

2010

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PERSON OR PLACE? A CONTEXTUAL EVENT-HISTORY ANALYSIS OF HOMICIDE VICTIMIZATION RISK

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Sociology

by

Emily R. Berthelot

B.A., Louisiana State University, 2004

M.A., Louisiana State University, 2007

December 2010

*This dissertation
is dedicated to Claire Elizabeth Berthelot,
my sister and my friend.*

ACKNOWLEDGEMENTS

I have recently learned that the primary purpose of writing a dissertation is not necessarily to get a job or to get several publications; it is to overcome your biggest fear and your biggest flaw. For me personally, my fear and my flaw is independence, or the lack thereof. Although it took me a while to even notice, as I got further into my dissertation, I became less and less dependent on the smart people I surround myself with and established my independence.

I would like to express my gratitude to several very important individuals, without whom I would have never been able to complete such a daunting task. First, I thank my committee co-chairs, Dr. Matthew R. Lee and Dr. Troy C. Blanchard. I have learned so much from these two brilliant individuals in just a few short years. These two men have educated me, challenged me, pushed me to my limits, encouraged me, flattered me, and comforted me all throughout this crazy journey and I cannot even begin to describe how important they are to me, not only as mentors, but as friends. I am absolutely positive that these two scholars will continue to be integral players in my academic career for a very long time.

Matt is one of the primary reasons for my enrollment in the graduate program at LSU after having taken his undergraduate criminology class in 2003. From the first time I listened to Matt lecture to my undergraduate class, I decided that I wanted to do that for the rest of my life. Matt has been my committee chair since the very beginning of my graduate work in 2005. Matt, you are a genius in the field of sociology and criminology, as well as in so many more aspects of academia and life in general. Without your

knowledge, leadership, motivation and support my career trajectory would be completely different. Thank you for everything you have done for me.

I asked Troy to join my committee as a co-chair not long after he came to LSU as a faculty member in 2007. Even at his busiest moments, Troy has been able to help me with just about every methodological stumbling block I have come across in writing this dissertation. Troy, thank you so much for the countless hours of advising and for the talks we have had over the past several years. Your belief in me has given me so much confidence in my work and in my abilities and I am so appreciative of that.

My other committee members have also played very important roles in my successes at LSU also. Dr. William B. Bankston was one of the first sociology faculty members I encountered in my 10 years at LSU, and by far one of the most impressive. Not only can Bill teach an entire semester of sociological theory with no books or notes, he can also quickly calm a student's nerves during her thesis defense in seconds by singing. Dr. Edward S. Shihadeh provides some of the most intelligent and important statements and he has the amazing ability to gently point out a mistake in a way that is completely painless. I am also grateful for Dr. Joseph Clare, my dean's representative, who always has a kind word at the right time.

There are many others that were once or still are within the halls of Stubbs that deserve to be mentioned and thanked here. I know that you all know who you are and I really appreciate all of our talks, the advice you gave, and the friendship you have provided over the years. You are all very important to me and are very special parts of my life.

I would also like to thank my parents, Susan and Richard Berthelot, and the rest of my family for all the love, encouragement, support and patience they have given me throughout my entire life. We, as a family, have been through so much together and as difficult as things got for us as a family, y'all still happily gave me anything and everything I ever needed or wanted. I would not be the woman I am today without y'all.

Finally and most importantly, I would like to thank my husband, Tim Brown. Tim, without you and your love and support I would have not made it through my first year of graduate school, let alone complete the entire program in five years. I love you and I cannot wait to see what the future brings for us.

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ABSTRACT

This study is a contextual event history analysis of the risk of homicide victimization in the United States from 1986 to 2002. Although the majority of research on homicide deals with how community factors influence homicide rates, a much less studied aspect of homicide victimization deals with the influence of individual factors on homicide victimization risk. This study examines the influence of contextual-level measures of social disorganization on the risk of homicide victimization and focuses specifically on how the effects of these measures change once individual-level characteristics are considered in the models.

Grounded in social disorganization theory, this study includes contextual-level predictors of disadvantage, including measures representative of resource deprivation, urbanness, and housing instability. Lifestyle theory suggests that a person's individual attributes may compel that person to behave in certain ways that may work to either increase or decrease their risk of being the victim of a crime, and may also reduce or diminish the effects of the social structure on their risk of victimization.

This study, using National Health Interview Survey (NHIS) data matched with National Death Index (NDI) data, examines the intersection of these ideas and seeks to explain how community context influences one's chance of being a homicide victim and especially on how individual attributes alter the relationship between community context and homicide victimization.

The findings of this research indicate that individuals living in areas with high concentrations of disadvantage, such as resource deprivation, urbanization, and housing instability experience increased risk of being the victim of a homicide.

However, a person's individual traits, particularly age, race, and sex do, in fact, greatly reduce the criminogenic consequences of both resource deprivation and housing instability on their risk of being killed by a homicide. However, regardless of a person's individual attributes, living in an area with high levels of urbanization have three times greater odds of being killed by a homicide, compared to person's living in MSAs with less urbanization. In this study, urbanization is measured using an index obtained from a principal components analysis that contains measures of population size, population density, and two measures of racial/ethnic heterogeneity.

CHAPTER 1: INTRODUCTION

The United States has been experiencing an epidemic of violence since the 1980s compared to other industrialized nations (Messner and Rosenfeld 2001). Every year since 1970 at least 15,000 individuals have been the victims of homicide in the United States (FBI Uniform Crime Reports 2010). Although rates have declined and stabilized throughout the past decade homicide continues to be ranked among the leading causes of death in the United States. Between 1981 and 2006 homicide was one of the top five leading causes of death for every person under the age of 35 in the United States, the leading causes of death for all non-Hispanic, black males between the ages of 15 and 34, and the number two cause of death for non-Hispanic, black females between 15 and 24 (CDC Wonder 2010).

Criminologists have studied the causes of homicide for nearly 100 years. The vast majority of this research focuses on how social context influences homicide rates and the bulk of homicide research focuses on the offender. These researchers assume that community factors such as poverty, residential segregation, and unemployment are the key causes of homicide rates in United States communities. At the same time, another research tradition focuses on the link between individual characteristics and the likelihood of being a homicide victim. These researchers attribute the risk of victimization to personal traits, such as an individual's socioeconomic status, race, and age. This individual-level approach to crime prediction has garnered much less attention than its contextual counterpart due to the fact that, until recently, there has not been sufficient data to study the influence of individual behavior as a predictor of crime. To date, no researchers have attempted to integrate these two perspectives.

Research shows that disadvantage plays a big role in a person's risk of being a victim of homicide (Wilson 1987, 1996; Sampson and Wilson 1995; Massey 1995; Peterson and Krivo 1993; Shihadeh and Flynn 1996). Disadvantage, however, is a very complex factor. It can involve what a person actually possesses or it can involve the environment in which a person lives. For example, is there a difference in the chance of homicide victimization between a poor individual living in a poverty stricken neighborhood versus a poor person living in a more affluent neighborhood? In other words, is it *being* disadvantaged, *living* in a disadvantaged neighborhood, or a combination of the two that increases one's chances of being a victim of homicide?

Kubrin (2003) argues that the fatal flaw of social disorganization theory is that people make lifestyle choices based on their personal characteristics. People choose where to live, work, and spend their free time based not only on the characteristics of the neighborhood, but also on their own age, income, and/or race/ethnicity which has an influence on the structural configuration of the neighborhood. For this reason, it is essential that individual characteristics be controlled for when examining the effects of deleterious ecological factors. Current theories look at individual characteristics (such as lifestyle theory) *or* contextual characteristics (such as social disorganization theory) to predict homicide rates. This research considers *both* individual and contextual characteristics together, which provides a much more comprehensive explanation of homicide victimization risk with which we can better understand the problem of violence in the United States. This study investigates the impact of individual-level variables not only to account for peoples personal lifestyle choices, but also to determine how and

to what extent individual characteristics influence ones risk of homicide victimization while also considering the effect of community factors associated with disorganization.

The challenge lies in the difficulty of isolating the contextual effects of disadvantage from the individual effects of disadvantage. One explanation for this shortcoming in prior research is the lack of appropriate data. Researchers have long had access to data on the social environment, such as rates of poverty and rates of homicide for U.S. cities, and have recently used public health survey data to study individual-level variation in the risk of victimization (e.g. young, black males have a higher risk of homicide victimization than other groups). Yet, no researcher has brought these two data sources together to comprehensively study homicide in the U.S. To address this issue, I use the National Center for Health Statistics (NCHS) National Health Interview Survey (NHIS) and event history logistic regression examine how individual attributes influence one's chance of being a homicide victim and how community context alters the relationship between individual attributes and homicide victimization concurrently.

Since 1957 the National Health Interview Survey (NHIS) has collected self reported information on individuals aged 18 and over regarding socioeconomic and demographic information including health information. The respondents are re-interviewed annually in order to obtain individual-level, longitudinal data. Data regarding respondents who began participation in the NHIS between 1986 and 1994 are linked with the Multiple Causes of Death (MCD) file from the National Death Index (NDI) which consists of mortality data, including death by homicide. This file provides follow-up data for each respondent from 1986 to 2002. Recently, the NCHS provided publicly-

available geographic identifiers for NHIS respondents that allow researchers to link data on the social environment with individual-level data. With these data and SAS 9.2 SURVEYLOGISTIC regression procedure, I can simultaneously consider the contextual-level effects, individual-level effects, and how these two levels interact with one another on the risk of homicide victimization. This research fills this important omission in social science theories of crime and violence by examining the influence of both individual and community characteristics simultaneously. No study to date has been able to address this issue in depth.

The present research not only accounts for individual attributes, it also considers the degree to which individual characteristics have an influence on the risk of homicide victimization and if a person's individual or community characteristics play a larger role in the likelihood that he/she will be killed by homicide. The NHIS data are quite extensive and provide substantial information with which one can answer a plethora of different research questions that range from "what is the effect of characteristics of the community on the risk of homicide victimization net of individual characteristics" to "how do individual factors (such as level of education, occupational status, and marital status) condition the effects of community-level factors (such as collective disadvantage, social structure, and level of urbanization) on the risk of homicide victimization". The primary substantive contribution of this research is also to investigate whether the influence the contextual environment or a person's own demographic and social characteristics, along with the type of lifestyle that persons with those characteristics may lead, plays a larger role in the risk that a person has of being a homicide victim, thereby answering

the question of is it the “kind of person” or the “kind of place” that has the largest influence on a person’s risk of being the victim of a homicide.

In the next chapter, I provide a literature review that addresses two research traditions within the field of criminology: 1) the structural covariates of crime prediction with a focus on social disorganization theory, and 2) an individual-level approach to mortality prediction with a focus on homicide victimization risk which is informed by the lifestyle theory of crime and violence. Chapter 2 also includes a discussion of the limitations that researchers have had to deal with when studying victimization using multi-level methods of analysis. Chapter 3 provides descriptions of the units of analysis, data sources, dependent and predictor variables, descriptive statistics, and method of analysis. In Chapter 4 the results of the baseline analyses and multilevel analyses are described in detail and the effects of the contextual-measures before and after the addition of individual-level factors are compared. Finally, in Chapter 5, research findings are summarized and discussed, conclusions from the study are delineated, and limitations and direction for research are discussed.

CHAPTER 2: LITERATURE REVIEW & THEORETICAL FRAMEWORK

2.1 THE PROBLEM: UNDERSTANDING THE RISK OF HOMICIDE VICTIMIZATION

There is a great deal of research on *either* individual-level risk factors for victimization *or* structural factors conducive to increased risk of victimization. One problem with aggregate analyses is that findings must be applied at the aggregate level (i.e. county, city, tract, MSA) and cannot be generalized to individual persons. On the other hand, analyses of individual risk factors for victimization are incomplete without considering the impact of community factors on victimization risk. The primary problem with studies that deal with only one unit of analysis is that researchers, for the most part, have not considered both individual and contextual factors together.

Contextual factors can directly influence individuals as well as condition the effects of individual risk factors, and at the same time individual factors can directly influence a person's social context and may also influence the outcome that a person's context has on their level of victimization risk. For example, there may be important differences between an individual who has a college degree who lives in a disadvantaged neighborhood and an individual who has a college degree who lives in a more affluent neighborhood. And on the other hand, there may be a difference between a person who has a college degree who lives in a disadvantaged neighborhood and a person who did not graduate from high school who lives in a disadvantaged neighborhood. With the current research, I am able to consider how deleterious neighborhood characteristics might influence a person's risk of homicide victimization, while at the same time considering how a person's individual attributes influence their

risk of being a victim, while still considering the type of environment in which they reside.

Much of the research done within the study of criminal victimization is found within the field of public health and focuses on overall risk of mortality. In Pridemore's (2003) conceptual analysis of lethal violence, he calls for an integration of structural-and individual-level public health intervention strategies with structural-level sociological criminological approaches to the study of homicide. He argues that homicide can be avoided with policy change and prevention strategies and that by considering victimization from a public health perspective, researchers will benefit by better understanding the causes of violent victimization which may provide them with the tools to reduce and/or prevent criminal violence. By making use of National Health Interview Survey (NHIS) data, the current research increases the breadth of understanding of homicide victimization risk while making use of public health data and taking heed of Pridemore's call to integrate these data with criminological methods of studying homicide.

2.2 COMMUNITY-LEVEL THEORY & RISK FACTORS

Within the field of criminology, the preponderance of studies on homicide focus on how community context influences rates of homicide and consistently indicate that structural disadvantage affects a communities' rate of homicide victimization in communities (Blau and Blau 1982; Messner 1982; Bailey 1984; Sampson 1985, 1987; Ousey 1999; Land, McCall, and Cohen 1990; Lee, Maume, and Ousey 2003). The primary focus of this dissertation is on the effect of neighborhood disadvantage on individual homicide victimization risk, therefore the principal community-level

explanatory variables in this research deal with measures of social disorganization which have been found to affect rates of criminal offending and victimization (Crutchfield and Pitchford 1997; Krivo and Peterson 1996, 2000; Parker and McCall 1997, 1999; Sampson 1987; Land, McCall and Cohen 1990).

2.2.1 SOCIAL DISORGANIZATION THEORY

Within sociological literature, there has been debate regarding the relationship between community structure and social processes dating as far back as to works by such theorists as Durkheim (1933, 1951). There has been a great deal of discussion among scholars regarding the influence of structural disadvantages and of community and institutional instability on the social fabric of urban society. These works, influenced by the changing structure of society due to the industrial revolution, suggested that rapid growth would result in substantial disruption for local residents.

Wilson (1987) argues that since the 1970s and 1980s when center cities transformed from manufacturing centers which could employ many low skilled laborers into service centers which employ educated workers, disadvantage began to become concentrated in urban centers which were isolated and poverty stricken (Wilson 1987; Kasarda 1989). This industrial restructuring led to a skill mismatch between the residents of center cities and the employment opportunities available in the area. Since these areas lack services and institutions which provide family support and lack both education and employment opportunities, there are high levels of high school dropouts, unemployment, single parent families, and welfare dependency.

More specifically in relation to crime, Shaw and McKay's (1929, 1931, 1942, 1969) social disorganization theory posits that high delinquency and crime rates in inner

cities are the result of structural disadvantages that developed due to the growth of cities. Social disorganization theory states that societies (neighborhoods more specifically) rely on normative consensus of common goals in order to regulate behavior. This ecological perspective contends that certain disadvantaged neighborhoods are responsible for a disproportionate amount of crime because of the community's inability to maintain effective social control mechanisms over its residents. Their theory draws on the work of Wirth (1938), which extended that ecological factors (population size, population density, and population heterogeneity) in urban neighborhoods increase contacts, weaken bonds, and reduce the social significance of the community. Urban centers with larger and denser populations lead to more anonymity and greater disadvantage which in turn increase the chances of conflict between residents (Krivo and Peterson 2000; Shaw and McKay 1942, 1969). Neighborhood racial and ethnic heterogeneity also makes it difficult for neighborhood residents to establish group attachment and communication. Therefore, neighborhoods that display a greater degree of diversity may not come together as a cohesive community, again impeding a neighborhood's level of social solidarity and trust as well as further undermining a community's ability to socially control its residents (Bursik 1988).

Neighborhoods with high levels of poverty and residential mobility are also posited to break down the normative consensus and make it difficult to establish lasting social ties with local neighborhood residents thereby reducing the level of social control, and increasing crime rates. Neighborhoods plagued with high levels of poverty are less able to effectively socially control residents, making them more prone to violence

(Kornhauser 1978; Bursik 1988; Elliott and Menard 1996; Sampson and Groves 1989; Shihadeh and Flynn 1996). Poverty stricken neighborhoods tend to lack the resources necessary to establish and maintain basic institutions such as churches, schools, and voluntary organizations. The existence of these types of institutions increases levels of neighborhood social solidarity, which increases community social control, thereby reducing instances of criminal behavior. Residential instability also hinders residents' ability to form long lasting bonds with neighborhood residents because of rapid population turnover. Neighborhoods that have a high proportion of short term residents or residents that move around frequently cannot establish neighborhood solidarity because neighbors are often not around long enough to become friendly and trustworthy.

Kasarda and Janowitz (1974) extend social disorganization theory with the inclusion of the affect of length of residence on the development of social bonds. The longer a resident has been in a community, their social ties with neighbors will be stronger, which aids in the development of social control and reduces crime. Sampson and Groves (1989) also extended social disorganization theory with their community-level theory of social disorganization. They discuss the benefits of informal network ties and how they allow for the recognition of strangers and increase guardianship, both of which work to reduce the risk of victimization. Their data show that variation in their measures of social disorganization (i.e. few friendship networks, unsupervised teen peer groups, low participation in organizations) are mediated by the structural antecedents of social disorganization (low socioeconomic status, residential instability, racial/ethnic heterogeneity, and female headed households).

