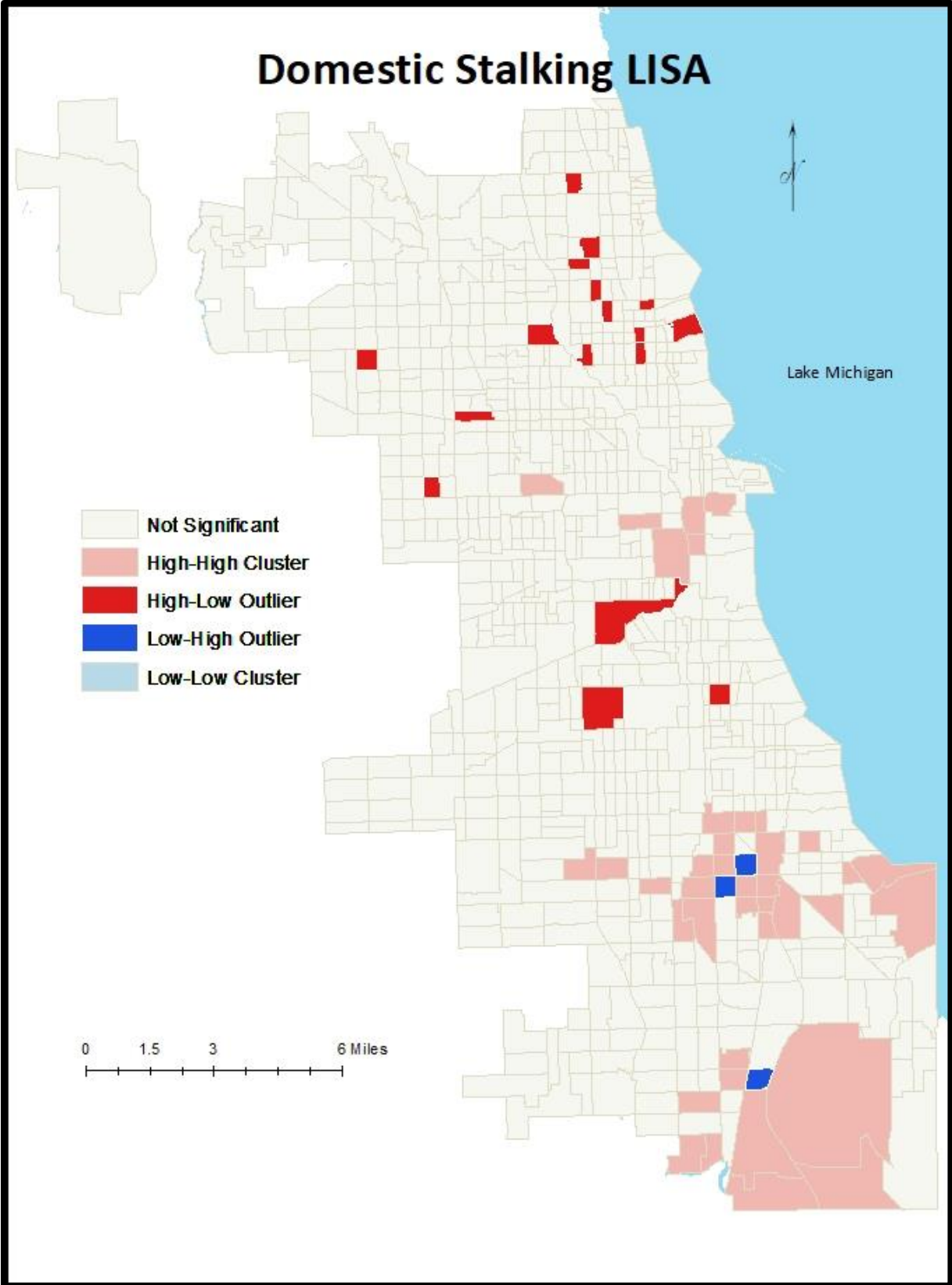
Figure 23. Results of LISA Analysis, Domestic Stalking, 2012 – 2016.
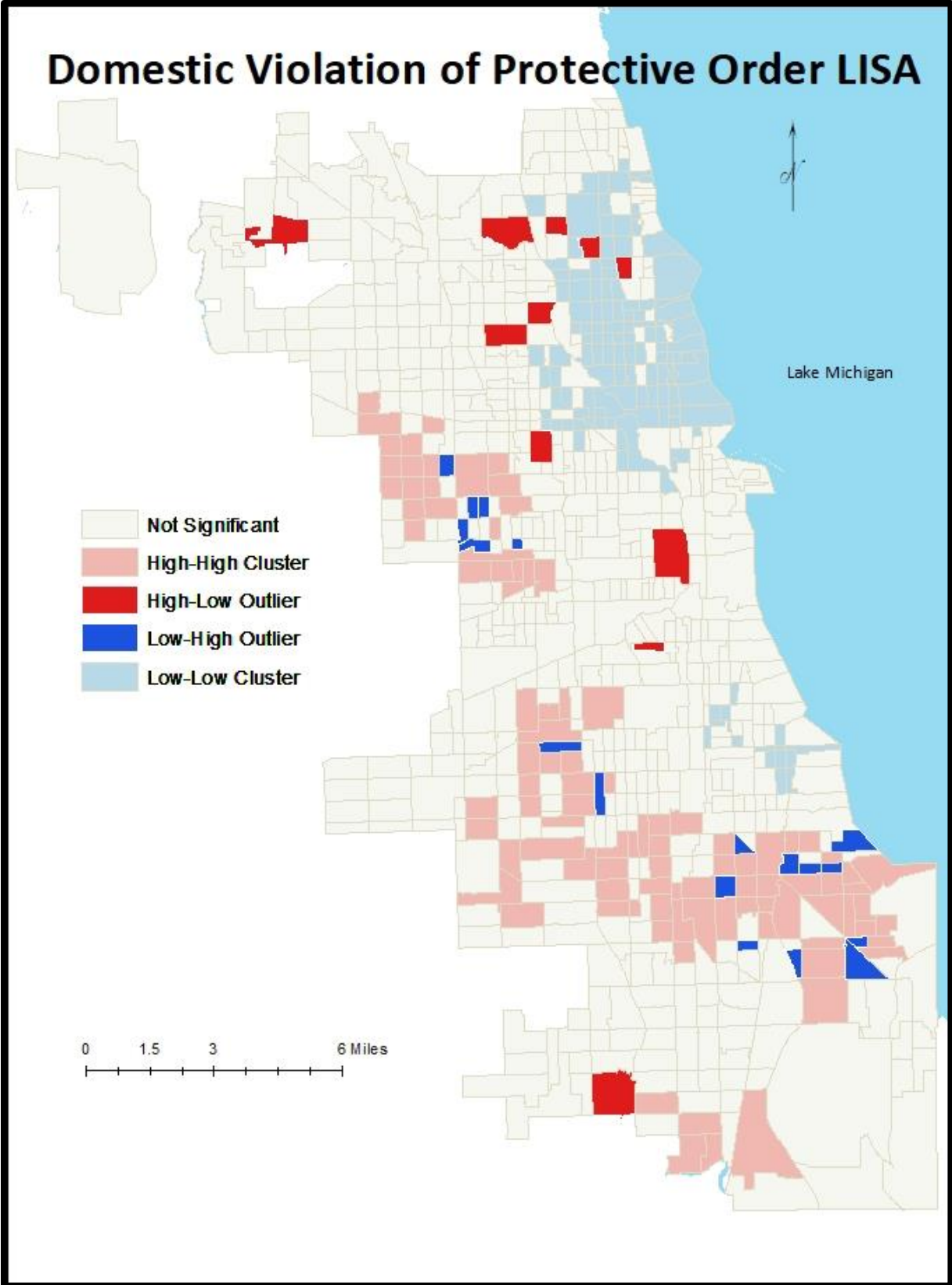
Figure 24. Results of LISA Analysis, Domestic Violation of Protective Order, 2012 – 2016.
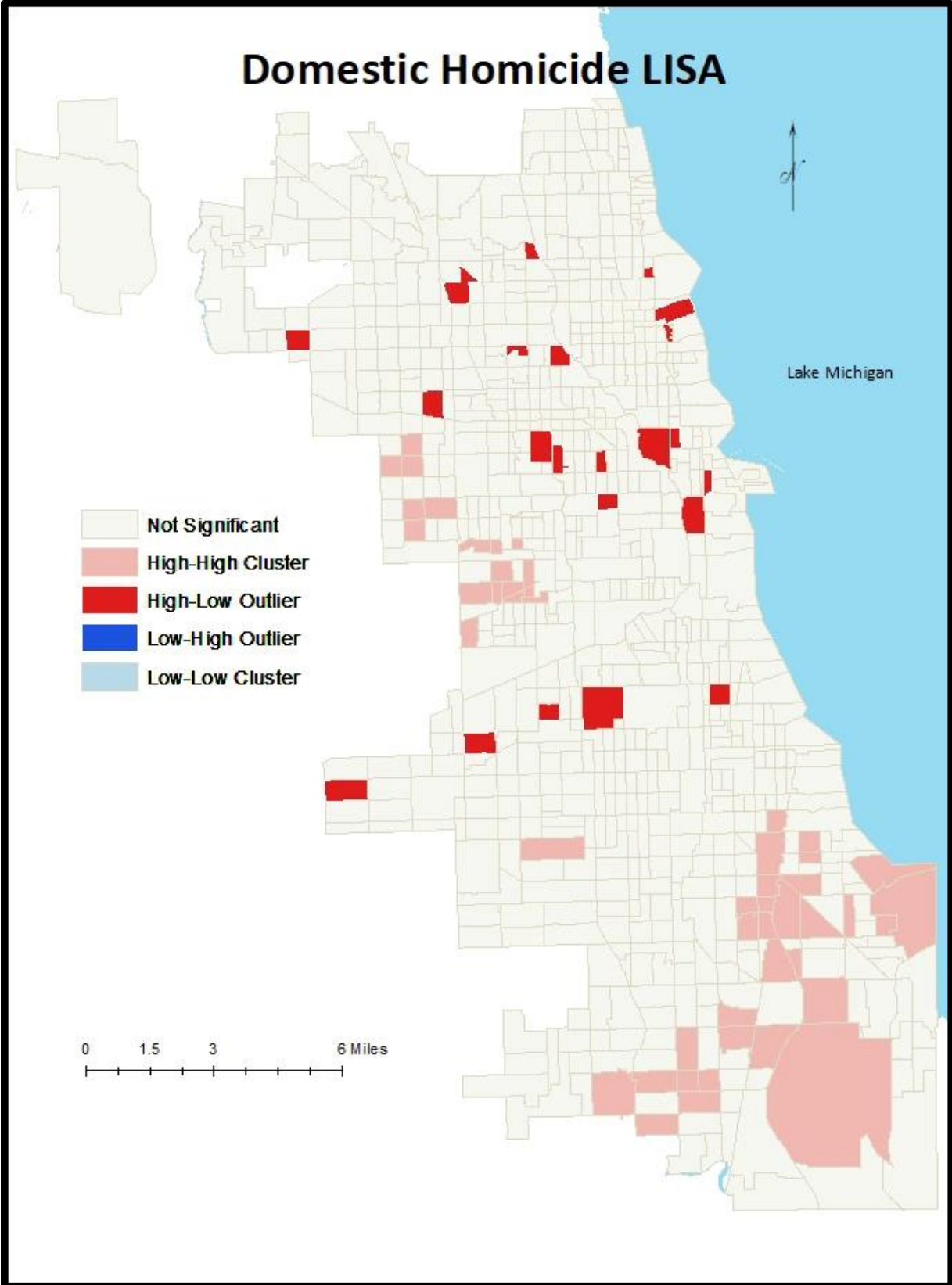
Figure 25. Results of LISA Analysis, Domestic Homicide, 2012 – 2016.

