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Examining Real Estate Agents as a Source of Neighborhood Context: A Test of Collective Efficacy Theory

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EXAMINING REAL ESTATE AGENTS AS A SOURCE OF NEIGHBORHOOD CONTEXT: A TEST OF COLLECTIVE EFFICACY THEORY

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This study tests collective efficacy theory by expanding the current operationizations of informal social control and social cohesion and trust, as well as introducing an original technique to measure these constructs. Collective efficacy has been measured in the same manner in the majority of tests currently available, indicating that these constructs are equated to particular behaviors. This dissertation examines the efficiency of these past techniques by accounting for additional behaviors. Both social disorganization and collective efficacy research have utilized community members to measure the intervening constructs (i.e., informal social control and social ties). Although this is an acceptable and empirically valuable way to assess the ecological factors of crime, it is incomplete. This research incorporates real estate agents as resident proxies to provide data on these variables, as well as their perceptions of crime, for a number of different communities within Pittsburgh, Pennsylvania.

The results provide some support for collective efficacy theory. The analyses indicate that collective efficacy is strongly associated with perceptions of crime. Collective efficacy was also found to mediate the relationship between concentrated disadvantage/residential stability and perceptions of crime. There was limited support for concentrated disadvantage and residential stability when explaining real estate agents' perceptions of neighborhood collective efficacy and crime.

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CHAPTER I

INTRODUCTION

Community level variables such as residential stability, poverty, and racial heterogeneity have been linked to areas of increased crime and delinquency. One theoretical paradigm, social disorganization, attempts to explain crime and delinquency through these community contextual factors. Beginning in the 1930s, social disorganization research did not specifically measure how these community factors lead to increased crime and delinquency; that is, the simple correlation between the contextual factors and crime was established. It was not until recently that the first complete test of social disorganization theory was accomplished (see Sampson & Groves, 1989). Since the renewal of social disorganization studies, there have been many attempts to improve this model and understand its limits. The research presented in this dissertation focuses on one particular modification termed collective efficacy. Collective efficacy theory is an improved model due to variable conceptualizations and model specification that are more precise.

In the past, social disorganization research was criticized because of incomplete tests and unexplained inferences. Social disorganization studies did not include a full testable model, as it was originally conceived, for a period of roughly fifty years following its inception. More specifically, community contextual factors have been linked to crime and delinquency, but the manner in which those factors impact human behavior was not fully explained or incorporated into the research. It was apparent that there was an indirect link between these variables. Social ties and informal social control have been identified as two of the mediating concepts that connect community contextual

factors to patterns of crime and delinquency. The incorporation of these variables and their impact on human behavior is desirable to produce a complete test of social disorganization. This was not accomplished until the 1980s, when researchers began devising new ways to measure informal social control and social ties (Bursik, 1988; Stark 1987).

The re-introduction of this theoretical paradigm resulted in problems associated with model specification, inferences, and tests including incomplete measures of the constructs; similar to that of the original body of research. Given the problems associated with these empirical tests, collective efficacy theory was created to address the many aforementioned drawbacks. Sampson, Raudenbush, and Earls (1997) recognized that the contextual factors, as well as the mediating constructs (e.g., informal social control and social ties), were statistically measuring the same concepts, causing multicollinearity problems. In addition, there was a great deal of variation in the measurement of social ties and informal social control. For example, social ties were being measured as intimate close relationships among neighbors, which should signify an increased ability to recognize social norms (Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996). Similarly, informal social control was measured by actual interventions, making survey methodology difficult to construct and implement (Ohmer & Beck, 2006; Ohmer, 2007). Sampson and his colleagues modeled their theory of collective efficacy to address these issues. Consequently, collective efficacy theory combined the community contextual factors into two overarching variables, concentrated disadvantage and residential stability. Similarly, the mediating constructs (i.e., social ties and informal social control) were combined to form what is called collective efficacy. The conceptualization of

informal social control was altered to address the problem with recording actual events, resulting in a willingness to intercede given some abnormal situation that could occur in the community. Social ties was also conceptualized as less intimate, claiming that it is only necessary to have working social ties to create and agree upon a behavioral expectation within the community.

Collective efficacy theory states that levels of concentrated disadvantage are correlated positively with community crime and delinquency, while residential stability is correlated negatively. Neighborhood collective efficacy will be negatively associated with crime and delinquency, and should act as a mediating factor with concentrated disadvantage/residential stability and crime/delinquency. These relationships have been supported empirically, having a relatively high level of correlation (Pratt & Cullen, 2005).

There have been a limited number of empirical tests that replicate and very few attempt to expand collective efficacy theory. The tests that are available either replicate or make minor changes to the overall model construction (i.e., changing the dependent variable). With empirical support remaining relatively strong, collective efficacy has been shown to perform well across various cultures and with a number of dependent variables. These results, however, should be approached with some caution. Having only a few tests available, the empirical boundaries of this theory, by no means, have been identified or defined. This conclusion leads to the purpose of the present study.

The majority of available collective efficacy tests available use the same data as the original study or incorporate the same survey items to measure social ties and informal social control (e.g., five survey items for each construct). An argument can be

made that these two constructs could potentially include many different behaviors than what is represented by the ten survey items that are used repeatedly. Additionally, the limited number of tests available presents a problem with differing cultures. Although there is empirical support cross-culturally, there could potentially be an area or culture in which collective efficacy theory is not empirically supported. As stated prior, the empirical boundaries and generalizability is somewhat understated and unknown with the current body of literature.

Current Study

Following a review of relevant literature in Chapter II, it will be apparent that there are numerous ways to advance the current knowledge base of social disorganization. Despite the early general premise of social disorganization theory, there is still much to be understood due to the limited nature of this body of literature. Collective efficacy is shown to be a more advanced and beneficial alteration of social disorganization, also having limited empirical support. The literature that is available does show promise; however, there needs to be research that stretches the limits of collective efficacy theory. This dissertation is specifically designed to address the limits and problems associated with the current body of literature. There are supplementary survey items testing varying behaviors included, and these will improve how social cohesion and trust and informal social control are measured, in addition to explicating what these behaviors constitute. The research methodology testing collective efficacy is completely different than any study currently available.

Chapter II provides a detailed account of the relevant literature on social disorganization and collective efficacy. The collective efficacy tests in this review

measure community levels of informal social control and social cohesion and trust (i.e., social ties), which are combined to form an overall community collective efficacy score. The term collective efficacy has been used to study the cohesion of sports teams and school related activities. This dissertation is concerned with collective efficacy as a community variable capable of impeding crime and delinquency. Consequently, the review of the literature will only include studies of community collective efficacy as it pertains to affecting criminal and delinquent behavior. Chapter II synthesizes the relevant literature, explains the research design and purpose, and recommends avenues for future inquiry.

Chapter III presents the research methodology used in this study. The strategies used to measure and examine the research questions will be presented. An email based survey, using Qualtrics and Microsoft Outlook software, was distributed to a sample of real estate agents working within the Pittsburgh metropolitan area. The survey measured levels of collective efficacy and perceptions of crime (dependent variable). The community contextual factors were measured using the 2000 United States Decennial Census (2000 U.S. Census), similar to that of most social disorganization research. In addition, the selection of communities and participants will be discussed.

Chapters IV and V present the results and conclusions of this study, respectively. The findings illustrate that real estate agents have the ability to provide a differing perspective on what constitutes social ties and informal social control for a number of different communities. Past collective efficacy research has measured perceptions of collective efficacy by incorporating community members as participants. Collective efficacy theory has never been tested with real estate agents as resident proxies.

The analyses illustrate that collective efficacy has a strong and significant relationship with perceptions of crime, while mediating the relationship between the community contextual factors and perceptions of crime. This indicates that real estate agents are attuned to the concepts measured in the collective efficacy model. Although support for collective efficacy was evident, residential stability was not found to be related to perceptions of crime, unlike past research.

Tests of social disorganization and collective efficacy are relatively limited, in comparison to other criminological theories, due to methodological restraints. This dissertation was specifically designed to address these current problems and create an innovative method of testing collective efficacy. This study shows that support for collective efficacy can be found using resident proxies, while improving model specification.

CHAPTER II

LITERATURE REVIEW

Social disorganization theory has been a significant criminological theory since the mid-1900s; however, methodological limitations, failed policy applications, and the emergence of new theoretical thinking established an erratic interest from criminological researchers. Although the empirical support of past research has been inconsistent, the environmental and social variables associated with social disorganization have been shown in many cultures and ethnic groups to have some correlation with crime and delinquency. This correlation, however, was not fully specified until the 1980s, approximately fifty years following the inception of the theory. This chapter examines the history and development of social disorganization research as it pertains to the early and contemporary periods of theoretical development. The early history of social disorganization shows empirical support connecting foundational community variables and delinquency, but this early evidence lacks proper model specification and a research strategy that measures all of the necessary components. The contemporary history of social disorganization is marked by researchers taking a new approach, creating a comprehensive model focusing on the social processes that are affected by the traditional community variables. This review of research provides a clear understanding of what is known about the environmental and social factors of crime and delinquency, as well avenues for future research.

The Early History and Development of Social Disorganization

This section provides a review of the early history of social disorganization literature. Chronologically organized, this examination begins by assessing how crime

and deviance were originally connected to environmental variables; that is, how static physical attributes of a community impact human behavior. Social disorganization theory has been expanded for a variety of conceptual, analytical, and inferential reasons since its inception, but the early history had minimal alterations and remained somewhat stagnant until the late 1970s revitalization. This section provides a review of the early history, highlighting the foundational core of social disorganization, the limited empirical support, and the lack of complete model specification.

The origins of social disorganization can be traced back to Park and Burgess (1925), who studied the migration habits of immigrants within specific communities of Chicago, Illinois. They observed that new immigrants relocated into specific areas based on their culture's level of continuity within the community. For example, an ethnic group with roots in a specific area is driven out due to the emergence of a newer migrant group entering; in addition, the preceding ethnic group has obtained increased resources creating an opportunity to move into better communities.

Park and Burgess (1925) identified five distinct zones within Chicago, Illinois based on demographic variables. Concentric zones refer to these five circular layers describing the types of communities that make up most urban areas. The inner zone or Zone I, also called the central business district, expanded outward, invading Zone II, which was considered the poorest and oldest section of the city. The conversion from a deteriorated residential community to a newly developed area with a business purpose created an area in transition. Similarly, as Zone I increased and invaded Zone II, each concentric zone followed suit invading adjacent zones; therefore, it was found that each of the five concentric zones grew outwardly.

Although Park and Burgess (1925) described a concentric zone theory where the expansion of a city had specific attributes, they also articulated specific characteristics of each concentric zone. Zone I consisted primarily of business buildings and structures, with few residential facilities. Zone II, or the zone in transition, was the oldest and most degraded area of the city, including areas of physical decay and racial heterogeneity. The residents of Zone II were the most economically disadvantaged, while housing largely consisted of rental units. Zone III includes the blue collar workers of the city. This population tends to have more stability and resources than the individuals of Zone II. As a result, there is less physical degradation within this zone. Economic status increases as the zones move outward. Zone IV (residential zone) and Zone V (commuter zone) consist of higher socio-economic status populations. These zones have high levels of home ownership and a population that has the means to commute to the central business district for their occupations.

Park and Burgess' (1925) main focus was on the interaction of a newly acquired population with the previously established cultures, but they did not explain how the concentric zones related to crime and delinquency. The integration of the concentric zones with the study of criminality and delinquency can be attributed to Clifford Shaw and Henry McKay. Following the enactment of Prohibition and increased crime and delinquency, Shaw and McKay (1942) applied the concentric zones theory to the way in which environmental factors influence the levels of informal social controls, subsequently impacting delinquency. Their work incorporated the theoretical underpinnings of Park and Burgess's (1925), correlating community characteristics from U.S. Census data with decades of data from Chicago's Juvenile Court System. Areas with

greater levels of physical decay, lower levels of social ties and informal social control, and in a constant state of transition were said to be socially disorganized. Shaw and McKay's research attempted to identify a correlation between social disorganization and the level of delinquency occurring within a community.

Shaw and McKay's (1942) work led to two profound and distinct conclusions, creating a foundation for the social disorganization paradigm in criminological literature. First, the incorporation of both quantitative and qualitative data revealed that juvenile delinquency is largely associated with specific community characteristics. For example, levels of juvenile delinquency are positively correlated with high levels of poverty, unemployment, and residential mobility. Communities with greater social disorganization, as measured by these variables, tend to have more delinquent juveniles in the Chicago Juvenile Court System. The second conclusion was derived from the specific community characteristics associated with high levels of delinquency. Shaw and McKay found that specific communities consistently had the highest number of delinquents. The ethnic composition of an area was not directly associated with delinquency. Racial heterogeneity coupled with poverty, unemployment, and residential mobility showed a strong correlation with delinquency.

In the context of concentric zones, Shaw and McKay (1942) established that Zone II consistently had the highest amount of poverty, unemployment, racial heterogeneity, and residential mobility. Consequently, delinquency was found to be the highest in these areas. They attributed this to a constant state of transition and disorganization, Zone II residents were being pushed outwards by the adjacent and growing central business district (Zone I) and the influx of poor immigrants moving into the area. The transition

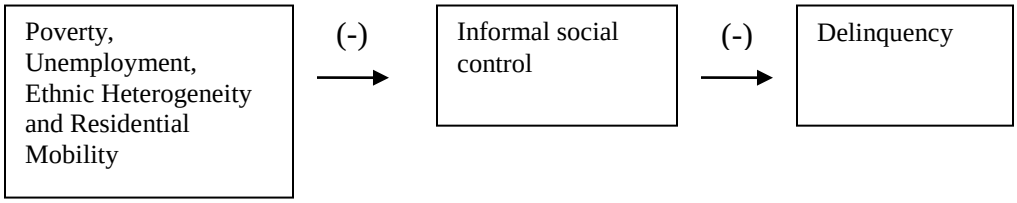
experienced within Zone II impeded community members from establishing any effective social controls against delinquent behavior. It is expected that individuals residing in these types of communities do not look to improve the surrounding environment or live there for any extended period of time. As a result, social controls do not emerge, while the community accepts criminal and delinquent behaviors. The acceptance of crime and delinquency is therefore transferred to the incoming population, maintaining high levels of delinquency over evolving transfers of population. Additionally, in zones furthest from the center of the city, levels of poverty, unemployment, and residential mobility decreased and these areas had lower delinquency. A fatal flaw of this paradigm was that social control was never measured directly.

The work of Shaw and McKay (1942) was significant because it was the beginning to a longstanding criminological theory that is still in use today. Their research established that specific community factors are correlated with delinquency, providing a social control system perspective that moved away from the theories focusing on individual biology and psychology. The problem associated with this foundational research is the lack of a direct link between the community variables of poverty, unemployment, racial heterogeneity, and residential mobility with delinquency. Shaw and McKay consistently found the correlation between these variables, but they never tested a social disorganization model that included measures of informal social control. Figure 1 shows the basic model of social disorganization theory. Poverty, unemployment, racial heterogeneity, and residential mobility are expected to impact the level of informal social control in a community that influences delinquency. It was not understood how these specific variables impact delinquency, despite a well established correlation between the

constructs. Consequently, additional research was required to understand how these community variables manifest into action and impact the levels of crime and delinquency within a specific community.

Figure 1

Shaw and McKay's (1942) Social Disorganization Model



Note: Shaw and McKay's research failed to measure the informal social control variable, thus disregarding how the independent variables manifest into action, impacting delinquency.

Despite the lack of support for a complete model of social disorganization, Shaw pushed for public programming that addressed the environmental factors found to correlate with delinquency (Kobrin, 1959). As a result, the Chicago Area Project (CAP) was created from Shaw's belief that delinquency was a product of environmental variables; that is, he did not believe that delinquency should be addressed individually or at the micro level (Bernard, Snipes, & Gerould, 2009). The CAP program attempted to address the detrimental environmental factors by revitalizing the physical and social surroundings. Kobrin claimed that six areas in Chicago, consisting of twenty-two communities, obtained resources to solicit positive community organizations (e.g., schools, unions, clubs, churches) to identify pressing problems and create solutions. These organizations provided positive community activities to cultivate a sense of cohesion or social ties within each of the communities. Beginning in 1932, the CAP

program continued for twenty-five years, concluding in 1957 following Shaw's death (Bernard et al., 2009).

The twenty-five year CAP program was evaluated by reviewing the case reports of delinquents and the aggregation of delinquents identified by the Chicago Juvenile Court System (Miller, 1962). Miller found that delinquency rates did change significantly following the implementation of the CAP program, remaining relatively stable throughout the twenty-five year period. This finding became accepted throughout the nation; however, Short (1969) contended that integration of mostly African Americans of low socioeconomic status, in massive numbers to extended Zone II areas, would have resulted in a larger delinquency rates than what had been reported. Consequently, the population integration characteristics and the stable delinquency rates could be equated to some rate of decline. Despite some opposition, the CAP program was seen as a failure, resulting in the social disorganization paradigm declining to a state of dormancy, while other criminological theories developed and prospered (see Akers & Sellers, 2008; Bernard et al., 2009; Kubrin, Stucky, & Krohn, 2009).

The early history of social disorganization can be summarized as identifying a strong empirical correlation among community characteristics (e.g., poverty, unemployment, ethnic heterogeneity & residential mobility) and delinquency in specific communities, a research design that did not measure how these community variables impacted the rates of delinquency, and a policy that was perceived as a complete failure by the public and policymakers. These reasons, along with the emergence of innovative criminological theories focusing on individual characteristics of crime, led to the abandonment of social disorganization theory.

Bursik (1988) claimed the social disorganization research of the time period tended to focus on developing the community variables associated with delinquency, rather than concentrating on the important task of measuring the entirety of the model. Researchers were unable to measure informal social control, creating a "somewhat confusing presentation of the social disorganization concept" (Bursik, 1988, p.531). Consequently, the early history of social disorganization should be viewed as the establishment of a novel theoretical paradigm with only partial empirical support. It was evident that social disorganization theory was in need of its own organization and development.

It can be argued that the inquiry of social disorganization, prior to its revitalization in the late 1970s, was completely dysfunctional. This suggests that the strong relationship between community variables and levels of delinquency should have eventually led to further inquiry of how these variables are connected. Consequently, the early history of social disorganization should be reviewed for two reasons. First, the foundation of the theory and the empirical correlation between the community variables and delinquency was established. Second and most important to the revitalization and the importance of the theory, there were problems measuring the full model of social disorganization, providing a basis for which to advance the theory into a legitimate explanation of crime and delinquency. The revitalization of social disorganization theory in the 1970s and 1980s provided the necessary pieces for which to measure this full model while addressing past limitations.

Revitalization of Social Disorganization

The failure to properly measure the full model of social disorganization, as well as the unsuccessful policy initiatives, led to criminological research leaning away from the community factors of criminality and delinquency (Bernard et al., 2009; Kubrin et al., 2009). Despite these drawbacks, the fact remained that Shaw and McKay (1942) did find a correlation between specific community factors and delinquency. The full development of social disorganization theory was only a matter of implementing the proper methodological and analytical techniques to identify a full model of social disorganization. This section describes how a proper test of social disorganization was created, and how it addressed the modeling issues, measuring how crime and delinquency can be affected through the context of community factors. More specifically, the revitalization research addressed how the concepts of informal social control and social ties should be measured and incorporated into social disorganization research, which has been carried out over the past thirty years.

The revitalization of social disorganization theory can be attributed to Ruth Kornhauser (1978) who reevaluated the social disorganization research (see also Akers & Sellers, 2008; Bernard et al., 2009; Kubrin et al., 2009; Williams & McShane, 2009). Kornhauser provided a different perspective to suggest that socially disorganized areas, or those that have few neighborhood relationships and institutions, eventually cannot effectively regulate criminal and delinquent behaviors. As a result, crime and delinquency begin to occur more frequently throughout the community. Subsequent to this breakdown, the community members begin to accept these behaviors as customary, a concept that allows delinquent subcultures to be formed. This approach was instrumental

in understanding and articulating the evolutionary process of disadvantaged communities and crime/delinquency; however, this approach was confronted with some opposition. Shaw and McKay (1969) posited that the subcultural concept was the most important, due to most delinquency occurring from the learning process and the formation of these groups. Kornhauser argued that delinquency occurs in every culture and location, and an abnormal increase in delinquency is due to subcultures, which are derived from the original social disorganization.

Kornhauser (1978) applied this concept by reviewing a number of empirical tests, which provided wide support. Through an extensive review process, her work was supported consistently by specific community variables. Areas consisting of high levels of poverty, racial heterogeneity, and residential mobility had lower numbers of social ties, or positive relationships and institutions among community members. She found that the lack of relationships and institutions translated into an impediment of obtaining common goals within the community. Consequently, this type of community would suffer from social disorganization due to a lack of common and positive behavioral expectations.

The 1980s brought about differing thoughts about how to specifically measure social disorganization and how important the theory was in comparison to other criminological theories. This debate was spawned by the macro-level explanation of crime that social disorganization provides. Bursik (1988) suggested that many criminological theories focus on the individual characteristics (i.e., micro-level) of crime and delinquency. Being a macro-level analysis, social disorganization was thought to be marginally important when explaining criminality and deviance (Arnold & Brungardt,

1983). That is, group level dynamics were thought to have little or no impact on individual characteristics. This debate created two paths for which social disorganization theory followed. First, researchers created models of the motivational processes of committing crime and delinquency. Also called the opportunity models, this approach centered on the physical and geographic attributes that are taken into account during the decision making processes (e.g., crime pattern theory and routine activities theory) (Brantingham & Brantingham, 1981; Cohen & Felson, 1979).