Bursik and Grasmick (1993) discuss the effects of residential instability and heterogeneity of the local community with a discussion of Hunter's (1985) three levels of social control (private, public, and parochial). They define social control as "the effort of the community to regulate itself and the behavior of its residents to achieve a specific goal," with the assumption that the goal of the community was to have little or no crime. They suggest that private social control is attenuated by residential instability in that it makes it more difficult to establish long standing intimate ties with neighbors. Heterogeneity also threatens private social control in that it reduces the amount of social networks residents are exposed to. Parochial social control is also reduced by residential instability and heterogeneity since it reduces residents' ability to supervise neighbors and their possessions. Low social control leads to higher crime by decreasing costs associated with deviation (Park and Burgess 1924). High rates of crime undermine the sense of community and leads residents to move away if they can afford to, which further deteriorates a communities' ability to control residents (Wilson 1996). Community organization, based on formal and informal networks in the family and community and related social bonds, are important to society (Park 1925; Park and Burgess 1924). Neighborhoods with fewer group attachments lead to fewer shared norms and less neighborhood solidarity and trust which undermine a communities' level of social control over crime.

One aspect of disadvantage that Shaw and McKay did not predict, is how the rate of violent behavior in a community is differentially affected by varying levels of structural disadvantage that neighborhoods experience over time. Bursik and Webb (1982) find that ecological change has differential effects of delinquency during different

decades between 1940 and 1970. For example, their data indicate that during the 1960's residential population change had no effect on delinquency rates. When a community changes, formal and informal social control mechanisms may be drastically reduced or dissolve completely. These findings indicate that it is not necessarily the groups involved that affect rates of delinquency and violence, it is ecological change. Although Shaw and McKay (1929, 1931, 1942) were not completely correct in their theory of social disorganization, their ideas are not moot since they could not and did not anticipate the ecological changes that communities experienced subsequently, their theory simply needed to evolve over time (Bursik and Webb 1982). This leads to the idea that structural disadvantage is not static over time and space and concentrations of disadvantage may have a stronger effect on community violence than more trivial community disadvantages.

Sampson, Raudenbush and Earls (1997) found that the association between concentrated disadvantage and rates of violence is not necessarily attributable solely to the aggregated demographic characteristics of individuals, but a major source of neighborhood variation in violence is the differing abilities that community residents have to "realize the common values and maintain effective social controls" (Sampson, Raudenbush, and Earls 1997: 918). They argue that "the alienation, exploitation, and dependency" produced by disadvantage works against the establishment of collective efficacy—a communities ability to establish mechanisms of informal social control. Their focus was on how informal social control mechanisms, such as watching neighborhood children, willingness to intervene to prevent neighborhood truancy, and confronting those who disturb neighborhood peacefulness, as opposed to more formal

or external social control mechanisms, like the police (Sampson, Raudenbush, and Earls 1997). Their findings indicate that concentrated disadvantage does in fact have a negative association with collective efficacy, and individual-level characteristics such as gender and ethnicity, were not associated with collective efficacy. Some of their models also included collective efficacy as a predictor of perceived neighborhood violence. Findings indicate that collective efficacy is negatively associated with violence even after controlling for social composition.¹ Several studies have found that the factors that distinguish areas of high concentrated disadvantage include poverty, joblessness, female-headed households, and vacant housing units (Jargowsky 1994; Krivo, Peterson, Rizzo, and Reynolds 1998; Massey 1996; Squires 2002). Wilson (1996) argues that in areas that are characterized by these elements, residents are more likely to use violence as a means for survival.

Based on these theoretical assumptions, the specific hypothesis for the effects of concentrated disadvantage on risk of homicide victimization predicts that:

H1: Social disorganization will have a positive effect on an individual's risk of homicide victimization.

This hypothesis is based on how community-level characteristics of social disorganization are predicted to affect one's risk of homicide victimization.

¹ The coefficients for social composition were much smaller than they were in the models without a control for collective efficacy. This indicates that collective efficacy conditions the effects of social composition.

2.2.2 RISK FACTORS OF SOCIAL DISORGANIZATION

Several predictors of aggregate economic disadvantage are included in the analysis, such as measures of 'poverty' (the percentage of MSA residents that fall below the federally defined poverty line), 'low educational attainment' (the percentage of MSA residents ages 25 years and over who do not have a high school degree), 'unemployment' (the percentage of MSA residents ages 16 years and over who are in the labor force but do not have a job), 'female headed households' (the percentage of households with female householders with children under the age of 18 within each MSA), 'age structure of crime' (measured by the percentage of the MSA population that is between the ages of 15 and 24), a measure of unattached youth or 'floaters' (measured by the percentage of the MSA population between the ages of 16 and 19 who are not in school, not employed, and not in the military) are included (Shihadeh and Flynn 1996). It is argued that floaters have few ties to conventional society and therefore lower stakes in conformity which works to decrease informal social control and hinder the formation of collective efficacy in society (Matza 1964).

The 'Gini index' of income inequality is also included as a predictor of economic disadvantage. The Gini index is the most desirable way to measure relative disadvantage, and is defined as:

$$G = \frac{2}{\mu n^2} \sum_{i=1}^n i x_i - \frac{n+1}{n}$$

where x_i is household income, μ is the mean income value, and n is the number of households in each MSA (Hipp 2007). Messner (1982) and Bailey (1984) both used the Gini index of income inequality as a measure of relative disadvantage and the

percentage of the population below the U.S. Social Security Administration's poverty line a measure of absolute disadvantage. Bailey (1984) also included the percentage of families with an annual income below \$1,000 as an additional measure of absolute disadvantage or low income. Messner's (1982) analysis of SMSAs in 1960 indicated that the Gini index was not significantly related to homicide and that the percentage of poverty was negatively related to homicide, while Bailey (1984) found that absolute disadvantage (poverty) was positively related to homicide and no relationship between inequality (Gini) and homicide in his analysis of cities in 1950, 1960, and 1970.

Also included is a P^* measure of the segregation/isolation of poor persons in an MSA from all other persons (Lieberson and Carter 1982; Massey and Denton 1993; Peterson and Krivo 1999). P^* is defined as:

$$xP^*x = \sum_{i=1}^n \left(\frac{x_i}{X}\right) \left(\frac{x_i}{t_i}\right)$$

where x_i is the number of poor persons within a census tract, X is the number of poor persons in an MSA, and t_i is the total population in an MSA. Hipp (2007) uses a version of P^* as a measure of racial/ethnic isolation, and finds that income inequality within racial or ethnic groups leads to higher rates of violent crime. His findings indicate that income inequality between neighborhood residents may even be more important than high rates of neighborhood poverty. Once he added income inequality to his models, the effect of high poverty rates became nonsignificant. Hipp (2007) suggests that future research should be done to determine exactly why within group income inequality leads to increased rates of violent crime. Perhaps a close examination of individual-level characteristics along with contextual characteristics will elucidate this question.

Predictors of urbanization include variables measuring: 'population size' (the total number of persons living in an MSA), 'population density' (the total population size divided by the amount of land area in an MSA), and two measures of 'racial/ethnic heterogeneity' (1) the percentage of MSA residents that are nonwhite and 2) an index of diversity, measured as:

$$D = 1 - \sum_{i=1}^N p_i^2$$

where p_i is the proportion of residents of a racial/ethnic group in each MSA).

Housing instability is measured by 'population turnover' (the percentage of MSA residents ages 5 years and over who have moved between 1985 and 1990), 'vacant housing units' (the percentage of unoccupied housing units in an MSA) and 'home ownership' (the percentage of housing units in each MSA that are owner occupied). Persons who own their own homes are more likely to be invested in the neighborhood and tend to do more to minimize crime in the neighborhood (Krivo and Peterson 1996; Roncek 1981; Roncek and Maier 1991). Research indicates that abandoned buildings have a positive relationship with criminal activity (Krivo and Peterson 1996; Roncek 1981; Roncek and Maier 1991).

2.3 INDIVIDUAL-LEVEL THEORY & RISK FACTORS

Most research done on risk of criminal victimization focuses almost solely on the influences that structural factors have on aggregates—such as neighborhoods (tracts), MSAs, counties, states, or entire nations. Within the field of criminology, there has been comparatively less research on how individual characteristics may influence the risk that one has to be the victim of a crime. There is overwhelming agreement among scholars

of criminology that demographic characteristics such as age, sex, and race are among the strongest and longest standing correlates of criminal offending and victimization. Additionally, individual-level socioeconomic variables such as low socioeconomic status (unemployment, low educational attainment and family income) and marital status are also important individual-level factors that may influence the risk of homicide victimization in the United States (Rogers, Hummer, and Nam 2000).

2.3.1 LIFESTYLE THEORY

The premise of lifestyle theory is that variations in lifestyle can have a critical impact on a person's risk of being victimized or exposure to criminogenic situations, persons, and places. A person's ascribed characteristics, such as age, race and sex, as well as their achieved characteristics, such as education, occupation, and income, influence their behavior and the type of lifestyle that they lead, including the possibility of coming into contact with dangerous persons, places, or situations. This theory, as well as empirical evidence, indicates that young people, males, and members of disadvantaged minorities are at a greater risk of being offenders and victims of crimes (Hindelang, Gottfredson, and Garofolo 1978; Messner and Rosenfeld 1999; Sampson and Lauritsen 1994; Steffensmeier and Allen 1996; Steffensmeier, Allan, Harer, and Streifel 1989). Accounting for these individual characteristics in addition to characteristics of the neighborhood that a person chooses to live in will not only deal with the methodological implications regarding ignoring individual characteristics when analyzing the influence of social disorganization on the risk of homicide, it will also demonstrate how the social environment influences the effects of individual

characteristics and how individual characteristics influence the effects of the social environment.

Lifestyle theory assumes that the daily activities (work, school, social activities) that a person is involved in may increase risk of criminal victimization. For example, an individual who spends his or her evenings at home experiences less risk of criminal victimization than an individual who spends his or her evenings at a bar or nightclub. The basis of this argument is that the individual who goes out at night is exposed to a more “dense pool of offenders” (Lynch 1987: 288) than the individual who spends his or her evenings at home. Additionally, an individual’s demographic characteristics, such as age, sex, race, income, marital status, occupation, and education also influence the type of lifestyle he or she leads. Persons of similar demographic characteristics tend to associate with one another which can also affect one’s risk of criminal victimization.

Hypothesis 2 focuses on the influence of a person’s individual attributes have on the risk of homicide victimization when they are included in models that test socioeconomic and sociodemographic theories of crime. This hypothesis is grounded in the community theory of social disorganization as well as individual-level lifestyle theory. Specifically, I hypothesize that:

H2: The positive effect of social disorganization on an individual’s risk of homicide victimization will be reduced or brought to insignificance when characteristics of the individual are taken into consideration.

This hypothesis predicts that an individual’s characteristics, such as age, sex, race, income, educational attainment, employment status, marital status, and region works to mediate or aggravate the influence of contextual disadvantage on a person’s

risk of homicide victimization. This hypothesis predicts that a person's individual attributes will influence, not only their risk of homicide victimization, but will also greatly overwhelm the perilous influences of contextual disadvantage on their risk of victimization. The underlying assumption of this hypothesis is that when the characteristics of the individual are considered simultaneously with the individual's neighborhood attributes, the effect of the neighborhood on that person's risk of victimization will be greatly reduced or will disappear completely. Confirmation of the hypotheses in this research would provide strong evidence for the argument that it is not necessarily the "type of place" in which an individual resides, but the "type of person" an individual is, that influences their risk of being killed. In other words, support for the hypotheses of this study would suggest that a person can live in a neighborhood with a high amount of concentrated disadvantage and experience the same amount of risk as he/she would if the same person were living in a more affluent neighborhood.

2.3.2 INDIVIDUAL-LEVEL RISK FACTORS OF HOMICIDE VICTIMIZATION

Individual's sociodemographic characteristics are important predictors of mortality (Hummer, 1996; Rogers, Hummer, and Nam 2000). Of particular importance are age, sex, race, and marital status. Sampson and Lauritsen (1994) argue that age is the strongest predictor of risk of homicide, assault, robbery, and rape. The majority of violent victimizations occur among younger individuals (Finkerhor 1997; Hindelang 1976; Sampson and Laub 1997). The peak ages for criminal offending are between 15 and 24 years, which mirrors the peak ages for criminal victimization. Since social activities tend to be structured by age and since younger people tend to engage in more public social activities, those in the earlier stages of the life cycle experience a greater

risk of criminal victimization. This is consistent with the lifestyle approach to criminal victimization; individuals who spend more time in public settings are exposed to potential offenders and therefore are at a greater risk of victimization (Hindelang, Gottfredson, and Garofolo 1978; Cohen 1981; Meithe and Meier 1990). Additionally, research indicates that individuals who are victims of violence in their early life are more likely to be involved in crime or violence later in their life (Lewis 1992; Widom 1989; Fagan, Piper, and Moore 1986; Lauritsen, Sampson, and Laub 1991; Singer 1986). 'Age' is measured as the age of the respondent and is a time-varying covariate in this study, due to the longitudinal nature of the NHIS data.

There is similar agreement that sex is also a very well-established and consistent individual-level correlate of crime. Males are at greater risk than females to be both the offender and the victim for most violent offenses with the exception of rape (Messner and Sampson 1991; Smith and Visher 1980; Steffensmeier and Allen 1996). Results of analyses on gender differences in crime are quite similar whether measured by official statistics (Steffensmeier and Cobb 1981), victimization surveys (Hindelang 1979), or self-reports (Hindelang, Hirschi, and Weis 1981; Canter 1982; Hindelang 1971, Smith and Visher 1980; Steffensmeier and Steffensmeier 1980). Research shows that this gender gap in crime is based on differential levels of parental supervision and attachment. Findings indicate that females experience greater parental control and supervision than do males (Jensen and Eve 1976; Gove and Crutchfield 1982; Smith and Paternoster 1987; Cernkovich and Giordano 1987). Hagan, Simpson, and Gillis (1987) argue that females experience closer supervision, have less taste for risk, and have a better perception of sanction than males; factors which deter females from

participating in criminal activity. Researchers examining the impact of gender on victimization tend to have mixed results. Bailey and Peterson (1995) find that female homicide victimization is inversely related to the status of women relative to men since higher status women are able to afford legal protection and because men are typically unable to freely use violence against women. On the other hand, Brewer and Smith (1995) find a very small influence of gender inequality on homicide victimization. 'Sex' is a dummy variable indicating whether the respondent is male or female.

Research suggests that African Americans are overrepresented as offenders and victims for most serious crime (Lauritsen 2001; Messner and South 1988; Wolfgang 1958; Block 1975; Farley 1980; Hawkins 1985; Skogan 1981; Gottfredson 1986). The race-crime relationship is one of the most important reasons why research in the field of criminology should consider both individual and community factors. Blacks are more likely to live in neighborhoods that experience concentrated disadvantage than whites (Wilson 1987, 1996). Sampson (1997) argues that racial differences in crime hold in models that contain controls for structural characteristics because of unmeasured community characteristics; arguing that many models are misspecified and do not include all of the appropriate structural factors. This possibility increases the importance of multilevel studies within criminology. Previous multilevel research indicates that black and white youth who live outside of underclass neighborhoods experience similar delinquency levels (Peeples and Loeber 1994). More multilevel research on SES and race is necessary to determine the influence. Beyond the influence of black and white, research also suggests that Latino immigrants who, though they are generally poorer, tend to be healthier than the average non-Hispanic American.

Although Latinos tend to experience more disadvantage than whites, they tend to be in fairly good health. 'Race' is measured by a set of dummy variables telling whether the respondent is non-Hispanic white, non-Hispanic black, other non-Hispanic, or Hispanic.

Marital status has also been found to influence risk of victimization, although marital status is studied less than age, race, and sex. Individual-level research shows that married people are less likely to be an offender or a victim of crime than unmarried people (Sampson and Laub 1990; Hindelang et al 1978; Cohen, Kluegel, and Land 1981; Miethe, Stafford, and Long 1987). A spouse can work as an individual's own private social support mechanism and can provide a sense of responsibility, both of which should decrease the risk of homicide victimization for married persons. Research on the life course is consistent with this assertion; scholars propose that a spouse may act as a protective factor mediating the risk of victimization (Sampson and Laub, 1990). These claims regarding marriage are consistent with the lifestyle approach considering that being married decreases the amount of time the individual spends outside of the home. Cohen and Felson (1979) posit that single adult households should have higher rates of predatory criminal victimization and that married persons tend to spend less time away from home which lowers the risk of victimization. Findings from aggregate macro-level victimization studies support this generalization (Hindelang, Dunn, Sutton, and Aumick 1976). 'Marital status' is measured by a set of dummy variables indicating whether the respondent is married, divorced or separated, never married, or widowed.

An individual's socioeconomic status (SES) also influences risk of victimization (Hindelang 1976; Hindelang, Gottfredson, and Garofalo 1978; Cohen 1981; Cohen, Kluegel, Land 1981; Miethe, Stafford, and Long 1987). The most common

operationalizations of socioeconomic status are measures of income, education, and unemployment. There is an inherent relationship between income and education, as one's occupation is largely determined by his/her education. Income increases with increases in education since income is based on occupational prestige. The magnitude of the effect of family income is not as large as the magnitude for age, sex, race, and marital status. 'Family income equivalence' is calculated as:

$$W = \frac{I}{S^{.38}}$$

where W is income equivalence, I is family income in units of \$10,000, and S is family size. Family size is raised to an equivalence elasticity of .38 in order to adjust for differences in consumption patterns across families of different sizes (Van der Gaag and Smolenski 1982; Rogers, Hummer, and Nam 2000).