Results of the LISA analyses indicate that there is clustering within each of the domestic crimes. Table 16 breaks down the demographics of what each area looks like to see how the significant clustering census tracts differ from non-significant tracts. For the domestic stalking LISA, there were 39 census tracts in the high-high cluster. These tracts had an average GINI Index score of .49, average racial heterogeneity score of .16, average foreign born population of 4.80, average residential mobility score of .38, and average concentrated disadvantage score of 3.19. For the gender inequality indicators, these high-high cluster tracts had an average pay gap value of 5,873.69, average employment score of -.48, and average educational attainment score of -2.31. The 17 high-low stalking clusters had an average GINI Index score of .74, average racial heterogeneity score of .35, average foreign born population 20.29, average residential mobility score of .58, and average concentrated disadvantage score of -1.71. The gender inequality indicators were an average pay gap value of 12,976.12, average employment score of 1.10, and average education attainment score of -.16. The 3 low-high clusters had an average GINI Index score of .47, average racial heterogeneity score of .23, average foreign born population of 6.86, average residential mobility score of -.26, and average concentrated disadvantage score of 1.47. The gender inequality indicators produced an average pay gap value of -5,787.67, average employment score of -2.89, and average educational attainment score of .53. There were no census tracts with low-low clusters for domestic stalking. The 741 non-significant census tracts had an average GINI Index score of .46, average racial heterogeneity score of .35, average foreign born population of 19.15, average residential mobility score of -.01, and average concentrated disadvantage score of -.11. For the gender

inequality indicators, there was an average pay gap value of 7,123.47, average employment score of .46, and average educational attainment score of -.92.

The domestic violation of protective order LISA had 100 census tracts in the high-high cluster. The average GINI Index score was .47, average racial heterogeneity score was .23, average foreign born population was 9.80, average residential mobility score was -.10, and average concentrated disadvantage score of 3.63. The gender inequality indicators for these high-high census tracts produced an average pay gap value of 3,828.35, average employment score of -.90, and average educational attainment score of -2.54. The 11 high-low cluster census tracts had an average GINI Index score of .45, average racial heterogeneity score of .49, average foreign born population of 25.87, average residential mobility score of .14, and average concentrated disadvantage score of -2.02. For the gender inequality indicators, the average pay gap value was 10,296.03, average employment score was 2.38, and average educational attainment score was 2.13. There were 18 census tracts that comprised the low-high clusters. Their average GINI Index score was .47, average racial heterogeneity score was .15, average foreign born population was 6.66, average residential mobility score was .16, and average concentrated disadvantage score was 3.25. The gender inequality indicators produced an average pay gap value of -1,377.17, average employment score of -1.45, and average educational attainment score of -1.86. The 126 low-low clusters had an average GINI Index score of .48, average racial heterogeneity score of .32, average foreign born population of 15.09, average residential mobility score of 1.02, and average concentrated disadvantage score of -3.88. The gender inequality indicators for these census tracts were an average pay gap value of 12,044.98, average employment score of 1.30, and average educational attainment score of

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.80. There were 545 non-significant census tracts. The average GINI Index score was .45, average racial heterogeneity score was .37, average foreign born population was 21.02, average residential mobility score was -.20, and average concentrated disadvantage score was .20. For the gender inequality indicators, there was an average pay gap value of 6,829.04, average employment score of .47 and an average educational attainment score of -1.09.