The second product of this debate was the recognition that a group level understanding of crime and delinquency (i.e., macro-level) is just as important as the individual level (i.e., micro-level). Bursik provided a convincing argument when he wrote that "many of the early sociological theories of crime and delinquency assumed that a full understanding of the etiology of illegal behavior was only possible through an examination of the social structure, the individual, and proximate social contexts (such as primary groups) that mediated between the individual and that structure" (1988, p. 522). In sum, a person's level of criminality will be impacted by his/her individual characteristics, the opportunity that is present, and the group dynamics allowing (or not allowing) such behavior. Social disorganization research began to specify how community level variables (e.g., poverty, racial heterogeneity, and residential mobility) impact social ties and informal social control, thus influencing crime and delinquency within a particular community. This, in part, creates an argument to explain the uneven distribution of crime and delinquency throughout urban areas, as well as revealing how critical this theory is to understanding the holistic nature of individual criminality.

The critical aspect of social disorganization that led to the dormancy of this theoretical paradigm, however, was still not answered despite this new viewpoint. The way in which these community variables (i.e., poverty, racial heterogeneity, and residential mobility) affected levels of social ties and informal social control that impacted crime and delinquency was still not directly measured. Although it was suggested that social ties and informal social control were a potential causal link of the empirical relationship between the community variables and crime and delinquency, the literature to this point had not provided how expectations of behavior (or a lack thereof) can impact crime or delinquent behavior. A community's level of informal social control and how it could potentially impact crime and delinquency was a concept not fully understood or tested for another decade (see Bellair, 1997; Bursik & Grasmick, 1993; Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996; Sampson & Groves, 1989; Sampson et al., 1997; Warner & Rountree, 1997).

Another important concept reviewed during the revitalization period was the way in which cultures move in and out of a degraded area. Residential succession is an important community characteristic that potentially plays a part in community organization and crime. The process by which residential succession occurs incorporates the cultural and economic characteristics of the past, current, and future populations within specific urban communities (Guest & Weed, 1976; Park & Burgess, 1925). The concentric zones theory provides a valuable platform for which to discuss the process of residential succession. Zone II has been identified as the area of highest delinquency, as well as poverty, residential mobility, and racial heterogeneity (Shaw & McKay, 1942). As previously discussed, residential succession is the process by which incoming

populations migrate into an area, in this case Zone II, drive the previously established population(s) into the adjacent zone (i.e., Zone III) (see also Hawley, 1950). Guest and Weed (1976) offer that the process of residential succession includes a specific culture or population moving into Zone II and having little family or occupational resources. The growing industrial movement provides occupational resources. The increased time spent within the city provides roots between friends and family. As these resources grow, another population begins to move into Zone II, in addition to the central business district invading the community. With increased resources, the well-established population is capable of moving to the adjacent area (Zone III). This process of invasion and succession continues to occur moving outward. Despite a complete turnover in population and culture, research has shown that delinquency rates remain relatively stable (Bursik & Webb, 1982; Kapsis, 1978; Shaw & McKay, 1942).

Shaw and McKay's (1942) research established that delinquency rates in areas experiencing residential succession remained relatively constant. It was found that despite cultural and ethnic differences, the transition zone (Zone II) retained relatively similar high delinquency rates. Understanding the way in which culture change impacts crime and delinquency taps into the foundational problems associated of social disorganization. Shaw and McKay's research failed to explicitly define and measure how the physical characteristics of Zone II had an impact on delinquency. Because residential mobility and succession are important components to the social disorganization model, it can be assumed that the amount of delinquency occurring has something to do, at least in part, with these particular constructs.

Bursik and Webb (1982) found the zone in transition included many racial groups, but each racial group slowly and systematically moved into the outer, more attractive areas, following a period of residing in Zone II. European Americans followed this same method, moving into more affluent areas and being relatively accepted within the new community; however, this was not the case for African Americans. Bursik and Webb concluded that areas experiencing African American in-migration suffered white flight quickly, resulting in social institutions that do not include African Americans or a total breakdown of these institutions. This was found to result in a lack of any identifiable level of social control. The definition of social disorganization includes the relationships among community members that have shared expectations of behavior. It is not difficult to understand how the alienation of a specific race would cause residential isolation and a breakdown in social control. Bursik and Webb's research led to two main conclusions regarding residential succession. First, following a complete population turnover in the outer areas (i.e., not located in the transition zone), social disorganization begins to increase back to preceding levels, as does the delinquency rates. Second, an area known to include high residential mobility will always be in a state of social disorganization due to the systematic out-migration of the older ethnic groups and the in-migration of the new ethnic groups.

Bursik and Webb (1982) further examined and developed the idea of succession and the way in which it could potentially impact crime and delinquency. Their findings incorporated the level of social disorganization in a given community based on the cohesion and acceptance present. This idea is significant because it provides an avenue in which to define how the original constructs transfer into action, through a social control

context. For example, regardless of any recent residential succession, if a community can form shared expectations through positive relationships, crime and delinquency rates will be relatively lower than areas that cannot. This research was instrumental in the fact that it measured how the level of social control within a community is mediated by the original social disorganization constructs.

To further develop this social disorganization discussion, researchers had to understand how social control forms and actually impacts crime and delinquency at the community level. As such, a necessary addition to the social disorganization discussion is when Stark (1987) synthesized the ecology of crime literature. Stark provided a review of what is known about the consistent constructs of social disorganization. Focusing specifically on density, poverty, mixed land use, transience, and dilapidation, thirty theoretical propositions were created to fully understand how these constructs impact the level of social control, as well as criminal and delinquent opportunity and behavior in a community.

Stark created numerous potential avenues for criminal or delinquent behavior to manifest. Each of the propositions created a potential avenue for these main constructs to lead to criminal or delinquent behavior. As a result, these propositions can be treated as potential avenues for specific inquiry. The construct of density seemed to be the most natural starting point due to the geographic foundations of the theory, which eventually evolves to the social mechanisms of a community. High density or overcrowding was said to lead to moral cynicism (i.e., learning less than desirable information about individuals, lessening respect and the desire for personal relationships), poverty, reduced child supervision and community surveillance, opportunity, family conflict and weakened

attachments, mixed land use, transience, lessened voluntary organizations, and physical dilapidation. As one can see, the consistent social disorganization constructs all have an interconnection with each other. Each connection can potentially lead to a particular behavior, criminal or non-criminal. For instance, density was said to force a congregation of juveniles outside of their homes. An increase in density also brings about a close proximity of potential targets (opportunities) due to mixed land-use, as well as creating close contact with potential criminals or delinquents.

Although Stark (1987) provided specificity with his propositions, this notion of ecology setting the stage for criminal or delinquent behavior to emerge is not completely new to the social disorganization literature. Shaw and McKay's (1969) later edition of their work actually tended to lean more towards the environment establishing a situational background for compositional factors (i.e., individual explanations) to influence criminal or delinquent behaviors. More specifically, areas in transition were connected to differential associations, leading to crime and delinquency.

This literature has provided that to properly measure a complete model of social disorganization, it is necessary to discuss the variables that directly affect criminal and delinquent behavior. During this time period, research has been conducted that connected social control with crime and delinquency, however, not in the context of social disorganization. For example, Kasarda and Janowitz (1974) measured strength of friendships and participation in community groups and their relationship with length of residence, social class, and age. The research showed that the community is a complex system of social networks based on the strength of the community member's relationships and length of time living within a particular community. This conclusion is

important because density and urbanization does not equate to diminished social networks; rather, community members having a stake in any neighborhood promotes a healthy social environment capable of controlling behavior. Bursik (1984) connected the concept of social ties with the theory of social disorganization to explain how the community variables (i.e., density, poverty, mixed land use, transience, and dilapidation) can subsequently influence these friendship networks. The subsequent impact on the friendships networks will, in turn, affect the level of crime and delinquency within the community. This notion, along with the concept of informal social control, was in need of further development and testing following the deliberation during the revitalization time period.

This time period was important because it emphasized a need to measure these constructs directly because individual behavior can be mediated, in part, due to the social environment. Bursik (1988) provided a vital summation of the revitalization period and facilitated the first full test of social disorganization. This review provided that as the etiology of criminality progresses, so does the way in which we understand and measure proximate variables. This suggests that understanding the holistic nature of criminality requires a measurement of the individual, the community, and organizations within the community. In addition, this inquiry should include multiple longitudinal tests examining the changes of the ecological structures and the presence of any subsequent change in criminal behavior. Bursik also proposed that the model of social disorganization inherently includes measures of social ties and informal social control, as Shaw and McKay (1942) suggested, but did not measure. Socially disorganized areas are not defined solely by the presence of the exogenous sources, rather it is the combination of

the exogenous sources and the lack of mediating factors that indicates disorganization. Consequently, a full test of social disorganization would include measures for both of these factors. The final two criticisms that Bursik suggested focused explicitly on the expansion of the theory. Official arrest data contain bias problems inherent to the way in which police conduct arrest and patrol policies. Subsequent research should include data sources less vulnerable to these problems, such as victimization, citizen, or community organization surveys. The community can provide more direct and precise measurements of the social relationships that lead to the organization. Also, society is affected by a number of economic, historical, and political variables, which could have a potential to impact the social structure of a community. Future research should include a broadened perspective, realizing communities do not exist in a social vacuum without outside influences.

The revitalization period should be viewed as lacking empirical support, but providing necessary discussion that developed social disorganization into a testable model. To this point, social disorganization theory has not been fully measured, incorporating the community variables and mediating factors. While Shaw and McKay (1942) established an empirical relationship between the community variables and delinquency rates, the revitalization provided specificity of how to directly measure the mediating factors by indicating that informal social control and social ties are the key elements that have a potential of inhibiting specific behaviors. The platform for which to fully measure social disorganization was then established. Additional research was needed to understand whether informal social control and social ties mediates the relationship between the community variables and crime.

The Contemporary History of Social Disorganization

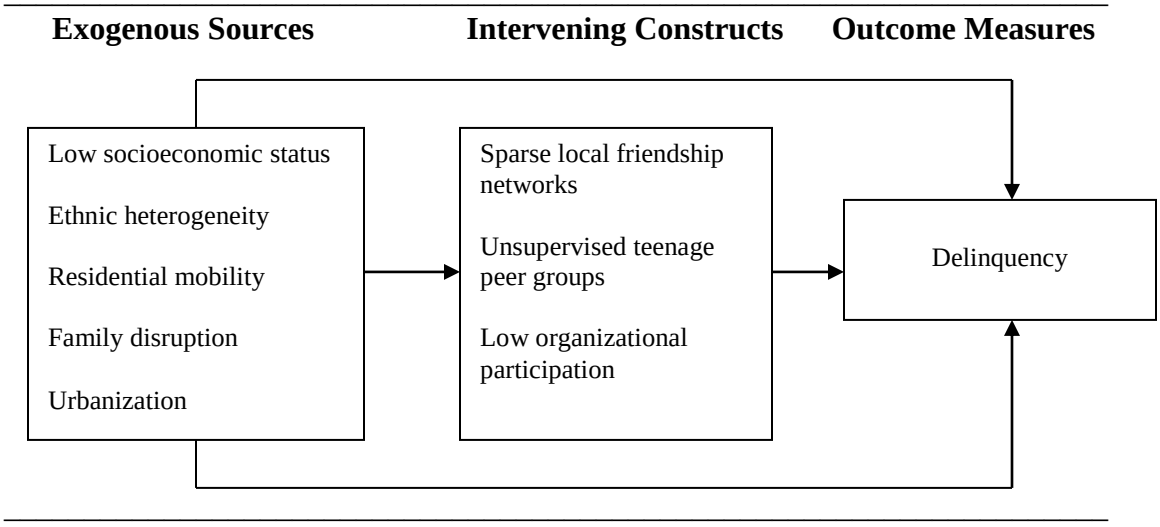
The following section reviews the contemporary history of social disorganization research, which is clearly separated by the revitalization thinking of the 1970s and 1980s. The literature within this contemporary history addresses the model specification and measurement issues of the early history. Despite this particular theoretical approach being conceived during the early part of the 1900s, the social disorganization model was not fully tested until the late 1980s (see Sampson & Groves, 1989). More specifically, informal social control and social ties measures began to be necessary components when testing social disorganization theory. The review of this literature indicates that informal social control and social ties can support this theoretical model, dependent upon how each are measured, providing a foundation of knowledge necessary to properly test social disorganization, as well as avenues for potential future research.

Sampson and Groves' (1989) test of social disorganization incorporated measures of social ties and informal social control. They created a research design that fully explicated the causal process of social disorganization with the 1984 British Crime Survey (BCS). The community variables (e.g., poverty, unemployment, racial heterogeneity, and residential mobility) that have been found to be consistently correlated with crime and delinquency since the early part of the twentieth century were measured along with the community mechanisms (e.g., informal social control and social ties) that have a potential to impact crime and delinquency. As a result, Sampson and Groves empirically tested a model of social disorganization (see Figure 2) that addressed the criticisms of the earlier research (Kubrin et al., 2009).

Sampson and Groves (1989) argued that while there had been many attempts to measure and test a full model of social disorganization, that research failed to fully specify measures that transform the community variables into intervening constructs that influence crime and delinquency. Addressing the critical assessment of social disorganization (i.e., Bursik, 1984; 1988; Kornhauser, 1978; Stark, 1987), Sampson and Groves described the community processes that produce subsequent crime and delinquency. Their model specified the exogenous sources, intervening constructs (i.e., informal social control and social ties), and delinquency (see Figure 2).

Figure 2

Sampson and Groves' (1989: 783) Model of Social Disorganization



Sampson and Groves (1989) suggested that the exogenous sources included poverty, racial/ethnic heterogeneity, and residential mobility, but they also included measures of family disruption and urbanization in their model. Keeping in mind their

intention of explaining the link between the exogenous sources, the intervening constructs, and crime/delinquency, family disruption was included due to its potential negative impact on social control and supervision. In addition, urbanization was measured as high density of businesses and residential dwellings. Actual urbanization or community development, similar to that of Zone I expansion (Shaw & McKay, 1942), was not included in the study.

Sampson and Groves (1989) drew on data from the 1984 British Crime Survey which was collected in both England and Wales, from 238 localities and incorporating 10,905 survey participants. Each locality had an average of 46 participants. In order to construct the dimensions of the exogenous sources, Sampson and Groves summed the percentages of educational level, occupation (professional and managerial), and income level to construct the socioeconomic status variable. Residential stability was the percentage of individuals living within fifteen minutes from where they were raised. The level of racial heterogeneity for each community was calculated by incorporating the size and number of each race. Family disruption was measured by summing the percentages of individuals separated or divorced and single parent households with children. The final exogenous source, urbanization, was measured by assigning a dummy variable of "one" to areas within a central city and "zero" to the rural localities.

The incorporation and measurement of the intervening constructs were the most important and innovative additions to social disorganization literature (Kubrin et al., 2009). Sampson and Groves (1989) proposed that the exogenous variables affect informal social control and social ties, both of which could emerge in many different physical capacities. As such, measures of informal social control and social ties (e.g., a community

member having communication with a neighbor or telling an adolescent to be respectful to other members of the community) were taken from the 1984 BCS that measured the level of sparse local friendships networks (i.e., number of friends living within a fifteen minute walk), unsupervised teenage peer groups (i.e., how common a teenage peer group is present), and low organizational participation (i.e., percentage of individuals who participated in a community meeting a week prior to survey administration).

Given the emergence of self-report data, validity problems with official survey data began to emerge. Under and over reporting were found in official data, which made it necessary to include self-report data (Bursik, 1988; Hindelang, Hirschi, & Weis, 1979). Sampson and Groves (1989) avoided this problem by incorporating dependent variables from the 1984 BCS survey items measuring personal victimization and criminal behavior. The crime and delinquency data measured the victimization of burglary, theft, vandalism, and violence. In addition, measures of personal violence and vandalism were included (e.g., deliberately injure someone outside your family).

Sampson and Groves' (1989) comprehensive study provides wide empirical support for the theory of social disorganization. As expected, areas with low socioeconomic status, high ethnic heterogeneity, residential mobility, family disruption, and urbanization (i.e., exogenous sources) have high self-reported victimization and criminal behavior, confirming past research. The intervening variables were also found to correlate with the dependent variables; that is, areas with sparse local friendship networks, unsupervised teenage peer groups, and low organizational participation were observed to have the highest victimization and criminal behavior. Moreover, the intervening variables were found to mediate the relationship between the exogenous

sources and crime, substantiating the full model of social disorganization. These researchers were influential in identifying the key limitations of social disorganization, while integrating the proper concepts, creating and measuring a complete model of social disorganization. Research over the next two decades focused on model specification and measurement drawing on areas with different cultures, which solidified social disorganization position when compared to other theories of deviance and criminality (Pratt & Cullen, 2005).

Replication of Sampson and Groves' (1989) test of social disorganization came in varying degrees in the subsequent two decades. Lowenkamp, Cullen, and Pratt (2003) argue their replication of this "classic" (p.352) was the first of its kind, while other tests claiming to be social disorganization failed to explicitly duplicate the details. This point of requiring an exact replication has merit when reviewing the empiricism of a theoretical approach. One must ask if the findings of Sampson and Groves have wide application across many locations and cultures or if their test was a mere anomaly. Clearly, it would be useful to have an exact replication for comparison, one which did not emerge until Lowenkamp et al. systematically applied the techniques of the prior study to data from the 1994 BCS. Consequently, this study can be viewed as the same test, with data being drawn from different points in time.

A systematic replication study would require that the methodology be reproduced in an exact manner. The test of social disorganization by Lowenkamp, Cullen, and Pratt (2003) found four main conclusions. First, the model of social disorganization theory was confirmed with the 1994 BCS data. Similar to the findings of Sampson and Groves, the exogenous variables can impact whether community members display effective levels of

social control, thus limiting the ability to impede criminal or delinquent behavior. Second, having been a systematic replication study, the results were, in large part, consistent with Sampson and Groves' (1989) original study. Third, any inconsistencies present when compared to the original study actually pointed in the direction of stronger support for the social disorganization model. Fourth, an additional approach using LISREL analysis was used to model the relationship between the variables, identifying alternate paths of which these concepts are related. This suggested that social control did not fully mediate the relationship between the exogenous sources and the measure of crime and an additional intervening variable could be impacting this relationship.

Lowenkamp, Cullen, and Pratt's (2003) fourth conclusion was first suggested by Veysey and Messner (1999) when they found that the exogenous sources have more of a direct effect on rates of crime using the same BCS data set. Their analysis indicated that organizational participation, unsupervised peer groups, and local friendship networks are not closely related, measuring more than one concept of social disorganization. The conclusion that should be drawn from this study is that many different behaviors could be incorporated in measures of these mediating constructs, some having more empirical support than the next.

Additional international studies that test social disorganization produce convincing empirical support for the generalizability of findings. Breetzke (2010) found that residential mobility and socioeconomic deprivation was positively associated with crime in South Africa; however, family disruption and ethnic heterogeneity did not have any significant relationship with the measures of crime. These results are consistent with past social disorganization research, aside from the insignificance of racial heterogeneity.

This variable was said to be impacted by the post-apartheid policies, creating segregated communities that produced their own social structure, forming social control, and thus decreasing crime. In addition, Sundquist et al. (2006) found wide empirical support when only measuring the relationship between neighborhood unemployment, income, marital status of households, and violent crime in Stockholm, Sweden.

There are many examples of support for the social disorganization model through partial tests that were conducted in the United States. It is important to keep in mind that social disorganization has many variables that can be applied to criminal outcomes. For example, Clear et al., (2003) measured the exogenous sources (i.e., residential stability, ethnic heterogeneity, and socioeconomic status) and their effect on crime rates in Tallahassee, Florida. Their test did incorporate parts of social disorganization (i.e., exogenous sources and crime as an outcome variable), but it is not a full model test because there were no measures of informal social control or social ties. Nonetheless, a significant relationship was found between crime rates and residential mobility, poverty, and ethnic heterogeneity, supporting the theoretical foundation of social disorganization.

It is important to stress that a full test of social disorganization would include measures of the exogenous sources, intervening constructs (i.e., both informal social control and social ties), and an outcome variable, such as crime or delinquency. Much of the research, however, tended to move away from testing the entire model; for example, including one measure of the intervening constructs such as social ties. That is not to say that these partial tests do not shed some light on the empirical foundation or potential of social disorganization. The literature reviewed above explained how the exogenous sources are connected to crime, fear of crime, and disorder, a useful but not complete

picture of the social disorganization theoretical approach. The following literature focuses more specifically on the intervening constructs that induce or reduce criminal behavior.

Research focusing on the specific development of the intervening concepts suggests these constructs were measured in varying degrees. Informal social control and social ties were extensively studied following Sampson and Groves's (1989) study. In other words, the operationalization of the construct could take many forms. Warner and Rountree (1997) measured social ties by incorporating different forms of informal neighborhood interaction (i.e., frequency of borrowing tools, sharing a meal, and helping with personal problems). The researchers found that social ties did correlate with lower levels of crime. Social ties, however, did not mediate the relationship between the exogenous sources and crime. For instance, social ties did mediate the relationship between the exogenous sources, such as poverty, ethnic heterogeneity, and residential stability, and crime rates in predominantly white communities, but this mediating relationship did not hold up in communities consisting predominantly of minorities.