Education has shown a less consistent relationship with victimization than other variables. Some research indicates that individuals with the least amount of education have the lowest levels of violent victimization (Sampson and Lauritsen in Reiss and Roth 1993). Others have found that those who are less educated have a greater risk of homicide victimization (Rogers, Rosenblatt, Hummer, and Krueger 2001). Skogan (1981) finds that those who are more educated are better able to recall their victimization than the less educated which may have an influence on the accuracy of victimization data. 'Educational attainment' is measured by a set of dummy variables indicating whether the respondent has less than a high school education, is a high school graduate, or has more education than high school.

Chiricos' (1987) meta-analysis of the nature of the unemployment-crime relationship indicates that unemployment usually has a positive and significant

relationship with crime on the aggregate level. Those who are unemployed are at greater risk of violent victimization than those who work, attend school, are homemakers, or are retired (Sampson and Lauritsen in Reiss and Roth 1993; Rogers, Rosenblatt, Hummer, and Krueger 2001). 'Employment status' is measured by a set of dummy variables indicating if the respondent is employed, unemployed, or not a member of the labor force.

Region is an important predictor of victimization because rates of violence and homicide tend to be higher in the Southern region of the US and will be included in the analyses as an individual level control variable. The culture of violence literature is based on the Hackney-Gastil thesis. These scholars believe that the unique history of the South is the reason why Southerners are more approving of violence than non-Southerners. Scholars arguing for the Southern culture of violence believe that the high violence rates in the South are due to a culture of violence that is maintaining itself in the South through the socialization process (Gastil 1971; Hackney 1969; Wolfgang and Ferracuti 1967). 'Region' is measured by a set of dummy variables indicating whether the respondent lives in the South, North, West, or the Midwest.

2.4 THE MICRO-MACRO CONNECTION: LIMITATIONS OF PREVIOUS MULTI-LEVEL RESEARCH

To date, few studies have attempted to uncover both individual and contextual explanations for homicide victimization in the U.S. However, a few scholars have conducted multilevel studies of victimization risk (homicide, assault, robbery) and mortality risk using data from a variety of sources². Researchers have studied the

² Sources include the British Crime Survey (Sampson and Wooldredge 1987; Sampson and Lauritsen 1990), the Dutch Homicide Monitor (Nieuwebeerta, McCall, Elffers, and Wittebrood 2008), the Project on

impact of individual and community factors on victimization risk with data from countries other than the United States, individual counties and individual cities within the United States. The risk of robbery (Sampson and Wooldridge 1987) and assault victimization (Sampson and Lauritsen 1990) have been studied using British Crime Survey data and Nieuwbeerta, McCall, EIFFERS, and Wittebrood (2008) have examined homicide victimization in the Netherlands. Additionally, multi-level studies have been done on St. George's County, Maryland (Dobrin, Lee, and Price 2005) and Seattle, WA (Meithe and McDowall 1993, Rountree, Land, and Miethé 1994). These studies make important contributions to literature on victimization risk; however, because of the data used generalization within the United States is limited.

Two notable multi-level studies of victimization have been done using data from the United States. Lauritsen (2001) examined the influence of individual and community factors on violent victimization using National Crime Victimization Survey data and tract-level census data. Kposowa (1999) used individual-level and community-level National Longitudinal Mortality Study data for 1979-1981 cohorts to examine the effects of occupation and industry on risk of homicide victimization. Although their findings can be generalized in the United States, these studies still contain important limitations. The inherent limitation of the Lauritsen (2001) study is that, because the data are from the NCVS, homicide victimization is not included in the analysis. The data Kposowa (1999) used provided a relatively narrow sample of homicide victimization cases. His individual-level data were restricted to white, black, and Hispanic males between the ages of 15 and 64 years, which produced a sample of only 172 homicide victims.

Human Development in Chicago Neighborhoods (Sampson et al 1997), the National Crime Victimization Survey (Lauritsen 2001), the National Longitudinal Mortality Study (Kposowa 1999), and police data from St. Charles County, MD (Dobrin, Lee, and Price 2005).

Additionally, because his community-level variables were defined at the state level, it is impossible to generalize the findings to smaller units of analysis.

Very few researchers have used the National Health Interview Survey (NHIS) to investigate risk of victimization in the United States. Two notable studies have used these data in a multi-level manner, and have primarily examined racial and ethnic differences in the risk of mortality. Rogers, Rosenblatt, Hummer, and Krueger (2001) examined the influence of individual and social factors on black-white differences in adult homicide mortality and found that individual factors accounted for about 35 percent of the racial differences in homicide mortality. Bond Huie, Hummer, and Rogers (2002) expanded on the above study with the inclusion of several Hispanic subgroups as well as an analysis of whether nativity influenced adult mortality. They find that racial and ethnic groups experience varying risk of mortality through both their own socioeconomic characteristics as well as through neighborhood characteristics. The results of these studies provide important contributions to literature regarding ethnic and racial variation in homicide and mortality risk.

Although the above research is groundbreaking with regards to multi-level analyses of victimization risk in the United States, similar research with a broader scope is necessary to make widespread generalizations regarding the risk of homicide victimization in the United States. These researchers stress the importance of considering both macro and micro-level predictors of victimization in order to get a clear picture of how individual and contextual conditions facilitate and/or inhibit risk of victimization. The current study deals with these limitations and expands upon the study of homicide victimization risk by using data from a national sample in the United

States which provides findings that are generalizable. This study also focuses specifically on homicide victimization risk, particularly within the postulations of social disorganization theory and concentrated disadvantage.

2.5 SUMMARY

More research is necessary in order to tease out the effects of both the individual and community factors that may influence risk of homicide victimization. Although there is a substantial amount of extant literature that examines the influence of disadvantage on rates of homicide, there is a significant gap in homicide literature when it comes to accounting for the characteristics of the individual and how those characteristics may either mitigate or aggravate the effects of the social environment. This is primarily due to an inability to tease out the structural effects of disadvantage from the individual effects of disadvantage. Additionally, findings from extant research that only considers the effects of contextual characteristics of the community could potentially be less robust than they initially appeared once the influence of individual characteristics are taken into consideration.

This study is grounded in lifestyle theory, an individual-level theory of crime prediction and in social disorganization theory, which is a community or contextual-level theory of criminal behavior. The literature review above details how disadvantage, grounded in measures of social disorganization, has a positive association with homicide. While a great deal of research has successfully tested the influence of measures highlighted within these macro-level theories on homicide rates within communities, very few have examined their influence on individuals and the varying effect they may have when considering the personal characteristics of the individual.

This dissertation deals specifically with how the unique facets of an individual are likely to influence the type of lifestyle a person leads; including what type of neighborhood they choose to live in, the type of individuals they choose to spend time with or expose themselves to, and how their personal characteristics and their lifestyle can increase their risk of homicide victimization regardless of the social context in which they live.

Extant research attempting to determine the influence of context on individual risk of victimization is riddled with limitations, primarily due to the data researchers have used in their analyses. The use of NCVS data does not allow for the specific study of homicide victimization risk. Also, the use of international, county, and city level data do not allow researchers to generalize their findings to the entire population of the United States. The current study, using contemporary homicide data from the NHIS-NDI linked data, focuses specifically on individual risk of homicide victimization. Findings can be generalized to the population of the United States because the data used for the analyses consist of a larger, more representative sample than earlier works. This research also takes advantage of methodological advances that allow for the simultaneous consideration of characteristics of the individual and characteristics of the community in which they reside, as well as examination of how the characteristics on these two levels may influence one another. Table 1 summarizes the hypotheses tested in the analyses.

TABLE 1: SUMMARY OF HYPOTHESES

H1: Social disorganization will have positive effects on an individual's risk of homicide victimization

H2: The positive effect of social disorganization on an individual's risk of homicide victimization will be reduced or brought to insignificance when characteristics of the individual are considered.

CHAPTER 3: DATA, ANALYTICAL METHODS, MEASURES, DESCRIPTIVE STATISTICS & BIVARIATE ANALYSIS

3.1 DATA & UNITS OF ANALYSIS

This research is an examination of the effect of both individual and contextual-level characteristics on the individual-level risk of homicide victimization in a sample of large, urban Metropolitan Statistical Areas (populations greater than 100,000 residents) in the United States from 1986-2002. The following study is a multi-level analysis of existing data sources. This study involves two distinct levels of analysis because explanatory variables are measured using both individual-level data as well as contextual-level Metropolitan Statistical Area (MSA) data.

The individual-level units of analysis are individual respondents from the public-use 1986-2002 National Health Interview Survey (NHIS) linked Multiple Cause of Death file (MCD) through the National Death Index (NDI). Each year, on a weekly basis, stratified, multistage probability samples of the civilian non-institutionalized population ages 18 and older are interviewed. Each respondent is then followed and interviewed year-to-year until their death. Since NHIS interviews occurring all throughout the year, each respondent is 'at risk' for homicide victimization for one-half of the initial interview year and for each follow-up year they survive, they are considered to be 'at risk' for the full year. These interviews provide longitudinal records of the health of respondents as well as the nature of their death, including homicide victimization. Respondents are also asked to provide demographic and economic information, such as their age, race, sex, employment status, educational attainment, and marital status.

Because of the sampling design of the NHIS, the number of years each respondent is involved in the survey will vary from person to person. The number of follow-up years that each respondent was followed is determined by the time of their first interview and either the year of their death or the final year they were followed, all of which is determined using data within the linked NHIS-MCD files. Since each individual is interviewed periodically until the year of their death, the data can easily be rolled out into a person-year file. This means that for each year that a respondent has been followed, an individual record is created. A separate record (or person-year) is created for each year that each individual is known to be at risk for a homicide (alive). For every year that a respondent is in the risk set, he/she is assigned a zero (0) and the year that the respondent dies of a homicide, he/she is assigned a one (1).

An example of the person-year rollout data is displayed in Table 2. This table includes a segment of the data for three NHIS respondents. The first is a male who began participating in 1989 and died by homicide in 1990, therefore he has two separate records. The year of a respondent's death, he/she is only counted as having participated in half of the year. The second example is an individual who died of a cause other than homicide or was no longer followed beyond their sixth year of participation. This individual's participation concluded in 1999, while the linked NDI data go through 2002. The final example is a female who died of a homicide in her fifth year of participation. Creating a person-year file allows for the use of discrete time methods of analysis, as opposed to using continuous data which is dependent on time varying predictors. For example, since there is a separate record every year for each

respondent, the variable measuring the respondents' age can be calculated to increase with each year of participation in the survey.

TABLE 2: EVENT HISTORY (PERSON-YEAR) EXAMPLE DATA FOR DISCRETE TIME HAZARD MODELS

MSA	Age	Sex (Female = 1)	Event = Homicide (dead by homicide = 1)	Year
240	26	0	0	1989
240	26.5	0	1	1990
330	64	1	0	1994
330	65	1	0	1995
330	66	1	0	1996
330	67	1	0	1997
330	68	1	0	1998
330	69	1	0	1999
012	22	1	0	1990
012	23	1	0	1991
012	24	1	0	1992
012	25	1	0	1993
012	25.5	1	1	1994

Unlike official crime statistics, NHIS-MCD linked data are not dependent on whether the incident was reported to the police or an arrest was made. For example, Uniform Crime Report (UCR) data include only offenses that have been reported to the police, which results in a substantial undercount in the number of offenses that researchers are able to consider when analyzing crime data. Additionally, National Crime Victimization Survey (NCVS) data are also undercounted because of problems respondents might have with memory decay and/or telescoping. Neither of these sets of official crime statistics is appropriate for the current study due to inherent issues within the data. The problem with Uniform Crime Report (UCR) data is that the data include ONLY offending data, not victimization data and NCVS data does not include

any information on victims of lethal violence since it is impossible to survey a homicide victim.

The contextual-level units of analysis are 44 large, urban U.S. Metropolitan Statistical Areas (MSAs) with populations larger than 100,000³. Community-level measures are drawn from Summary Tape file 3 of the 1990 U.S. Census of Population and Housing and include aggregate measures of the population size, population density, racial/ethnic heterogeneity, amount of poverty, family composition, income inequality, average educational attainment, levels of unemployment, and housing characteristics of each MSA. Although an MSA does not necessarily perfectly represent a “community”, for the purposes of this study, MSAs are appropriate proxy measures of community⁴.

Individual-level NHIS files for respondents whose initial year of participation in the NHIS was between the years of 1986 and 1994, including information from follow-up interviews through 2002, were merged with the MCD files. MSA identifying codes were then attached to each of the eight merged NHIS-MCD file and the data were then pooled into one longitudinal file. Individual-level explanatory variables were calculated within this pooled file and contextual-level explanatory variables were created in the census file before they were put together. In order to join the two files, MSA identifying codes were also attached to the 1990 Census data, and the two files were merged by MSA code. At this point, any NHIS respondents not residing within one of the 44 MSAs with large populations were excluded from the analyses. A person-year file was then

³ A list of MSAs used in this analysis is available in Appendix 1.

⁴ In order to maintain respondent confidentiality in NHIS, NCHS does not include identifiers on public-use NHIS linked mortality files that place respondents in small geographic areas (for example, census block, census block group, county, or state).

created by generating separate records for each respondent for every year that he/she had participated in the survey. Any respondents with missing data regarding the number of years they participated were excluded from the analyses. Any respondent that had been killed by a homicide during their final year in the survey was assigned a one (1) for the dependent variable, for that year only. All other years of participation and all respondents who were not the victims of homicide were assigned zero (0) for the dependent variable. At this time, the discrete age variable was also created using the homicide measure, the age at the time of the first interview, and the number of years of participation. For the year of their death, homicide victims are assigned one-half year because the year of the initial interview he/she was only 'at risk' for one-half of the year. Respondents who are still alive are assigned a full year and remain 'at risk' to be the victim of a homicide. A weight variable is also created based on the number of years a respondent has participated in the survey to correct for potential biases in model estimation. SAS Version 9.2 software is used to perform the analyses in this study.

3.2 PREDICTING THE RISK OF HOMICIDE: CONTEXTUAL EVENT-HISTORY SURVEY LOGISTIC REGRESSION ANALYSIS

Event history survey logistic regression analysis is used to investigate the impact of contextual-level disadvantage on the risk of homicide mortality in MSAs in the United States and to examine the effect of individual-level characteristics on the association between context and the probability of an individual being the victim of a homicide⁵.

With this type of analysis, researchers can determine which predictor variables increase

⁵ Several model specifications were used to analyze these data, including Cox proportional hazard modeling, hierarchical linear modeling, and survey logistic regression. The results across all three model specifications were consistent. Findings are reported based on the survey logistic regressions because this type of model is both easier to interpret and is also the most appropriate for the complex sampling design of the National Health Interview Survey data.

or decrease a person's risk of experiencing a certain event. The "event" of interest in this research is homicide and refers to the transition from living to dead by homicide. All NHIS respondents who are still alive at the time of a follow-up interview are part of the 'risk set' or persons who are still at risk to be the victim of a homicide.

The SURVEYLOGISTIC procedure in SAS allows the sampling design of the survey to be considered in the analysis and makes adjustments in estimation based on sampling design information. For example, because of the complex sampling design used to gather the NHIS data and the variation between characteristics in the population from which the sample is drawn, strata and cluster identifiers are included in the models in order to specify which stratum and/or cluster each observations belongs within. The weight variable is also included to deal with possible bias in the data due to variation in the amount of time respondents participated in the survey. This methodology allows determine the how a person's contextual social conditions and individual characteristics may work to increase or decrease their risk of homicide victimization and how their personal attributes might condition the influence of contextual factors.

3.3 MEASURES

3.3.1 DEPENDENT VARIABLE: INDIVIDUAL RISK OF HOMICIDE VICTMIZATION

In this study, all living National Health Interview Survey (NHIS) respondents are considered to be "at risk" of becoming a homicide victim. The dependent variable for this study is a binary variable which indicates whether a respondent is still alive (0) or the victim of a homicide (1). Respondents who are or dead by suicide, accident, or illness are excluded from the analysis. Homicide deaths are defined according to the

linked NHIS and MCD files through the NDI. Respondents who were not identified as deceased at the end of a follow-up period are assumed to be alive.

3.3.2 EXPLANATORY VARIABLES: CONTEXTUAL-LEVEL PREDICTORS OF HOMICIDE VICTIMIZATION RISK

Community-level explanatory variables are drawn from the 1990 Census of Population and Housing Summary tape file 3. These second-level predictors include variables pertaining to social disorganization theory.

Research has found that community structural disadvantage is mediated by social disorganization (Sampson and Groves 1989). Several measures of resource deprivation are included in the models including 'poverty' (the percentage of MSA residents that fall below the Federal poverty line), 'unemployment' (the percentage of MSA residents who are in the labor force but do not have a job), and 'low educational attainment' (the percentage of MSA residents with no high school diploma) because research indicates that there is a positive relationship between concentrations of low income and criminal behavior (Bailey 1984; Wilson 1987; Kasarda 1989; Land, McCall, and Cohen 1990). 'Female headed households' (the percentage of female headed households with children under the age of 18 within each MSA), the 'Gini index' of income inequality, the 'P*' measure of the the segregation/isolation of poor MSA residents, an indicator of the 'age structure of crime' (measured by the percentage of the MSA population that is between the ages of 15 and 24) and measure of unattached youth or 'floaters' (measured by the percentage of the MSA population between the ages of 16 and 19 who are not in school, not employed, and not in the military) are included (Shihadeh and Flynn 1996).

Urbanness is measured by two 'racial/ethnic heterogeneity' variables (1) the percentage of MSA residents that are nonwhite and 2) the index of diversity), and measures of 'population size' (the total MSA population) and 'population density' (the total MSA population per unit of land area).