The domestic homicide LISA had 49 high-high cluster census tracts. The average GINI Index score was .47, average racial heterogeneity score was .15, average foreign born population was 4.07, average residential mobility score was .03, and average concentrated disadvantage was 4.06. The gender inequality indicators produced an average pay gap value of 1,336.08, average employment score of -1.12, and average educational attainment score of -.73. There were 22 high-low census tracts with an average GINI Index score of .47, average racial heterogeneity score of .42, average foreign born population of 24.73, average residential mobility score of .45, and average concentrated disadvantage score of -1.21. For the gender inequality indicators, the average pay gap value was 12,882.52, average employment score was 1.81, and average educational attainment score was .33. There were no low-high or low-low cluster census tracts. There were 729 non-significant census tracts. The average GINI Index score was .46, average racial heterogeneity score was .35, average foreign born population was 19.20, residential mobility was .00, and average concentrated disadvantage score was -.21. For the gender inequality indicators, the average pay gap value was 7,355.16, average employment score was .47, and average educational attainment score was -1.00.

Table 16. Mean Demographic Characteristic Values for Domestic Stalking, Violation of Probation, and Homicide Clusters in Chicago Census Tracts.

| | N | Social Disorganization | | | | | Gender Inequality | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | GINI Index | Heterogeneity | Foreign born | Mobility | Disadvantage | Pay gap | Job | Education |
| **Domestic Stalking** | | | | | | | | | |
| High-High | 39 | .49 | .16 | 4.80 | .38 | 3.19 | 5873.69 | -.48 | -2.31 |
| High-Low | 17 | .47 | .35 | 20.29 | .58 | -1.71 | 12976.12 | 1.10 | -.16 |
| Low-High | 3 | .47 | .23 | 6.86 | -.26 | 1.47 | -5787.67 | -2.89 | .53 |
| Low-Low | 0 | - | - | - | - | - | - | - | - |
| Non-significant | 741 | .46 | .35 | 19.15 | -.01 | -.11 | 7123.47 | .46 | -.92 |
| | | | | | | | | | |
| **Domestic Violation of Protective Order** | | | | | | | | | |
| High-High | 100 | .47 | .23 | 9.80 | -.10 | 3.63 | 3828.35 | -.90 | -2.54 |
| High-Low | 11 | .45 | .49 | 25.87 | .14 | -2.02 | 10296.03 | 2.38 | 2.13 |
| Low-High | 18 | .47 | .15 | 6.66 | .16 | 3.25 | -1377.17 | -1.45 | -1.86 |
| Low-Low | 126 | .48 | .32 | 15.09 | 1.02 | -3.88 | 12044.98 | 1.30 | .80 |
| Non-significant | 545 | .45 | .37 | 21.02 | -.20 | .20 | 6829.04 | .47 | -1.09 |
| | | | | | | | | | |
| **Domestic Homicide** | | | | | | | | | |
| High-High | 49 | .47 | .15 | 4.07 | .03 | 4.06 | 1336.08 | -1.12 | -.73 |
| High-Low | 22 | .47 | .42 | 24.73 | .45 | -1.21 | 12882.55 | 1.81 | .33 |
| Low-High | 0 | - | - | - | - | - | - | - | - |
| Low-Low | 0 | - | - | - | - | - | - | - | - |
| Non-significant | 729 | .46 | .35 | 19.20 | .00 | -.21 | 7355.16 | .47 | -1.00 |

Geographically Weighted Regression

Each domestic crime displayed evidence of spatial clustering (see Figures 23, 24, and 25). As a result, the influence of social disorganization and gender inequality on the occurrence of stalking, violation of protective orders, and homicide may be mediated by the spatial relationship between incidents. To test for this relationship and how the clustering of incidents influences in certain areas affects the likelihood of occurrence in another area, geographically weighted regressions were conducted for each domestic crime for each theoretical framework. The significant variables are mapped in the following figures. Note that the coefficients are only significant in census tracts highlighted with a light gray border.

Figure 26 displays the geographically weighted regression (spatial) results for the concentrated disadvantage variable of the social disorganization stalking model. Like the non-spatial negative binomial regression results, this is the only variable that was significant in this spatial model. All the census tracts highlighted with a light gray border are areas where increased concentrated disadvantage significantly influenced the occurrence of domestic stalking incidents. All the coefficients are negative numbers. Therefore, these census tracts are where concentrated disadvantage are significantly, negatively associated with the occurrence of domestic stalking incidents. Most of the census tracts across Chicago are significant, but the southern portion of the city is where concentrated disadvantage has no influence on domestic stalking. Figure 27 displays the spatial results for the employment variable of the gender inequality stalking model. Like the non-spatial negative binomial regression results, this is the only variable that was significant in this spatial model. All of the census tracts highlighted with a light gray border are areas where when women hold more managerial positions than men,

domestic stalking incidents increase. These census tracts are concentrated in the northern half of Chicago.

The negative binomial regression produced no significant results for both the social disorganization and gender inequality models for domestic violation of protective order. However, the geographically weighted regression did. Figure 28 displays the geographically weighted regression results for the racial heterogeneity variable of the gender inequality violation of protection model. All of the census tracts highlighted with a light gray border are areas racial heterogeneity influenced the occurrence of this crime. The coefficients are negative numbers and therefore, the highlighted census tracts are where increased racial heterogeneity led to decreased incidents of domestic violation of protective order. These form a diagonal from the southwest to the northeast corners of the northern half of Chicago. Residential mobility was also spatially significant and the results are displayed in Figure 29. The census tracts highlight areas where residential mobility significantly influenced the occurrence of incidents of violation of protective order. The coefficients for these highlighted areas are all negative indicating that as residential mobility increased, the occurrence of the crime decreased. These areas are concentrated in the northwestern area of Chicago. Lastly, Figure 30 displays the only gender inequality variable that was significant in the model, employment. Census tracts highlighted with a light gray border were areas where the difference between men and women's managerial employment influenced the occurrence of violation of protective order incidents. The highlighted census tracts have a positive coefficient and therefore indicate that these areas are where women were employed in more managerial positions than men and led to a statistical increase in domestic violation of protective order incidents. These census

tracts are located along part of the northeastern coast of Chicago. The geographically weighted

regressions for both the social disorganization and gender inequality frameworks for domestic