Additionally, Bellair (1997) operationalized social ties as the amount of willing interaction between neighbors because willingness to interact translates into strong guardianship roles. This research found that a high density of social ties does not necessarily translate into increased social control and lower crime rates. That is, weak ties spawned by infrequent social interaction do correlate with lower crime rates. The problem with both of these empirical tests (i.e., Bellair, 1997; Warner & Rountree, 1997) was the informal social control construct was not included in the research, creating an incomplete model.

Elliott et al. (1996) designed an elaborate model of social ties including measures of social support, neighborhood bonding, neighbor activity, neighbor name recognition, the vicinity of friends and family, and participation in community activities and organizations. These measures were combined into two aggregate measures of social ties, called social integration and informal networks.

Elliott and colleagues (1996) found some support for their detailed model of social disorganization. This model incorporated measures of both social ties and informal social control; however, the measures of informal social control were not as elaborate and detailed as the local social integration and informal network constructs previously discussed. For example, participants were asked their likelihood of intervention given a particular criminal or delinquent occurrence (e.g., witnessing a robbery, drug sale, or fight). The data provided wide support for informal social control; that is, informal social control mediated the level of neighborhood disadvantaged on delinquency. Additionally, informal social control was significantly related to aggregate levels of delinquency. The findings provided a base of knowledge that links a new construct (i.e., *willingness* of intervention) with neighborhood disadvantaged and delinquency. Despite successfully measuring informal social control in a new way, Elliott et al.'s research did not provide any results that confirmed significant correlations between social ties (or local social integration) and informal networks with delinquency. Similarly, local social integration did not effectively mediate neighborhood disadvantage on delinquency (see also Kubrin et al., 2009).

The construct of social ties developed greatly over a ten-year period. These studies have indicated that many different community behaviors may constitute social

ties. Thus, there are many ways in which to operationalize and develop the constructs of the community, some of which have more explanatory power than the next.

Social disorganization literature is littered with critical assessments of the theory's measurement of the constructs and the overall explanatory power of a full model (Kubrin et al., 2009). It is true that social disorganization began with a model that was not fully explicated and a failed policy program based on the main tenets of the theory. Despite these problems, the correlation between delinquency rates and poverty, residential mobility, and racial heterogeneity was consistently established within empirical research. This correlation, however, contained inferential flaws that could not completely connect the community characteristics to the outcome variable(s); that is, the way in which the exogenous sources develop or influence constructs that are capable of mediating human behavior was not adequately addressed during this time period. Based on the research of Sampson and Groves (1989), a proper model of social disorganization incorporates measures of the exogenous variables, intervening constructs, and outcome variables. The older tests of social disorganization theory improperly measured or disregarded these intervening constructs. Despite the revitalization of the theory that has addressed many of these problems, some contemporary research still contained the same flaws.

The revitalization literature asserts a measure of social ties and informal social control is necessary. Following the first full test of this model, there was an attempt to further develop these constructs, including many different types of behaviors and operationalizations (see Bellair, 1997; Bursik & Grasmick, 1993; Elliott et al., 1996; Sampson et al., 1997; Warner & Rountree, 1997). Despite the development of the social ties construct, a measure of informal social control was left out of some research. This led

to additional incomplete tests of social disorganization. Bellair (1997) and Warner and Rountree (1997) were successful in expanding the social ties construct by measuring differing behaviors from past research (e.g., neighborhood borrowing, guardianship, and informal dinner engagements), but did not include measures of informal social control. The problem associated with this research was that both were not complete tests of social disorganization. Future research should incorporate a measure of informal social control and social ties, measures of community characteristics, and an appropriate outcome variable. To this day, social disorganization research is still experiencing the problems similar to Shaw and McKay's (1942) original study. As such, the explanatory power of this theory can only be established by *full* model specification tests.

Another problem stemming from incomplete tests of social disorganization is the manner in which social disorganization research is being used to evaluate the explanatory power of this theory. Even current criminological theory texts use incomplete tests of this theory to downplay its significance. For instance, the critique of social disorganization by Akers and Sellers (2008) incorporates research that leads away from the conceptual foundations of the theory. Their review of social disorganization contains research that measures social bonds of juveniles and the number of social supports available (not necessarily within any specified vicinity) while completely disregarding any identifiable measures of the intervening constructs. Moreover, these social bonds and social supports are measured at the individual level. The result of this review suggests correlations between the exogenous sources and their replacement variables. These studies do have merit in terms of overall empirical value; however, they should by no means be incorporated into a foundational and introductory review of social disorganization theory;

Akers and Sellers briefly mentioned the presence of informal social control and social ties only to document their own involvement with social learning research. Consequently, reviews of theoretical literature should only incorporate methodologically rigorous studies that include measures of the entire theory.

A full model of social disorganization would include measures of both social ties and informal social control, at least in some capacity, but the interconnected nature of these two constructs presents another problem. Kubrin et al. (2009) explained that informal social control is often an outcome variable of social ties. This notion would rearrange the model of social disorganization, having social ties be more of an exogenous variable, mediating informal social control on crime and/or delinquency. Also, social ties and informal social control are not that much different in terms of operationalizing the two constructs (Kubrin & Weitzer, 2003). This can lead to the combination of these two variables into one mediating variable. Given these conceptual problems, it is apparent that there is a need for more development in terms of model specificity.

Social disorganization researchers also have faced a problem with highly correlated independent variables or multicollinearity. Kubrin et al. (2009) suggest that poverty, unemployment, racial composition, divorce, female-headed households, and households on public assistance are measuring social disadvantaged to some degree. Thus, these variables tend to be highly correlated, violating an assumption of independence that is necessary for multivariate regression and leading to biased or skewed results. Although some of the aforementioned problems have still not been addressed, the multicollinearity problem created a foundation by which to address exogenous variable measures (i.e., poverty, racial heterogeneity and residential stability).

To sidestep this problem, researchers have combined the exogenous sources into two aggregate measures, concentrated disadvantage and residential stability, and combined the intervening constructs into what is called collective efficacy (see Sampson et al., 1997). This can be done empirically with factor analyses, and the combination of these variables has created stronger independent variables that explain more variance of crime as well as address the multicollinearity obstacle.

Social disorganization literature, like most criminological theory testing literature, has used official reports for both crime and community based data sources (e.g., Uniformed Crime Reports or U.S. Census). Chambliss (1999) and Hindelang et al. (1979) claimed that official records such as these have been criticized in the past as being biased and produced with political or policy implications in mind, and therefore, their use should be minimized in criminological research. On the other hand, research on social disorganization producing the most support included self-report data to some degree (e.g., Sampson & Groves, 1989; Elliott et al., 1996). This may indicate that self-report data have greater levels of validity and reliability; however, self-report data are not without similar problems, as these data contain bias as well (see Hindelang et al., 1979; Huizinga & Elliott, 1986). The general conclusion is that social science research is not exact and should incorporate many data collection techniques.

The lack of longitudinal research within social disorganization literature has also raised empirical questions (Bursik, 1988). The methodological difficulties for measuring a community's social structure are exacerbated by the need for multiple data collection points over a long period of time (Kubrin et al., 2009). The main argument against previous cross-sectional data utilization was that if crime, delinquency, disorder, or any

other deviant outcome variable is dependent upon the intervening constructs, any change in the intervening constructs or the exogenous variables would be indicated by the outcome variables as well. Therefore, an additional methodological component necessary to understand social disorganization would be to measure model changes longitudinally. For example, Bursik and Grasmick (1992; 1993) focused on gang related activities and community change. They concluded that change in community development and dynamics potentially dictate juvenile delinquency. Social disorganization should be measured over time to understand the relationships between community change dynamics and the outcome variables.

By and large, social disorganization research has focused on urban communities. The density and boundaries of these communities present a particularly interesting problem, not necessarily encountered when assessing micro-level variables. U.S. Census data separate densely populated areas into tracts, arbitrarily placing boundaries throughout the entire city, instead of using existing city boundaries. The problem with this approach is that the community variables, social ties, informal social control, and crime do not exist within a vacuum. These variables have the ability to impact behavior across adjacent areas (Morenoff, Sampson, & Raudenbush, 2001).

Using census tracts as the unit of analysis does not mean that individuals will not be affected or affect neighboring communities. For example, homicide can be brought about by conflicting gang violence in various communities or from interpersonal relationships across boundaries. This relationship to surrounding communities is called spatial autocorrelation. Morenoff et al. (2001) addressed this problem by accounting for the spatial proximity of homicide rates in neighborhoods across Chicago, Illinois.

Accounting for previous homicide rates and neighborhood characteristics, spatial proximity was significantly correlated with increased homicide rates. This suggests that future social disorganization research should account for the spatial proximity of crime and understand these variables do not exist independently. Density, arbitrary boundaries, and ease of movement and communication allow the contextual characteristics of a community to be impacted by the surrounding areas. Despite empirical research suggesting a spatial autocorrelation relationship, Morenoff et al. (2001) is the only social disorganization study that took this into account.

It is important to note that the conceptualizations of informal social control and social ties reviewed here have been appropriate, but by no means have all possible measurements been explored. In the past, there was a need to identify what mediated the relationship between the exogenous sources and the measure of crime or delinquency. Sampson and Groves (1989) designated informal social control and social ties as those mediating factors, and they measured these with indicators of self-reported community organizational participation and local friendship networks. Although these measures are acceptable, many different behaviors could be incorporated. For example, Elliot et al. (1996) re-conceptualized informal social control as the willingness to exert situational control in response to crime.

Given all of the aforementioned problems associated with social disorganization research, there was a need for an innovative approach that attempts to re-conceptualize and create new ways to measure the foundational variables. Although there are numerous problems addressed here, only some need close attention when conducting additional social disorganization research. For example, the lack of longitudinal research, the use of

official data, and inclusion of incomplete tests to evaluate the social disorganization does not discredit the integrity of the complete tests that have been conducted. Longitudinal research is to be treated as a future research assignment, rather than a disqualifying factor if not addressed. The use of official data does have flaws, but there are flaws present with other types of data. Finally, the problem associated with some researchers discrediting specific theories with insufficient reviews is to be viewed simply as an observation and potential warning for readers. The observations that emerged from reviewing literature that should be addressed are the multicollinearity of the variables, the relationship between social ties and informal social control, spatial autocorrelation of the communities, conceptualization expansion of the mediating constructs, and the assurance of a fully specified model of social disorganization. The theory of collective efficacy addresses each of these problems to some degree and should, therefore, be viewed as a beneficial addition to this literature. The following section provides a detailed review of collective efficacy, as well as explaining why this theory is an improved model for testing social disorganization.

The Theory of Collective Efficacy

It is apparent that the theory of social disorganization has had an unstable and inconsistent past, given the modeling, conceptualization, and measurement problems discussed above. Despite these problems, social disorganization has always seemed to have long term viability due to the consistency of construct correlations. The decade following the first complete test of social disorganization (see Sampson & Groves, 1989) provided improvement, but additional setbacks were introduced. As the tests of social disorganization evolved, there was a need for the research to address each of these

problems. Consequently, the model of social disorganization would include the foundational basis of the theory, but the full model would be altered. Collective efficacy theory is an improved theoretical approach, addressing the past inconsistencies of the social disorganization paradigm.

The first tests of collective efficacy took place in Chicago, Illinois in the 1990s, using data from the Project on Human Development in Chicago Neighborhoods (PHDCN). Sampson et al. (1997) created 343 neighborhood clusters (NCs), based on census data and their definition of neighborhood: "a collection of people and institutions occupying a subsection of a larger community" (p. 919). Each NC was measured to identify exogenous sources, collective efficacy (i.e., defined as the combination of informal social control and social cohesion and trust), and violence through a number of different methodologies (i.e., census tract data, survey data, and official crime reports). The survey methodology included interviewing a total of 8,782 residents within the 343 NCs. The 343 NCs were divided into two sections. The first section included 80 randomly selected NCs, which were intentionally over-sampled for continued research in the future. These NCs had a sample size of approximately 80 participants each. The second section, containing 263 NCs, was sampled based on population size. The goal was to have at least 20 participants per NC. The survey portion of this study was carried out by the PHDCN research staff and obtained a 75% response rate.

The conceptualization and measurement of informal social control was an alteration of the original social disorganization paradigm; however, this change was not entirely new to the empirical literature of the time. Sampson et al. (1997) adopted the "willingness" conceptualization due to the physical action nature of informal social

control. The authors explained that communities have neighborhood efficacy similar to that of individuals having self-efficacy. Self-efficacy would be the ability for someone to achieve task-specific goals. Similarly, neighborhood efficacy would be the ability to take action toward a specific goal, based on the level of social cohesion and trust present within the community. This willingness concept could be tested by presenting the participant with an abnormal situation and measuring the likelihood of intervention.

The measurement of social cohesion and trust (i.e., social ties) became less intimate; this moved away from intense social relationships and a focus specifically on the shared beliefs of the community's capability to achieve a specific goal. This modification of social cohesion and trust included the willingness of community members to take action given an abnormal occurrence, thus resulting in one mediating construct, *collective efficacy*. The strength of this model is derived from combining these variables that were left separate in past research, thus addressing a criticism of past social disorganization research. The foundation of collective efficacy is that working social relationships are necessary, but crime and/or delinquency can only be impacted if there is a willingness to intervene. Without both elements of the collective efficacy equation, crime and/or delinquency cannot be affected.

The operationalization of collective efficacy is important to the overall development of this theory. Sampson, et al. (1997) operationalized social cohesion and trust by asking respondents how strongly they agreed (on a five-point scale) that "(i) people around here are willing to help their neighbors; (ii) this is a close-knit neighborhood; (iii) people in this neighborhood can be trusted; (iv) people in this neighborhood generally don't get along with each other (reverse coded); and (v) people

in this neighborhood do not share the same values (reverse coded)" (p. 920). The informal social control aspect was measured by asking residents if they would take action if they faced the following scenarios: "(i) children were skipping school and hanging out on the street corner; (ii) children were spray painting graffiti on a local building; (iii) children were showing disrespect to an adult; (iv) a fight broke out in front of their house; and (v) the fire station closest to home was threatened with budget cuts." (p. 919-920). These measures were combined to incorporate one aggregate score of collective efficacy for each of the communities.

The exogenous sources of the collective efficacy model were also measured differently than in earlier social disorganization studies. The basic assumption is that each of the exogenous sources do not stand alone unaffected by additional community variables, similar to the intervening constructs (e.g., social ties and informal social control), meaning that the each of the exogenous sources are interrelated. Sampson et al. (1997) hypothesized that the exogenous sources (e.g., poverty, public assistance, female-headed households, unemployment, density of children, and level of African-American residency) all impact a community's ability to recognize common values and exercise effective control and should therefore be combined. The authors created a community level measure combining these variables, designated as *concentrated disadvantage*. Additionally, a measure of residential stability, or level of homeownership and residential tenure, was included. As levels of concentrated disadvantage are hypothesized to positively correlate with delinquency and crime, residential stability is hypothesized to negatively correlate with these outcome variables; that is, residential stability is believed to promote social cohesion and trust, allowing a community to recognize collective

values and exercise informal social control. Sampson and colleagues also incorporated a measure of immigrant concentration, percentage of Latino and foreign-born citizens within the communities.

An outcome variable of violence was measured in three distinct ways. Respondents were asked about the amount of violent occurrences taking place within the last six months (e.g., fight with the use of a weapon, violent argument, gang fight, rape or sexual assault, robbery or mugging). This measurement utilized a Likert-type scale, which was combined into a community scale of perceived violence. The second measure of violence focused on past victimization of the respondents (based on the same type of violent acts previously mentioned). The final measure of violence was the number of homicides. As one of the most reliable official measures of crime, homicide was aggregated into one homicide score for each neighborhood.

Sampson and colleagues (1997) hypothesized that both concentrated disadvantaged and immigrant concentration would be negatively correlated with collective efficacy. Conversely, residential stability was thought to be positively correlated with collective efficacy. The hypotheses were substantiated when it was found that concentrated disadvantaged and immigrant concentration had a significant negative relationship with collective efficacy. Additionally, residential stability had a significant positive relationship with collective efficacy. When combined, these three neighborhood measures (or exogenous sources) accounted for 70.3% of the variance in collective efficacy across the 343 NCs.

The next step was to understand whether collective efficacy meditated the relationship between the exogenous sources and violence. Past research has consistently

shown a relationship between collective efficacy and violence, but a full test of social disorganization should include mediating measures of the intervening constructs. Therefore, in order for the collective efficacy model to be substantiated, the results must show that collective efficacy is negatively related to violence (i.e., perceived violence, victimization, and homicide reports) and mediates the relationship between the exogenous sources and violence. Collective efficacy was found to have a significant negative correlation with homicide, victimization, and perceived violence, when all other variables were taken into account. Moreover, collective efficacy was found to significantly meditate the relationship between concentrated disadvantaged/residential stability and all measures of violence. Immigrant concentration did not have any significant relationship with violence once collective efficacy was taken into account; as a result, subsequent collective efficacy research omitted this particular construct.

In sum, the theory was confirmed by showing that collective efficacy mediated the relationship between the exogenous sources and three separate measures of violence. This study was instrumental in three distinct ways. First, the conceptualization of the variables and modeling were done with the aforementioned problems in mind. Given the close association between exogenous sources and the intervening constructs, Sampson et al. (1997) created aggregate measures, including many different variables that potentially impacted the other variables in the model (i.e., concentrated disadvantaged and collective efficacy). Second, the new conceptualization of the exogenous sources explained 70.3% of the neighborhood variation of collective efficacy. Third, collective efficacy meditated a large proportion of the relationship between both concentrated disadvantaged/ residential stability and all three measures of violence.

Following that first full test, social disorganization research began to expand and develop the measurement of the variables (i.e., exogenous sources, intervening constructs, and outcome variables). The evolution of the social disorganization model incorporated many different behaviors and constructs, but it tended to not fully address each of the theory's criticisms. For example, Kubrin and Weitzer (2003) claimed social ties and informal social control were thought to be highly correlated to one another, making it difficult to distinguish between the two measures. High correlation suggests that it would be difficult to distinguish between the measures of each of these when kept separate. This argues the point that combining the two constructs into one overarching variable is appropriate theoretically and methodologically. Also, many social disorganization tests incorporated only one of these intervening concepts (see Bellair, 1997; Warner & Rountree, 1997) or measured both social ties and informal social control separately and in varying degrees (see Elliott et al., 1996). The theory of collective efficacy proposed by Sampson et al. (1997) addressed the main criticisms of social disorganization and created a model that was supported.

The theory of collective efficacy is better suited to explain urban neighborhood crime and delinquency than the test of social disorganization conducted by Sampson and Groves (1989) because the problems associated with measuring this theory are properly addressed. First, Sampson et al. (1997) recognized that the community variables that made up the three exogenous sources (i.e., residential stability, immigrant concentration, and concentrated disadvantage) are all interconnected. For instance, they recognized that poverty, public assistance, female-headed households, unemployment, density of children, and percentage of African-Americans, were all, in part, explaining one

overarching variable (i.e., concentrated disadvantaged). Similarly, the closely related nature of social cohesion and trust (social ties) and informal social control allowed the researchers to combine these concepts. Past social disorganization research has assumed that the presence of social ties translates into the presence of effective social control (Sampson, 2006b). These separate constructs have been shown to load statistically on one factor, but by no means are they equal theoretically or conceptually. Collective efficacy is derived from social ties creating the opportunity for social control to have an effect. Although the multicollinearity problems associated with these variables were highly criticized in the past, combining them actually addressed these criticisms and created a model that better explained crime and delinquency variance within urban communities.

Collective efficacy has recently been criticized as being too similar to prior social disorganization theory (Kubrin et al., 2009). It is similar in the sense that the variables and assumptions are somewhat alike, but collective efficacy does take a step away from the traditional social disorganization paradigm. The combination of similar variables and the re-conceptualization of social ties provide a different and more beneficial model, despite the fact its foundation stems from social disorganization. Collective efficacy is a product of theory development and a step above other social disorganization models for these reasons.

The need for a revised version of the social disorganization model brought about the theory of collective efficacy. Though still rooted in the foundations of social disorganization, collective efficacy rearranged the original model, as well as changed the way in which social ties and informal social control were operationalized. Sampson et al., (1997) expanded social disorganization research by creating and testing the first

collective efficacy model. The majority of social disorganization research incorporated the underlying assumption that social ties included *intimate* networks of neighbors, friends, and family. For instance, Elliott et al.'s (1996) elaborate model of social ties incorporated social networks, density of friends, family support, participation in community activities, level of neighbor bonding and familiarization, concentrating on the intensity of the relationship. Although intricate and detailed, these measures of social ties were not substantiated by the data. Sampson and colleagues created a model that rejected this assumption, focusing specifically on the resource potential of a community based on *working* social ties; that is, the notion of social ties fostering effective levels of informal social control, as essential, but not entirely necessary. Sampson (2004) explained that social networks create an environment in which informal social control can emerge; however, this is not sufficient. Working social ties, such as social cohesion and trust, are less profound and intense and are highlighted by the neighborhood's overall ability to recognize a specific level of common good. This idea of less frequent interaction among neighbors capable of recognizing common goals and norms was first identified by Granovetter (1973) and then later tested by Bellair (1997), who found that this concept was associated with lower crime rates. Consequently, the collective efficacy model conceptualized social cohesion and trust as weak relationships brought about by infrequent interaction, fostering enough cohesion to distinguish pro-social behavior and goals of a community.