Housing instability is measured by 'population turnover' (the percentage of MSA residents who moved between 1985 and 1990), 'vacant households' (the percentage of vacant housing units in each MSA), and 'home ownership' (the percentage of housing units in each MSA that are owner occupied).

The distributions of several of the above explanatory variables displayed skewness. In an attempt to normalize the distributions of these variables, the natural logarithm was taken for measures of population size, poverty, nonwhite, and vacant housing units. Subsequent examination of the distributions of these variables indicated decreased skews; therefore, the transformed versions of these variables are used in model estimation.

Extant research on social disorganization theory demonstrates that the above measures are prone to exhibit multicollinearity because they are influenced by the same factors and reflect an unobserved latent construct (Land, McCall, and Cohen 1990). In order to deal with this, principal components analyses were used to reduce the data into indices that reflect unmeasured latent constructs⁶. Table 3 displays factor loadings,

⁶ Promax principal components analysis is an oblique rotation method that allows the extracted factors to be correlated with one another. Both principal components analyses that involve the extraction of more than one factor use the Promax method of factor rotation. Promax rotation is used in these analyses because each factor is a separate latent construct of either social disorganization or concentrated disadvantage and will exist simultaneously with other extracted factors. This method is more appropriate than an orthogonal factor rotation in which assumes that the extracted factors are not correlated with one another. Since the 'socioeconomic status' index is the only factor extracted, the orthogonal Varimax method of factor rotation is used.

Eigenvalues, and the percentage of variance explained for each contextual-level principal components analysis.

An oblique rotated principal components analysis was performed to determine the best way to group the variables that typically represent social disorganization theory. Measures of poverty, low educational attainment, unemployment, female headed households, the Gini index, the P* measure of segregation/isolation of poor persons, population size, population density, ethnic/racial heterogeneity, population turnover and vacant housing units were entered into the analysis. The measures of segregation/isolation of poor persons (P*), home ownership, floaters, and the age structure of crime do not load with other measures of concentrated disadvantage, therefore they were not retained in the indices and are included in models as separate indicators rather than part of the indices.

The remaining variables clustered into three distinct summary components representing social disorganization: a 'resource deprivation' index, an 'urbanness' index, and a 'housing instability' index. The 'resource deprivation' index includes measures of poverty, unemployment, low educational attainment, female headed households, and the Gini index. The 'urbanness' index includes measures of population size, population density, and both measures of ethnic/racial heterogeneity. The 'housing instability' index includes measures of population turnover and vacant housing units. The variables within these indices had factor loadings greater than 0.50 and Eigenvalues of 4.858, 2.001, and 1.552, respectively, which is well above the Kaiser criterion which suggests that all factors should have Eigenvalues greater than one.

TABLE 3: CONTEXTUAL-LEVEL PRINCIPAL COMPONENTS FACTOR SCORES

	<u>Component 1:</u> Resource Deprivation	<u>Component 2:</u> Urbanness	<u>Component 3:</u> Housing Instability
Poverty ^a (Absolute Inequality)	0.904		
Low Educational Attainment	0.758		
Unemployment	0.819		
Female Headed Households	0.777		
Gini Index (Relative Inequality)	0.781		
Population Size ^a		0.647	
Population Density		0.590	
Racial/Ethnic Heterogeneity Diversity		0.892	
Nonwhite ^a		0.863	
Population Turnover			0.804
Vacant Housing Units			0.641
Eigenvalue	4.858	2.001	1.552
% Variance Explained	0.442	0.182	0.141
Cumulative % Var. Expl.		0.624	0.765

^a Natural log transformation

In order to determine whether the indices produced by the principal components analyses are appropriate, variance inflation factors (VIFs) must be examined. Although survey logistic regression does not allow for the computation of VIFs, the models were reestimated using ordinary least squares (OLS) regressions in order to obtain VIFs. All of the measures in the above indices have VIF values above 10 and tolerance values less than 0.10, which are the critical values indicating that these variables are problematic due to multicollinearity.

Categories were calculated to reflect differences in each of the three principal components analysis indices. Each index was divided into four ordinal categories calculated using quartiles. Category one for each index represents the MSAs that contain the least community disadvantage, and contains MSAs with coefficients that fall within the bottom 25 percent. Category two for each index is the medium-low category, and consists of all MSAs with coefficients that fall between the upper limit of category one and the 50th percentile. Category three is the medium-high category of each index, and contains MSAs with coefficients that fall between the upper limit of category two and the 75th percentile. Finally, category four for each index represents categories with the most community disadvantage, and contains all coefficients that are greater than the upper limit of category three. Categorizing these indices not only makes for much easier interpretation of their effects, it also allows for a more thorough analysis of the influence of different degrees of community disadvantage on the risk of homicide victimization.

The Gini index, the diversity index, and the segregation/isolation of poor persons (P*) were also divided into categories. These continuous variables were also split into

ordinal categories based on quartiles. Separate categories of these variables also allows for a deeper investigation of the effect of both income inequality and racial/ethnic diversity on the risk of homicide victimization. The Gini index and the diversity index remain in their continuous state when they are represented in indices of urbanization and resource deprivation.

3.3.3 EXPLANATORY VARIABLES: INDIVIDUAL-LEVEL PREDICTORS OF HOMICIDE VICTIMIZATION RISK

This study includes individual-level variables from the National Health Interview Survey (NHIS) dealing with both demographic and economic characteristics of respondents. Demographic variables include respondents' 'age' (the age of the respondent at the time of the interview), 'sex' (indicator variables indicating whether the respondent is male or female), 'race' (indicator variables indicating whether the respondent is non-Hispanic white, non-Hispanic black, other non-Hispanic, or Hispanic), and 'marital status' (indicator variables indicating whether the respondent is married, divorced or separated, never married, or widowed).

Age, sex, race, and marital status are some of the most important individual-level demographic predictors of victimization. Most often, violent victimizations occur among younger individuals; the peak age for both criminal offending and victimization is between 15 and 24 years. Additionally, younger persons are much more likely to be engaged in social activities, which according to lifestyle theory, increases one's chances of coming into contact with a potential violent offender. There is also a significant gender gap in criminal victimization and offending. Males are much more likely than females to be both the offender and the victim of any violent crime, with the exception of rape. Race is also a very important individual-level predictor of criminal victimization

because African American's tend to be overrepresented as both the victims and offenders of crime. Marital status has also been found to have an important influence on an individual's risk of criminal victimization. Married individuals tend to spend less time away from home which has been found to lower one's risk of victimization.

Individual-level socioeconomic variables include: 'educational attainment' (indicator variable indicating whether the respondent has less than high school education, is a high school graduate, or has more education than high school), 'employment status' (indicator variable indicating if the respondent is employed, unemployed, or not a member of the labor force), and 'family income equivalence'. Income, education, and employment are difficult to separate, as one's occupation (and likely income) is largely determined by his/her education. The relationships between these variables should rise and fall together. However, findings from research using socioeconomic predictors of criminal victimization (e.g. income, educational attainment, employment status) tend to be less consistent predictors of victimization than individual-level demographic measures of criminal victimization

Another important predictor of criminal victimization that will be included in the analysis as an individual-level control variable is region. Rate of violence and homicide tend to be higher in the Southern region of the US due to a culture of violence that is maintaining itself in the South through the socialization process (Gastil 1971; Hackney 1969; Wolfgang and Ferracuti 1967).

3.4 DESCRIPTIVE ANALYSIS

Descriptive statistics for the dependent variable (homicide) and individual-level explanatory variables are displayed on Table 4 and descriptive statistics for the

contextual-level explanatory variables are displayed on Table 5. Table 4 contains means and standard deviations for each contextual-level explanatory variable at both the contextual (MSA) level of analysis, as well as the individual-level of analysis so that the average characteristics of the sample, NHIS respondents, can be compared with the average characteristics of MSAs⁷. Inconsistencies between the two levels of analysis are discussed.

3.4.1 DEPENDENT VARIABLE AND INDIVIDUAL-LEVEL EXPLANATORY VARIABLES

The following are basic descriptive statistics for the dependent variable of the study along with descriptive statistics of the individual-level attributes of NHIS residents. Individual-level descriptive statistics for most variables are reported in proportions⁸. There are 333,760 respondents included in this analysis including a total of 302 homicides (mean=0.001). The average age of sample respondents is 43. The racial breakdown of the sample includes 16.4 percent (mean=0.164) non-Hispanic black, 67.4 percent (mean=0.674) non-Hispanic white, 4.2 percent (mean=0.042) other non-Hispanic, and 11.8 percent (mean=0.118) Hispanic, all with very large standard deviations indicating ample racial/ethnic variation in the sample. Nearly 54 percent (mean=0.539) of the NHIS sample is female respondents, indicating that males (mean=0.461) are slightly underrepresented in the sample. The family income equivalence variable indicates that the average family income for NHIS respondents is about \$20,860, with a standard deviation of over \$9,000. In terms of educational

⁷ Means and standard deviations of contextual-level variables at the individual-level of analysis were taken prior to the person-year rollout of the file.

⁸ Exceptions include age which is represented in number of years of age, and family income equivalence which is reported in units of \$10,000.

TABLE 4: DESCRIPTIVE STATISTICS FOR HOMICIDE AND INDIVIDUAL-LEVEL EXPLANATORY VARIABLES

	N	Mean	Standard Deviation
<u>Dependent Variable</u>			
Homicide (Homicide=1 no Homicide=0)	333,760	0.001	0.030
<u>Individual Level Explanatory Variables</u>			
Age	333,760	43.653	17.371
<u>Race</u>			
non-Hispanic Black	333,443	0.164	0.371
non-Hispanic White	332,008	0.674	0.469
Other non-Hispanic	333,673	0.042	0.200
Hispanic	331,604	0.118	0.322
<u>Sex</u>			
Male	333,760	0.461	0.498
Female	333,760	0.539	0.498
<u>Income</u>			
Family Income Equivalence	318,838	2.086	0.941
<u>Education</u>			
Less than High School	330,275	0.203	0.402
High School graduate	330,275	0.359	0.480
Greater Than High School	330,275	0.437	0.496
<u>Employment</u>			
Employed	333,760	0.647	0.478
Unemployed	333,760	0.032	0.175
Not in Labor Force	333,760	0.321	0.467
<u>Marital Status</u>			
Married	332,000	0.615	0.487
Separated/Divorced	332,000	0.101	0.302
Widowed	332,000	0.071	0.257
Never Married	332,000	0.212	0.409
<u>Region</u>			
South	333,760	0.223	0.417
West	333,760	0.262	0.440
Midwest	333,760	0.241	0.428
North	333,760	0.273	0.446

attainment, 43.7percent (mean=0.437) of the sample has educational attainment greater than high school, 35.9 percent (mean=0.359) are high school graduates, and over 20 percent (mean=0.203) have less than a high school education. Almost 62 percent (mean=0.615) of the sample is married, 21 percent (mean=0.212) has never been

married, 10.1 percent (mean=0.101) is divorced or separated, and 7.1 percent (mean=0.071) of respondents are widowed. Over 27 percent (mean=0.273) of survey respondents live in the North, 26.2 percent (mean=0.262) live in the West, 24.1 percent (mean=0.243) live in the Midwest, and 22.3 percent (mean=0.223) live in the Southern region of the United States.

3.4.2 CONTEXTUAL-LEVEL EXPLANATORY VARIABLES

Table 5 displays basic descriptive statistics for contextual-level variables calculated using data from the 1990 Decennial Census for 44 MSAs with populations greater than 100,000. The means and standard deviations at both the contextual-level and the individual-level are provided for these predictors. The means across levels of analysis are relatively consistent, indicating that the sample of NHIS respondents is representative of the 44 MSAs they reside in. The mean of the poverty measure is across MSAs is 11.214 indicating that over 11 percent of residents fall below the federally defined poverty line. Around 22 percent (mean=21.447) of the population over the age of 25 across MSAs has low educational attainment and average unemployment at the MSA level is quite low, at about 4 percent (mean=3.943). Female headed households with children make up around 16 percent (mean=16.444) of households in a given MSA. When the MSA level file is linked to the individual-level file the mean is substantially lower (mean=0.348) for this variable. The Gini index of income inequality indicates that, on average, MSA residents are closer to income equality than they are to income inequality. The four Gini index categories suggest that about 33 percent (mean=22.7) of the population experiences low levels of income, while about 27 percent (mean=27.3) of the population fall into category four, which is comprised of the MSAs

TABLE 5: DESCRIPTIVE STATISTICS FOR CONTEXTUAL-LEVEL EXPLANATORY VARIABLES

	N	Mean	Standard Deviation
Poverty	44	11.214	3.350
(% below poverty line)	333,760	11.420	3.376
Low Educational Attainment	44	21.447	4.882
(% ages ≥ 25 with less than HS education)	333,760	22.425	5.003
Unemployment	44	3.943	0.707
(% ages ≥ 16 that are unemployed)	333,760	4.125	0.746
Female Headed Households	44	16.444	3.602
(% of female headed households with children < age 18)	333,760	16.878	3.759
Income			
Gini Index of income inequality	44	0.358	0.024
	333,760	0.361	0.026
Gini Category 1 (least income inequality)	44	0.227	0.424
	333,760	0.222	0.416
Gini Category 2	44	0.250	0.438
	333,760	0.236	0.424
Gini Category 3	44	0.250	0.438
	333,760	0.239	0.427
Gini Category 4 (most income inequality)	44	0.273	0.451
	333,760	0.302	0.427
Population Size ^a	44	2,566,446.27	1,947,253.40
(total population size)	333,760	3,935,669.13	2,648,184.60
Population Density	44	0.377	0.443
(population size/land area)	333,760	0.578	0.691
Racial/Ethnic Heterogeneity			
non-White ^a	44	27.273	13.939
(% that are not non-Hispanic white)	333,760	31.145	14.800
Diversity Index	44	0.403	0.140
	333,760	0.447	0.149
Diversity Category 1 (most homogeneous)	44	0.250	0.438
	333,760	0.191	0.393
Diversity Category 2	44	0.227	0.424
	333,760	0.167	0.373
Diversity Category 3	44	0.273	0.451
	333,760	0.260	0.438
Diversity Category 4 (most heterogeneous)	44	0.250	0.438
	333,760	0.381	0.489

(Table 5 continues on the next page)

TABLE 5 (continued)

	N	Mean	Standard Deviation
Population Turnover	44	71.761	6.309
(% ages ≥ 5 that moved between 1985 and 1990)	333,760	70.416	6.600
P* (isolation of poor residents)	44	0.022	0.096
	333,760	0.049	0.152
Segregation/Isolation Category 1	44	0.250	0.438
	333,760	0.331	0.471
Segregation/Isolation Category 2	44	0.227	0.424
	333,760	0.200	0.400
Segregation/Isolation Category 3	44	0.250	0.438
	333,760	0.181	0.385
Segregation/Isolation Category 4	44	0.273	0.451
	333,760	0.288	0.453
Vacant Housing Units ^a	44	8.039	3.464
(% unoccupied housing units)	333,760	7.536	2.900
Home Ownership	44	47.162	7.987
(% owner occupied housing units)	333,760	44.973	10.445
Drifters	44	17.638	4.553
(% ages 16-19 no job & not in school or military)	333,760	18.316	4.655
Age Structure of Crime	44	14.389	1.750
(% ages 15-24)	333,760	14.295	1.171
Social Disorganization Indices			
Resource Deprivation	44	0.000	1.000
	333,760	0.142	1.037
Urbanness	44	0.000	1.000
	333,760	0.386	1.079
Housing Instability	44	0.000	1.000
	333,760	-0.457	1.157

^aThe original metric is shown. Natural log transformed in the analysis.

with the highest levels of income inequality. Means for population size (MSA-level mean=2,566,446.27 versus individual-level mean=3,935,669.13) and population density (MSA- level mean=0.377 versus individual-level mean=0.578) indicate that NHIS respondents tend to come from MSAs with larger and more dense populations than the average MSA in the analysis. Standard deviations for both units of analysis for population size and density show a huge amount of variation between MSAs. The average non-white population of MSAs is around 27 percent (mean=27.273) and varies

greatly across MSAs with a standard deviation of 13.939. The average diversity of a given MSA is not necessarily homogeneous or heterogeneous, with a mean of 0.403 and the sample overrepresents more diverse MSAs and underrepresents the least diverse MSAs. The descriptive for diversity categories at the MSA level suggest that around 25 percent (mean=.250) of the population falls into the low diversity category and another 25 percent (mean=.250) fall into the high diversity category, while sample means for high and low diversity are 0.381 and 0.191, respectively. Nearly 72 percent (mean=71.761) of households in a given MSA moved between the years of 1985 and 1990. The descriptives for P^* , the measure of segregation/isolation of poverty stricken residents, indicates that the probability that a randomly chosen poor person will be socially isolated from non-poor persons in a given MSA is 0.022 or 2 percent, a very low probability of economic homogeneity. Among the NHIS sample, the probability of income isolation appears to be inflated relative to that of the population. The categories of the economic segregation/isolation measure suggest that 25 percent (mean=.250) of the population falls into the low segregation/isolation category, that 22.7 percent (mean=0.227) of the population experiences medium-low segregation/isolation, another 25 percent (mean=.250) fall into the medium-high segregation/isolation category, and 27.3 percent (mean=0.273) of the population falls within the high segregation/isolation category. The means for the categories do not reflect the same sample inflation of economic segregation/isolation however. The high and low segregation/isolation categories are both overrepresented in the sample (low segregation/isolation mean=0.331, high segregation/isolation mean=0.288) and the medium-low and medium-high categories are both underrepresented in the sample (medium-low

segregation/isolation mean=0.200, medium-high segregation/isolation mean=0.181). On average, around 47 percent (mean=47.162) of housing units were owner occupied, while over 8 percent (mean=8.039) of housing units were vacant, with respective standard deviations of 7.987 and 3.464 indicating moderately high variation between MSAs. Both owner occupied houses and vacant houses are underrepresented in the sample. Approximately 17.5 percent (mean=17.638) MSA residents between the ages of 16 and 19 are floaters in a given MSA and the NHIS sample slightly overrepresents them. The mean of the age structure of crime measure is 14.389 within MSAs and is consistent in the sample. Descriptive statistics for contextual-level indices at the MSA level all have means that are very close to zero and standard deviations of one. When MSA level data are attached to the individual level file, the means and standard deviations change slightly and indicate sample overrepresentation of disadvantage, resource deprivation, and urbanness and sample underrepresentation of housing instability.