homicide, similar to the negative binomial regression, produced no significant results.
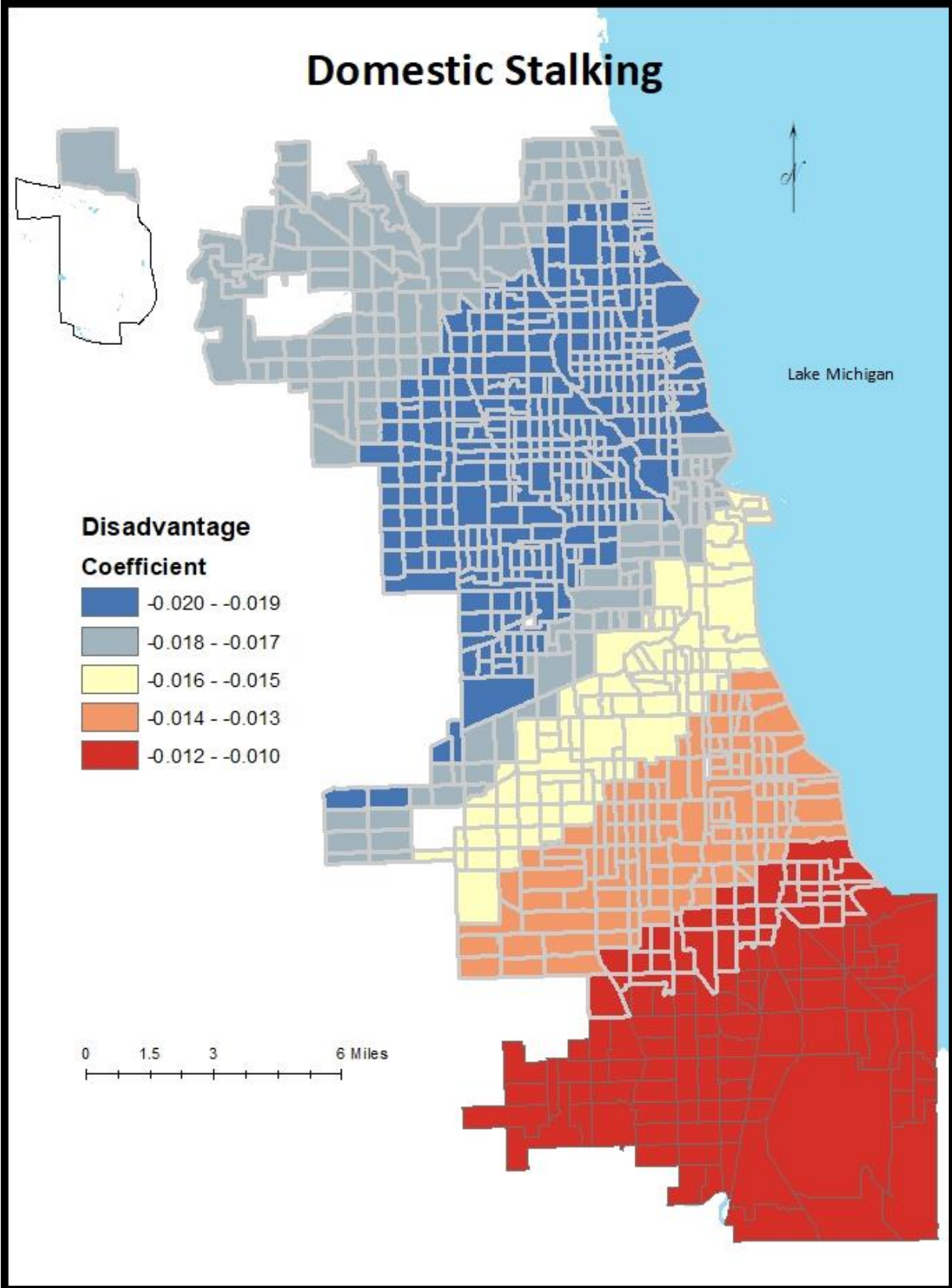
Figure 26. Geographically Weighted Spatial Variations of Concentrated Disadvantage for Domestic Stalking.
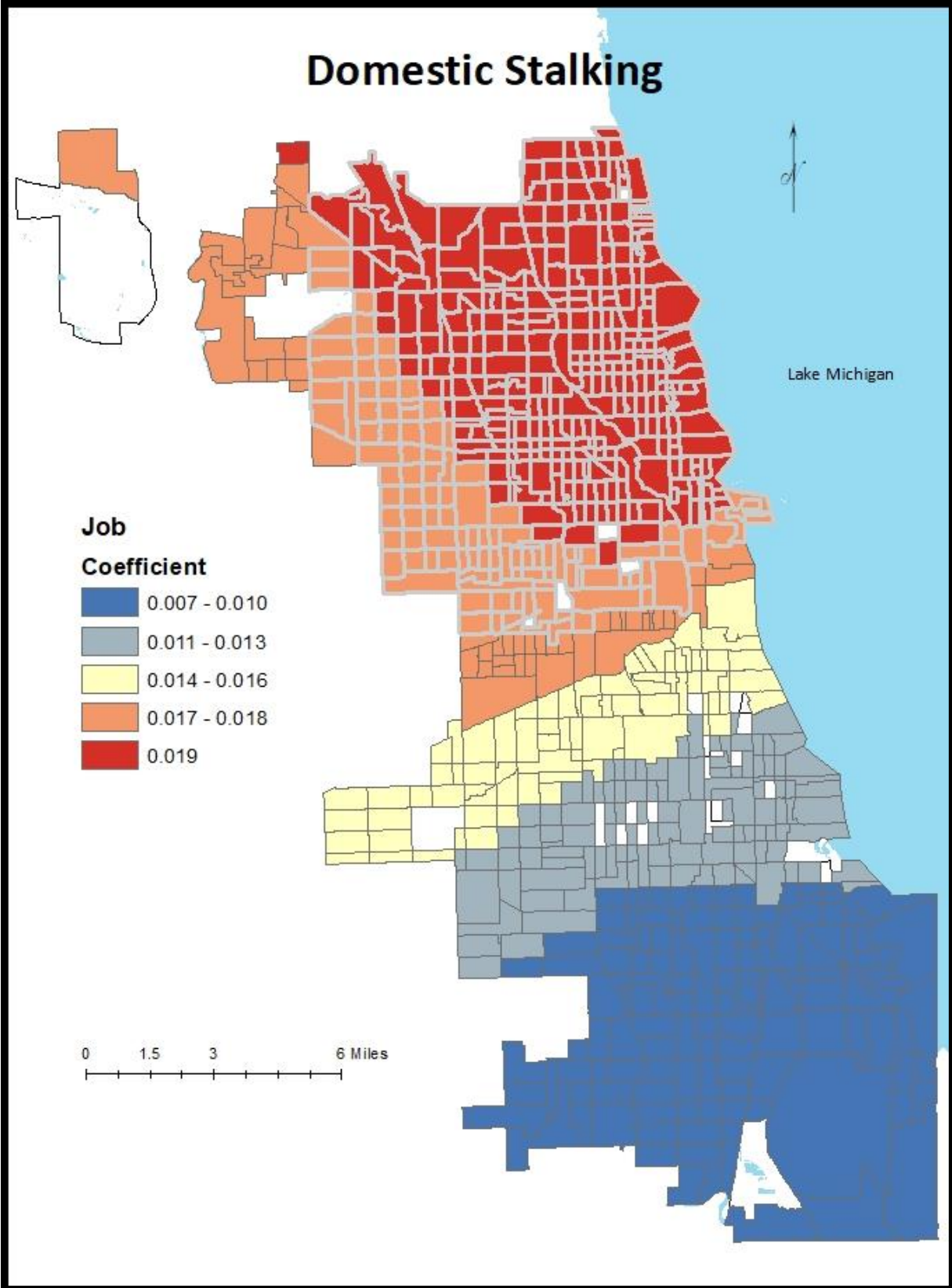
Figure 27. Geographically Weighted Spatial Variations of Employment for Domestic Stalking.
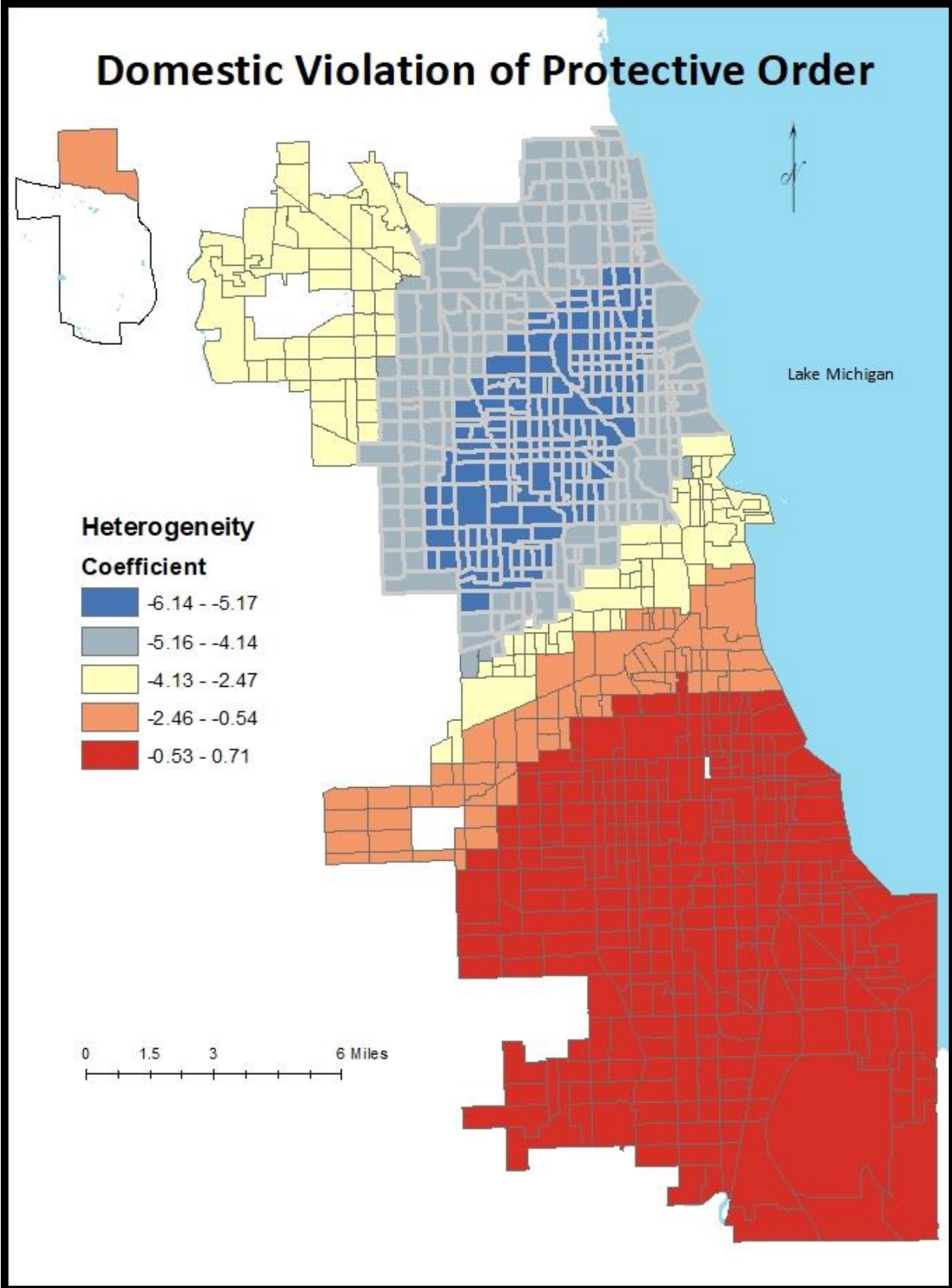