It has been shown that past social disorganization theory criticisms focused on modeling specification, construct conceptualization and operationalization issues, as well as the apparent multicollinearity problems associated with the variables. Even after the

first full test of social disorganization, partial tests were still being used to empirically establish the explanatory power of social disorganization theory (see Bellair, 1997; Warner & Rountree, 1997). Despite these problems, collective efficacy theory emerged as addressing each of these criticisms. Collective efficacy theory addressed the multicollinearity and conceptualization/operationalization problems, while still measuring the traditional paradigm of social disorganization. Consequently, the theory of collective efficacy is to be considered a more advanced model of social disorganization and capable of explaining a relatively greater degree of crime and/or delinquency variance within a community.

Empirical Support for Collective Efficacy

There have been a limited number of tests that replicate or expand the original collective efficacy research. Support for the collective efficacy model is strong (Pratt & Cullen, 2005). This section provides an overview of additional collective efficacy research that has taken place following Sampson and colleagues' (1997) original test. This review provides a direction as to the current position of collective efficacy and the potential for future research.

Collective efficacy research falls within three categories of inquiry. Each study reviewed in this section attempted to replicate the original research, changed the way in which the variables are measured, and/or included additional variables in the model. Studies that attempt to replicate the original research are very limited. One study had mixed results. Duncan, Duncan, Okut, Strycker, & Hix-Small's (2003) test of collective efficacy did not find complete support when replicating the original model in a large northwest metropolitan area. High levels of collective efficacy were significantly related

to low levels of neighborhood violence, similar to that of the original research. Conversely, collective efficacy was not related to the measures of concentrated disadvantage and residential stability. This research actually contradicts the original findings of collective efficacy. The authors claimed that this problem was derived from the sample that had 50% of the participants below the age of eighteen. Adolescents were believed to have a different understanding of the neighborhood structure and criminal activity, potentially skewing the results. Considering this sampling problem, little can be taken away from this study in terms of assessing the explanatory power of collective efficacy theory. A willingness to intervene should arguably include those who have an authoritative position in the community (e.g., adults). Additionally, this control is coupled with the social cohesion and trust of a community, which allows citizens to recognize common values and expectations of behavior. Given that adults have more of an authoritative position in the community and take more of a role of producing social cohesion and trust, including a large sample of adolescents creates a fatal flaw.

Mazerolle, Wickes, and McBroom (2010) took into account community-based crime prevention programming when measuring collective efficacy and violent victimization. Their findings suggested that collective efficacy is a strong predictor of violence across Australia, the United States, and Sweden. This indicates cross-cultural similarities between violence and the presence of informal social control and social cohesion and trust. In addition, this research attempted to correlate community-based crime prevention program density with collective efficacy. The hypothesis stated that community-based programming will open lines of communication among citizens

cultivating social ties and informal social control. The data, however, did not support this assertion.

Sampson and Wikstrom (2007) compared the PHDCN data collected in Chicago, Illinois to data collected in Stockholm, Sweden, using the same survey instrument. The purpose of this research was to understand the explanatory power of collective efficacy cross-culturally. Social cohesion and trust and informal social control were measured identically in both locations. Despite the historical and cultural differences between both locations, collective efficacy was found to mediate a portion of the relationship of concentrated disadvantage and residential stability with violence. In addition, collective efficacy was found to be a significant predictor of neighborhood violence in both countries. These findings are important to the development of collective efficacy, because it shows applicability across cultures. Future research should attempt to exploit this finding by researching collective efficacy in many different cultures and countries (Sampson, 2006a).

A more recent study connected collective efficacy to children's antisocial behaviors upon entering elementary school. Odgers, Moffitt, Tach, Sampson, Taylor, Matthews, and Caspi (2009) measured collective efficacy in the same manner as the original research in both affluent and deprived neighborhoods. Collective efficacy significantly correlated with antisocial behaviors of children at school entry, but not later in life, suggesting that collective efficacy can potentially be a predictor of an antisocial trajectory.

One of the main criticisms of social disorganization is the apparent lack of any formal social control measures within the theory's design. Although this approach

attempts to understand the resource potential of the community and its impact on crime and delinquency, it would be useful to understand how informal social control compares to formal social control in a social disorganization context. Zhang, Messner, and Liu (2007) included measures of collective efficacy (i.e., informal social control and social cohesion and trust) and formal control, measured by visibility of the police, in their study of social disorganization in China. As expected, areas with high collective efficacy and a strong police presence yielded a lower crime rate. This suggests that informal social control could be accompanied by formal control, creating an understanding of the entire societal control system. In contrast, China's socialistic environment led the empirical evidence away from past empirical knowledge. The Chinese government was said to offer societal infrastructure, making poverty an insignificant variable in the model. Additionally, residential stability was said to be an insignificant factor because the families that moved often tended to be higher on the economic ladder. These individuals would have the resources to move into affluent areas, with relatively small amounts of crime. These findings would indicate that the concentrated disadvantage variables may be applicable only to western society, a conclusion that could be considered an avenue for future research. Most importantly, this research has shown that collective efficacy has a potential to impact crime in many societies and cultures.

Relative to the replication research, there are numerous studies that incorporate additional variables into the collective efficacy model. The most common alteration of the collective efficacy model has been to change the outcome variable. When collective efficacy was measured in the exact manner as the original research and applied to studies with a different outcome variable, the model had mixed results. Reisig and Cancino

(2004) found that perceived incivilities were negatively correlated with collective efficacy, when appropriate control variables were taken in account. Additionally, Simons, Simons, Burt, Brody, and Cutrona (2005) found that collective efficacy was positively correlated with authoritative parenting. These authors found that a change in collective efficacy was correlated with a change in subsequent authoritative parenting. Moreover, this study combined collective efficacy with authoritative parenting to explain deviant peer associations and delinquent behavior, all of which was substantiated by the data. Way, Finch, and Cohen (2006) found that collective efficacy did negatively correlate with married and unmarried Hispanic teen birth rates, when the population consisted of 50% or lower of Hispanics. Alternatively, if the population consisted of more than 50% of Hispanics, collective efficacy's relationship with unmarried Hispanic birth rates was insignificant.

With homicide rates as the outcome variable, Morenoff et al. (2001) found that social institutional participation was not enough to explain community homicide rates. The combination of social ties and willingness to control was a more robust predictor of homicide. Similarly, Ohmer and Beck (2006) found that citizen participation was not associated with neighborhood collective efficacy (see also Ohmer 2007). This means actual participation does not translate into increased levels of social ties and informal social control (i.e., collective efficacy).

When collective efficacy was operationalized differently than that of the original research, the results were also mixed. Gibson, Zhao, Lovrich, and Gaffney (2002) operationalized a willingness to intervene as the "likelihood that adults would take responsibility for behavior of youths on their own" and "likelihood that neighbors would

call police if a suspicious person was hanging around the block" (p. 548). Social cohesion and trust was operationalized as the likelihood of "returning a favor for a neighbor," "faith that a neighbor would assist if his or her car was stuck in the mud or snow," and "would describe his or her neighborhood as a place where people mostly help one another or a place where people mostly go their own way" (p. 548). Gibson et al. found that fear of crime was negatively correlated with collective efficacy, when re-operationalizing the original constructs.

Wells, Finch, and Cohen (2006) also re-operationalized the collective efficacy constructs. A willingness to intervene was operationalized as "the extent to which the respondent agrees that residents are willing to take responsibility for safety of their own neighborhoods, how often respondents agree to watch a neighbor's home when they are on vacation, how often respondents keep an eye on kids who live on their block to see that they aren't getting into trouble, and how often respondents keep an eye out for anything suspicious happening on their block." (p. 528). Social cohesion and trust of a community was operationalized as describing their neighborhood as "one where people usually help each other or one where people usually go their own way" and "how often respondents get together socially, share tools, and willing to work on local problems." (p. 528). Wells et al. found that these new measures of collective efficacy did not correlate with actual intervention, which was measured by asking the respondent about the "most important problem facing their neighborhood" and if they had "contacted police, some other governmental agency, neighborhood association, community group, or neighbor" concerning this problem (p. 532). This shows that further development of collective efficacy measures has mixed results. Support was largely dependent upon the outcome

variables and the way in which collective efficacy was operationalized; however, without including original and new operationalizations, it is difficult to determine whether these new items are tapping into the concept as proposed originally by Sampson et al., (1997).

Most recently, Maimon and Browning (2010) conducted research focusing on the mediating potential of collective efficacy on unstructured socializing of urban youths and violence. Combining routine activities theory and social disorganization, the researchers found that parents are more likely to allow their children to socialize in an unstructured environment in areas with high collective efficacy. Moreover, unstructured socialization is less likely to result in violence in areas with higher collective efficacy. This finding is similar to previous research highlighting the informal social control potential of the collective efficacy model.

The collective efficacy literature brings a mix of empirical evidence and support. Pratt and Cullen (2005) conducted a meta-analysis where they claimed that support for social disorganization and collective efficacy is fairly strong when compared to other main stream theoretical approaches. The research that incorporated particular outcome variables tended to have the most support (e.g., violence, fear of crime, unstructured socializing and violence, authoritative parenting, and incivilities), while support for other outcome variables (e.g., Hispanic teen pregnancy in some communities, citizen participation, and actual intervention) was not as strong. Research that replicated the Sampson et al. study (1997) and focused on violence as an outcome variable remained empirically strong (Sampson & Wikstrom, 2004). Collective efficacy support was also strong cross-culturally in a number of different countries (Mazerolle et al., 2010; Sampson & Wikstrom, 2004). There were two studies that reformulated the way in which

collective efficacy was operationalized, both of which utilized different outcome variables (see Gibson et al., 2002; Wells et al., 2006). While it was found that levels of fear of crime could be mediated by the collective efficacy model using different operationizations (Gibson et al., 2002), this was not the case when actual intervention was used as the outcome variable (Wells et al., 2006).

There are a number of distinct conclusions that can be taken from the aforementioned tests of collective efficacy. First, collective efficacy research has shown support for a variety of outcome variables; however, there are variables that are not supported by the model. For example, actual citizen participation was not found to correlate with homicide rates or neighborhood collective efficacy (Mazerolle et al., 2010; Morenoff et al., 2001; Ohmer & Beck, 2006). Incorporating actual or perceptions of participation levels has not been incorporated into past collective efficacy research. On the other hand, measures of collective efficacy and separate measures of participation have been conducted. This finding creates an avenue for future research, which is discussed in the context of social capital in the next section. Second, research that replicates and expands the constructs of collective efficacy is extremely limited (Sampson, 2006a). Third, there are a limited number of studies that re-operationalize the constructs of collective efficacy. In particular, this conclusion presents many opportunities for future research. The conceptualization of collective efficacy incorporates the social cohesion and trust of a community and a willingness to intercede given some abnormal situation that could potentially arise (i.e., informal social control). In theory, both of these constructs could include additional behaviors than what has

already been measured. Future research could incorporate many criminal behaviors to understand the full potential of collective efficacy.

The review of this literature provides a clear avenue for future research. Collective efficacy has been shown to be supported by most empirical studies, but is very limited. Future research should focus on further developing the constructs within this model, incorporating many different behaviors that have a potential of producing working social ties and effective control within a community. In addition, the location of these studies should be expansive, testing the ability and explanatory power of collective efficacy in many communities throughout the nation, as well as other nations (Sampson, 2006a). Further development of these constructs could potentially provide more support for this model. Conversely, a wide variety of tests could show that collective efficacy is limited in its explanatory power. Either conclusion will increase empirical knowledge and is worthy of future research efforts.

Social Capital

Social cohesion and trust within communities has been measured extensively within the social capital literature (Castle, 2002; Coleman, 1990; Putnam, 1995). In addition, there has been some debate as to whether social capital research should incorporate specific behaviors of civic engagement (see Castle, 2002; Coleman, 1990; Sharp, 2001). Though this review is not designed to weigh in on this particular debate, social capital literature, incorporating these behaviors, presents an avenue for future inquiry for the theory of collective efficacy. Similar in the sense that constructs overlap, collective efficacy and social capital theories were designed for two inherently different purposes (Cancino, 2005). Social capital research attempts to explain the overall strength

of a community by measuring such variables as social participation, networks, and communication (Coleman, 1990; Putnam, 1995). Collective efficacy measures the correlations present between community characteristics, informal social control and social ties, and crime within a community (Sampson et al., 1997). Despite the differences between these theoretical paradigms, their construct overlap presents a particularly interesting problem with the current conceptualization of informal social control within the collective efficacy literature; as well as providing guidance for expanding the social cohesion and trust construct.

The following section specifically identifies current conceptualization problems associated with informal social control as an *action-oriented construct*. This provides a rationale for the expansion of the informal social control construct. In addition, social capital research is reviewed to explore possible actions that constitute social cohesion and trust within a community, leading to construct expansion.

Due to the expansive nature of social capital literature, it is difficult to locate an all-encompassing conceptualization of the term (Cancino, 2005). There has been much debate regarding the variables that should be incorporated into a measurement of social capital (see Castle, 2002; Coleman, 1990; Sharp, 2001). Castle provided an in-depth discussion of the controversy, concluding that social capital could include such conceptualizations as the resource potential of a community or the product of civic engagement. Unfortunately, there is still continued deliberation as to what constitutes social capital. In all likelihood, this debate will continue due to the cross disciplinary applications of social capital. The debate seems to be focused on how social capital is measured, what the term incorporates, and the benefits that can result (Sharp, 2001).

Social capital should be viewed as a concept that includes community trust and reciprocity within the community, membership and availability of local organizations capable of creating collective good, norms and sanctions, and open lines of communication between community members (Coleman, 1990).

Cancino (2005) provided that social capital is only half of the full collective efficacy picture. Social capital is the basis by which control manifests itself (see also Rose & Clear, 1998), while collective efficacy also measures the likelihood of intervention (e.g. control). It is not applicable to utilize social capital as a theory to predict specific occurrences or only incorporating the trust variable (see Baker, 1990; Bourdieu & Wacquant, 1992). When viewed as a concept, incorporating variables of trust and communication, it is useful in the sense that it creates a foundation to understand how informal social control is derived from social cohesion and trust, potentially impacting such variables as crime and disorder. This is also referred to as "the transformation from resource to agency" (Cancino, 2005, p. 301), with social cohesion or capital as the resource and agency as the actual intervention or likelihood of intervention. Therefore, Coleman's (1990) conceptualization of social capital is well suited to introduce to a discussion of expanding informal social control and social cohesion and trust.

If social capital is to be used as a template for future collective efficacy inquiry, the variable of civic engagement should be the main focus. Putnam (1995) measured the presence of social capital by incorporating modes of civic engagement, such as membership in a variety of different community associations, such as religious, fraternal, support, countertrend, and community oriented groups. In addition, the presence of volunteering may be a construct that could potentially be included when measuring

collective efficacy (see also Leyden, 2003). Similarly, Morenoff et al. (2001) connected social capital and collective efficacy. They measured the presence of voluntary associations, such as local religious organizations, neighborhood watch programs, block group, tenant associations or community council, business or civic groups, ethnic or nationality clubs, and local political organizations. Although it is not necessary to specifically review each organization that could overlap with collective efficacy, it is useful to mention the differing types of community groups that are available in society. Each of these voluntary organizations provides face-to-face lines of communication between community members, thus strengthening social capital and improving the resource potential of the community.

Adopting this notion, it is plausible that local community participation can impact the levels of collective efficacy. These two bodies of literature have been connected in the past; however, there could be a differing perspective for this connection, claiming that social cohesion and trust can incorporate many of the same behaviors tested within social capital research. This notion also leads to the idea that informal social control also could incorporate many different behaviors than what has been measured in past research.

Interconnection of Collective Efficacy and Social Capital

Community member social cohesion and trust have been measured in many capacities. Social capital research measures the relationships and investments residents have in their community (Coleman, 1990; Putnam, 1995; Sharp, 2001). Bursik (1999) who connected the terminology of "social capital" with the theory of collective efficacy. Although social capital can incorporate many different concepts, Bursik did not invent new ideas concerning this theoretical paradigm. His research measured the same

construct of social cohesion and trust, but he designated it as social capital. Bursik (1999) incorporated multiple measures of social cohesion and trust that overlap; however, he did not include data that measured the action of informal social control in any way. Claiming that the Oklahoma City data did not contain actual measures of informal social control as a behavior, he measured the frequency at which the residents used their local businesses. Unfortunately, the current collective efficacy literature either omits measures of key variables, utilizes the original data set from the PHDCN, or simply replicates the PHDCN survey items. Bursik's work was instrumental in that he identified the same construct (social cohesion and trust) was being measured within these two bodies of literature, but social cohesion and trust of a community is only one part of the necessary components. Specifically, how social capital manifests into action, ultimately leading to crime and delinquency reduction, illustrates the entire picture of social disorganization and collective efficacy and was disregarded by Bursik.

Building from Bursik's (1999) model linkages, the social capital literature may provide some future pathways for developing the social cohesion and trust construct. The disagreement between researchers' conceptualizations of social capital provides a base of discussion as to what exactly constitutes the social cohesion and trust of a community. This argument specifically focuses on whether participation should be included when measuring social capital. Dependent upon the conceptualization that is adopted, participation may be the underpinning or product of social capital. The incorporation of the participation construct is largely dependent upon the conceptual stance that is taken. The mere fact that many different action oriented constructs are incorporated into the social capital literature provides some support for further development and inquiry of

collective efficacy theory. While acknowledging the obvious interconnectedness with collective efficacy, it is important to recognize that social cohesion and trust has not been fully explored within criminological research.

It has been shown that informal social control and social cohesion and trust have been connected to past social capital research, although not specifically in the same manner (Bursik, 1999). The similarity of these bodies of literature presents a particular avenue for increased knowledge and research. Due to the relative infancy of the collective efficacy literature, the social cohesion and trust construct has not been fully examined. Social capital research has illustrated that there is a wide variety of behaviors that establish higher levels of social cohesion and trust in a community. Following this same logic, informal social control may potentially include additional action oriented behaviors than what has been currently measured.

An understanding of this idea can be illustrated by reviewing the specific survey items that have been utilized in most of the collective efficacy literature. Sampson et al. (1997) included survey items to measure social cohesion and trust, asking participants how strongly they agreed with, on a five-point scale, statements about their social environment (see p. 38 for exact survey items). The next step, when expanding the social cohesion and trust construct, is to connect the previously reviewed social capital research. More specifically, social cohesion and trust avenues can be connected with types of civic engagement. It has been shown that civic engagement, such as presence of local associations, correlates with higher levels of social capital within a specified area (Coleman, 1990; Leyden, 2003; Morenoff et al., 2001; Putnam, 1995). Putnam (1995) and Morenoff et al. (2001) measured differing types of civic associations. These

associations include local support groups, fraternal and religious organizations, neighborhood watch programs, block group, tenant associations or community council, business or civic groups, ethnic or nationality clubs, and local political organizations. Expansion of social cohesion and trust could potentially include any or all of these differing types of organizational presence or membership.

The literature provides more information concerning the relationship between community organizational participation, as measures of social cohesion and trust, and crime and delinquency rates. The level of organizational participation within the community negatively correlated with violence and self-reported delinquency (Simcha-Fagan & Schwartz, 1986; Taylor, Gottfredson, & Brower, 1984). This correlation is useful in the sense that it provides an empirical connection between these variables; however, learning from the development of social disorganization research, by no means is this the entire picture. Similar to the original social disorganization research (Shaw & McKay, 1942), the way in which these variables impact behavior (i.e., informal social control) was not explicitly measured, and it is important to keep in mind that these studies were not claiming to be a measure of social disorganization. Both studies do provide empirical support, connecting organizational participation to prominent criminological outcome variables. This provides further evidence that social cohesion and trust may include many different behaviors than originally conceived within the collective efficacy research. Incorporating as many behaviors as possible will present a clearer picture as to the empirical boundaries of collective efficacy theory.

A lack of empirical support for the relationship between community organizational participation and crime is also present in the literature. Morenoff et al.

(2001) used the same PHDCN survey items to measure collective efficacy, while testing perceptions of organizational participation and voluntary associations. The research found an insignificant relationship between these perceptions and homicide. The researchers claim that "cohesion coupled with social control seems to be the more proximate correlate of lower homicide relative to dense social ties" (p. 553). This finding would indicate that the collective efficacy model, incorporating working, less intimate, social ties is better equipped to predict criminological dependent variables. Similarly, Ohmer and Beck (2006) did not find a correlation between organizational participation and collective efficacy; however, the question remains as to what types of activities (if any) produce higher levels of social cohesion and trust within a community.

The same argument can be made to expand the operationalization of informal social control. For example, residents were asked if they would take action if they faced five scenarios, based on a five-point scale (see p. 38 for scenarios) (Sampson et al., 1997). The purpose and outcome of a resident's participation is to obtain and maintain public order through informal means. Further development of this logic leads to the notion that maintaining public order through some form of informal action is much more extensive than originally conceived (Kubrin & Weitzer, 2003). For example, a willingness to participate in a neighborhood watch group constitutes informal social control because the purpose of the individual action is to maintain public order, albeit at an organizational level.

This organizational or institutional action brings about another issue that must be addressed. Given that actions of control can be informal or formal, the point at which an individual's actions become formal social control is unexplained. There is a potential for

confusing these two particular concepts. Formal social control constitutes any action to maintain public order, derived from law, exercised by an official representative of the government. Therefore, any action to maintain public order taken by an individual or group not given the authority to enforce formal law, regardless of the level of organization, is considered informal. Stemming from this organizational conceptualization, informal social control would include a group of individuals that collectively coordinate a response to disorder (e.g., neighborhood watch programs). In terms of collective efficacy theory, this would be a *willingness* to participate in a neighborhood watch program if crime or disorder began to increase. The social capital research, as well as this conceptualization, presents an opportunity to expand what constitutes informal social control within the collective efficacy theoretical paradigm.