3.5 BIVARIATE ANALYSIS

Table 6 displays the bivariate correlations between homicide and the individual-level predictor variables, Table 7 presents the correlations between homicide and the contextual-level explanatory variables, and Table 8 includes the correlations between homicide and indices of social disorganization as well as the categories of each⁹. An examination of these correlations allows for an early examination of directionality and significance of each variable and also allows for some preliminary decisions to be made regarding the predictions made in Hypothesis 1 and Hypothesis 2.

⁹ Survey weights were applied to the bivariate analyses.

TABLE 6: CORRELATIONS BETWEEN HOMICIDE AND INDIVIDUAL-LEVEL EXPLANATORY VARIABLES, N=333,760

Individual-Level Sociodemographic Explanatory Variables	
Age (respondent age at time of interview)	-0.0192 ***
Race (Race/Ethnicity=1, else=0)	
White	-0.0287 ***
Black	0.0232 ***
Other	0.0041 *
Hispanic	0.0133 ***
Sex (Female=1, Male=0)	-0.0170 ***
Marital Status (marital status=1, else=0)	
Married	-0.0130 ***
Never Married	0.0184 ***
Divorced/Separated	0.0005
Widowed	-0.0057 ***
Individual-Level Socioeconomic Explanatory Variables	
Income Equivalence (family income/family size ³⁸)	-0.0195 ***
Educational Attainment (educational attainment=1, else=0)	
Less than High School	0.0129 ***
High School Graduate	0.0023
Greater than High School	-0.0125 ***
Employment Status (employment status=1, else=0)	
Employed	-0.0027
Unemployed	0.0144 ***
Not in Labor Force	-0.0027
Individual-Level Control Variables	
Region (region=1, else=0)	
South	0.0052 **
West	0.0017
North	-0.0062 ***
Midwest	-0.0004

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

Survey weights applied to bivariate analyses.

3.5.1 CORRELATIONS BETWEEN HOMICIDE AND INDIVIDUAL-LEVEL PREDICTORS

Correlations between homicide and individual-level explanatory variables are displayed on Table 6. Although these correlations cannot provide any insight into the hypotheses, they do provide important information regarding the directionality and significance of relationships between characteristics of the individual and the risk of

homicide victimization. The first panel in Table 6 provides correlations between homicide and sociodemographic explanatory variables. Based on these correlations, increases in age, being white, being female, and being married or widowed can be assumed to decrease one's risk of being the victim of a homicide. On the other hand, being any race/ethnicity other than non-Hispanic white, being male, and having never been married appear to increase a person's risk of being the victim of a homicide.

Turning now to the second panel in Table 6, individual socioeconomic predictors that have a protective effect on the risk of homicide victimization include increases in family income and having more education than high school. Socioeconomic variables that increase risk of homicide victimization consist of having less than a high school education and being unemployed. Lastly, correlations between the controls for region and homicide indicate that living in the South increases risk of homicide victimization, while living in the North decreases risk of homicide victimization. These individual level correlations with homicide are consistent with the extant research discussed in Chapter 2 that discusses the strength of individual covariates of crime such as age, sex, and race. These three sets of individual-level predictors display the strongest correlations with homicide.

3.5.2 CORRELATIONS BETWEEN HOMICIDE AND CONTEXTUAL-LEVEL PREDICTORS

Table 7 presents the correlations of homicide with predictors of social disorganization. Homicide has positive and statistically significant correlations with poverty, less than high school educational attainment, unemployment, population size, non-white, the diversity index, diversity category four, female headed households, population turnover, the Gini index, Gini categories three and four, vacant housing units,

TABLE 7: CORRELATIONS BETWEEN HOMICIDE AND CONTEXTUAL-LEVEL EXPLANATORY VARIABLES

Contextual-Level Predictors of Social Disorganization	
Poverty ^a	0.0100 ***
Educational Attainment	
Less than High School	0.0106 ***
High School Graduate	-0.0079 ***
Greater than High School	-0.0028 †
Employment Status	
Employed	-0.0022
Unemployed ^a	0.0104 ***
Not in Labor Force	0.0004
Female Headed Households	0.0077 ***
Gini Index of income inequality	0.0078 ***
Category 1 (< 0.333)	-0.0036 *
Category 2 (0.333-0.358)	-0.0058 ***
Category3 (0.358-0.383)	0.0045 **
Category 4 (>0.383)	0.0044 *
Population Size ^a	0.0064 ***
Population Density	0.0005
Racial/Ethnic Heterogeneity	
non-White ^a	0.0127 ***
Diversity Index	0.0123 ***
Category 1 (< 0.263)	-0.0090 ***
Category 2 (0.263-0.403)	-0.0010
Category 3 (0.403-0.543)	-0.0047 **
Category 4 (>0.543)	0.0122 ***
Population Turnover	0.0056 **
Vacant Households ^a	0.0052 **
Contextual-Level Controls	
P* -- isolation of poor residents	0.0019
Category 1 (<0.0004)	0.0006
Category 2 (0.0004-0.0007)	0.0007
Category 3 (0.0007-0.0044)	-0.0024
Category 4 (>0.0044)	0.0008
Home Ownership	-0.0043 *
Floater	0.0134 ***
Age Structure of Crime	0.0043 *

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

Survey weights applied to bivariate analyses.

^a Natural log transformed

floaters, and the age structure of crime. Surprisingly, there is no significant correlation between economic segregation/isolation (P*) and homicide. The categories of economic segregation/isolation also do not have significant correlations with homicide. These correlations provide some preliminary support for Hypothesis 1, which states that social disorganization will have a positive effect on an individual's risk of homicide victimization.

Several of the bivariate correlations in Table 7 suggest a protective effect against the risk of homicide victimization. If the MSA an individual resides in has a larger proportion of high school graduates or individuals with more than a high school education, a lower level of racial/ethnic heterogeneity than those MSAs in diversity category four, less than the MSA average level of income inequality, or a larger proportion of homeowners, their risk of homicide victimization decreases.

With the exception of the segregation/isolation of the poor index, the correlations between the contextual level variables and homicide are in line with previous literature on structural disadvantage. Measures displaying the strongest associations with homicide include measures of racial/ethnic heterogeneity, low educational attainment, unemployment, and poverty. All of these variables have been consistently robust predictors of victimization in previous research.

3.5.3 CORRELATIONS BETWEEN HOMICIDE AND INDICES OF SOCIAL DISORGANIZATION

Table 8 displays correlations between homicide and the social disorganization indices, as well as the associated categories derived from the indices. Both the resource deprivation index and the urbanness index have positive and

TABLE 8: CORRELATIONS BETWEEN HOMICIDE AND INDICES OF SOCIAL DISORGANIZATION

Social Disorganization Indices	
Resource Deprivation Index	0.0100 *
Category 1 (< (-0.895))	-0.0056 **
Category 2 ((-0.895)-0.142)	-0.0053 **
Category 3 (0.142-1.177)	-0.0037 *
Category 4 (>1.177)	0.0125 ***
Urbanness Index	0.0117 ***
Category 1 (< (-0.693))	-0.0057 ***
Category 2 ((-0.693)-0.386)	-0.0049 **
Category 3 (0.386-1.465)	-0.0038 *
Category 4 (>1.465)	0.0114 ***
Housing Instability Index	0.0027
Category 1 (< (-1.614))	-0.0003
Category 2 ((-1.614)-(-0.457))	-0.0027
Category 3 ((-0.457)-0.700)	-0.0007
Category 4 (>0.700)	0.0040 *

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

Survey weights applied to bivariate analyses.

significant associations with homicide, indicating that individuals living in MSAs with higher proportions of resource deprivation or urbanness have an increased risk of homicide victimization. As one would expect, category four of all three indices have positive and significant associations with homicide. These findings suggest that persons living within MSAs with the highest concentrations of resource deprivation, urbanness, and/or housing instability experience increased risk of homicide victimization.

Categories one, two, and three of both the resource deprivation index and the urbanness index have significant, negative associations, indicating that persons living within MSAs with less than the highest concentrations of resource deprivation and/or

urbanness have a protective effect against risk of homicide victimization. None of the three categories of housing instability with negative coefficients are significant.

Although the categorization of the indices containing the predictors of social disorganization in this research is somewhat of a departure from to the way previous researchers have organized them, they follow expectations regarding strength and direction. Based on this bivariate analysis, the strongest category of increased risk of homicide victimization is residing within an MSA with the greatest concentration of resource deprivation and MSAs that have the least amount of urbanization display the strongest protective effect against homicide victimization.

CHAPTER 4: MULTIVARIATE ANALYSIS

This chapter contains both baseline and multivariate analyses examining the effect of contextual predictors or social disorganization and individual characteristics on the risk of homicide victimization. These analyses allow for comprehensive examinations of the two hypotheses presented in Chapter 2. Extant research on the influence of social disorganization and concentrated disadvantage has, for the most part, been limited to contextual-level analyses. Although those studies have emphasized the importance of structural characteristics in understanding variation in homicide rates across aggregates, few have considered the influence of both the social context and the personal attributes of the individual on his/her likelihood of being the victim of a homicide.

The baseline analyses of reduced Models 2 and 3 are presented in Section 4.1 and survey logistic regression models can be found on Table 9. Hypothesis 1, which predicts that:

H1: Social disorganization will have positive effects on an individual's risk of homicide victimization.

is tested. The models discussed in Section 4.1 include contextual-level predictors of social disorganization and concentrated disadvantage. The models examine these predictors both as separate individual indicators of social disorganization and concentrated poverty, in their indexed forms, and split into four ordinal categories that represent the indices.

The multi-level models discussed in Section 4.2, which can be found on Table 10, lay the foundation for Hypothesis 2 to be tested. In this section, characteristics of the individual are introduced to the analyses. This hypothesis predicts that:

H2: The positive effects of social disorganization on an individual's risk of homicide victimization will be reduced or brought to insignificance when characteristics of the individual are considered.

The models discussed in this section include both individual-level characteristics of NHIS respondents in addition to the contextual-level predictors of social disorganization and concentrated poverty and the regressions.

In order for Hypothesis 2 to be tested, comparisons must be made between the baseline models discussed in Section 4.1 and the multilevel models discussed in Section 4.2. These models will be compared and Hypothesis 2 is tested in Section 4.3. An individual-level reference model, which includes the odds ratios corresponding to the associations between homicide and individual-level variables, can be found in Appendix 3.

4.1 BASELINE ANALYSIS: EXAMINING THE EFFECT OF CONTEXTUAL-LEVEL PREDICTORS OF SOCIAL DISORGANIZATION ON THE RISK OF HOMICIDE VICTIMIZATION

The specific contextual-level variables in Model 1 are separate indicators of social disorganization including: poverty, low educational attainment, unemployment, female headed households, the Gini index of income inequality, population size, population density, several measures of racial/ethnic, population turnover, vacant housing units, the four categories that represent segregation/isolation (P*), home ownership, floaters, and the age structure of crime. In this model, diversity category four is the only measure with a positive and significant association with homicide. The

odds ratio suggests that compared to category one MSA residents, category four residents suffer a 7.561 (odds ratio=7.561) times greater odds of homicide victimization. The only other significant effects in this model are for segregation/isolation categories three and four. Both of these categories have a negative and significant association with homicide, indicating that persons residing in MSAs with high concentrations of poor persons experience a protective effect on their risk of being a homicide victim. None of the other variables in this model achieved statistical significance. The lack of significant findings and erratic directionality of the coefficients, in addition to the high correlations between the predictors of social disorganization, suggest that this model clearly suffers from issues of multicollinearity.

In addition to the three indices that represent social disorganization: the resource deprivation index, the urbanness index, and the housing instability index, Model 2 contains the four segregation/isolation of the poor categories, home ownership, floaters, and the age structure of crime. All three indices, as well as the measure of home ownership, are positive and significant, indicating that a one standard deviation increase above the mean of resource deprivation, urbanness, housing instability, or owner occupied housing units are associated with greater odds of homicide victimization by respective values of 1.393 (odds ratio=1.393), 1.809 (odds ratio=1.809), 1.169 (odds ratio=1.169), and 1.039 (odds ratio=1.039).

Model 3 includes the three social disorganization indices, resource deprivation, urbanness, and housing instability, each divided into four categories. This model also contains the four categories associated with segregation/isolation of poor residents, and the control variables home ownership, floaters, and the age structure of crime. In this

model, positive and significant variables include category four of the resource deprivation index, categories three and four of the urbanness index, home ownership and floaters. Persons residing in MSAs with the highest amount of resource deprivation (resource deprivation category four) experience 2.398 times greater odds (odds ratio=2.398) of homicide victimization than persons in MSAs with the lowest amount of resource deprivation (resource deprivation category one). Residents of MSAs within urbanness categories three and four experience 2.027 (odds ratio=2.027) and 2.925 (odds ratio=2.925) times greater odds of homicide victimization than those in urbanness category one. Category four of segregation/isolation of poor residents displays a negative and significant association with homicide, indicating again that persons residing within the most economically segregated and isolated MSAs are experience a protective effect relative to those living in the least economically segregated MSAs.

Although the effects of the indices and their representative categories of social disorganization are not as strong as expected, the findings are still supportive of Hypothesis 1, which predicted that measures of social disorganization have a positive relationship with the risk of homicide victimization. Significant findings with surprising directionality include both home ownership and concentrated economic segregation.

These results will be discussed further in Chapter 5.

TABLE 9: SURVEY LOGISTIC REGRESSIONS OF PREDICTORS OF SOCIAL DISORGANIZATION ON THE RISK OF HOMICIDE VICTIMIZATION, N=333,760

	Model 1	Model 2	Model 3
Contextual-Level Predictors			
Poverty ^a	0.457		
Low Educational Attainment	1.057		
Unemployment	1.253		
Female Headed Households	1.010		
Gini Index			
> 0.333	ref		
0.333-0.358	1.351		
0.358-0.383	1.297		
>0.383	1.291		
Resource Deprivation Index		1.393 ***	
Category 1 (< (-0.898))			ref
Category 2 ((-0.898)-0.140)			1.179
Category 3 (0.140-1.179)			1.482
Category 4 (>1.179)			2.398 ***
Population Size ^a	0.762		
Population Density	0.694		
Racial/Ethnic Heterogeneity			
Nonwhite ^a	0.699		
Diversity			
> 0.263	ref		
0.263-0.403	2.292		
0.403-0.543	2.692		
>0.543	7.561 *		
Urbanness Index		1.809 ***	
Category 1 (< (-0.691))			ref
Category 2 ((-0.691)-0.388)			1.312
Category 3 (0.388-1.468)			2.027 †
Category 4 (>1.468)			2.925 **
Population Turnover	0.993		
Vacant Housing Units	0.965		
Housing Instability Index		1.169 †	
			ref
			1.271
			1.314
			0.936
Economic Isolation Index (P*)			
Category 1 (<0.0004)	ref	ref	ref
Category 2 (0.0004-0.0007)	0.872	0.952	1.010
Category 3 (0.0007-0.0044)	0.524 †	0.690	0.839
Category 4 (>0.0044)	0.573 †	0.840	0.664 †
Home Ownership	1.004	1.039 ***	1.026 *
Drifters	1.042	1.005	1.052 *
Age Structure of Crime	1.050	0.920	0.974
R ²	0.0612	0.0523	0.0544

Reported figures are odds ratios.

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

^a Natural log transformation

Components of indices appear above indices, index categories appear below indices.

4.2 MULTI-LEVEL ANALYSIS: EXAMINING THE INFLUENCE OF INDIVIDUAL-LEVEL CHARACTERISTICS ON THE ASSOCIATION BETWEEN THE RISK OF HOMICIDE VICTIMIZATION & CONTEXTUAL-LEVEL PREDICTORS

Model 4 is a multilevel model that contains the individual attributes of NHIS respondents: age, race, sex, income equivalence, educational attainment, employment status, marital status, and region and contextual predictors of social disorganization. The only contextual-level measure that achieves statistical significance in this model is the measure of floaters. This measure of the percentage of individuals in an MSA between the ages of 16 and 19 that are not in school, in the military, and have not job has an odds ratio of 1.085, indicating 1.085 times greater odds of homicide victimization for every one standard deviation increase above the mean in the proportion of floaters within an MSA after the effects of individual characteristics have been accounted for.

Individual-level variables that are positive and significant in Model 4 include all of the race variables¹⁰, less than high school educational attainment¹¹, greater than high school educational attainment, and unemployed employment status¹². Relative to non-Hispanic whites and controlling for everything in the model, every race/ethnic group has greater odds of homicide victimization. Non-Hispanic blacks experience 4.926 (odds ratio=4.926) times greater odds, other non-Hispanics experience 3.779 (odds ratio=3.779) times greater odds, and Hispanics experience 2.606 (odds ratio=2.606) times greater odds of being the victim of a homicide than non-Hispanic whites

¹⁰ Reference group is non-Hispanic whites.

¹¹ Reference group is high school graduates.

¹² Reference group is employed.