Figure 28. Geographically Weighted Spatial Variations of Racial Heterogeneity for Domestic Violation of Protective Order.
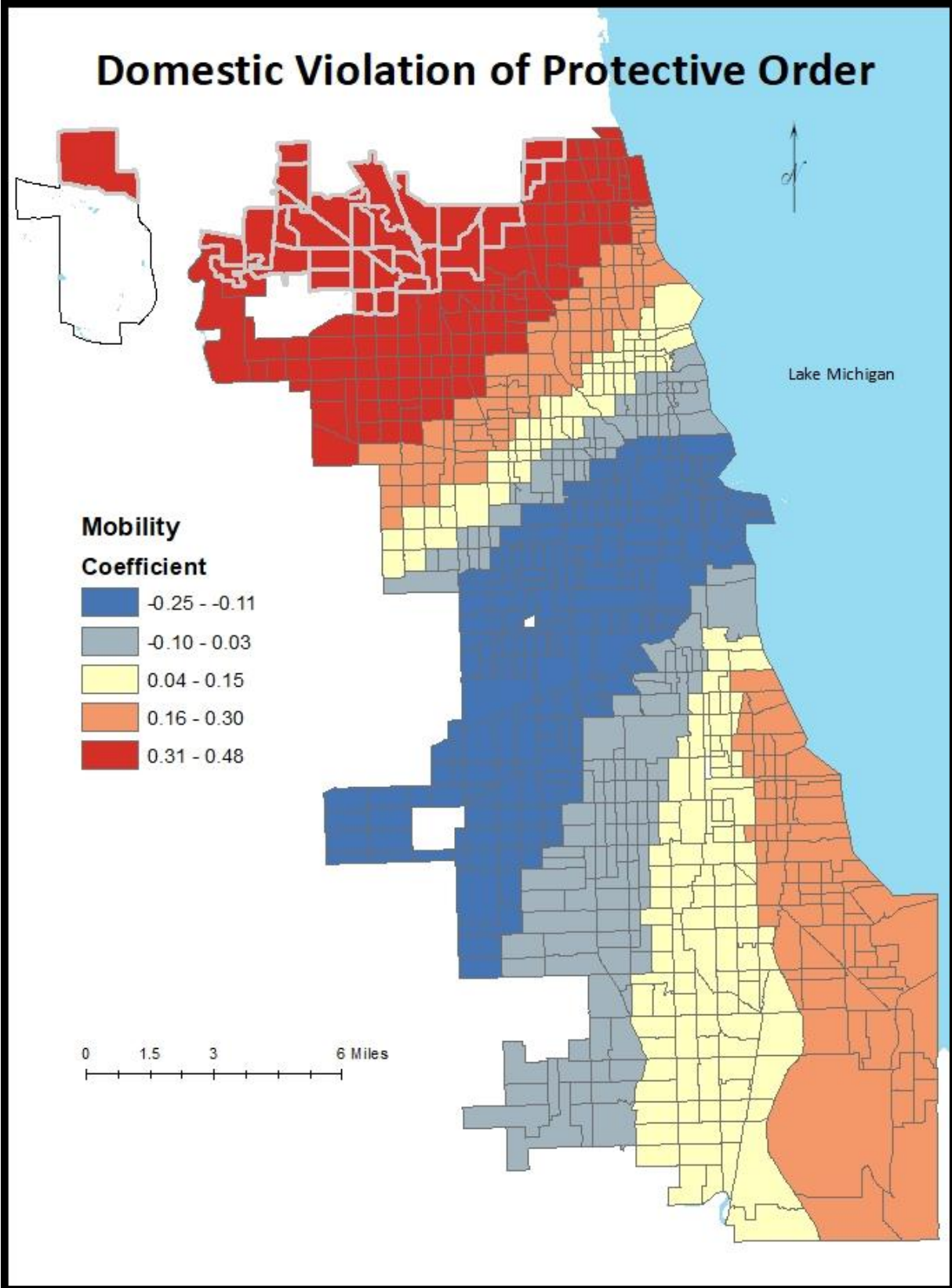
Figure 29. Geographically Weighted Spatial Variations of Residential Mobility for Domestic Violation of Protective Order.
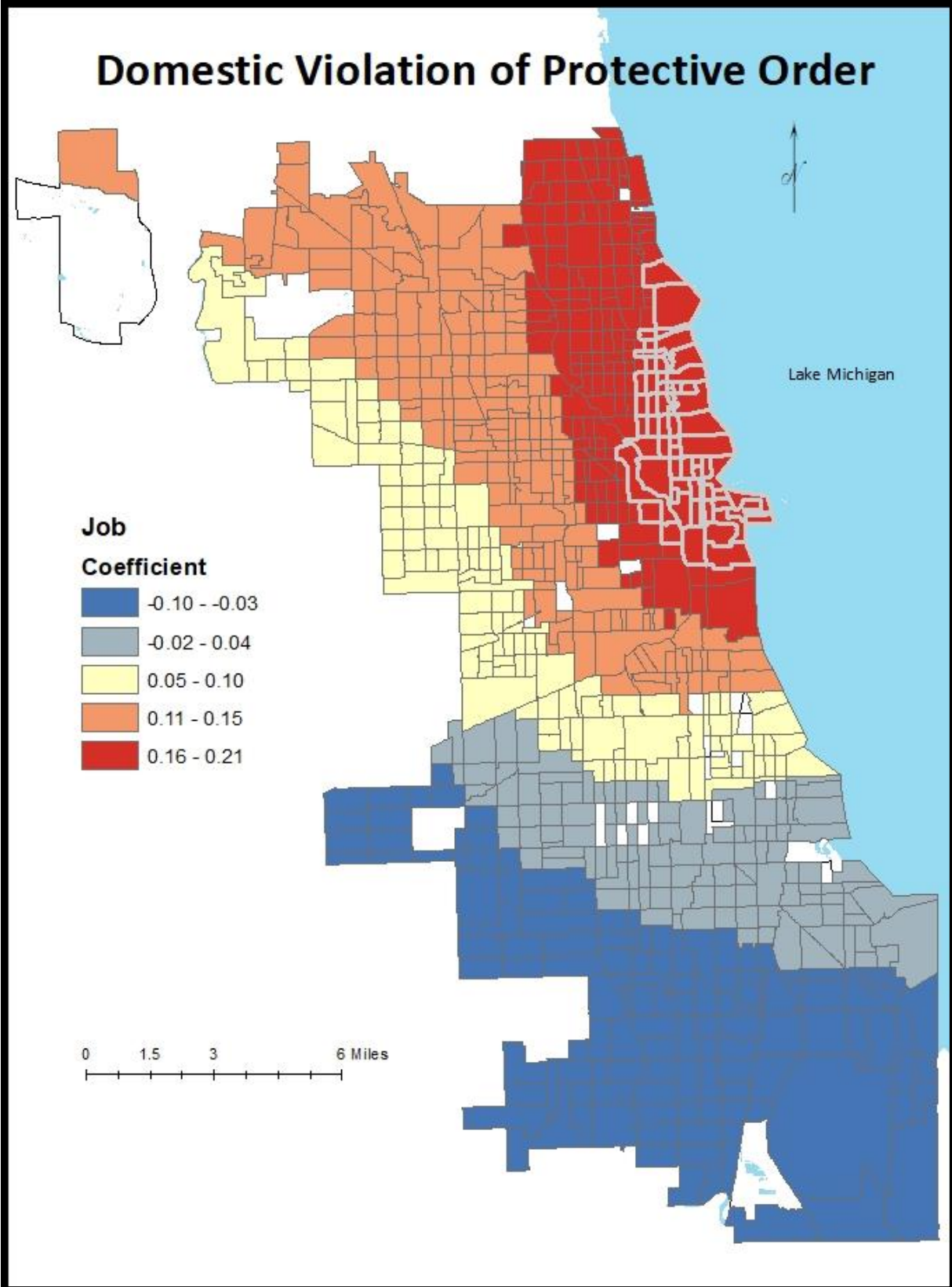
Figure 30. Geographically Weighted Spatial Variations of Employment for Domestic Violation of Protective Order.