Social capital research has been shown to have an interconnected relationship with the concepts of collective efficacy and social disorganization literature. Specifically, collective efficacy's social cohesion and trust construct has been measured in a similar fashion within social capital research (see Bursik, 1999; Cancino, 2005). Social cohesion and trust or social capital, however, is only half of the collective efficacy equation. Incorporating measures trust and reciprocity in the community and control (e.g., the resource to agency transformation) is most important when researching collective efficacy. Social capital research has shown that there are many different ways to measure community social cohesion and trust, suggesting a template for future research designs. Similarly, the same argument can be made for the informal social control measures. Informal social control can include many behaviors, but the measures must include the original willingness conceptualization to be considered a collective efficacy test.

Conclusion

There are similarities within the research of social capital and collective efficacy in that each utilizes the same concepts; however, the "marriage" between these two theoretical paradigms needs to be approached with caution. Incorporating the same constructs does not necessarily mean they are attempting to explain or measure the same concepts or phenomena. Though these two bodies of literature have been connected in past research, the basic tenets were kept separate and distinct. A valid incorporation would require that a "willingness" to intercede is measured, including participation in any or all of the aforementioned organizations or activities should a particular abnormal situation arise.

Social capital research has shown that actual civic engagement correlates with the level of social capital within a community (Coleman, 1990; Leyden, 2003; Morenoff et al., 2001; Putnam, 1995). Here, social capital has acted as a template to further develop the constructs of social cohesion and trust and informal social control. Future research should develop additional measures of informal social control that take into account social capital research, noting that, it is important to construct survey items that tap into this "willingness" conceptualization. This would be a true measure of collective efficacy as it was originally intended.

Collective efficacy has been an empirically supported theory throughout the last decade (Pratt & Cullen, 2005). Though relatively new to criminological research, this theoretical paradigm has the potential to increase our knowledge of ecology and crime even further. The concept of this research should be used for this very reason; that is, to utilize social capital research to fully develop social cohesion and trust and informal

social control as an action oriented construct, thus advancing our knowledge of community level crime and delinquency.

Another problem defined by this review is that subsequent interpretations of Bursik's (1988) assertions unfortunately did not exude methodological innovation. Research did address these criticisms and avenues but did not recognize that measuring individual perceptions of social disorganization variables could potentially mean something other than community members. Incorporating community members to establish levels of informal social control and social ties is an important test but by no means is it the "complete" model of social disorganization, as there are many opportunities for improvement and further development. Bursik (1988) wrote:

> the second solution to the design of such contextual analyses does not restrict itself to the use of official records in its characterization of the individual; although such information may be used, it is supplemented by other data collected through self-report techniques…such studies, however, provide a clear indication of the role that social disorganization can play in the development of a 'full' criminology. The continuation of such research is essential to the vitality of the ecological approach (p. 540).

This indicates that incorporating individuals is a step in the right direction, but subsequent research will provide evidence of future pathways. He was correct when asserting that social disorganization research should focus on the individual when collecting data, which will also present additional opportunities; however, subsequent research did not consider the resource potential of local community groups. Community organizations and groups could have the potential to attest to the levels of informal social

control and social cohesion and trust within various communities. If this assumption is correct, this creates numerous opportunities by which to measure social disorganization and collective efficacy. For example, a particular community group could be included to measure collective efficacy or a comparison study could be created that measured both an individual community member's perceptions of collective efficacy and a community group's perceptions of collective efficacy. This research would indicate the resource potential of various groups within the social disorganization paradigm.

Both collective efficacy and social disorganization research incorporated citizens to measure the intervening constructs. Collective efficacy included measures of citizen's willingness to intercede and their working social ties. Bursik's (1988) assertion that it is necessary to include individual perceptions was innovative and empirically substantiated, but this is incomplete. Community members are not the only informants available to speak to the overall levels of informal social control and social ties within the community. Government officials, community organizations, and specific cohorts of community workers, for example, can provide data focusing on the constructs of collective efficacy and social disorganization. One group of informants with particular abilities to report on the collective efficacy of neighborhoods and their residents are real estate agents. Sampson (2006) wrote:

> real estate brokers are attuned to the cohesion of neighborhoods, a subtle, but nonetheless salient, factor that gains special currency among families with children (It is not a coincidence that the city I chose to live in is endowed with considerable social capital and collective efficacy) (p. 158).

In this case, a real estate agent is in a unique position to know, understand, and report the measures of collective efficacy. As such, real estate agents should be able to provide accurate data concerning social cohesion and trust, informal social control, and perceptions of crime.

This chapter has provided a critical review of the development of social disorganization and collective efficacy theories. Exogenous sources, social ties, and informal social control remain as difficult variables to measure within the community, as evidenced by the numerous incomplete tests within the literature. Despite these difficulties, there are many avenues for future research. It has been illustrated that the improvement of social disorganization and collective efficacy has been dependent upon the appropriateness of statistical and methodological techniques. Existing research has created a template from which to plan a research design to test collective efficacy completely. As such, the following research questions have emerged from this review:

1. How do community levels of concentrated disadvantage and residential stability correlate with perceptions of collective efficacy?
2. How do community levels of concentrated disadvantage and residential stability correlate with perceptions of crime?
3. How do perceptions of collective efficacy correlate with perceptions of crime?
4. Do perceptions of collective efficacy mediate the relationship between concentrated disadvantage, residential stability, and perceptions of crime?

CHAPTER III

METHODOLOGY

The literature review has documented that social disorganization and collective efficacy theories have been measured in a variety of different ways. Researchers need to ensure that subsequent research properly specifies a model for testing. Numerous partial tests have added to empirical knowledge, but these tests lacked full model specification and measurement. The present study is tailored to address these specific inadequacies.

This study tests a full model of social disorganization, measuring the exogenous sources, intervening constructs (e.g., collective efficacy), and perceptions of crime. The conceptualizations of the constructs are similar to Sampson, Raudenbush, and Earls' (1997) original research. The present study follows a quantitative strategy, using an online survey administered to real estate agents working within the communities of Pittsburgh, Pennsylvania.

Research Questions and Hypotheses

Chapter II has provided a detailed account of collective efficacy theory; that is, the review presented the way in which it has been measured in the past, its strengths and limitations, and suggestions for future research. The majority of past tests have measured collective efficacy through self-reports of community members. Although community residents are a valuable source of data, individuals working in various communities have the potential to offer accurate data concerning these variables. Consequently, this research incorporates real estate agents as participants, measuring collective efficacy and perceptions of crime in various communities throughout the Pittsburgh, Pennsylvania area. Additional community structural characteristics was taken from the 2000 U.S.

Decennial Census. This strategy provides data to answer traditional collective efficacy questions and test needed hypotheses. This section specifies the research questions and hypotheses that are the foci of this research.

This test of collective efficacy theory aims to identify the relationships between concentrated disadvantage and residential stability and collective efficacy, concentrated disadvantage and residential stability and perceptions of crime, and collective efficacy and perceptions of crime within various communities. Moreover, the entire model will be supported when levels of collective efficacy mediate the relationship between concentrated disadvantage and residential stability and perceptions of crime.

This research includes the same hypotheses as Sampson et al. (1997); however, this study has not inquired about immigrant concentration. The literature has shown no significant findings concerning this variable, and it has been omitted from the majority of subsequent research. The same hypotheses are proposed because of the empirical support in the original and subsequent research. The innovation in this study is the use of real estate agents as resident proxies to measure collective efficacy and perceptions of crime. As a result, the following hypotheses are formulated based upon the review of the literature and the four research questions provided in Chapter II.

$H_{a\ 1}$ - Communities with higher levels of concentrated disadvantage will have lower levels of real estate agents' perceptions of neighborhood collective efficacy.

$H_{a\ 2}$ - Communities with higher levels of residential stability will have higher levels of real estate agents' perceptions of neighborhood collective efficacy.

$H_{a\ 3}$ - Communities with higher levels of concentrated disadvantage will have higher levels of real estate agents' perceptions of crime.

$H_{a\ 4}$ - Communities with higher levels of residential stability will have lower levels of real estate agents' perceptions of crime.

$H_{a\ 5}$ - Communities with higher levels of real estate agents' perceptions of neighborhood collective efficacy will have lower levels of real estate agents' perceptions of crime.

$H_{a\ 6}$ - Levels of real estate agents' perceptions of neighborhood collective efficacy will mediate the relationship between concentrated disadvantage and residential stability and real estate agents' perceptions of crime.

These hypotheses are sufficient to obtain the primary goal of this research (i.e., establish the validity of collective efficacy theory in Pittsburgh, Pennsylvania). Chapter II has shown that collective efficacy has a great deal of potential; this research tests this assertion to understand its empirical boundaries. The next sections of this chapter introduce the methodology of the present research and explain how collective efficacy was measured.

Research Design

This research investigates the collective efficacy model by administering internet surveys to local real estate agents working in various Pittsburgh, Pennsylvania neighborhoods. The collective efficacy model requires that the data be able to show correlations between concentrated disadvantage, residential stability, and the dependent variable, in this case perceptions of crime within a specified area. Also, the research focuses on understanding the relationship between collective efficacy and perceptions of crime, as well as testing whether collective efficacy mediates the relationship between

concentrated disadvantage and residential stability and perceptions of crime. A cross-sectional design is sufficient to identify such statistical relationships.

Internet surveys are the main form of data collection; however, these are not sufficient to measure the full model of collective efficacy. Real estate agents were able to provide data concerning collective efficacy and perceptions of crime within a specified community, but they lack the ability to supply the data needed for measures of concentrated disadvantage and residential stability. As such, the 2000 U.S. Decennial Census provided these measures, similar to that of past social disorganization and collective efficacy research (see Sampson & Groves, 1989; Sampson et al., 1997 for examples). Internet surveys, using Qualtrics software, were utilized to maximize efficiency of administration through electronic mail (email) and minimize the costs associated with a mail survey design. The surveys were administered easily through an email distribution list with instructions and other information pertaining to the study. Appendix A provides the survey instrument that was administered to the real estate agents.

Sampling Strategy

Measuring collective efficacy required a sampling design that includes the identification of the unit of analysis (e.g., individual participants) and selecting participants to divulge information pertaining to various communities. This section provides the steps taken to ensure random selection of communities with varying degrees of collective efficacy. In addition, the manner in which the participants were accessed and ultimately surveyed is presented.

Sampling of Real Estate Agents

The present study incorporated real estate agents as participants to measure collective efficacy and perceptions of crime within each community. Although real estate agents have not been used previously to measure these concepts, they have a unique job that requires them to know or be aware of such community attributes. There are numerous foreseen benefits when surveying real estate agents for collective efficacy research. When measuring the citizens, the research would require a large sample size having many participants for numerous communities. For example, the original collective efficacy research included 343 neighborhood clusters (NCs), with a total of 8,782 residents participating in the study (Sampson et al., 1997). Another potential research design could identify a cohort of individuals who can attest to the variables that are being measured. Real estate agents are accessible, allowing for the sampling frame to be easily defined. Each real estate agent can answer survey questions concerning a number of different communities in which they work. This strategy increases the amount of data that any single respondent can provide.

To attain an acceptable response rate, potential participants in the greater Pittsburgh area were identified from a list of 1,235 real estate agents on the REALTORS® Association of Metropolitan Pittsburgh (RAMP) website. This website provided current emails for each participant. Once the real estate agents were identified, a hyperlink to the Qualtrics survey was distributed by email. The survey specifically asked the real estate agents to report perceptions of collective efficacy and crime regarding communities with which they have specific experience and knowledge. The initial survey was sent to the entire sampling frame.

Sampling of Communities

One set of criticisms of social disorganization and collective efficacy focus on what constitutes a community exactly and whether geographic boundaries are the best way to distinguish between the various communities (see Morenoff et al., 2001). Unfortunately, this ongoing debate has provided little guidance as to the best procedure to define these urban communities. Past research has used political and census tract boundaries as definitions of communities. This study randomly selected communities out of three categories (e.g., low, medium, and high crime quintiles) based on official crime reports, obtained from the Pittsburgh Police Department. It is conceivable that a random selection of communities would provide neighborhoods of only one category, making the implications of this study extremely limited. Therefore, it was necessary to ensure that all three levels of these crimes are represented in the study. The implications from this study are, therefore, much broader by this design.

The list of census tracts was obtained from the 2000 U.S. Decennial Census, these were then labeled according to their local neighborhood names using a report provided by the City of Pittsburgh (Census: Pittsburgh, n.d.). Pittsburgh includes 100 communities, with each community consisting of 1 to 4 whole census tracts, without overlap. The census contains all of the necessary data concerning the community variables measured within the collective efficacy model (e.g., concentrated disadvantage and residential stability).

When choosing neighborhoods for inclusion into this study, a simple random selection could produce, for example, communities that all have high (or low) levels of collective efficacy. Ideally, the selection would provide varying levels of collective

efficacy, concentrated disadvantage, and residential stability. The literature has supported the collective efficacy model providing that levels of crime will be negatively correlated with collective efficacy and residential stability, as well as being positively correlated with concentrated disadvantage. Therefore, if communities are selected based upon levels of official crime statistics categorized into high, medium, and low crime quintiles, the results should produce a high degree of variation of collective efficacy, concentrated disadvantage, and residential stability. Official crime data from 2010 for each census tract was collected from the Pittsburgh Police Departments Intelligence and Statistics Division (see Appendix E). To calculate the three categories, each census tract's crime frequency was aggregated into one score and this aggregated crime frequency was used to compute a range of crime by neighborhoods. The range between the highest and lowest census tract scores was divided evenly into five quintiles. Each community's overall score indicated their respective quintile. The second-lowest and second-highest quintile were omitted to provide the most amount of variation among the communities included in the study. Two communities were randomly selected from each category, resulting in six communities included in this study.

The official crime data obtained from the Pittsburgh Police Department contains Part I and Part II crimes from all census tracts within the Pittsburgh Metropolitan area (see Appendix E). Arguably, all crimes have a potential to increase an individual's perception of crime for a particular area. Due to the availability of this data, the total of all criminal incidents from this report was used to calculate the crime frequency for each census tract. Then the crime frequencies for each census tract were aggregated into a crime frequency for each community and standardized by frequency per 1000 residents.

Recruitment of the proper sample size was determined by Cohen's (1992) power primer model. According to Cohen, the power of the results can be dictated by the size of the sample. If proper steps are not taken to ensure a large enough sample size, the validity and interpretation of the findings can be questioned. A small sample size can fail to produce a statistically significant relationship among the independent variable(s) and the dependent variable when a true relationship does exist. In contrast, too large of a sample will identify a statistically significant relationship, but extra time and effort would be necessary to collect and produce the massive amount of data, when it is not needed. Therefore, not only is it cost effective to select the ideal number of participants in the research, but it also is important considering the implications it has for the study's results.

When choosing the sample size, based on Cohen's (1992) power primer model, the statistical methods for analysis must be taken into account. In this case, the variables of age, gender, experience, familiarity, concentrated disadvantage, residential stability, and collective efficacy were regressed on perceptions of crime. The race variable was included in the survey but did not have enough variability, and was therefore omitted from subsequent analysis. The desired sample size will be large enough to identify a statistical significance, while not being overly large and costly. When conducting a power analysis, the desired effect size (ES) must first be determined. Choosing the correct effect size relies on the researcher to have some idea of the magnitude of correlation between the independent and dependent variables. Cohen suggests researchers utilize a medium effect size because it estimates the "average size of observed effects in various fields" (1992: p. 2). Using Ordinary Least Squares Multiple Regression and considering the

number independent variables (7), a medium effect size (ES), and a .05 significance level, Cohen calculates the ideal sample size would be 76 participants.

The RAMP website has provided that there are 1,235 real estate agents available to participate in this study. In addition, we have calculated that 76 participants will be sufficient to provide statistical significance. Dillman (2007) estimates that the response rates for email surveys are approximately 20 to 25 percent. Consequently, all real estate agents were included to participate in the survey. Follow-up emails reminding the participant about the survey were sent out in approximately one-week increments after the initial email, until saturation was determined.

The sampling design discussed a process (e.g., selection of communities and real estate agents) by which real estate agents working within Pittsburgh, Pennsylvania were selected and ultimately tested in a collective efficacy context. Random selection of communities ensures biases are minimized from the study and the results are generalizable to the various communities throughout the metropolitan area. By incorporating real estate agents as resident proxies, this study provides a unique approach to the study of collective efficacy.

Variables

The data collection techniques used in this study to measure collective efficacy (e.g., informal social control and social cohesion and trust) was completely different than that of past research. Historically, collective efficacy studies have used residents as participants when collecting data about their respective communities. This research, however, tested the constructs of collective efficacy by surveying real estate agents about the communities in which they work. As such, both measures of social cohesion and trust

and informal social control were altered so that each were measuring the intended construct and correspond to the type of participant in the study. In addition, collective efficacy theory has been used to explain various criminal and non-criminal behaviors (see Browning et al., 2004; Gibson et al., 2002; Mazerolle et al., 2010; Morenoff et al., 2001; Ohmer, 2007; Ohmer & Beck, 2006; Reisig & Cancino, 2004; Simons et al., 2005; Thomas, 2007; Way et al., 2006; Wells et al., 2006). This particular study questioned the ability of collective efficacy theory to explain perceptions of crime. A complete test of collective efficacy requires a measure of concentrated disadvantage and residential stability (community contextual variables), which was obtained using the 2000 U.S. Census. This section provides details of how each of the variables in the collective efficacy model were measured in the present study.

This research involves using each real estate agent's base of knowledge of six different communities within Pittsburgh, Pennsylvania. This research uses the original PHDCN survey items, and adds additional items to test both informal social control and social cohesion and trust; however, because this study has a different type of participant, there was a need to change each survey item. For example, in previous research with community residents, social cohesion and trust was measured by asking residents how strongly they agree with certain statements that reflect neighborhood relationships. Real estate agents completed surveys for a number of different communities, and the survey items will measure their perceptions of social cohesion and trust for each specific community.

Similarly, the measurement of informal social control was altered as well. Measuring informal social control with real estate agents required the survey to have a

number of scenarios on the likelihood of intervention by the community members. This approach still taps into the intentions of collective efficacy by incorporating a cohort of people who have gained knowledge of these behaviors through their professional interaction.

The literature review revealed that most of the collective efficacy tests have operationalized informal social control and social cohesion and trust following Sampson et al. (1997). One of the conclusions of the literature review, however, was that these items need to be expanded. Consequently, additional survey items measured behaviors that were not previously used in the original research.

Social cohesion and trust of a community was conceptualized as less intimate and intense than past social disorganization research (Sampson, 2004; Sampson et al., 1997). Also called "working social ties," this construct centered on the idea that infrequent contact with neighbors and community members was enough to establish a common expectation of behavior within the community. These items add to the empirical knowledge of social cohesion and trust, expanding the current item pool and potentially making an argument that this particular construct could include additional behaviors.

The conceptualization of informal social control was also different in the current study from the original social disorganization literature. Instead of asking participants about actual control, they were asked about the likelihood of interceding if an abnormal situation was presented. For example, one of the PHDCN items asked participants how likely they are to intervene by giving money to a local fire department that had budgetary problems and was potentially closing. Tapping into this "willingness" concept is important to the overall conceptualization of collective efficacy theory. It was vital that

additional items in this study follow this same conceptualization. The additional items tapped into the willingness concept originally conceived, as well as adding additional behaviors that could potentially constitute informal social control.

Perceptions of Crime

This study used real estate agents' perceptions of crime of the selected communities as the dependent variable. Constructs related to collective efficacy have been shown to correlate with a number of different dependent variables (i.e., Hispanic teen birth rates in specific populations, authoritative parenting, anti-social behaviors among children, homicide, violence, and fear of crime) (Browning et al., 2004; Gibson et al., 2002; Mazerolle et al., 2010; Morenoff et al., 2001; Ohmer, 2007; Ohmer & Beck, 2006; Reisig & Cancino, 2004; Simons et al., 2005; Thomas, 2007; Way et al., 2006; Wells et al., 2006). It is vital to incorporate a number of different outcome variables to understand this theory's full potential (Sampson, 2006a). With this in mind, the job of a real estate agent requires that they know and understand the community attributes that are being measured in this study. Similar to knowing the levels of social cohesion and trust and informal social control, real estate agents were able to provide their perceptions of crime within each community.

Perceptions of crime have been measured in the past in a number of different ways. For example, a list of differing crimes can be presented, while asking the respondent to estimate the level of each crime within a specified community (see Ball, 2001; Bedard, Eschholz, & Gertz, 1994). Other researchers have taken a more general approach by aggregating most crimes into a few questions. Wyant (2008) asked participants about levels of general crime, gun violence, and drug use as a serious

problem. This approach could be even more simple by asking participants about the violence in a community, rather than qualifying the violence specifically to gun violence.

Due to the real estate agent's expertise in a number of different communities, another beneficial approach was to include a comparison question on the survey. A comparison question allowed the participant to complete the survey thinking in contrast to the other communities within the study (Moon, Walker, Murphy, Flatley, Parfrement-Hopkins, & Hall, 2009). Therefore, the following survey question was included in this survey: (i) in comparison to the other communities in which you work, do you think the level of crime in *Community X* is…. much higher than an ordinary community within Pittsburgh, Pennsylvania, somewhat higher, about the same, somewhat lower, or much lower. This particular question ensured the participant was thinking of the crime problem in comparison to other communities within the confines of the city limits, allowing them to provide an accurate and more comprehensive account of their perceptions of localized crime.