TABLE 10: SURVEY LOGISTIC REGRESSIONS OF PREDICTORS OF SOCIAL DISORGANIZATION & INDIVIDUAL-LEVEL CHARACTERISTICS ON THE RISK OF HOMICIDE VICTIMIZATION, N=333,760

	Model 4	Model 5	Model 6
Contextual-Level Predictors			
Poverty ^a	1.162		
Low Educational Attainment	0.997		
Unemployment	1.236		
Female Headed Households	0.960		
Gini Index			
Category 1 (< 0.333)	ref		
Category 2 (0.333-0.358)	1.111		
Category 3 (0.358-0.383)	1.124		
Category 4 (>0.383)	0.930		
Resource Deprivation Index		1.151	
Category 1 (< (-0.895))			ref
Category 2 ((-0.895)-0.142)			0.957
Category 3 (0.142-1.177)			1.023
Category 4 (>1.177)			1.416
Population Size ^a	0.815		
Population Density	0.585		
Racial/Ethnic Heterogeneity			
Nonwhite ^a	1.262		
Diversity			
> 0.263	ref		
0.263-0.403	1.362		
0.403-0.543	1.350		
>0.543	3.022		
Urbanness Index		1.815 ***	
Category 1 (< (-0.693))			ref
Category 2 ((-0.693)-0.386)			1.477
Category 3 (0.386-1.465)			1.616
Category 4 (>1.465)			2.896 **
Population Turnover	1.005		
Vacant Housing Units ^a	0.959		
Housing Instability Index		1.437 **	
Category 1 (< (-1.614))			ref
Category 2 ((-1.614)-(-0.457))			1.327
Category 3 ((-0.457)-0.700)			1.654
Category 4 (>0.700)			1.287
Segregation/Isolation of poor persons (P*)			
Category 1 (<0.0004)	ref	ref	ref
Category 2 (0.0004-0.0007)	0.954	0.902	1.176
Category 3 (0.0007-0.0044)	0.644	0.779	0.969
Category 4 (>0.0044)	0.493	0.684 *	0.742
Home Ownership	1.007	1.033 **	1.036 **
Drifters	1.085 †	1.037	1.082 **
Age Structure of Crime	0.936	0.914	0.978

(Table 10 continues on next page)

TABLE 10 (continued)

	Model 4	Model 5	Model 6
Individual Level Predictors			
Age	0.959 ***	0.960 ***	0.959 ***
Race			
Non-Hispanic White	ref	ref	ref
Non-Hispanic Black	4.926 ***	4.895 ***	4.950 ***
Non-Hispanic Other	3.779 ***	3.782 ***	3.846 ***
Hispanic	2.606 ***	2.667 ***	2.625 ***
Sex (female=1)	0.263 ***	0.263 ***	0.263 ***
Family Income Equivalence	0.783 **	0.786 **	0.782 **
Educational Attainment			
Less than High School	1.365 *	1.360 *	1.356 *
High School Graduate	ref	ref	ref
Greater than high School	0.635 *	0.638 *	0.637 *
Employment status			
Employed	ref	ref	ref
Unemployed	1.798 *	1.799 *	1.809 *
Not in Labor Force	1.069	1.074	1.067
Marital Status			
Married	ref	ref	ref
Divorced/Separated	1.461	1.450	1.462
Never Married	1.235	1.235	1.228
Widowed	1.323	1.314	1.326
Region			
South	ref	ref	ref
North	2.285	2.402 *	1.795
West	0.899	1.158	0.977
Midwest	1.570	2.249 *	0.724
R ²	0.3005	0.2960	0.2969

Reported figures are odds ratios.

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

^a Natural log transformation

Components of indices appear above indices, index categories appear below indices.

experience. Taking everything in the model into account, persons with less than a high school education experience 1.365 (odds ratio=1.378) times greater odds of homicide victimization than persons who have graduated from high school and unemployed individuals have an 1.81 (odds ratio=1.810) times greater odds of homicide victimization compared to employed persons. As in Model 1, this model also suffers severely from issues associated with a high level of multicollinearity between contextual-level

predictors. As a result, assumptions regarding the hypotheses in this study will not be drawn from these models and they will no longer be discussed.

Model 5 includes the individual-level characteristics, the three social disorganization indices: resource deprivation, urbanness, and housing instability, and the additional measures of social disorganization: the four categories representing segregation/isolation of poor persons, home ownership, floaters, and the age structure of crime. The urbanness index, the housing instability index, and home ownership are positive and significant after considering the influence of individual characteristics. A one standard deviation increase over the mean in the urbanness of an MSA is associated with 1.853 (odds ratio=1.852) times greater odds of homicide victimization and a one standard deviation above the mean increase in housing instability leads to 1.448 (odds ratio=1.448) times greater odds of homicide victimization, accounting for everything in the model. Contrary to expectations, however, the measure of home ownership is also positive and significant in this model. The measure of home ownership is associated with 1.033 (odds ratio=1.033) times greater odds of homicide victimization, after controlling for all of the measures in the model. The directionality, significance, and size of effect of the individual-level characteristics in Model 5 are very similar to those in Model 4, with the exception of two region variables which have positive and significant associations with homicide. After considering the effects of all measures in the model, relative to persons living in the South, individuals living in the North and the Midwest experience 2.404 and 2.249 times greater odds of being killed by homicide.

Model 6 incorporates the three sets of four ordinal categories representative of the three indices of concentrated disadvantage, residential segregation, urbanness, and housing instability to obtain a more comprehensive assessment of the effects of disparate levels of concentrated disadvantage between MSAs. The only social disorganization category achieving significance is category four of the urbanness index. After accounting for the influences of individual attributes, concentrations of urbanness work to increase individual's risk of homicide victimization. Persons living within MSAs that fall into the highest category of urbanness (category four) experience 2.896 (odds ratio=2.896) times greater odds of being killed by a homicide compared to persons living in the least urban MSAs (category one) after accounting for everything in the model. Other positive and significant findings include control measures of home ownership and floaters. The odds ratio (1.036) for homeownership suggests 1.036 times greater odds of homicide victimization for every one standard deviation increase above the mean and MSAs with larger concentrations of floaters produce 1.037 times (odds ratio=1.037) times greater odds of death by homicide, after accounting for the effects of each measure in the model.

The individual-level measures in Model 6, for the most part, do not change in terms of directionality, size of effect, or significance. The measures of North and Midwest, however, both lose their significance compared to Model 5, and they both reduce in size of effect substantially.

4.3 MODEL COMPARISONS

Prior to discussion regarding the hypotheses tested in these analyses, increases in the goodness-of-fit of the model when individual parameters are considered should

be addressed. In order to compare the reduced models to the full models, the Akaike's information criterion (AIC) for Model 2 and Model 5 are tested against one another and the Akaike's information criterion (AIC) for Model 3 and Model 6 are tested against one another. Model 5 and Model 6 are also compared in order to determine the degree to which splitting the indices into categories reduces the goodness-of-fit of the model (Upton and Cook 2002)¹³. The model with the smaller AIC is preferable. If there is not enough evidence that the full (multilevel) models are better predictors of homicide victimization risk than the reduced (structural) models the reduced model is preferred, and if there is a large difference in log likelihood there is sufficient evidence that the full model is appropriate. When the AICs for the models are compared, the AIC for Model 5 is 13.86 percent smaller than that of Model 2, and the AIC for model 6 is 13.85 percent smaller than that of Model 3. These figures indicate that there is a substantial increase in the fit of the models when individual characteristics are taken into consideration. When the AIC for Model 5 is compared to the AIC of Model 6, there is only a 0.041 percent increase in the AIC for Model 3, indicating that the model fit is not reduced greatly when the indices are adjusted to obtain a more thorough explanation of contextual disadvantage. Therefore, comparisons between Models 2 and 5 and Models 3 and 6 will continue.

An additional goodness-of-fit test is to compare the coefficients of determination (pseudo R^2) for the full and reduced models. The pseudo R^2 for Models 2 and 3 are 0.0523 and 0.0544, respectively, indicating that these models account for a little more

¹³ Typically, log likelihood is used to test the difference between two models. When a model is nested within the one with which you are comparing it, however, the number of parameters in the models should be considered. Akaike's information criterion (AIC) takes the number of parameters into account, and is therefore the superior measure of model fit.

than 5 percent of the variation in the dependent variable is explained by the variation in the independent variables. When the individual-level parameters are included in Models 5 and 6, the pseudo R^2 s increase to 0.2960 and 0.2969. This suggests that almost an additional 25 percent of the variation in the dependent variable is accounted for by the variation in the individual-level predictors. It is, however, possible that individual and contextual-level predictors can share variance, therefore the pseudo R^2 s for both the full and reduced models are compared to the pseudo R^2 for the individual-level reference model in Appendix 3. The individual-level only model has a pseudo R^2 of 0.2775, indicating that variation in individual-level predictors alone accounts for 27.75 percent of the variation in the dependent variable. A comparison between this figure and the pseudo R^2 s for Models 2, 3, 5, and 6 suggests that there is, in fact, some shared variation between individual and contextual-level measures.

It is also necessary to further analyze the findings from Models 2, 3, 5, and 6 to verify that the difference between the coefficients is large enough to formulate confident decisions regarding Hypothesis 2. In order to determine if the addition of the attributes of individuals reduced the effects of contextual factors indicative of social disorganization to an important degree, a test of the significance of the difference between the contextual-level coefficients in the reduced models and the contextual-level coefficients in the full models. The statistical method to test for a difference between the coefficients from logistic models with binary dependent variables was outlined in an article by Clogg, Petkova, and Haritou (1995). This method is a mechanism to determine if there is a difference between the coefficients after additional parameters

are incorporated into the models. The variance of the estimated difference was obtained using the following formula:

$$V(\hat{\delta}) = V(\hat{\beta}) + V^*(\hat{\beta}^*)(X^T W X)V^*(\hat{\beta}^*) - 2[V^*(\hat{\beta}^*)]$$

where $V(\hat{\delta})$ is the variance matrix for the full model and $V^*(\hat{\beta}^*)$ is the variance matrix for the reduced model. $(X^T W X)$ was determined using the inverse of the variance matrix parameter estimates. A z-test was used to compare individual coefficients to one another. The formula for Z is:

$$Z = b_1 - b_2 / s(d)$$

where b_1 represents coefficients from reduced models, b_2 represents coefficients from full models, and $s(d)$ is the square root of relevant diagonal entries on the variance matrix for the full model.

Hypothesis 2 predicts that the positive effects of socioeconomic status on the risk of homicide will be reduced or brought to insignificance when individual characteristics are taken into consideration. This hypothesis is tested using the above formulas, which compare the coefficients for contextual-level measures in Models 2 and 3 to the coefficients for the contextual-level measures in Models 5 and 6, which also contain the individual-level parameters. Table 11 displays coefficients and standard errors for contextual-level predictors from reduced Model 2 and contextual-level predictors from full Model 5, as well as the difference in b and the difference in the standard errors between the models. Table 12 displays the same information from reduced Model 3 and full Model 6. The individual-level predictors and odds ratios for these models can be found on Tables 9 and 10 above.

A comparison of Model 2 to Model 5 indicates that when individual-level

TABLE 11: COMPARISON OF SURVEY LOGISTIC REGRESSION MODELS PREDICTING THE RISK OF HOMICIDE VICTIMIZATION

	Model 2		Model 5		δ Difference in β	Difference in SE d	z = $\delta/s(d)$
	Coefficient	Standard Error	Coefficient	Standard Error			
Contextual-Level Predictors							
Resource Deprivation Index	0.331 ***	0.106	0.140	0.122	0.191	0.003	73.346
Urbanness Index	0.593 ***	0.158	0.596 ***	0.168	-0.003	0.003	-1.121
Housing Instability Index	0.157 †	0.089	0.362 **	0.122	-0.206	0.003	-73.323
Segregation/Isolation of poor persons (P*)							
Category 1 (< -1.614)	ref		ref				
Category 2 ((-1.614)-(-0.457))	-0.050	0.233	-0.103	0.228	0.054	0.005	10.551
Category 3 ((-0.457)-0.700)	-0.372	0.275	-0.250	0.259	-0.122	0.005	-26.513
Category 4 (>0.700)	-0.174	0.180	-0.380 **	0.191	0.206	0.004	45.974
Home Ownership	0.039 ***	0.011	0.033 **	0.011	0.006	0.001	4.813
Floater	0.005	0.036	0.036	0.033	-0.031	0.001	-55.327
Age Structure of Crime	-0.084	0.087	-0.090	0.084	0.007	0.002	3.401

Bold predictors indicate predictors that either decreased in size of effect and/or significance when individual-level characteristics were added to the model

characteristics are taken into consideration, the resource deprivation index and home ownership both decrease in size of effect and resource deprivation loses significance. With a Z-score of 73.346, the coefficient for resource deprivation in the full model is substantially larger than that of the reduced model. Although the reduction in the size of the effect of home ownership is very slight, the change in this measure is also significantly smaller than it was in Model 2. The positive association of home ownership with homicide is quite surprising, considering how important length of residence is to the establishment of neighborhood bonds and collective efficacy. These findings are, however, consistent with the predictions of Hypothesis 2. On the other hand, the effects of both the urbanness index and the housing instability index increases in size of effect when attributes of the individual are added to the model, and category four of the economic segregation/isolation measure achieves significance although the size of the effect decreases slightly, which is at odds with the predictions of Hypothesis 2. The problematic feature of Models 2 and 5 is that it is difficult to tease out the effects of different amounts of social disorganization and concentrated disadvantage. Due to the nonlinear nature of the indices in these models and the high degree of variation between MSAs with different concentrations of disadvantage, the effects of the social disorganization indices are likely confounded. In order to disentangle the effects of varying levels of disadvantage, the social disorganization indices were each decomposed into four categories. In Model 3 and Model 6, the three social disorganization indices were replaced with the categories. A comparison of these two models provides findings that are more consistent with Hypothesis 2. When individual attributes are added to Model 6, the positive and significant effects of resource

deprivation, urbanness, and economic segregation/isolation are all reduced. Category four of the resource deprivation index, category three of the urbanness index, and category four of the economic segregation/isolation index all lose the significance of their effects in Model 6. The changes in effect for high resource deprivation and both urbanness categories are statistically significant, with z-scores of 174.022, 24.446, and 0.970. Although the effects of the control variables, home ownership and floaters, increase in size and remain significant when individual characteristics are added to the model, the findings regarding the predictors of social disorganization suggest that Hypothesis 2 should be supported due to the extreme differences in the contextual-level coefficients associated with the primary predictors of social disorganization.

TABLE 12: COMPARISON OF SURVEY LOGISTIC REGRESSION MODELS PREDICTING THE RISK OF HOMICIDE VICTIMIZATION

	<u>Model 3</u>		<u>Model 6</u>		δ Difference in β	Difference in SE d	z = $\delta/s(d)$
	Coefficient	Standard Error	Coefficient	Standard Error			
Contextual-Level Predictors							
Resource Deprivation Index							
Category 1 (< (-0.895))		ref		ref			
Category 2 ((-0.895)-0.142)	0.165	0.322	-0.045	0.374	0.209	0.007	31.903
Category 3 (0.142-1.177)	0.393	0.370	0.022	0.519	0.371	0.006	63.592
Category 4 (>1.177)	0.875	0.252	0.348	0.364	0.527	0.003	174.022
Urbanness Index							
Category 1 (< (-0.693))		ref		ref			
Category 2 ((-0.693)-0.386)	0.271	0.377	0.390	0.449	-0.119	0.006	-18.300
Category 3 (0.386-1.465)	0.707	0.389	0.480	0.418	0.227	0.009	24.446
Category 4 (>1.465)	1.073	0.329	1.063 **	0.358	0.010	0.010	0.970
Housing Instability Index							
Category 1 (< (-1.614))		ref		ref			
Category 2 ((-1.614)-(-0.457))	0.240	0.269	0.283	0.347	-0.042	0.007	-5.880
Category 3 ((-0.457)-0.700)	0.273	0.235	0.503	0.355	-0.230	0.008	-27.713
Category 4 (>0.700)	-0.066	0.263	0.252	0.371	-0.318	0.008	-37.787
Segregation/Isolation of poor persons (P*)							
Category 1 (<0.0004)		ref		ref			
Category 2 (0.0004-0.0007)	0.010	0.296	0.162	0.326	-0.152	0.008	-20.159
Category 3 (0.0007-0.0044)	-0.176	0.255	-0.031	0.297	-0.145	0.007	-20.478
Category 4 (>0.0044)	-0.410	0.234	-0.299	0.290	-0.111	0.005	-20.193
Home Ownership	0.026	0.012	0.036 **	0.015	-0.010	0.004	-2.294
Floater	0.051	0.026	0.079 **	0.035	-0.028	0.000	-90.954
Age Structure of Crime	-0.026	0.098	-0.022	0.112	-0.004	0.002	-1.796

Bold predictors indicate predictors that either decreased in size of effect and/or significance when individual-level characteristics were added to the model

CHAPTER 5: DISCUSSION & CONCLUSIONS

Homicide victimization is clearly a problem in the United States. Although rates of homicide have decreased over recent years, homicide is still one of the leading causes of death in the US and the US has one of the highest homicide rates among developed countries. Homicide rates in the US were approximately three times the size of homicide rates in Canada, France, Spain, Italy, and South Korea in 2004 (United Nations Office on Drugs and Crime 2010).

Determining the causes of homicide has been important for researchers of crime and public policy for many years. Recently most of this research either underscores the influence of social context on rates of homicide or stresses the importance of the influence of characteristics of individuals on homicide victimization risk. Very few studies have considered the influences of both contextual and individual level characteristics of risk of homicide victimization. Additionally, much of the research on homicide focuses on homicide offenders, as opposed to the victims of homicide. The current research further develops the research and literature on homicide by taking into account the influences of both context and individual attributes on a person's risk of homicide victimization.