# CHAPTER FIVE – CONCLUSIONS

<u>Discussion</u>

This study examined how social disorganization theory and gender inequality influenced certain domestic violence incidents in Chicago at the census tract level. Domestic violence offenses included in this study were stalking, violation of protective orders, and homicide. Additionally, each crime was broken down by the relationship between the victim and offender and categorized as intimate partner or non-intimate partner. In total, there were nine dependent variables of domestic violence incidents (domestic stalking, intimate partner stalking, non-intimate partner stalking, domestic violation of protective order, intimate partner violation of protective order, non-intimate partner violation of protective order, domestic homicide, intimate partner homicide, non-intimate partner homicide). The measures of social disorganization utilized in the study were the GINI Index, racial heterogeneity, foreign born, residential mobility, and concentrated disadvantage. The measures of gender inequality were pay gap, employment, and educational attainment.

There were four very broad research questions which were answered in this study. $RQ_1$: How do structural social disorganization factors and structural gender inequality influence the occurrence of domestic violence at the census tract level? $RQ_2$: Is there a difference when the crimes are parsed out by victim/offender relationship (intimate partner versus non-intimate partner)? $RQ_3$: Are these selected domestic crimes randomly distributed across space or are they spatially autocorrelated and cluster in certain areas of Chicago? $RQ_4$: If they cluster, are they in areas of social disorganization and/or gender inequality?

The first and second research questions focused on understanding the relationship between the selected domestic, intimate partner, and non-intimate partner violence crimes and the two theoretical frameworks employed in this study. Under the social disorganization framework, the GINI Index, racial heterogeneity, and foreign born measures were not significantly associated with any domestic violence offense in either the social disorganization only or the full model. Counter previous literature which upholds concentrated disadvantage as a significant positive predictor of crime (Kubrin & Weitzer, 2003; Lowenkamp, et al., 2003; MacDonald, et al., 2013; Martinez Jr, et al., 2008; Osgood & Chambers, 2000; Sampson, 2012; Sampson & Groves, 1989) and intimate partner violence (Benson, et al., 2003; Benson, et al., 2004; DeMaris, et al., 2003; Miles-Doan, 1998; Van Wyk, et al., 2003; Wright & Benson, 2010) as well as counter to the hypotheses, concentrated disadvantage served as a protective factor for domestic stalking in the social disorganization only model and the full model. Residential mobility, however, was significantly associated with an increase in domestic stalking only in the full model which supports previous research on crime (Barnett & Mencken, 2002; Kposowa, et al., 1995, Osgood & Chambers, 2000). Therefore, partial support was found for Hypothesis 1.

For intimate partner crimes under the social disorganization framework, an increase in the GINI Index was associated with decreased violation of protective orders in both the social disorganization only and full models. Racial heterogeneity was significantly associated with an increase in violation of protective orders in both the social disorganization and full models supporting previous assertions (Sampson & Groves, 1989). Supporting previous research, concentrated disadvantage was significantly associated with an increase in all three crimes in

both the social disorganization and full models. Therefore, Hypothesis 2 was partially supported.