This research takes a simpler approach to measuring perceptions of crime. Detailed questions concerning these perceptions can muddy the line between this concept and fear of crime. Therefore, participants were asked (on a five point scale): (i) how much crime and delinquency is there in *Community X*?; (ii) how big of a problem is violence in *Community X*?; and (iii) do you think illegal drugs are a serious problem in *Community X*?" Additionally, a comparison survey was added, asking participants (on five point scale): in comparison to the other communities in which you work, do you think the level of crime in *Community X*? All survey items measuring perceptions of crime have a five-point response scale. This approach was beneficial because these four

questions measure the main crime problems facing most communities; that is, general crime and delinquency, violence, and drugs are measured separately.

These survey items tap into the concept of perceptions of crime and are suitable for the purposes of this study. Real estate agents, having valuable knowledge in various communities, were able to respond concerning this variable, as well as the constructs of collective efficacy. For these reasons, the survey was brief to entice real estate agents to answer questions for many communities.

Community Variables

Collective efficacy theory combines community variables, previously kept separate and distinct, into two overarching concepts called concentrated disadvantage and residential stability (see Sampson et al., 1997). As previously stated, one of the problems with social disorganization theory was the inherent multicollinearity problems with a number of these community variables. Collective efficacy research avoids this problem by describing how these variables are explaining two separate inclusive concepts. The following section explains how the community variables are associated and could load onto two overarching factors (i.e., concentrated disadvantage and residential stability). Immigration concentration, consisting of percent Latino and foreign-born was incorporated in the past research with little empirical support. Consequently, this particular study omitted any measures of immigration concentration. All community variables were measured by data drawn from the 2000 U.S. Decennial Census, with levels of concentrated disadvantage and residential stability calculated for each community chosen for the study.

Concentrated Disadvantage. Past collective efficacy research combined percentages of residents living below the poverty threshold(<$14,999 per household), residents receiving public assistance, female-headed families, unemployment, residents less than age 19 (children), and African American residents within each community. A factor loading score of each variable was calculated to determine the level of concentrated disadvantage. This current research used the same techniques for concentrated disadvantage. Therefore, it was necessary to conduct a factor analysis to ensure these variables are loading at an acceptable level (e.g., ≥ 0.60) on this concept (DeVellis, 2003). Sampson et al. (1997) found that these variables, except for percentage of African American residents, loaded above 0.85, suggesting a high loading on the same factor, while percentage of African American loaded at 0.60, still suggesting a high degree of association.

Residential Stability. Residential stability was calculated in the same manner as concentrated disadvantage using two variables taken from the 2000 U.S. Decennial Census. The census asked participants about housing tenure, incorporating two survey items. First, the census asked whether the participant had been a resident of the same dwelling for the past five years, specifically since April, 1995. The second question asked if the participant owns the dwelling they were currently living in (e.g., owner-occupied house). The percentage of each survey item was combined to formulate the level of residential stability within each community.

Survey Construction and Administration

The survey used in this research measured real estate agents' perceptions of collective efficacy (i.e., social cohesion and trust and informal social control) and

perceptions of crime for six communities, throughout the Pittsburgh, Pennsylvania area. Although real estate agents may have a knowledge of every community included in this study, it is more likely that they are not able to report this information for every community. A real estate agent may not have specific knowledge and experience of every community within Pittsburgh, Pennsylvania; therefore, the survey took this into account to avoid any validity issues. As a result, it was necessary to construct a survey that was adaptable to this particular reality. A Qualtrics internet survey was best suited to handle this function.

Qualtrics is software that has many features that allow researchers to adapt and design surveys that adhere to situations similar to what has been described. The number of survey items was specifically limited because each real estate agent could potentially be answering a number of survey questions for each community. In this case, there are eighteen survey questions for each community, with six communities incorporated in the study. Consequently, a participant could answer 108 survey items, plus the seven demographic items. For this reason, the number of items and communities was intentionally kept to a minimum.

A real estate agent may have knowledge of all of the communities within the study. The real estate agents selected all of the necessary communities that he/she has knowledge of and then proceed to go through the questions for each community. The demographic questions concerning age, race, gender, experience, and familiarity were provided at the end of the survey. The Qualtrics software was beneficial, because it contains features that allow the correct communities to be included in the survey for each real estate agent. A survey item appeared that asks the participant to select the

communities with which they have a working knowledge concerning the social environment. When the participant selected the appropriate communities, only those communities were presented through the remainder of the survey.

A separate page for each community was presented to the participants. Each page had instructions, telling the participant that the following questions are for *Community X* and only for *Community X*. Once the eighteen survey items are completed and the "continue" tab was selected, the next page appeared for a different community for which the respondent indicated an appropriate level of knowledge. This continued until all questions were answered for each appropriate community.

Qualtrics software was very beneficial because the link to the survey, as well as any other documents pertaining to the research (e.g., subject protection information), were attached to an email. The emails were sent directly to the sample of individual respondents. The results were then easily exported to an SPSS file where the analysis was conducted.

Reliability and Validity

This section explains how the reliability and validity of the survey data were determined. While completely reliable and valid measures are difficult, if not impossible, to achieve in the social sciences (see Carmines & Zeller, 1979), certain strategies were taken to ensure reliability and validity were at an acceptable level.

Reliability

Reliability refers to the "extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials" (Carmines & Zeller, 1979, p. 11). It is essential to test reliability of the survey instrument that is being used in this research.

Although there are a number of different ways to assess reliability, each with their own benefits and limitations, this study tested for internal consistency. This specific method was chosen due to the ease at which the test can be conducted. For example, the retest method would require the sample to take the survey twice and to have results from each administration compared. It is expected that participation would increase if the involvement and time required to complete this survey is kept to a minimum. Having the real estate agents take the survey twice, presumably at work, would significantly lessen the likelihood of participation. Thus, incorporating the retest method into this research would be severely problematic.

The internal consistency method measures the inter-item correlation using Cronbach's alpha (alpha) (Carmines & Zeller, 1979). More specifically, this explains how the survey items consistently measure the same underlying construct. For the purposes of this research, survey items of collective efficacy and perceptions of crime were measured for reliability.

Collective efficacy refers to the combination of social cohesion and trust and informal social control. A hypothesis of this research contends that communities with higher levels of cohesion will be more likely to exhibit informal social control given some abnormal situation should arise. In terms of reliability, estimated alpha coefficients for both social cohesion and trust and informal social control should be high because the theoretical model suggests they are measuring the same latent construct (e.g., collective efficacy). There have been a number of different opinions published concerning the alpha coefficient that is needed to be acceptable; however, Sampson et al. (1997) found these items to be closely related at $\alpha = 0.80$. Considering this research is using the same survey

items from the original research, as well as adding two items for each construct, it is to be expected that the survey items used are reliable.

The reliability of perceptions of crime was assessed in the same manner as collective efficacy. The survey items in this study that measure perceptions of crime are commonly used in criminological research and should therefore be reliable measures. The four survey items used to measure the dependent variable, as well as the measures of collective efficacy, were tested for reliability following the completion of the data collection using the internal consistency method.

Validity

Validity is an important concept that must be addressed in all social science research. As reliability focuses on the consistency of the measures, a measure that is one hundred percent valid measures the concept that is intended and only that concept. After reviewing the literature, it is easy to see how concepts and measures overlap (e.g., measures of social ties and informal social control). Carmines and Zeller claim that a completely valid measure in the social sciences is "unachievable" (1973: p. 13). The focus must then turn to ensuring the validity of the measures is at an acceptable degree, which can be conducted by employing a number of different strategies. The following provides a discussion of the various types of validity that are important to this research.

Content validity refers to the survey items of the research measuring the full domain of the concept in question (Carmines & Zeller, 1979). In terms of collective efficacy, the survey items would be content valid if there are measures of both social cohesion and trust and informal social control of a particular community. Conversely, one

could not claim content validity if there were only survey items measuring one or the other.

The literature review takes center stage when discussing content validity. The literature provides a foundation of information that allows the reader to understand what a concept fully incorporates or does not incorporate. The collective efficacy and social capital literature has provided that social cohesion and trust and informal social control can include many behaviors. Having no empirical test of content validity, it is important to understand the concepts presented by collective efficacy, the constructs that are included, and ensure the survey incorporates measures that accurately represent each concept. This research incorporates the same ten survey items of collective efficacy used in prior research. The additional four items have been taken from research relating to the same concepts and should, therefore, be measuring collective efficacy. Additionally, the items used to measure perceptions of crime are also adapted from prior research. The literature review has provided a valuable platform from which to utilize and expand the item pool of collective efficacy measurement. With support from the literature, the survey items should measure the full range of the concepts incorporated in this research.

Construct validity is a particularly interesting topic considering the subject matter and hypotheses presented by this research. The intent, when assessing construct validity, is to have procedures in place that ensure the variables act as they should in relation to other variables (Carmines & Zeller, 1979; DeVellis, 2003). The focus, consequently, turns to the informed hypotheses. The literature has shown that the scale of collective efficacy should negatively correlate with the scale of perceptions of crime, as well as a number of other dependent variables (see Sampson et al., 1997). Similarly, the scale of

concentrated disadvantage should theoretically be negatively associated with the scale of collective efficacy, while residential stability would be positively correlated. Therefore, evidence of construct validity was assessed following data collection. Support of the hypotheses was indicated by a particular level of construct validity.

The interesting part of assessing construct validity is the covariation of the constructs creating collective efficacy. Criticisms of social disorganization and collective efficacy have argued that social ties and informal social control are closely related theoretically, making it difficult to statistically differentiate between the constructs (Kubrin et al., 2009). Although closely correlated, with some overlap in terms of survey items, the constructs that make up collective efficacy are theoretically distinct. This discussion assists in creating an argument for validity. Measures of social ties and informal social control should be highly correlated, per the aforementioned literature, thus explaining one overarching variable (i.e., collective efficacy). Assessing this covariation, also called convergent validity, is one way of assessing the construct validity statistically (DeVellis, 2003).

This research evaluates construct validity in two ways. The information provided by the literature has indicated that the variables presented in this research should behave in a particular and specified manner. Construct validity was assessed by reviewing the empirical support for or against the hypotheses that have been created based from the literature. In addition, the scales of social cohesion and trust and informal social control should have a high degree of covariation. This would indicate further evidence of construct validity.

There are a number of threats to validity that are in the hands of the researcher; that is, during survey construction and administration, there are various strategies that can be employed to decrease the errors when respondents take the survey. The purpose of taking these steps is to ensure that correct data can be obtained from the respondent. Some threats, such as respondent recall and sensitive subject matter, as in most cases in criminology, are not problems with this particular research. There are other threats, however, that need to be addressed.

The survey items used to measure collective efficacy and perceptions of crime have been used in past research. It is not anticipated that the wording of the survey items will be a problem in terms of comprehension, although the way in which the survey is administered may cause confusion. Qualtrics software can process what is called a "loop-and-merge" function that tailors the survey to the specific topic areas of each respondent. The respondent was asked which communities they have knowledge of and feel comfortable answering questions about the social environment and crime. Once the appropriate communities were selected by the respondent, Qualtrics only presented questions for the selected communities. Each page of the online survey focused on one specific community. The top of the page stated that the following questions are for *Community X* and only for *Community X*. Additionally, each question contained the community name to reduce confusion about the area in which the respondents are answering. The intention of this was to decrease error associated with taking this type of survey.

This section has provided an overview of the reliability and validity problems that could potentially arise and strategies to ensure this study's integrity. Although there are a

number of projected problems, the strategies are in place to curtail or prevent each. It is understood that there are unforeseen problems that could exist. The problems that could arise were addressed to ensure the highest reliability and validity attainable.

Analysis Plan

Testing collective efficacy theory requires a number of analytic strategies. This research divides each hypothesis into its own analysis plan to reach this study's intended goals. Additionally, this research questions the restricted nature of the current literature. This section provides a detailed account of how each hypothesis and research question was answered.

The literature review has offered that social cohesion and trust and informal social control could potentially include many behaviors that are not currently being measured. One intention of this research is to expand the item pool to potentially explain more of the perceptions of crime variance within the community, as well as making an argument for expansion when explaining all other dependent variables. This particular analysis will show that the current measure of collective efficacy is either sufficient, needing no additional development, or needs to be expanded, which will only strengthen the empirical support of this theoretical model.

The survey instrument that was used to measure social cohesion and trust and informal social control added four survey items to the original PHDCN survey items (e.g., two survey items for both social cohesion and informal social control). Testing the need for expansion was conducted by a two-step process. First, the original PHDCN ten survey questions measuring levels of collective efficacy was regressed on levels of perceptions of crime, showing the level of variance explained by the original instrument.

The second step in the process was to regress all fourteen survey items measuring levels of collective efficacy on perceptions of crime. If more variance is explained by the expanded instrument, an argument can be made that collective efficacy could potentially include many different behaviors than what is currently being measured. If there is little to no change, the conclusion would be that the original instrument is sufficient to measure collective efficacy. Both conclusions add to the empirical knowledge and are important to the development of this theory.

Using factor analysis, Sampson and colleagues (1997) constructed three community contextual variables (e.g., concentrated disadvantage, residential stability, immigrant concentration) that included various survey items taken from the 1990 U.S. Decennial Census. The same method will be used to explore the relationship between the four new survey items measuring collective efficacy, in comparison to the original ten items. Social cohesion and trust and informal social control have two new survey items each. A high factor loading for each new survey item will indicate that these are measuring the same concept as the original PHDCN survey items. This will further validate the measures that are being used and make a stronger argument for potential expansion.

Bivariate and multivariate regression were used to test $H_{a\,1}$ and $H_{a\,2}$. Given past empirical support, it is anticipated that concentrated disadvantage will be negatively associated with levels of collective efficacy, while residential stability will be positively associated with levels of collective efficacy. These community contextual factors were regressed on levels of collective efficacy, providing a level of explained variance for each construct. Explaining a particular level of variance for each exogenous source and

collective efficacy will provide empirical support for the hypotheses. The same process was conducted for $H_{a\,3}$ and $H_{a\,4}$, which substituted collective efficacy with perceptions of crime.

$H_{a\,5}$ analyzes the relationship between collective efficacy and perceptions of crime. Past research has shown that collective efficacy is negatively correlated with perceptions of crime, as well as a number of other dependent variables. This correlation was provided by the two step process that measures inter-item correlations. The original ten PHDCN survey items and all fourteen items combined will provide two different collective efficacy measures; each being regressed on perceptions of crime. The results can be used to draw conclusions and relative strength of association between collective efficacy and the dependent variable.

A complete test of collective efficacy should analyze the relationship between the community contextual factors and perceptions of crime (e.g., $H_{a\,6}$) while controlling for levels of collective efficacy. Sampson et al. (1997) found that collective efficacy mediates the relationship between the community contextual factors and violence (measured three separate ways). To test this assertion, the community contextual factors were regressed on perceptions of crime, while controlling for collective efficacy. Then, the regression coefficients between concentrated disadvantage and perceptions of crime and residential stability on perceptions of crime were compared to these figures when collective efficacy is controlled. If the coefficients between the community contextual factors and perceptions of crime are reduced or become insignificant when controlling for collective efficacy, it can be claimed that collective efficacy mediates this relationship.

The survey instrument used in this study also asks about respondent demographics to control for variation in responses. A multivariate regression model was performed for these measures on levels of collective efficacy and perceptions of crime. This analysis was conducted using the Statistical Package for the Social Sciences (SPSS) software. The Qualtrics and Census data was uploaded into SPSS, where the analysis was conducted. Although there are a number of steps in this analysis, SPSS provided an acceptable platform to ensure all of the intended goals were met.

Strengths and Limitations

All research has strengths and weaknesses (DeVillis, 2003). It is important to understand research methods so that the limitations of the study are kept to a minimum and the results can be inferred upon a larger population. This section explicates the strengths and limitations of this particular research design.

Sampson (2006) claims that further tests of collective efficacy in different areas are necessary to understand its empirical boundaries, using new ways to measure it. Utilizing the knowledge of real estate agents in the Pittsburgh, Pennsylvania adds to the empirical knowledge. Although collective efficacy has been tested in this city in the past (see Ohmer, 2007), the way in which collective efficacy is being measured is completely new. This is to be viewed as a strength of this research. Real estate agents have a job where they are required to understand the constructs examined in this study for a number of different communities. They will also have their own informed perceptions of crime that occur in these areas, avoiding the aforementioned criticisms of using official data. As a result, real estate agents are a good source for measuring collective efficacy, while providing a different perspective that will add to the existing empirical knowledge.

The use of an online survey streamlined the survey administration process. Real estate agents can access their email where the link to the survey and any other pertinent information was readily available. The Qualtrics software allowed for the survey to be specifically tailored to each respondent based on their own knowledge of the various communities included in the study. This reduced survey error by negating the problems associated with a navigational design (see Dillman, 2007). Moreover, the data were then uploaded into an SPSS file where the analysis of the data was then conducted minimizing possibility of any data entry error. The options created by Qualtrics software are largely beneficial and increase the overall strength of this study.

This research also addresses the limitations of the existing survey instruments. Using the same ten survey items to measure collective efficacy continuously, without expansion, places constraints on the conceptualization; meaning, collective efficacy equates to these exact behaviors and nothing else. This current limitation in the literature has been noted and transformed into a strength of this research. Although using two additional items for both social cohesion and informal social control is minimal, in terms of the many different behaviors that each could potentially constitute, the mere statistical confirmation or contradiction of the fit of these survey items will provide a meaningful contribution. That is, the current measures of collective efficacy are either sufficient or include many different behaviors not currently incorporated in the literature. Either conclusion adds to the empirical knowledge of collective efficacy theory.

All studies have limitations, and one such weakness of the present study is the number of survey items included in the study. For example, if a real estate agent was willing to answer questions about ten communities in the study, he/she would be

answering 180 survey items plus demographic items. This is an unusually large amount of items to be answered by a participant. Despite the questions being similar (e.g., the same eighteen questions being answered for the six communities) and the time it would take to answer would be relatively minimal, this amount of survey items could cause survey error (Dillman, 2007). Consequently, this research only incorporates six communities within Pittsburgh, Pennsylvania.

The minimal number of communities incorporated in this study also brings about another limitation. Morenoff et al. (2001) claim that spatial autocorrelation, or the way in which surrounding areas impact levels of collective efficacy and crime, must be taken into account when testing this theory. Unfortunately, the large majority of studies available still do not control for this. If this study was to incorporate a measure of spatial autocorrelation, a large number of communities sharing boundaries must be included in the study. It is conceivable that the six communities used in this study will not share any boundaries, given the large number of communities available in the sampling frame. Consequently, this study would lack any data that could potentially measure spatial autocorrelation. A study incorporating all of the communities within Pittsburgh, Pennsylvania could measure for this, however, it is not logistically feasible to do so for this study.

As Sampson (2006a) has stated, collective efficacy has enormous potential, it just needs to be studied until its limitations are met. Social disorganization and collective efficacy have been notoriously difficult to study in the past; although, this research design has shown that there are innovative approaches that could potentially bypass many of these drawbacks. Incorporating real estate agents' knowledge of cohesion, control, and

perceptions of crime within six Pittsburgh communities provides new foundation of empirical knowledge not previously studied. Future research could follow this same design or this could be the impetus for new creative ways of researching this theory.

Human Subject Protections

Human subject protections were straightforward and simple due to the nature of this research. This research tests collective efficacy by measuring real estate agents' knowledge about social cohesion and trust, informal social control, and perceptions of crime within a number of different communities. There are no participants in this study who would qualify as a special population, meaning each participant was above the age of eighteen years and informed of the nature and extent of the research. As such, subject participation was completely voluntary.

Given the subject of the study, there is little to no risk of harm to the subjects. Subject participation was kept completely confidential and was informed of this status. The surveys did not have any identifying marks of any kind (see Appendix A). All of the research data was kept anonymously; a summary of the results and conclusions was offered to the participants if requested.

This particular research offers minimal human subject participation issues. Despite criminological research historically incorporating special populations in research, including many ethical issues, this study anticipates having no negative ethical implications. Providing the subject matter, informed consent, and confidentiality to the subjects should minimize any unanticipated ethical complications.

CHAPTER IV

RESULTS

This chapter presents the results of the collective efficacy survey administered in June and July of 2011. The data from this survey administration were used to test collective efficacy theory to explain neighborhood perceptions of crime using real estate agents as participant proxies. A summary of the sample and descriptive statistics are provided, followed by a review of each research question, hypothesis, and related analyses.

Sample

Prior to the survey administration, a membership list from the REALTOR® Association of Metropolitan Pittsburgh (RAMP) website indicated that there were 1,235 real estate agents working within the Pittsburgh metropolitan area. Qualtrics is an online survey distribution tool that uses the internet to administer surveys to research participants, and this tool was used to facilitate this research. The initial survey distribution sent invitations to participate by email to all 1,235 real estate agents on June 27, 2011. Approximately one week after the initial distribution, a reminder email was sent out to the real estate agents who had not already participated. Qualtrics includes a distribution function that can send reminder emails at periodic intervals. These functions allow researchers to keep track of which participants have completed a survey.