Criminological theories also tend to associate either individual or contextual characteristics with violent crime. Contextual level theories such as social disorganization theory focus on how the level of disadvantaged status of the entire community influences rates of crime. Social disorganization theory directs attention to the structural characteristics of where a person lives to account for increases in rates of crime and victimization. Lifestyle theory, on the other hand, is an individual level theory,

that points to characteristics of the individual as determinants of that person's behavior and lifestyle choices, such as where they choose to live, work, and spend leisure time. This theory posits that these individual characteristics greatly determine an individual's likelihood of being the victim of a crime.

The current research not only stresses the importance of the effects of contextual characteristics on homicide victimization risk, it also takes into consideration the influence of individual attributes on homicide and how those attributes influence the effects of the community on a person's risk of being a victim. The primary substantive contribution of this study is to determine the effects of contextual-level measures, such as concentrated disadvantage, on the risk of homicide victimization, net of an individual's own personal characteristics, such as socioeconomic status, and to determine how individual characteristics can work to attenuate or exacerbate the effects of contextual-level characteristics on the risk of homicide victimization.

5.1 DISCUSSION OF FINDINGS

Grounded in social disorganization theory and lifestyle theory, this study examines how characteristics of the social environment and characteristics of individuals collectively influence the risk a person has of being the victim of a homicide. Specifically, these analyses showcase how individual characteristics are capable of decreasing the importance of the effects that contextual factors have on the risk of homicide victimization. The analyses were done using a special form of logistic regression, the SURVEYLOGISTIC procedure in SAS 9.2, which was specifically designed to deal with the complex sampling procedures used to gather survey data.

Results from Model 2 and Model 3 demonstrate support for Hypothesis 1, which predicts that social disorganization would have a positive relationship with the risk of homicide victimization. Findings from these Models are discussed in Section 5.1.1. A comparison of the results from Models 2 and 5 and a comparison of the results from Model 3 and 6 provide support for Hypothesis 2, which predicts that the positive relationship between social disorganization and homicide risk will decrease or become insignificant when a person's individual characteristics are taken into account. A discussion of these findings appears in Section 5.1.2. Sections 5.1.3 includes a discussion of several unexpected findings that are not necessarily associated with either hypothesis.

5.1.1 FINDINGS: HYPOTHESIS 1

Hypothesis 1 predicts that social disorganization will have a positive association with risk of homicide victimization. Results from Models 2 and 3 suggest that this hypothesis is supported. In Model 2, all three indices of social disorganization, the urbanness index, the resource deprivation index, and the housing instability index, displayed positive and significant relationships with homicide victimization. Findings in Model 3 also display a great deal of support for this hypothesis as well as provide the ability to determine the influence of varying concentrations of disadvantages in communities on the risk of homicide victimization.

The theoretical frame for Hypothesis 1, social disorganization theory, has been one of the most important structural level theories of criminal behavior for decades. This theory is rooted in the idea that urban areas experience higher rates of crime due to their population size, population density, and racial/ethnic heterogeneity. In Model 2

of this study, the strongest contextual-level predictor of increased risk of homicide victimization is the urbanness index. This index consists of population size, population density, and two measures of racial/ethnic heterogeneity. Findings from Model 2 suggest that a one standard deviation increase in the level of urbanness in an MSA is associated with 1.8 (odds ratio=1.809) times greater odds of homicide victimization. The extreme power of urbanness at its most concentrated state is clear through the findings of Model 3. After being partitioned into the four ordinal categories representing urbanness index, category four of this index which represents MSAs with the highest concentrations of population size, density, and racial/ethnic heterogeneity, displays an odds ratio of 2.925. This figure suggests that an individual's living in the most urban MSAs have almost 3 times greater odds of being killed by a homicide than a person living in the least urban MSA. This study was conducted only on MSAs with populations greater than 100,000, however, so even the least urban MSAs have relatively large population sizes. The driving force for the large and strong effect of this index is racial/ethnic heterogeneity. The two measures of racial/ethnic heterogeneity, proportion non-white and the diversity index, displayed the strongest correlations with homicide out of all of the contextual-level parameters. Measures of population size and density (Ehrlich 1968, Spector 1974) and racial/ethnic heterogeneity, however, have consistently been very good predictors of increased aggregate crime rates and victimization rates as well as individual offense and victimization in a countless number studies (Sampson, Raudenbush and Earls, 1997, Krivo and Peterson 2000, Harer and Steffensmeier 1992, Messner and Golden 1992, Sampson 1987, Sampson and Wilson 1995, Shihadeh and Ousey 1996, Shihadeh 2009).

Shaw and McKay also suggested that high rates of crime are associated with rates of poverty. It is very difficult to separate the effects of low educational attainment and high rates of unemployment from high poverty rates, as the three are impossible to separate because they are all dependent on one another and they all reflect another important predictor of high rates of crime, low socioeconomic status. This is no exception in this study, as these three contextual covariates of crime displayed very high correlation with one another and were included in another index representative of social disorganization, the resource deprivation index. Also in this index are a measure of female headed households and the Gini index of income inequality. Female headed households are another important predictor of social disorganization for several reasons. First, households with children that have income from only one parent are likely to live below the poverty line. Second, children supervised by only one parent are more likely to be delinquent. The existence of many female headed households in a neighborhood also reduces the ability of residents to form collective efficacy and social cohesion. The combined effects of these measures, along with poverty, low educational attainment, and unemployment rates displayed very strong, positive associations with homicide.

Results from Model 2 suggest that a one standard deviation increase in resource deprivation is associated with are 1.393 (odds ratio=1.393) times greater odds of homicide victimization and for MSAs with the highest concentration of resource deprivation, a person's risk of being the victim of a homicide, relative to those in the least deprived MSAs, experience nearly three times the odds of homicide victimization. These findings are also quite consistent with extant research on the relationship

between homicide and socioeconomic correlates that appear in the resource deprivation index. Strong associations have been found between economic deprivation (Lee 2000; Ousey 1999; Shihadeh and Ousey 1998; Sampson, Raudenbush, and Earls 1997; Wilson 1989; Wacquant and Wilson 1989), educational attainment (Cohen and Felson 1979; Gould, Weinberg, and Mustard 2002), employment status (Spector 1974; Krohn 1976; Cantor and Land 1985; Sampson 1985, 1987; Wilson 1987, Carlson and Michalowski 1997; Crutchfield, Geerken and Gove 1982; Land, McCall and Cohen 1990; Rosenfeld 1986), economic inequality (Blau and Blau 1982; Sampson 1986; Parker and McCall 1997; Parker and McCall 2005), female headed households (Shihadeh and Steffensmeier 1994; Sampson 1987), and homicide. Additionally, the findings regarding the influence of areas with concentrations of disadvantage and on risk of homicide display consistent findings as other studies on concentration effects (Land, McCall, and Cohen 1990; Wilson 1987).

Kasarda and Janowitz's (1979) study of community attachment in mass society introduced the systemic model of social disorganization, which surfaced the idea that the longer a person lives in a neighborhood, the more bonded they will be with society. High rates of population turnover exist in disorganized area because people move out of these areas as soon as they can afford to, which further exasperates the problems associated with chronic disorganization. This creates an atmosphere of concentrated disadvantage. A great deal of research has found that residential stability/instability is associated with violence and also influences the ability of residents to establish strong ties with neighbors (Sampson, Raudenbush, and Earls 1997; Warner and Rountree 1997; Sampson and Groves 1989). A measure of population turnover appears in the

housing instability index in this study. The other predictor of social disorganization in this index is a measure of vacant housing units, which are posited by the broken windows theory to increase crime in that they are a physical sign of neighborhood disorder or 'incivilities (Wilson and Kelling 1982).

In Model 2, the housing instability index has moderately significant effect and an odds ratio of 1.169, indicating that a one standard deviation increase in housing instability is associated with 1.169 times greater odds of homicide victimization based on the combined effects of population turnover and vacant housing units. This effect is not even close to the size of the effects of urbanness and resource deprivation. Additionally, when the index is categorized the significance of the effect disappears for all categories. This suggests that housing instability has no effects on the risk of homicide victimization. These divergent results will be discussed further below.

5.1.2 FINDINGS: HYPOTHESIS 2

Hypothesis 2 predicts that the positive effects of social disorganization will be reduced or will become insignificant when individual characteristics are taken into consideration. A comparison of the results of the reduced Model 2 with the full multilevel Model 5 provide evidence that this prediction is not supported, however, an examination of the difference between the results of reduced Model 3 and the full multilevel Model 6 exhibits support for this hypothesis. This hypothesis is grounded in the integrated notions of contextual-level theory of social disorganization and individual-level lifestyle theory.

Early in the stages of developing their theory on the life course and crime, Sampson and Laub (1993, 2003) made the argument that variations in "kinds of people"

and variations in “kinds of contexts” can be used to better understand offending and desistance across the life course. Their concept of “situated choice” is based on the interaction between life course transitions, situational context, and individual factors. These concepts are also very valuable outside of the context of the life course, and more importantly outside of the context of offending and desistance. These notions also apply to a person’s likelihood of victimization. These scholars believe that several factors converge to influence an individual’s propensity to commit crime and their desistance or persistence in crime including: the historical and spatial locations of their lives, their life effects, socialization, and human agency. Individual factors, both achieved (i.e. marriage, children, level of education, occupational status) and ascribed (i.e. age, sex, race), as well as situational and contextual factors play an important role in the desistance or continuation of criminal offending. These same factors interact to influence a person’s chances of ending up in a situation that is conducive of being on the receiving end of the criminal offending discussed by Sampson and Laub (1993, 2003). The comparison of the full and reduced models discussed below displays the impact that including some of the characteristics of individuals discussed within lifestyle theory can make on the effects of a person’s context.

When individual-level characteristics are considered in Model 5 of the analysis, only one of the three indices of social disorganization (resource deprivation) behaves as expected and loses its positive association with homicide, compared to the results of Model 2. This finding indicates that the economic context that a person is situated within has no influence on their risk of homicide victimization when individual age, sex, race, educational attainment, occupational status, marital status, and region are taken

into account. Both of the other indices representing social disorganization actually increase in size of effect, which is at odds with the prediction of Hypothesis 2. Additionally, MSAs with the highest amount of economic segregation (segregation/isolation of poverty category four) obtain a significant negative relationship with homicide and the positive and significant association between home ownership and homicide remains when individual-level parameters are added to the model. However, both of these measures deserve further investigation or should be respecified in order to determine their actual effects on the risk of homicide victimization. This is discussed in greater detail in Section 5.1.3 below. The change in all of these contextual-level coefficients is statistically significant.

Contrary to the results of the above comparison, a comparison of Model 3 with Model 6 provides evidence in support of Hypothesis 2. When characteristics of the individual are included in the model that contains the categories that represent the indices of social disorganization, it becomes clear that the continuous nature of those indices confounds the variation that exists between areas with different concentrations of disadvantage. In this model, the size of the effect of every category that was significant in Model 3 is reduced. These categories include category four of the resource deprivation index and categories three and four of the urbanness index. Category four of the urbanness index is the only primary predictor of social disorganization to remain significant after the individual-level variables are included in the model.

Compared to the size of the effect in Model 3, the reduction in size of the effect of category four of the urbanness index is quite small. In Model 3 the odds ratio is 2.925

and decreases to 2.896, suggesting slightly smaller odds of homicide victimization for persons in the most urban MSAs when individual characteristics are considered. The z-test concluded that the coefficients associated with category four of the urbanness index were significantly different from one another. However, this slight change in the risk of homicide victimization begs for the assertion that people living in the MSAs with the largest population size and density with the highest amounts of nonwhite persons and the most racial/ethnic heterogeneity have virtually the same likelihood of being killed by a homicide regardless of their individual characteristics. Persons living in these areas have nearly three times greater odds of being the victim of a homicide than people living in any other areas, regardless of their age, race, sex, employment status, educational attainment, marital status, and region. Even people with individual characteristics that are associated with the lowest risk of victimization (i.e. older people, non-Hispanic whites, females, people with greater incomes, those with more education, and employed persons) experience slightly smaller odds of homicide victimization than those with the most risk inducing individual characteristics. Also, these odds ratios take into account any deleterious effects associated with the rate of poverty, the proportion of residents with low educational attainment, the unemployment rates, the proportion of female headed households, income inequality, the rate of population turnover, the proportion of housing units that are vacant, segregation of poverty, the proportion of floaters, the proportion of residents between 15 and 24.

These model comparisons also suggest that after considering the effects of individuals, the risk of being the victim of a homicide is the same across MSAs of varying levels of resource disadvantage. Persons in the most affluent areas experience

the same risk of being killed as persons in areas of great economic disadvantage. The insignificant effects associated with the housing instability categories across Models 3 and 6 suggest that the risk of homicide victimization is stable across MSAs, regardless of the amount of population turnover and vacant housing units in an MSA, and regardless of a person's individual characteristics.

5.1.3 UNEXPECTED FINDINGS

There were several unexpected findings this study. Measures of segregation/isolation of the poor and homeownership did not behave as expected. Both of these measures were expected to cluster with other similar measures into the indices representing social disorganization, however, neither of them did so they were retained as individual parameters. Additionally, the segregation/isolation (P*) measure of poor persons did not achieve statistical significance in Model 2, and in Model 3 only the fourth category of segregation/isolation of the poor was significant, but it demonstrates a negative association with homicide. The odds ratio is 0.664, suggesting that poor person's in the most economically segregated MSAs have a protective effect against the risk of homicide victimization relative to persons living in MSAs with the least amount of economic segregation¹⁴.

Measures of economic segregation are rarely used in criminology, although theories predicting criminal behavior (i.e. social disorganization theory) suggest that concentrations of economically deprived persons experience higher rates of criminal offending and victimization. The P* measure of segregation/isolation is used very frequently to study race in criminological studies however. Perhaps an alternate

¹⁴ The P* measure of segregation/isolation of the poor behaved similarly in Models 5 and 6.

measure of segregation of poor persons would behave more closely with expectations. Sociologists, Jargowski and Kim (2005), suggest using the Neighborhood Sorting Index (NSI) as an alternative measure of economic segregation and suggest against using the Index of Dissimilarity due to the arbitrary nature of the income categories frequently used.

Home ownership displays an unexpected positive, significant association with homicide. Models 2 and 3 suggest that individuals living in areas with one standard deviation increase in the proportion of owner occupied housing units results in 1.039 times greater odds and 1.026 times greater odds of homicide victimization. Research typically displays a negative association with rates of crime (Ross 1977; Roncek 1981; Moore 1970). In fact, research on broken windows thesis suggests that when crime rates increase, homeowners will often sell their home and move away (Morenoff and Sampson 1997; Sampson and Wooldredge 1986; Skogan 1990). A great deal of research has also shown that greater concentrations of home ownership lead to higher rates of civic participation and local investment, both of which social disorganization theory posits lead to higher levels of collective efficacy which is associated with lower rates of crime (Perkins, Brown, and Taylor 1996; Robinson and Wilkinson 1995; Rohe and Basolo 1997; Winter 1990; Arvizu and Garcia 1996; Gilderbloom and Markham 1995; Ahlbrandt 1984; White and Schollaert 1993). White (2001) did a cross lagged study specifically on the relationship between home ownership and crime rates. He found that in lower income cities homeownership increases burglary but burglary does not increase home ownership and lower income cities with higher murder rates (relative to lower income cities with lower murder rates) had increases in homeownership, and in

higher income cities high rates of burglary, robbery, and murder induced homeowners to move. This is consistent with theories claiming that individuals that can afford to escape economically disadvantaged areas do so. These findings seem to suggest positive associations between crime and homeownership is not due to homeownership causing increased rates of crime. Instead, these positive associations are due to the confounding effect of economic segregation. Homeowners in high income areas have a negative association with crime, while homeowners in low income areas do not have an influence on crime rates. The relationship between homicide and homeownership in the current analysis should be investigated more thoroughly in order to determine the true relationship between the two.

One unexpected finding that is very difficult to explain or even understand is associated with the housing instability index. Although this index displays positive and significant findings in Models 2 and 5, when the index is split into categories the significance completely disappears. Both measures display positive and significant associations with homicide in the bivariate analysis, so it appears that measures of population turnover and vacant housing units have a relatively small influence on the individual risk of homicide victimization and that these measures may be more likely to indirectly raise rates of crime by increasing concentrations of resource deprivation and urbanness.

Vacant housing units and other indicators of neighborhood disorder likely not only work as invitations for criminals (Sampson and Raudenbush 1999), but may also provide a deterrent effect towards individual's looking to move into an area, which also undermines the establishment of neighborhood solidarity and collective efficacy. There

is mixed evidence regarding the influence of disorder on crime, some scholars data displays a reduction in crime rates immediately after dealing with disorder (Kelling and Coles 1996; Kelling and Sousa 2001), others have and some have found a mediating effect between contextual disadvantage and crime (Skogan 1990; Xu, Felder and Flaming 2005), and others disagree that there is an effect at all (Sampson and Raudenbush 1999; Carr 1998; Spencer 1993), and others can't make a decision about which hypothesis their data support (Sampson and Cohen 1988), and others claim that disorder is indistinguishable from crime (Ross and Mirowsky 1999; Taylor 1999, 2001; Gau and Pratt 2008). Future research should further investigate the influence of population turnover and vacant housing units, as well as other measures of disorder in order to closely examine to attempt to disentangle these perplexing results. Additional full and reduced models were run including both measures from the housing instability index, population turnover and vacant housing units, as individual predictors of disadvantage. In both models, measures of population turnover and vacant housing units were not significantly associated with homicide. Interestingly, in the reduced model, both measures had negative coefficients, but p values for both measures were very close to 1. In the full model, the sign for population turnover became negative and the p value was half the size.