For non-intimate partner crimes under the social disorganization framework, an increase in the GINI Index, foreign born population, and residential mobility was associated with decreased violation of protective orders in both the social disorganization only and full models. These findings are counter to the literature which upholds these characteristics as increasing risk factors for crime (Barnett & Mencken, 2002; Kposowa et al., 1995, Osgood & Chambers, 2000; Shaw & McKay, 1942) with the exception of foreign born population which has been established as a protective factor (Adelman, et al., 2017; Kubrin 2009; Kubrin, et al., 2016; Lee & Martinez, 2009; Kposowa et al., 1995; MacDonald, et al., 2013; Martinez & Lee, 2000; Martinez, et al., 2004; Ousey & Kubrin, 2009; Sampson & Bean, 2006; Sampson, et al., 2005; Wright & Benson, 2010). Increased foreign born population was also associated with decreased homicide in both models. Concentrated disadvantage, however, was associated with increased violation of protective orders and homicide in both the social disorganization and full models. Therefore, Hypotheses 3 was partially supported.

Under the gender inequality frame work, there was no support for Hypotheses 4. For intimate partner crimes, an increasing pay gap between men and women increased violation of protective order incidents while an increasing spread in managerial jobs reduced violation of protective order incidents in the gender inequality models only. Therefore, Hypothesis 5 was partially. Lastly, for the non-intimate partner crimes, an increasing pay gap was associated with increased violation of protective orders and homicide in the gender inequality model only. An increase in the employment measure decreased the number of violation of protective order

incidents in the gender inequality model only. An increase in the educational attainment

measure decreased the violation of protective order incidents in both the gender inequality and

full models. Therefore, Hypothesis 6 was partially supported. These results are mostly opposite

of what was expected. One explanation for this could be that more women in managerial

occupations and/or with more education increases crime due to backlash by men. This idea has

been utilized as a reason for increasing homicide (Chon, 2016; Gillespie & Reckdenwald, 2017;

Russell, 1975; Whaley & Messner, 2002) and can be further utilized for other crime incidents

such as these.

The third research question examined the spatial distribution of the crimes. Hypothesis

7 posited that domestic stalking incidents will be spatially autocorrelated, or clustered. This

hypothesis was supported as is evidenced in Figure 22. There were areas of significant high-high

clustering, high-low clustering, and low-high clustering. Hypothesis 8, domestic violation of

protective order incidents will be clustered, was also supported. Figure 23 demonstrated areas

of high-high, high-low, low-high, and low-low clustering across Chicago. Finally, Figure 24

provides evidence that domestic homicide incidents are spatially clustered in support of

Hypothesis 9. Domestic homicides had high-high and high-low clusters across the city.

The fourth research question examines whether areas the crimes are clustering in are

socially disorganized or demonstrate gender inequality. Utilizing the kernel density and Local

Indicators of Spatial Autocorrelation maps, domestic stalking appears to be clustering in areas

with a higher GINI Index score, greater racial heterogeneity, and equally in areas of increased

and decreased foreign born populations. It also clusters in areas of average residential mobility

and in areas of both concentrated advantage and disadvantage. In terms of gender inequality,

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domestic stalking clusters in areas where men get paid more than women, men hold more managerial positions, more so where more women hold a high school diploma. Domestic violation of protective order incidents also appear to be clustering in areas with a higher GINI Index score, less racial heterogeneity, and decreased foreign born populations. Areas with average to increased residential mobility and areas of both concentrated advantage and disadvantage have clusters of domestic violation of protective orders. These incidents are clustering in areas where men get paid more than women, a little more often where women hold more managerial positions than men, and in areas where women hold more high school diplomas than men. Domestic homicide incidents cluster in areas of increased GINI Index scores, in areas of both heterogeneity and homogeneity, as well as areas of increased and decreased foreign born populations. Areas of average to increased residential mobility and concentrated disadvantage were where most of the clustering for domestic homicide occurred. Overall, the crimes seem to cluster in relatively the same kinds of areas without it necessarily being the exact same areas. Hypothesis 10 was partially supported.

The results of the geographically weighted regressions also provided additional support for the fourth research question and Hypothesis 10. While not every indicator of social disorganization and gender inequality were found to be significantly related to the occurrence of one of the domestic crimes, certain characteristics stood out. Particularly, decreased concentrated disadvantage and increased differences in employment between men and women, favoring men, were able to be linked to increased or decreased domestic stalking incidents. Likewise, decreased racial heterogeneity, increased residential mobility, and increased differences in employment between men and women, favoring men, were linked to

increased domestic violation of protective order incidents. Unfortunately, no significant results were found for domestic homicide.

<u>Theoretical and Policy Implications</u>

Some social disorganization measures in this study were found to be significant predictors of crime consistent with previous literature. Concentrated disadvantage was the only variable that showed up in most models as a significant predictor of increased crime. Previous research has pointed to this characteristic as a risk factor for an increase in domestic violence and intimate partner violence in particular (Benson, et al., 2003; Benson, et al., 2004; DeMaris, et al., 2003; Miles-Doan, 1998; Van Wyk, et al., 2003; Wright & Benson, 2010; Wright & Benson, 2011). However, concentrated disadvantage did surface as protective factor against domestic stalking in both the social disorganization and full models. This quagmire warrants further investigation. An increase in residential mobility was linked to an increase in domestic stalking in the full model. This finding supports the domestic violence literature in general (Barnett & Mencken, 2002; Kposowa et al., 1995, Osgood & Chambers, 2000), but it is the only crime to have this result. Racial heterogeneity was also found to be consistent with previous social disorganization literature for one crime – intimate partner violation of protective order. However, since this crime has not been studied to this capacity, further research is warranted. An increasing foreign born population, or immigrant concentration as referred to in the literature, was consistent with more recent social disorganization findings and served as a protective factor against non-intimate partner violation of protective orders and homicide (Adelman, et al., 2017; Kubrin 2009; Kubrin, et al., 2016; Lee & Martinez, 2009; Kposowa et al., 1995; MacDonald, et al., 2013; Martinez & Lee, 2000; Martinez, et al., 2004; Ousey & Kubrin,

2009; Sampson & Bean, 2006; Sampson, et al., 2005; Wright & Benson, 2010). All of these

findings extend the literature on consistency of the theory and its applicability to other

domestic crimes.

Other social disorganization results of this study go against previous literature. The GINI

Index of income inequality was a protective factor for both intimate partner and non-intimate

partner violation of protective orders. Perhaps in area of more income inequality, and therefore

less economic resources, individuals are constrained to certain boundaries where their limited

resources will allow them to go. Conceivably, the reporting of a violation is less likely to occur in

an area with few economic resources where one of the parties involved in the injunction is

financially dependent upon the other party. Another possibility is that in areas of low economic

resources, individuals are less likely to reach out to law enforcement for help due to potential

feelings of abandonment. Additionally, residential mobility was found to serve as a protective

factor against non-intimate partner violation of protective orders. Previous research has found

support that residential mobility's effect on crime is only substantiated when the measure is

composed of only resident turnover. It does not have the same effect when considering

homeownership or if the property is being rented as well as has been shown to be inconsistent

with subject measures of residential mobility and therefore call into question this relationship

(Boggess & Hipp, 2010; Hart & Waller, 2013). There may also be other factors that lead an

individual to remain in the same place or move elsewhere that are not considered.