The rate of response to the survey was very low after the first reminder was sent. At this time, there were approximately twenty-five responses. A government affairs administrator from RAMP was contacted in an attempt to understand the low response rate. The administrator contacted a number of real estate agents in the sampling frame

who indicated they did not receive the email, but the Qualtrics software also did not provide notification of any undeliverable email addresses. It is difficult to understand the full extent of this problem; however, it was alleviated by using Microsoft Outlook to distribute the survey instead of Qualtrics for the remaining three reminder emails.

To improve the response rate, several changes were made in addition to switching to Microsoft Outlook. Since the response rate was not acceptable after the initial solicitation and first reminder, a letter of support from a local state senator was embedded into the third email sent to real estate agents asking for participation. This was the first email sent to the sample using Microsoft Outlook. This immediately increased the rate of response. The local state senator also contacted the RAMP administrator who has worked in Pittsburgh and Harrisburg on real estate related issues with various politicians. The administrator volunteered to present the survey request to the Executive Board of RAMP asking for support. This resulted in a newsletter notice sent to real estate agents asking for participation. This approach provided more responses, and 100 undeliverable emails from members that were no longer associated with RAMP were identified.

The final two reminder emails were sent out in subsequent one-week increments. The number of responses decreased after the fifth and final email was sent. With that email, a total of five responses were collected. It was determined that participation in the survey had reached a point of saturation. It was anticipated that additional email reminders would not have produced additional responses; therefore, data collection was concluded with a total of seventy-two participants.

As with many member lists, it is difficult to maintain accurate accounts of active membership; agents change their email address, move out of the area, or stop working in

the field. Consequently, the sample was smaller than expected due to undeliverable email addresses and suggests an actual total sample of 1,135. Although support was given from various agency representatives, participation remained low. It is believed that the response rate (6.3%) was low due to two reasons. First, initial data collection was introduced over the Independence Day vacation period. It was necessary to begin data collection as soon as possible; therefore, the initial email was sent out the Monday before the Fourth of July weekend. There were over 100 auto-response emails indicating that real estate agents were out of the office or on vacation. Second, two respondents sent emails concerning the issue of steering. Real estate agents are restricted from steering, which is understood as explicitly telling a potential buyer to avoid or focus on one particular area because of specific community characteristics. Two real estate agents responded that they felt the survey included questions that could be construed as steering and stopped completing the survey. The extent to which this affected participation across the sampling frame is unknown.

Based on Cohen's (1992) test for statistical power, significance can be obtained by accounting for the number of independent variables, as well as the desired effect size and significance level. In this study, there are three community variables, concentrated disadvantage, residential stability, and collective efficacy. These three variables, a medium effect size, and a significance level of .05 indicate that there should be 76 surveys completed. This calculation, however, does not take into account the control variables included in the regression analysis. Gender, age, experience, and familiarity were also included, increasing the number of independent variables to seven. Consequently, the number of surveys needed to produce acceptable statistical power

using multiple regression analysis would be 102, with a medium effect size and significance level of .05. The number of community surveys received was 139, indicating the desired number of surveys were obtained; however, because real estate agents could respond to a total of six communities, there were only 72 unique respondents, where gender, age, experience and familiarity responses were used as constants for each community survey completed. Taking this into consideration, statistical significance is only marginally acceptable.

Descriptive Statistics

Descriptive statistics are presented in Table F1**.** Each respondent was asked to provide information for up to six separate communities. The current study had seventy-two participants, producing surveys for 139 neighborhoods, with an average of 1.931 community responses per participant.

The demographic and background information collected during survey administration included gender, age, race, experience, and neighborhood familiarity for each participant. The race variable was reported on a nominal basis and coded as 1 = African American, 2 = Caucasian, 3 = Hispanic, and 4 = other. The race variable did not have enough variability, having only two respondents indicate a race other than Caucasian. Having minimal variation in the responses, race was eliminated from subsequent correlation and regression analysis.

Each variable had missing data, with a total of four participants omitting all demographic survey items. The gender variable was coded as 1 = male and 0 = female. Gender had a total of 64 valid responses with eight responses missing (11.1%). The sample contained 40 female (63%) and 24 male (37%) respondents. The age variable had

a wide variation of responses. There were 66 valid cases and six responses missing (8.3%). This particular variable was measured using the slide-bar function in Qualtrics. This function was used to provide ease of use for the participant, sliding the bar to the precise age, which was displayed to the far right of the screen. The dispersion of age was wide ranging from 28 to 80 years of age, with a mean of 54.3, median of 55.5, and a mode of 56 years.

It was also necessary to understand the amount of experience in the realty field as well as the familiarity of each real estate agent with the Pittsburgh metropolitan area. Experience and familiarity with the Pittsburgh metropolitan area validates the real estate agents' perceptions of the Pittsburgh neighborhoods. Consequently, the survey asked "How many years have you been working as a real estate agent in Allegheny County?" for the experience variable and "How many years have you been familiar with various communities in Pittsburgh, Pennsylvania?" for the familiarity variable. Both variables had missing data with experience having 65 valid cases and familiarity having 66 valid cases. The range of experience for these respondents is from 1 year to 40 years, with a mean of 17.57, median of 14.0, and mode of 6 years. Familiarity had a wider range of 65 years, where the minimum of familiarity in years was 7 and the maximum was 72. The familiarity variable had a mean of 36.97, median of 39.5, and a mode of two years. It is difficult to approximate how representative the sample is to the real estate agent population considering total population profile is unavailable. A list of agent gender, age, race, experience, and familiarity could not be obtained from RAMP.

The purpose of collecting data on familiarity and experience was to confirm the sample had wide variety. The validity of the results from a sample with little dispersion,

or one with little experience and/or familiarity, could come into question; however, the data indicate that the sample has wide variation on these two variables and is diverse in terms of gender and age.

Community Selection

The method of identifying communities for the survey was completed by a four-step process. The census tracts for Pittsburgh were labeled according to local neighborhood names so that the responding real estate agent could recognize the area of inquiry. First, it was expected that it would be difficult for anyone to know all of the census tract numbers throughout a particular city. With this in mind, a report obtained from the City of Pittsburgh identified 100 unique communities. Each community consisted of 1 to 4 whole census tracts, without overlap (Census: Pittsburgh, n.d.).

The second step of the process placed all 100 communities into an Excel database, where the total amount of Part I and Part II crimes were combined relative to the respective communities. Crime rates were calculated by standardizing all crimes per 1,000 residents. All reported crime types were used because it is expected that reported crimes have the ability to impact an individual's perception of community crime. Third, the list was sorted by total crime rates from high to low and divided evenly into five quintiles. The lowest, middle, and highest quintiles were used to select the targeted communities. The second lowest and second highest quintiles were omitted because their exclusion allowed for greater distinction amongst the quintiles included in the study. The final step assigned random numbers to all communities in the three selected quintiles. Each quintile was then ordered from low to high based on their random assignment. The first two communities of each group were chosen for inclusion. The six communities

selected for this analysis were Squirrel Hill North and Point Breeze as the representative for the lowest crime quintile, Marshall-Shadeland (Brightwood) and Lawrenceville Central as the representative of the middle crime quintile, and South Side Flats and East Allegheny as the representative of the highest crime quintile.

This selection process took a considerable amount of work, and therefore, it is useful to understand if it was worth the effort. A means comparison of the perceptions of crime scores for each community and quintile would provide a particular level of confirmation that dispersion had occurred. Perceptions of crime was measured by four survey items, asking the respondent if they feel drugs, violence, delinquency, and general crimes are serious problems in each community. The participants could respond having a five-point likert-type scale available, coded 1 to 5. If the means for each quintile are distinct and separate, it can be claimed that dispersion has occurred. A mean score of 3 would indicate that the respondent did not agree or disagree that crime was a problem. A lower crime perception mean score indicates that the respondents did not believe, to some degree, that crime was a problem in the community.

Table F2 provides a summary of each community's standardized mean score of real estate agents' perceptions of crime and crime rate per 1,000 residents. The lowest crime quintile communities, including Squirrel Hill North and Point Breeze, had the lowest reported perceptions of crime scores among all other communities with a standardized mean score of 2.194 and 2.605 respectively. Marshall-Shadeland (Brightwood) had a mean score of 3.895 which was the highest mean value for perception of crime and Lawrenceville Central had a perception of crime mean of 3.284.

The high crime quintile produced perception of crime means of 3.218 and 3.029 for South Side Flats and East Allegheny respectively.

Low crime neighborhoods produced the lowest crime perceptions; however, this was not the case for the middle crime and high crime quintiles. This suggests that perceptions of crime vary across communities, and moderate to high crime areas are perceived as equally bad. Therefore, official crime data and perceptions of crime are separate concepts and should be approached as such, especially when considering neighborhoods with moderate to high crime rates.

Dependent Variable

The current study measured and analyzed real estate agents' perceptions of crime within six randomly selected communities in Pittsburgh, Pennsylvania. This variable was constructed using survey items that asked the participant to indicate the degree to which they agree or disagree with four separate statements. Each statement included a five-point likert-type response from strongly agree to strongly disagree (see Appendix A). The four survey item responses were summed and standardized to create a perception of crime score for each community that could range from 1 to 5. A low standardized mean score suggests that real estate agents disagreed with statements declaring that drugs, violence, delinquency, and general crime were problems. Conversely, if the standardized mean score was relatively high, it would suggest that real estate agents do generally perceive crime problems in these communities.

When combining all six communities, there were a total of 139 community assessments completed. There were 137 valid cases of perceptions of crime and two cases

containing missing data. Of the valid cases, the alpha coefficient for perceptions of crime was 0.899, indicating that the four survey items had a high degree of reliability.

Independent Variables

The model for collective efficacy used in this research required collecting data for three independent variables, community levels of concentrated disadvantage, residential stability, and collective efficacy. Both concentrated disadvantage and residential stability measures were collected from the 2000 U.S. Decennial Census using a variety of survey items. Community levels of collective efficacy were collected by surveying real estate agent participants working throughout the Pittsburgh metropolitan area. This section presents the survey items and reliability of all independent variables.

The concentrated disadvantage variable was computed by summing the percentages of six census survey items. Concentrated disadvantage included a combination of population percentages below poverty (<$14,999 per household), female-headed households, unemployment, less than 19 years of age, African American, and individuals receiving public assistance. The measure of concentrated disadvantage for this research used the strategy developed by Sampson et al. (1997), but the alpha coefficient (α= 0.301) for this research was not as strong as what has been reported in previous research (see Table F3). Residential stability was computed combining two census survey items. The percentages of individuals living in the same dwelling since or prior to 1995 and the percentages of individuals owning their home were summed to create a residential stability index. The alpha coefficient of residential stability for this study was low (α=0.312) (see Table F4). The literature has shown that these variables have consistently been used to compute these overarching variables with sufficient

reliability; however, the data in this study do not support these findings. This is likely due to having the measurement of the variables limited to six communities.

It was necessary to assign the correct census data to each of the completed surveys because real estate agents were able to provide data for all six communities. Each completed survey was disaggregated by community, and perceptions of each community were associated with the corresponding census data. This allowed the unit of analysis to be perceptions of community characteristics. The result of this created 139 cases with collective efficacy and perceptions of crime data corresponding with the correct census data. These measures were standardized, summing the total percentage of each item and then dividing by the total number of items used to construct each variable. Concentrated disadvantage (i.e., six census items) and residential stability (i.e., two census items) have a mean of 11.39 and 50.93 respectively.

Collective efficacy was computed by combining two separate constructs: informal social control and social cohesion and trust. Perceptions of informal social control and social cohesion and trust were measured by surveying real estate agents with fourteen survey items, seven items for each construct. These survey items used a five-point likert-type scale and asked participants how well they agree or disagree with fourteen scenarios, such as how likely would a member of *Community X* intervene if a fight broke out on their front lawn (see Appendix A)? Across all six communities, the unstandardized descriptive statistics for collective efficacy include a mean of 50.77, median of 52.0, and the highest modal categories were of 48.0 and 52.0, both having twelve cases each. The range was 36.0, with a minimum of 28.0 and maximum of 64.0 (see Table F5).

Two survey items were added to the Sampson et al. (1997) original survey to determine if additional behaviors could be included as informal social control. The likelihood of intervention if local government was experiencing budget problems and the likelihood of intervention if someone suspicious was hanging around on their block were measured with these two survey items. The alpha coefficient for the five survey items used in the original research was 0.855. The alpha coefficient for the seven informal social control survey items was 0.894 indicating a high level of reliability. The increased alpha reliability coefficient indicates that the additional behaviors are a part of the same concept, which suggests that other behaviors could be included in the model. Table F6 reports an item-analysis for these items and indicates that each survey items contributes to the high reliability score. Deleting any of the survey items included would decrease the reliability of the seven-item measure.

The measurement of social cohesion and trust included a similar strategy of adding unique survey items. The five survey items replicated from Sampson et al. (1997) produced an alpha coefficient of 0.695, which is an acceptable reliability score for social science research. When the survey items measuring two new scenarios were added to the construct (i.e., people in *Community X* frequently gather for community functions and *Community X* is a place where people go their way [reverse coded]), the alpha coefficient increased to 0.740, yielding a more acceptable reliability score. This suggests that the original measures of social cohesion and trust could be acceptable without alteration, but the additional scenarios included in this research created a more robust measure of this variable. Table F7 reports an item-analysis that further supports the fit of additional behaviors. The reliability for this construct would decrease if any of the survey items

were not included. Similar to what was learned with informal social control, it is possible to add unique measures of social cohesion and trust.

A more useful indicator, however, for understanding how each survey item relates to the overall variable is to perform a factor analysis. This technique explains the variation and co-variation among the survey items, allowing the researcher to understand which survey items measure the variable or factor more efficiently (Green & Salkind, 2005). Although this technique can be used to reduce the number of survey items, the purpose here is to conduct a confirmatory factor analysis, understanding how the ten survey items replicated from Sampson et al. (1997) withstand the measurement of additional behaviors.

Evidence that other behaviors should be included in the model is indicated by factor loading scores higher for the two behaviors than the original five behaviors. Factor analysis of the data shows that the survey item related to a suspicious person has a factor loading score of 0.827, while the community meeting item had a factor loading score of 0.754 (see Table F8). If the number of measures were reduced to make the model more efficient, the survey item inquiring about likelihood of intervention if the "local government was experiencing budget problems" would be eliminated as it has the second lowest factor loading score of the seven. Also eliminated would be the question "how likely would resident, in *Community X*, intervene if the fire station closest to home was threatened with budget cuts?", which was the lowest factor loading score (i.e., 0.723) for this concept.

The same method of analysis was applied to the measures of social cohesion and trust concept with similar results to that of the informal social control concept. When a

factor analysis was conducted on all seven social cohesion and trust survey items, the two additional items were ranked fourth and fifth (see Table F9). If a reduction technique was conducted to eliminate two survey items, the items to be eliminated would be people in *Community X* generally don't get along with each other (reverse coded) and people in *Community X* do not share the same values (reverse coded).

Collective efficacy, the mediating construct in the theoretical model, includes measures of both informal social control and social cohesion and trust. Another conclusion taken from the research literature review chapter was that these two concepts, originally kept separate, seemed to be measuring the same concept creating multicollinearity problems. The solution by Sampson et al. (1997) was to combine these concepts into one overarching variable called collective efficacy. The data here indicate that these concepts are similar, having an alpha coefficient of $\alpha = 0.773$ when combined.

The methods used to obtain and compute these data were comparable to that of the research by Sampson et al. (1997). The variables measured using the expertise of real estate agents provided acceptable reliability coefficients. In addition, supplementing the survey item pool did indicate that other behaviors could be taken into account when measuring informal social control and social cohesion and trust.

Collinearity Statistics

Multicollinearity among the independent variables has been a problem in past social disorganization research. The reason for combining measures of informal social control and social ties was to eliminate the problem that exists when leaving these constructs separate; that is, the separation limits the potential strength of explanation because both are related to the dependent variable (Mertler & Vannatta, 2010). As a

result, the construct of collective efficacy combines these variables to create one overarching variable.

Although the apparent problem with these variables has been addressed by combining both informal social control and social ties (i.e., social cohesion and trust), multicollinearity must still be examined to ensure all variables do not have a high degree of collinearity. Mertler & Vannatta (2010) claim the best way to examine the collinearity among independent variables is to perform linear regression of the full model (i.e., gender, age, familiarity, experience, concentrated disadvantage, residential stability, and collective efficacy as independent variables, while having perceptions of crime as the dependent variable and observe the collinearity diagnostics). Collinearity diagnostics provide the tolerance, reported from 0 to 1, and variance inflation factor (VIF), which examines the actual values of responses to indicate collinearity. The desired effect, indicating little to no collinearity among the independent variables, is to have a tolerance greater than 0.1 and a VIF lower than 10. The authors do realize that there are no standard responses to quantitative data, and, therefore, there is no standard VIF benchmark that indicates collinearity issues; however, the output provided by tolerance and VIF in combination is enough to provide support for identifying collinearity issues.

Table F10 presents the collinearity diagnostics for gender, age, familiarity, experience, concentrated disadvantage, residential stability, and collective efficacy, which was regressed on perceptions of crime. The tolerance coefficients are all well above the 0.1 benchmark, with age being the lowest 0.33, while VIF coefficients indicate that collinearity has not occurred.

Bivariate and Multivariate Analysis

To understand the relationships between the variables, bivariate and multivariate analysis were conducted. These analyses tests the relationship between the exogenous sources (i.e., concentrated disadvantage and residential stability) and collective efficacy, the exogenous sources and perceptions of crime, and collective efficacy and perceptions of crime while controlling for respondent demographics and exogenous sources of crime. It is expected that concentrated disadvantage and residential stability are related to crime, but collective efficacy mediates this relationship.

Bivariate Correlations

In past research, concentrated disadvantage and residential stability were found to have significant relationships with collective efficacy (see Sampson & Groves, 1989; Sampson et al., 1997, Shaw & McKay, 1942). Table F11 provides a complete bivariate correlation matrix among all variables included in this research except race.

The unstandardized correlation coefficient between concentrated disadvantage and collective efficacy is $r = -0.302$ having statistical significance ($p<0.01$). This negative relationship is similar to what has been found in previous research. Residential stability and collective efficacy have a correlation of $r = 0.056$, but this is not statistically significant.

Concentrated disadvantage and residential stability were expected to have the opposite relationship from collective efficacy has on perceptions of crime. When reviewing these variables and perceptions of crime, concentrated disadvantage is significant and has an unstandardized correlation coefficient of $r = 0.248$, while residential stability has an unstandardized correlation coefficient of $r = 0.042$. As

expected, concentrated disadvantage has a significant relationship with perceptions of crime, but the relationship between residential stability and perceptions of crime is not significant.

Informal social control and social cohesion and trust were combined to have a single overarching variable of collective efficacy. Collective efficacy has an unstandardized correlation coefficient of $r = -0.472$ with perceptions of crime. This indicates that collective efficacy has a significant relationship with perceptions of crime ($p<0.01$). The conclusion that can be taken from this is that real estate agents are attuned to the qualities and characteristics of local neighborhoods and crime, which is a tool for their profession. This also suggests that real estate agents can be used as resident proxies for micro-level explanations of criminality. One observation stemming from this particular conclusion is that other community groups could be tapped to better understand community contextual factors, but to date these groups have not been identified.

Another purpose of this study was to understand if the ten original survey items were sufficient to measure the concepts of informal social control and social cohesion and trust. Reported above, collective efficacy using four additional measures provided a significant relationship with the dependent variable. When omitting the four additional survey items, collective efficacy had an unstandardized correlation coefficient of $r = -0.481$ with perceptions of crime. This indicates that the original ten survey items are very similar to the fourteen-item measurement of collective efficacy using this data set, which provides support for the inclusion of other behaviors. Having the correlations so comparable, it can be concluded that collective efficacy has been measured efficiently in

past research, but future research could incorporate additional behaviors with the same efficiency. This suggests further multivariate analysis is warranted.

Multiple Regression

Distinct regression models were estimated in a stepwise process that incorporates concentrated disadvantage, residential stability, collective efficacy, and perceptions of crime while controlling for the gender, age, familiarity, and experience of the sample. The value of each model as a predictor of the dependent variable is reviewed to establish the improvement provided by each model. The final step was to understand if collective efficacy served as a mediating construct between concentrated disadvantage/ residential stability and perceptions of crime. The coefficient magnitude (b) of the community characteristics should diminish to some degree once collective efficacy is added as an independent variable.

Collective Efficacy as the Dependent Variable. The first three models presented have collective efficacy as the dependent variable. Table F12 provides a summary of all models having collective efficacy as the dependent variable. Model 1 will include gender, age, familiarity, and experience as the independent variables to rule out bias stemming from the sample characteristics. Model 2 analyzes the variance explained by both concentrated disadvantage and residential stability when predicting collective efficacy. Model 3 presents a full model, incorporating all of the previous variables mentioned.

Model 1. This model produced an R^2 of .031, having these four variables explaining only 3.1% of the variance of collective efficacy. This indicates that explaining the variance in collective efficacy is related to unidentified independent variables. Moreover, the explained variance becomes irrelevant when considering the F-statistic for

this model is .944. With the F-statistics being so close to zero, this indicates that best fit of the linear model is minimal, having no significant relationship with collective efficacy. This means that the characteristics of the sample do not have an impact on the levels of collective efficacy reported.

Model 2. Model 2 analyzed the relationship between the concentrated disadvantage/ residential stability and collective efficacy. Unlike Model 1, the F-statistic of 7.193 increase dramatically, becoming statistically significant ($p<0.01$). Concentrated disadvantage and residential stability explain 10% of the variance in collective efficacy (R^2=.100). The amount of explained variance that each variable contributes is important to review for this model. The coefficient for concentrated disadvantage had an estimated coefficient of b = -0.116 and is statistically significant ($p<0.01$). This suggests a relationship in the anticipated direction. Residential stability is expected to have a positive relationship with real estate agents' perceptions of collective efficacy, but the estimate for this relationship is not statistically significant.