5.2 CONCLUSIONS

The results of this analysis imply that although the concepts within social disorganization theory do play a very important role in studies of criminal victimization, it is necessary for individual-level measures to also be incorporated into these analyses due to the important changes to community-level predictors that become apparent once

these characteristics of individuals are included in models predicting individual-level outcomes, such as homicide. Based on the results of this study, the large amount of variation that exists from person to person may work to mitigate the negative influence of structural disadvantage discussed within social disorganization theory.

The results discussed in of this study point to some very important implications regarding social disorganization theory. The findings provide evidence that the theoretical notions from both the individual-level theories of criminal behavior and the structural-level theories of crime trends need to be considered simultaneously in order to comprehensively analyze criminal outcomes. For many years researchers were limited in what they could analyze because it was very difficult, if not impossible in some cases, to account for contextual characteristics and attributes of individuals. With advancements in statistical software and growing accumulations of high-quality data, now researchers can account for several levels of analysis and theories concerning those various levels of measurement can be integrated. These improvements allow scholars to conduct much more comprehensive research. Due to these issues in the past, theories of crime focused on either individual or contextual explanations for crime. The results of this research suggest that perhaps some of the previous theory and research that only considered the influence of the social environment may not be quite as clear-cut and robust as they once appeared. In fact, this research suggests that aggregate levels of resource deprivation may not play a role in the higher rates of homicide found in these area. The deleterious influences of poverty, low educational attainment, unemployment, female headed households, and income inequality completely disappear, regardless of their concentration within the MSA. This research

also suggests that housing instability also may not be nearly as powerful of a predictor of homicide as it once seemed. The findings also suggest that the only contextual-level factor that is not reduced substantially or diminished completely by the effects of individual attributes is the index containing the three measures put forth by early scholars of social deviant behavior, population size, population density, and racial/ethnic heterogeneity. The urbanness index not only remains statistically significant when individual attributes are considered in the model, the size of the effect increases slightly. When MSAs with varying concentrations of urbanness are considered separately, it becomes apparent that one-fourth of the MSAs in the sample are responsible for all of this effect. The most highly populated, dense MSAs with the most racial/ethnic diversity expose resident to a very high degree of risk of being the victim of a homicide, and even residents with the least risk inducing individual-level characteristics (i.e. older, white, female, educated, employed) do not work to diminish this level of risk substantially.

These findings suggest that some aspects of social disorganization have a larger influence on the risk of homicide victimization, while other contextual characteristics disappear completely once community residents' individual characteristics, which influence their lifestyle, are accounted for. The a great deal of the risk of victimization that individuals experience is due, not from the negative characteristics of their environment, but due to the variation that exists between individuals which causes them to make divergent lifestyle choices that place them in more dangerous places, with more dangerous people. The results of the analysis within this dissertation suggest that it is not only the "kind of person" someone is or the "kind of place" they live in, but a combination of the two that increases their risk of being victimized. The influences of

both a person's lifestyle and the concentration of disadvantage in the area come together to establish the risk a person has of being the victim of a homicide.

The inherent difference between the victim and the offender in a situation similar to this one is that the offender gets to make a choice of whether or not (s)he would like to follow through with his/her criminal behavior. The victim does not get to make a last minute choice concerning his/her victimization. On the other hand, a victim does get to make a choice about where to be and at what time. The behavior of both the victim and the offender are guided by many intermingling factors that lead them to make choices about what they want to do, where they want to be, and with whom they want to be. These choices determine the types of situations a person will end up a part of, whether it's associated with excitement, risk, or vulnerability. This is the basic premise of lifestyle theory. There is a lot of variation between individuals, and if a researcher focuses completely on the context of a person and the individual variation is ignored, the results will be incomplete.

5.2.1 METHODOLOGICAL IMPLICATIONS

The organization of the various measures of structural covariates of crime has varied across analyses grounded in social disorganization theory. These measures have been indexed and organized them in terms of concentrated disadvantage, residential stability, immigrant concentration, population density and mixed land use (Sampson, Raudenbush, and Earls 1997), neighborhood disadvantage and neighborhood mobility, containing foreign born and population turnover (Silver 2000; Kane 2002) while others have organized them into measures of urban disadvantage and racial inequality (Parker, Stults, and Rice 2005). Others argue that using principal

components analysis to organize the measures confounds a researcher's ability to understand each covariate's distinct influence on crime rates (Kubrin and Weitzer 2003). The organization of the social disorganization variables in this study separates the effects of aggregate economic disadvantage, social structure, and housing instability within communities and allows the measures within each index to share variance with one another and allows the indices to be correlated with one another, which decreases the problems associated with multicollinearity between measures.

Although organizing the variables this way makes it more difficult to determine the distinct effect of each specific variable, the correlations of each of the measures within the indices display positive and significant associations with homicide and each variable displays a positive and significant correlation with every other measure that is within the same index. The variables that might be driving the effects of the indices can be speculated by looking at the bivariate correlations of the contextual level parameters in the study with homicide in Table 7. However, this does not take into account the effect that each of the predictor variables has on one another or the effects that individual attributes have on context and the risk of homicide victimization. Based on these correlations, it appears as if rates of poverty ($\text{corr}=0.0100$, $p<0.001$), low educational attainment ($\text{corr}=0.0106$, $p<0.001$), and unemployment ($\text{corr}=0.0104$, $p<0.001$) carry almost equal weight within the resource deprivation index, while income inequality ($\text{corr}=0.0078$, $p<0.001$) and female headed households ($\text{corr}=0.0077$, $p<0.001$) both have slightly smaller effects. Both measures of racial/ethnic heterogeneity, proportion non-white ($\text{corr}=0.0127$, $p<0.001$) and diversity ($\text{corr}=0.0123$, $p<0.001$) are driving the urbanness index, population size (0.0064 , $p<0.001$) displays an

effect about half that size, and density appears to not have an effect on homicide at all when no other parameters are accounted for. The effects of population turnover (corr=0.0056, $p < 0.01$) and vacant housing units (corr=0.0052, $p < 0.01$) appear to be equally influencing the effects of the housing instability index.

Another important methodological contribution of this study also deals with the indexed variables. Partitioning these indices into equally sized categories (each is equal to approximately 25 percent of the MSAs in the sample) when the indices display nonlinearity allows for a much more thorough investigation of the varying levels of resource deprivation, urbanness, and housing instability across MSAs. Comparing Model 5 to Model 6 and Model 2 to Model 3 makes this exceedingly clear. It is apparent that the positive and significant effect of urbanness seen in Model 5 is being driven completely by the MSAs in the top 25 percent of the distribution (category four), while categories two and three are not significantly different from the reference group. Before the addition of individual covariates the effect of urbanness is significant in the top half of the distribution (categories three and four); individual attributes absorb all of the effect in urbanness category three and almost none of the effect of urbanness category four. The resource deprivation index behaves similarly to the urbanness index in Model 3, such that MSAs in the top quartile absorb the entire effect. But that effect is completely eliminated when individual attributes are taken into consideration. Conversely, across the reduced and full models, when the housing instability index is split into equal categories the positive and significant effect diminishes across the categories suggesting that MSAs with differential concentrations housing instability do not increase

or decrease residents risk of homicide at all. These findings clearly suggest that a lot of the effect of measures within an index is confounded by the nature of the index itself.

Although using principal components deals with the issues associated with multicollinearity between parameters that share a great deal of variation, indexing variables into one component that represents a latent construct also reduces the researchers ability to investigate variation in the index. Of course data can always be divided into subsamples to study these variations, but there is likely also variation across indices. For example, an MSA may fall into category four of the urbanness index and category one of the resource deprivation index. If the data were analyzed in different subsamples based on one index or the other, a great deal of the variation between the two indices would be lost. Many studies have taken the lead of Kennedy et al (1998) and used this method to deal with the Gini index of income inequality, but after a careful search of the relevant literature it appears as if no scholars outside of the medical and statistics fields have taken advantage of this method.

5.3 LIMITATIONS & FUTURE RESEARCH

A major limitation of this research deals with the use of Metropolitan Statistical Areas as a proxy measure for a community or a neighborhood. A much smaller aggregate unit of analysis, such as block groups (which only contain around 1,000 residents) or 'very small areas' (VSAs—which are based on census blocks and block groups), would provide a much more appropriate proxy measure of neighborhoods. Social disorganization theory is a community or neighborhood level theory. MSAs contain many, many neighborhoods and there is a great deal of neighborhood variation within MSAs. Using smaller aggregate units would provide better and more accurate

answers to questions regarding community level theories, such as social disorganization. However, although restricted access to block group level identifiers for the NHIS are available through the CDC's Research Data Center, they are very difficult to obtain due to a rigorous proposal approval process and either on-site access to the data or limited remote access (CDC/NCHS 2010). Although acquiring these data were not feasible for this specific project, as I begin to make the transition into my career, I intend to promptly draft a proposal asking for access to the block group identifiers in order to replicate the current research using block groups as the proxy for neighborhoods.

Another limitation within the current study is the age of the data. The analyses were on longitudinal, individual-level NHIS respondents whose initial interview was between the years of 1986 and 1994, with follow-up and mortality data that extends to 2002 and the aggregate contextual-level data are Census data from 1990. Crime trends have changed drastically since that time, and although plenty of research is done on older data, application of research findings to the current population is more appropriate when more recent data are used for the analyses. More recent NHIS data are available currently, but there were alterations to the survey instrument in 1995 and again in 1997, which makes it difficult to pool all the years of data. Additionally, there have significant changes in the populations of urban areas over the past 25 years which have led to important changes in MSAs across the country. This contributed another hurdle to the use of additional years of NHIS data in this dissertation. I intend to deal with this limitation over the next several months also once I obtain the block group identifiers.

There are several implications and issues within this study that merit additional research in the future. First and foremost, the study of criminal offending and victimization is simply incomplete without considering the influence of individuals and the influence of the social structure. Research attempting to uncover why certain individuals experience greater risk of being the victim or the offender of criminal behavior should make an effort to account for both of these levels of analysis; perhaps utilizing the National Incident Based Reporting System to obtain very detailed nationally representative, individual-level data on offending. Additionally, future analysis should be done regarding the influence of the social context of an area on individual characteristics in terms of their risk of homicide. Although this was not the focus in the current research, a comparison of the individual only model in Appendix 3 with the individual level characteristics in Models 2, 3, 5, and 6, several variables behaved quite interestingly with the addition of contextual factors (i.e. region). Another important addition to this research will be to investigate moderation effects between the measures in this study by investigating the interactions between individual and contextual measures within this analysis (i.e. income equivalence*poverty, individual-level race*urbanness). Also in regards to this, subsamples of the data need to be examined, particularly racial subsamples, to more thoroughly investigate variation between race/ethnicity. Future research should also integrate measures of social control, community cohesion, and collective efficacy, such as community resources, institutional resources, and land use patterns so the influences of these measures on covariates of crime can be further evaluated. Measures such as these are likely to indirectly reduce

the upward influence both community and the individual covariates of crime, via the establishment of social control mechanisms within communities.

Several individual variables behaved in peculiar manners in these analyses which should be studied more closely. First, the variables that were included in the housing instability index, population turnover and vacant housing units, deserve a much more thorough analysis due to the strange behavior of the index and its categories in this analysis. On the same note, a more comprehensive investigation of broken windows/disorder theory is also necessary in an attempt to begin to clear up some of the discrepancies in extant research surrounding disorder. Future research should also include an investigation of alternative measures of economic segregation/isolation (i.e. the Neighborhood Sorting Index) and more research should begin to consider the influence of economic segregation/isolation in studies of criminal behavior. Additional research should be done regarding the positive association between homicide and home ownership, perhaps investigating the relationship from a different angle with crime as an aggregate predictor measure and an individual-level measure of home ownership as the dependent variable. It would be useful to integrate Uniform Crime Report data with NHIS data and use various measures of criminal offending in order to more closely examine the relationship between housing stability/instability and crime.

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APPENDIX 1: METROPOLITAN STATISTICAL AREAS INCLUDED IN ANALYSIS

MSA	Area Name
010	Bergen-Passaic, NJ--Middlesex-Somerset-Hunterdon, NJ--Monmouth-Ocean, NJ--Jersey City, NJ
011	Nassau-Suffolk, NY
012	New York, NY
013	Newark, NJ--Orange County, NY
021	Anaheim--Santa Ana, CA
022	Los Angeles-Long Beach, CA--Oxnard-Ventura, CA
023	Riverside-SanBernadino, CA
030	Aurora-Elgin, IL--
031	Chicago, IL--Gary-Hammond, IN--Joliet, IL--Kenosha, WI
041	San Francisco, CA
042	San Jose, CA--Vallejo-Fairfield-Napa, CA
051	Philadelphia, PA--Trenton, NJ--Vineland-Millville-Bridgeton, NJ--Wilmington, DE-NJ-MD
060	Ann Arbor, MI
061	Detroit, MI
070	Boston, MA
080	Washington, DC-MD-VA--
090	Dallas, TX
100	Galveston-Texas City, TX
101	Houston, TX
111	Fort Lauderdale-Hollywood-Pompano Beach, FL
112	Miami-Hialeah, FL
120	Atlanta, GA
130	Akron, OH
131	Cleveland, OH--Lorain-Elyria, OH
141	Seattle, WA
150	San Diego, CA
160	Minneapolis-St. Paul, MN-WI
170	St. Louis, MO
180	Baltimore, MD
190	Pittsburgh, PA--Beaver County, PA
200	Phoenix, AZ
210	Tampa-St. Petersburg-Clearwater, FL
220	Denver, CO--Boulder-Longmont, CO
230	Cincinnati, OH-KY-IN--Hamilton-Middletown, OH
240	Milwaukee, WI--Racine, WI
250	Kansas City, MO-KS
260	Sacramento, CA
270	Portland, OR--Vancouver, WA
280	Norfolk-Virginia Beach-Newport News, VA
290	Columbus, OH
300	San Antonio, TX
310	Indianapolis, IN
320	New Orleans, LA
330	Buffalo, NY--Niagara Falls, NY

APPENDIX 2: CONTEXTUAL-LEVEL BIVARIATE CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Poverty ^a	1.000													
2 Unemployment	0.734 ***	1.000												
3 Low Educational Attainment	0.631 ***	0.643 ***	1.000											
4 Female Headed Households	0.793 ***	0.719 ***	0.535 ***	1.000										
5 Gini Index	0.862 ***	0.705 ***	0.684 ***	0.683 ***	1.000									
6 Population size ^a	-0.001	0.290 †	0.220	0.152	0.124	1.000								
7 Population density	0.054	0.221	0.257 †	0.157	0.261 †	0.484 ***	1.000							
8 Racial/Ethnic Diversity	0.366 *	0.459 **	0.463 **	0.347 *	0.467 ***	0.401 **	0.358 *	1.000						
9 Nonwhite ^a	0.400 **	0.475 **	0.515 ***	0.389 **	0.498 ***	0.348 *	0.302 *	0.985 ***	1.000					
10 Population turnover	0.136	-0.211	-0.268 †	-0.035	0.014	-0.241	-0.418 **	0.240	0.242	1.000				
11 Vacant Housing Units	0.350 *	0.177	0.295 †	0.085	0.461 **	-0.137	-0.231	0.220	0.256 †	0.280 †	1.000			
12 P* (isolation of poor residents)	0.074	0.200	0.118	0.149	-0.148	0.296 †	0.094	0.133	0.114	-0.103	-0.110	1.000		
13 Home Ownership	-0.504 ***	-0.335 *	-0.294 †	-0.363 *	-0.600 ***	-0.227	-0.520 ***	-0.546 ***	-0.508 ***	-0.219	-0.276 †	-0.062	1.000	
14 Floaters	0.445 **	0.358 *	0.572 ***	0.334 *	0.476 **	0.240	0.540 ***	0.540 ***	0.557 ***	0.387 **	0.500 ***	0.052	-0.344 *	1.000
15 Age Structure of Crime (15-24)	0.136	0.006	-0.190	0.045	-0.027	-0.260 †	-0.024	0.096	0.108	0.257 †	-0.237	-0.009	-0.071	-0.224

Grouped correlation coefficients represent the three social disorganization indices.

Note: *p <.05; ** p < .01.

^a Natural Log Transformed

APPENDIX 3: BASELINE SURVEY LOGISTIC REGRESSION OF INDIVIDUAL-LEVEL CHARACTERISTIC ON THE RISK OF HOMICIDE VICTIMIZATION

Individual-level Predictors	
Age	0.960 ***
Race	
Non-Hispanic White	ref
Non-Hispanic Black	5.429 ***
Non-Hispanic Other	3.940 ***
Hispanic	3.395 ***
Sex (female=1)	0.259 ***
Family Income Equivalence	0.778 **
Educational Attainment	
Less than High School	1.387 *
High School Graduate	ref
Greater than high School	0.642 *
Employment status	
Employed	ref
Unemployed	1.833 *
Not in Labor Force	1.095
Marital Status	
Married	ref
Divorced/Separated	0.460
Never Married	1.212
Widowed	1.319
Region	
South	ref
North	0.641 *
West	0.957
Midwest	0.884
R ²	0.268

Reported figures are odds ratios.

***p≤ 0.001, **p≤ 0.01, *p≤ 0.05, & †p≤ 0.10

VITA

Emily R. Berthelot was born and raised in South Louisiana. She received her Bachelor of Arts (2004) and Master of Arts (2007) in sociology from Louisiana State University. She will receive her Doctor of Philosophy degree in sociology from Louisiana State University at the fall 2010 commencement. Beginning in August of 2010, she will work as an Assistant Professor in the Department of Criminal Justice at the University of Houston Downtown.