Gender inequality literature posits that patriarchy is a primary source of violence against

women and that institutions act in ways which play a role in this relationship. One primary

result of this study is consistent with previous literature. As a way to measure gender

inequality, the difference in pay between men and women has shown to be an increasing factor of intimate partner and non-intimate partner violation of protective orders as well as non-intimate partner homicide. If women do not have the same worth as men, noted negative effects of gender inequality, such as lethal and non-lethal domestic violence, are more likely to occur (Archer, 2006; Heise & Kotsadam, 2015; Straus 1994; VanderEnde, et al., 2012; Yllo, 1983, Yodanis, 2004). Other measures of gender inequality included in this study, were not found to be significant predictors of crime. In fact, when men hold more managerial positions, intimate partner and non-intimate partner violation of protective order incidents decrease. Likewise, as more men have high school diplomas than women, non-intimate partner violation of protective order incidents decrease. This can also be inversely interpreted; as women gain more status and power in the work place and become more educated than men, more violence ensues. This is consistent with previous literature on backlash (Chon, 2016; Gillespie & Reckdenwald, 2017; Russell, 1975; Whaley & Messner, 2002). However, since this crime has not been studied at a structural level through the gender inequality framework, further research is necessary to solidify or refute any results found.

There were some very unexpected statistical results in this project. There were very few measures that worked in a way consistent with what was expected and several that did not work at all or had the opposite effect. One potential explanation for these findings is that any theory is developed to explain one given phenomenon. It is then expanded to further explain that phenomenon or other very similar phenomena. In this case, social disorganization was developed and expanded to explain street crime. Much of the literature on this theory and domestic violence is primarily focused on assault. Stalking and violation of protective orders are

not assault based offenses; they are qualitatively different and may not be able to be supported by this theory in the same manner. On the other hand, the gender inequality framework states that crime is gendered. Individuals who engage in domestic violence are very particular with who they batter, typically male partner to female partner, and most of the literature on gender inequality and violence focuses on this relationship. Stalking and violation of protective orders are likely not as gendered and are more of an "equal opportunity crime" and therefore maybe they cannot be explained as well through this theoretical framework. However, I believe that the research connections between these crimes and theories are still in their preliminary stages and will require extensive study before coming to such a generalized conclusion.

Although the study did not produce expected statistical results, the spatial patterns were consistent with what was anticipated. This inconsistency is likely due to low counts of some of the dependent variables. Areas of concentrated disadvantage were also areas of lower residential mobility. This insinuates that those who are disadvantaged are suck where there are. These areas are also classified as being very racially homogenous and have higher GINI Index scores. This points to a systemic racial issue of limited upward social mobility and even relative deprivation. These conditions have been proven to foster criminal activity (Chamberlain & Hipp, 2015; Kawachi, et al., 1999). Additionally, consistent with revised findings of the effects of immigrant concentration on crime, areas with little to no foreign born residents are also those with increased social disorganization and higher concentrations of crime incidents. Connecting the two theoretical frameworks, areas of concentrated disadvantage were also the same areas where women made more money than men. This suggests increased male unemployment, another contributing factor to increased violence.

This study attempted to run regressions on a year by year basis as well as at the neighborhood level. Since there were no major changes in structural characteristics from year to year, perhaps the theories would work better if there were more years of data included. Additionally, various spatial results were masked at the neighborhood level. Reducing the level of analysis helped uncover patterns that were otherwise unable to be detected. Perhaps other major studies are limited in this way and differing results would emerge at a smaller level of analysis. It is very important for future study of stalking and violation of protective orders particularly that other areas and units of analysis are considered and how structural factors influence incidents.

There are also policy implications that can be drawn from this study. Domestic violence resources are available in Chicago; there are 13 physical locations individuals can go to for emergency housing, food, information, advocacy, etc. The results can be utilized to evaluate if the locations of these resources are in areas where they are most needed. While some of these resources are in areas of increased victimization risk, there are very few resources available in areas where offenses are highly concentrated and are very much needed. Continuing to look at these offenses both spatially and non-spatially is important; particularly for practitioners in this respect. If resources are moved to areas of need and there is a shift in crime, then it is a way to know that the resources work. Further, it can be used to gauge if both victims and potential victims of the crimes included in this study are aware of available services and if the centers are within a reasonable distance from them. Other outreach events and interventions can be planned based on where these crimes are spatially occurring as well as where they are predicted to occur based on theoretical models. More community activities with outreach

organizations present can educate individuals as to resources available to them which may increase disclosure rates. Additionally, law enforcement education is key to building trust within communities and enabling victims to feel comfortable seeking police intervention. This is particularly essential in areas of social disorganization which are often plagued with distrust of law enforcement. The more a victim feels comfortable with the resources they have available and trust that they will receive help, it is like that disclosure rates will increase which can lead to more data, more studies, and more resources available to eradicate domestic violence.

<u>Limitations and Future Research</u>

There were a few limitations to this study that merit discussion and consideration for future inquiry. This study utilized secondary, official data. There is therefore no way to take into consideration the dark figure of crime, or the amount of crime that goes unreported. This is especially an issue concerning domestic violence where there more likely exists a relationship of co-dependency or other factors (such as children present) preventing an individual from involving the criminal justice system and allowing an incident to go unreported.

Second, an important measure of social disorganization, collective efficacy, was not included in this study. This is also a result of utilizing secondary data. Collective efficacy, defined as "social cohesion combined with shared expectations for social control" (Sampson, 2012, p. 27), simply cannot be measured using objective, secondary, quantitative data. It would be beneficial if future studies can find a way to include this concept.

The third limitation touches on ecological fallacy. This study draws on structural, or aggregate, data to predict the actions of individuals. It has been noted by Paulsen and Robinson

(2009) that drawing conclusions about individual level behavior based on aggregate data can lead to flawed policy interventions to help prevent crime. This study, as well as other studies, have been conducted with this in mind as it is often the only way to examine how social structures affect individuals. Researchers in the future could try and overcome this by including individual level factors and utilizing multilevel modeling.

Lastly, this study was limited to the city of Chicago at the census tract level and therefore, the results must be generalized with caution. The results of this study both support previous literature and present findings to the contrary. However, they also present preliminary findings on research questions not previously asked while also using a different dataset than most criminological studies on Chicago. These conclusions may not be consistent to other areas of analysis or even other geographical units of analysis. Future studies may choose to look at other large cities or include multiple cities at one time for a better comparison before concluding certain relationships do or do not exist based on one study.

One of the biggest take-aways from this study is that place matters. Initial analyses were conducted at the neighborhood level and then at the census tract level. The difference between the two was that the larger unit of analysis masked crime patterns. Additionally, results of the geographically weighted regressions demonstrate that along with smaller unit of analyses to help expose more patterns in statistical analyses, location matters. Therefore, it needs to be taken into account statistically. This is particularly helpful when trying to pinpoint specific areas that possess a quality related to increasing or decreasing crime events instead of assuming it will work for the entire area of analysis. It is likely to be supported with other research that the location of these patterns depends on the interrelation between predictors of crime and space.

For these reasons, future studies should continue to incorporate geographically weighted

regressions and other methods of spatial analyses as well as expand the literature on structural

correlates of understudied crimes.

# APPENDIX: IRB LETTER

## NOT HUMAN RESEARCH DETERMINATION

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

To  :  **Sarah Ann Sacra**:

Date  :  **October 20, 2017**

Dear Researcher:

On 10/20/2017 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: | Domestic Stalking, Violation of Protective Orders, and Homicide in Chicago Neighborhoods: The Influence of Social Disorganization and Gender Inequality |
| Investigator: | Sarah Ann Sacra |
| IRB ID: | SBE-17-13444 |
| 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 Renea C Carver on 10/20/2017 02:32:59 PM EDT

IRB Coordinator

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