Model 3. Model 3 estimates the relationship between all independent variables and collective efficacy. The integration of the control variables (i.e., gender, age, familiarity, and experience) should not net any significant explanatory power of collective efficacy, considering the results of Model 1 and Model 2. The F-statistic for this model is 2.883 and statistically significant ($p<0.05$). Incorporating the control variables decreased the significance of the F-statistic to the <0.05 level. When combining all variables, 12.9% of the collective efficacy variance was explained, netting only a 2.9% increase with the addition of the control variables. Concentrated disadvantage remained the only significant variable ($p<0.01$) and the magnitude did not diminish when

comparing Models 2 and 3. Model 3 indicates that these particular variables are not suitable to explain collective efficacy due to 87.1% of the variance still is unexplained by the combination of the variables. In addition, other factors have not been identified that could explain collective efficacy.

Perceptions of Crime as the Dependent Variable. Four separate models were used to estimate the effects that the control and independent variables have on perceptions of crime. Testing the complete model of this theory incorporates residential stability, concentrated disadvantage, and collective efficacy as the independent variables. Using perceptions of crime as the dependent variable will show the mediating effect collective efficacy has on residential stability and concentrated disadvantage. This mediating effect will be indicated by changes in the magnitude of coefficients (b) and R^2 when comparing each model. The four models below use a stepwise approach, assessing different variables for each model. Table F13 provides a summary of the various model results within this section. Model 1 begins by isolating the control variables of gender, age, familiarity, and experience as the only independent variables. Model 2 regresses concentrated disadvantage and residential stability on perceptions of crime. Model 3 is similar to Model 2, but adds collective efficacy as an independent variable. Model 4 includes all of the measured variables.

Model 1. The intention of Model 1 is to test if specific sample characteristics explain perceptions of crime. The F-statistic for this model is .399, indicating that gender, age, familiarity, and experience did not predict levels perceptions of crime at any effective level. These sample characteristics only explain 1.3% of the perceptions of crime variance accounted for in this study, leaving 98.7% of the variance still

unaccounted; however, because the F-statistic is so low, the amount of explained variance is irrelevant. It is evident that the sample characteristics did not have any significant effect on perceptions of crime.

Model 2. Model 2 has concentrated disadvantage and residential stability as the independent variables. This particular model is important to the overall explanatory power of collective efficacy theory because the relationship between these variables should theoretically diminish once measures of collective efficacy are taken into account (i.e., Model 3). The F-statistic for this model is 6.637 and statistically significant ($p<0.01$). Concentrated disadvantage is significant in this model ($p<0.01$), with an unstandardized coefficient of 0.050. The unstandardized coefficient for residential stability is 0.037 and only significant at the $p<0.10$ level. It was also observed that residential stability is positively related to perceptions of crime, an unexpected outcome. The R^2 for this model, combining concentrated disadvantage and residential stability, explain 8.7% of perceptions of crime variance. The exogenous sources are not useful predictors of real estate agents perceptions of crime having 91.3% of the variance unexplained by this model.

Model 3. Model 3 is the test of collective efficacy theory, with concentrated disadvantage, residential stability, and collective efficacy as the independent variables, and perceptions of crime as the dependent variable. The F-statistic for this model is 13.788 and statistically significant ($p<0.01$). The F-statistic improves dramatically from Model 2 to Model 3, indicating the importance of collective efficacy to the model.

Table F13 shows that the unstandardized coefficients (b) for concentrated disadvantage and residential stability in Model 2 are 0.050 and 0.037 respectively. Model

3 shows that the addition of collective efficacy does substantially diminish the magnitude of the coefficients for both concentrated disadvantage and residential stability. The unstandardized coefficients (b) for these variables in Model 3 are 0.026 and 0.022, respectively, and concentrated disadvantage becomes statistically significant only at the $p<0.10$ level and residential stability become insignificant when collective efficacy is included. This indicates the relative change in the unstandardized coefficient is substantial when collective efficacy is incorporated and suggests collective efficacy is a mediating construct between measures of community characteristics and real estate agents' perceptions of crime.

In addition, there are dramatic changes in R^2 from Model 2 to Model 3, and this provides further evidence of the mediating effect of collective efficacy. Model 2 showed concentrated disadvantage and residential stability explained 8.7% of the variance of perceptions of crime when collective efficacy was not included, and Model 3 explains 24.6% of the perceptions of crime variance.

Model 4. The purpose of Model 4 is to incorporate residential stability, concentrated disadvantage, and collective efficacy as the independent variables, while controlling for gender, age, familiarity, and experience of the sample. Controlling for the sample characteristics allows for conclusions that focus on the variables that are intended to explain the dependent variable (i.e., concentrated disadvantage, residential mobility, & collective efficacy). That is, if the control variables are found to have a minimal effect and have little collinearity with the other variables, it can be concluded that the community characteristics and collective efficacy are the important factors when explaining perceptions of crime.

The F-statistic for this model is 5.995 and remains statistically significant ($p<0.01$); however, there was a sizable decrease in the F-statistics from Model 3 to Model 4. This model explains 26.7% of the variation in perceptions of crime ($R^2 = 0.267$). The addition of the control variables showed that the expected relationships can be maintained even when considering the sample characteristics. Collective efficacy remained as the only statistically significant variable in this model at the $p<0.01$ level, while concentrated disadvantage remained relatively stable at the $p<0.10$ level when the control variables were included. It is clear that the responses were not influenced by the participant's gender, age, familiarity, and experience. This shows that the model is working as expected.

Conclusion

There are a number of important observations that can be drawn from this chapter. The exogenous sources (i.e., concentrated disadvantage and residential stability) had a low alpha reliability score, and this could affect the subsequent analysis. This was likely due to the use of only six neighborhood communities. This does, however, illustrate that the exogenous sources may need further inquiry to understand the full explanatory power and potential of these variables.

Some support for the collective efficacy model was established. Collective efficacy measures had a high degree of reliability, even when additional survey items were added. This indicates that the full potential of collective efficacy may not have been recognized to date, and this is an area in need of future research and elaboration. In addition, collective efficacy had a significant negative relationship with perceptions of crime. Not only does this provide support for collective efficacy theory at face value, but

the way in which the data were collected was innovative and suggests the use of residential proxies and other populations can be used to measure collective efficacy theory. Offering differing perspectives and identifications of collective efficacy could provide the needed understanding of how communities are assessed socially.

Another important notion that should be taken from the data is the apparent limitation in the way collective efficacy has been measured in prior research. There is very little research that expands on the concepts and behaviors that are included in measuring collective efficacy. This study has shown that there are unidentified behaviors that test the concepts of informal social control and social cohesion and trust. Confirmation was documented by analyzing the alpha coefficients of all fourteen survey items together, then excluding the four additional items that were added by this research. Moreover, factor analysis evaluates the relationship each survey item has with one or more factors. This method, in particular, shows that some of the added behaviors were also suited to measure the same latent factor. The data analysis has presented three main conclusions. The limitations in the exogenous sources, the potential populations that could be utilized to measure collective efficacy, and the various behaviors that need to be accounted for when measuring collective efficacy are further examined in the subsequent chapter.

CHAPTER V

CONCLUSION AND DISCUSSION

While the majority of collective efficacy studies replicated Sampson's et al. (1997) original research, only altering, for example, the dependent variable, this particular study made changes in a number of areas. All collective efficacy studies available in the literature exploited direct data sources (i.e., community members) living in the communities incorporated in the research. Obtaining data, therefore, was very tedious. One of the main purposes of the current research was to understand if there are other valid measures of collective efficacy; that is, purposely identifying a group of individuals who could validly express the levels of collective efficacy in various communities. The results have shown that real estate agents are a group working with in the community who are attuned to the concepts of collective efficacy (i.e., informal social control and social cohesion and trust).

Social disorganization and collective efficacy theories have been relatively well supported when compared to other prominent criminological theories (Pratt & Cullen, 2006); however, support was not evident when particular dependent variables were analyzed (e.g., Hispanic teen pregnancy, citizen participation, and actual intervention)(Ohmer 2007; Ohmer & Beck, 2006; Way et al., 2006; Wells et al., 2006). Another purpose of this study was to understand the relationship between real estate agents' perceptions of collective efficacy and crime in various communities throughout the Pittsburgh metropolitan area. While the full model of collective efficacy was not specified in this study, having little support for the fit of the residential stability variable,

it has shown that collective efficacy measures do have a strong relationship with perceptions of crime with real estate agents as resident proxies.

This chapter provides a detailed discussion of the main conclusions that can be drawn from this study. In addition, the limitations of the sampling, data collection, and the problems existing with the census data, as well as the strengths concerning the resident proxies and survey construction, will be discussed. The strengths and limitations provide a useful platform for which to examine potential areas of future research and policy implications.

Discussion of Results

There are a number of conclusions that can be drawn from this particular study. The use of resident proxies, the alpha reliability score for concentrated disadvantage and residential stability, the addition of behaviors when measuring informal social control and social cohesion and trust, and the correlations present among the variables all present interesting conclusions. The following section discusses each of these outcomes individually, while recognizing the connections to the body of literature previously reviewed in Chapter II.

Research Questions and Hypotheses

Hypotheses 1 through 4 focus on the relationships between concentrated disadvantage, residential stability, collective efficacy and perceptions of crime. Concentrated disadvantage and residential stability were expected to have a strong relationship with collective efficacy and perceptions of crime. Results from the data analysis have shown that residential stability does not have a relationship with collective efficacy or perceptions of crime; however, concentrated disadvantage has a significant

relationship with collective efficacy and perceptions of crime. Past literature has shown a strong relationship between these variables. This indicates that these particular survey items may not be measuring the same concept. Unfortunately, the low alpha reliability score for concentrated disadvantage and residential stability has clouded the potential relationship put forth by these hypotheses.

The data collected by the independent survey sent to real estate agents provided support for collective efficacy. Examining results from bivariate and multiple regression analyses, Hypothesis 5 was confirmed when collective efficacy was shown to have a strong and significant negative relationship ($p<0.01$) with perceptions of crime ($r = -0.472$). This shows that real estate agents are attuned to these variables. Moreover, it was anticipated that when collective efficacy increases perceptions of crime would decrease. This study has now shown strong empirical support for this assertion. Real estate agents are a community group that confirms an understanding of collective efficacy and its relationship to perceptions of crime.

Hypothesis 6 stated that collective efficacy should mediate the relationship between concentrated disadvantage/residential stability and perceptions of crime. Multiple regression models were estimated isolating concentrated disadvantage and residential stability, with perceptions of crime as the dependent variable (i.e., Model 2). Model 3, with perceptions of crime as the dependent variable, included collective efficacy, concentrated disadvantage, and residential stability as the independent variables. A comparison of these models showed that collective efficacy did reduce the magnitude of the coefficients among concentrated disadvantage/residential stability and perceptions of crime considerably. The relationship between concentrated disadvantage and

perceptions of crime was no longer significant at the $p<0.01$ level once collective efficacy was added as an independent variable, only being significant at $p<0.10$. Residential stability was significant ($p<0.10$) in Model 2, however, became completely insignificant in Model 3. In addition, the F-statistic and R^2 were significantly greater in Model 3. These data provide strong evidence that collective efficacy behaved in the anticipated manner, mediating the relationship between concentrated disadvantage/residential stability and perceptions of crime, as well as vital when explaining perceptions of crime variance in various urban neighborhoods.

Further support for the collective efficacy model was found when the control variables were added into the model. The magnitude of the coefficients for concentrated disadvantage, residential stability, and collective efficacy remained relatively stable, with no change in significance level when the control variables were added. A comparison between Models 3 and 4, with perceptions of crime as the dependent variable, shows that the demographics, experience, and familiarity of the sample did not impact the responses of collective efficacy or perceptions of crime. This indicates that collective efficacy is the most significant variable when explaining perceptions of crime in this study.

The most important conclusion that can be drawn from confirming or negating these hypotheses is that collective efficacy did have a strong relationship with real estate agents' perceptions of crime, while mediating the significance of all other variables measured. This has shown that collective efficacy can be measured and confirmed using real estate agents as resident proxies, while incorporating additional behaviors into the measurement.

Accounting for Additional Behaviors in Measurement

A review of the literature revealed that the measurement of collective efficacy was somewhat standard, measuring the concepts in the exact manner of Sampson et al. (1997), aside from two particular studies. Gibson et al. (2002) and Wells et al. (2006) re-operationalized the concepts of collective efficacy finding support for their models. Moreover, the manner in which collective efficacy was measured in all of these studies dictated the strength of the relationship with the dependent variable used. That is, collective efficacy is strongest when accounting for "likelihood of intervention or communication."

The design of this study incorporated Sampson et al.'s (1997) original ten survey items in an attempt to test how efficient these survey items are when merged with additional behaviors. The results indicate that both concepts, informal social control and social cohesion and trust, have a high degree of reliability after examining the alpha coefficients and factor loading scores. Informal social control had the addition of two survey items (i.e., a total of seven), where the first survey item, "likelihood of intervention if someone suspicious was hanging around the block," had the second highest factor loading score of the seven survey items measuring this concept. The second survey item measuring the likelihood of "attending a meeting if a local government was experiencing budgetary problems" was ranked sixth among the factor loading scores. Although all survey items had a high degree of reliability and factor loading score, it does suggest that there are other behaviors that could be taken into account that are just as efficient in measuring the informal social control concept.

Another conclusion that can be drawn from this particular finding is that the lowest two ranked survey items were somewhat different conceptually than the other five. “Likelihood of intervention if a fire department” or the “local government were experiencing budget problems” were the two lowest ranked factor loading scores available when measuring informal social control. Intervention for these two survey items were general (i.e., any intervention at all) or the “potential of attending a local meeting.” The concept of spontaneity presents when comparing these two survey items to the other five survey items measuring informal social control. Likelihood of intervention if a fire department or local government had budgetary problems lacks spontaneity. For example, a real estate agent would believe that an individual would be more likely to intercede if a fight broke out on a community member’s front lawn than to plan to attend a government meeting.

Consequently, more efficient survey items of informal social control seem to favor measuring behaviors that require immediate action. Behaviors such as intervening if a fight broke out on your front lawn, a child was skipping school and hanging out on the street corner, children were spray painting graffiti on a local building, showing an adult disrespect, and calling the police if a suspicious person was hanging around the block all require immediate action and spontaneity. Future research should focus on this spontaneity concept when incorporating additional behaviors into collective efficacy research.

The social cohesion and trust concept had similar results when additional behaviors were incorporated. The survey included items that measured frequency of gathering for community functions and if the communities were places where people

mostly go their own way (reverse coded). These two survey items were ranked fourth and fifth, respectively, when reviewing the factor loading scores. Such loadings indicate that there are additional behaviors that measure of social cohesion and trust.

Although the informal social control measures provided a theme for which to focus future conceptualization efforts, the social cohesion and trust measures did not offer the same results. The two lowest ranked factor loading scores for the items measuring this concept were "people in *Community X* generally don't get along with each other (reverse coded)" and "people in *Community X* do not share the same values (reverse coded)." When grouping together these two items with the other five survey items, the data do not identify a particular aspect on which future research should focus. Social cohesion and trust had high factor loading scores when measuring the concepts of trust, attendance at community functions, and community members being close.

Incorporating additional behaviors in measuring informal social control and social cohesion and trust did yield useful conclusions related to the major research questions of this particular study. The literature has shown that the majority of collective efficacy research has measured these concepts in the same manner. A continual use of these survey items will dictate that collective efficacy is equated to only these particular behaviors, which becomes problematic when attempting to understand the full potential of the theoretical model. This study has shown that not only can additional behaviors be incorporated, but there are behaviors that are just as efficient at measuring these concepts than what has been used in the majority of collective efficacy tests. Moreover, an unexpected conclusion arose when matching the factor loading scores with their respective survey items. When controlling for perceptions of planned intervention, the

concept of spontaneity surfaced, where survey items inquiring about the likelihood of immediate action provided the strongest factor loading scores. This indicates that spontaneity could be the key conceptual element of informal social control when testing collective efficacy. It has been documented that future collective efficacy research should focus on testing the likelihood of additional behaviors that might enhance the breadth of the collective efficacy concept. More specifically, research should assess which aspects of community relationships initiate spontaneous civic action.

Perceptions of Crime and Official Crime Data

One intention of this research was to incorporate communities with various levels of crime, to theoretically show different levels of collective efficacy. This was achieved by applying an official crime report to designate each of the 100 communities into five crime quintiles. Two communities from the lowest, middle, and highest crime quintile were randomly chosen for inclusion in this study. The research question stemming from this process examined the relationship between real estate agents' perceptions of crime and official crime.

The means of perceptions of crime and official crime data were compared to observe how closely these constructs correspond. The data find that perceptions of crime and official crime data do not always relate. The two community representatives for the lowest crime quintile did have the two lowest perceptions of crime means; however, the representative communities for the middle crime quintile experienced the highest perceptions of crime, with the highest crime quintile community representatives very similar. The conclusion that can be drawn from this data is that perceptions correspond with official data only when crime rates are low, but moderate to high crime rates are

perceived as equally bad; therefore, perceptions of crime and official data are different concepts.

Real Estate Agents as Resident Proxies

This research project entered into a new way of thinking concerning how to collect data when testing collective efficacy theory. It has been noted that the first direct test of social disorganization (Sampson & Groves, 1989) utilized actual community members to measure informal social control and social ties, which were then separate concepts. The natural progression of research and evaluation has led to a change in this model, including the idea of combining these concepts to create an overarching variable (i.e., collective efficacy) that mediates the social characteristics that cause crime. Research still tapped the same obvious and most abundant resource for data (i.e., community members). The body of literature has shown that collective efficacy, using community members as a source of neighborhood context, has wide potential at explaining criminal behavior at the community level.

This dissertation research has attempted to add to the progression of social disorganization theory development by measuring collective efficacy in a less obvious manner, extracting data from a different community source. Original research such as this has validity concerns, considering the lack of any research available that incorporates real estate agents as resident proxies to measure these concepts.

Demonstrating that real estate agents have a particular level of knowledge of collective efficacy is difficult considering an objective measurement of collective efficacy does not exist for the communities that were incorporated in this study. A study might compare the levels of collective efficacy provided by the community members and

levels of collective efficacy provided by real estate agents would be useful to understand the validity of the resident proxies; however, because such data are not available, the theoretical model can be confirmed by the present results drawn from the analysis of the real estate agents as resident proxies, to those with in academic literature. With this in mind, the present results mirror the extant literature incorporating community residents. This association not only declares that real estate agents are cognizant of the collective efficacy concepts but that there could be a number of other groups living outside the communities that could potentially be tapped to enlighten the understanding of collective efficacy theory from different perspectives.

Chapter IV displayed that collective efficacy theory can be validly measured using resident proxies. Collective efficacy measures had an acceptable alpha reliability coefficient of $\alpha = 0.773$, where informal social control and social cohesion and trust measures behaved in the anticipated manner. Moreover, collective efficacy had a strong negative relationship ($r = -0.472$) with perceptions of crime. These data indicate that real estate agents believe there is a relationship with the concepts of collective efficacy and their perceptions of crime. This confirms that not only can real estate agents be used to measure collective efficacy, but there could be a number of different, but confirming, perspectives not currently tapped to understand this theory.

This new information brings about additional questions. Real estate agents in the Pittsburgh metropolitan area confirmed the collective efficacy model, but real estate agents in other metropolitan areas may not have the same awareness. In addition, this research could not provide information regarding how closely the perceptions of real estate agents are related to community members' perceptions of the same constructs. This

particular problem cannot be alleviated until a comparison study is conducted. The fact still remains that the data collected in this study do imply that collective efficacy theory can be supported using resident proxies. This study incorporated real estate agents due to their apparent understanding of communities and experience therein; however, future research could focus on identifying additional groups that could validly speak to the constructs of collective efficacy. Research exploring this will provide supportive, unsupportive, or a differing perspective, all of which adds to the empirical knowledge of collective efficacy literature.

Limitations

There are a number of limitations that should be recognized that became apparent during the course of this study. This section reviews the problems existing with the concentrated disadvantage and residential stability data, the sampling frame, and collecting data from real estate agents when inquiring about various community characteristics. It is believed that these limitations are not fatal flaws, discrediting the validity of the data.

Reliability of Exogenous Sources

The data for the exogenous sources, concentrated disadvantage and residential stability, were collected using the 2000 U.S. Decennial Census. During the time of data collection, the complete 2010 U.S. Decennial Census data set was not available. In addition, Sampson et al. (1997) claims that taking data from a past census allows for the variables to impact the levels of collective efficacy and crime, indicating temporal sequencing. More recent data may show levels of concentrated disadvantage and residential stability that have not had enough time to impact the constructs that could

inhibit behavior. Consequently, the 2000 U.S. Decennial Census was incorporated into this study to provide levels of concentrated disadvantage and residential stability for six communities throughout the Pittsburgh metropolitan area.

Concentrated disadvantage was constructed using percentages of unemployment, poverty, individuals on public assistance, less than 19 years of age, female-headed households, and African American. Concentrated disadvantage experienced high factor loading scores (>0.85) for all survey items, except percent African American (>0.60). Residential Stability was constructed using the percentage of people who own their home and individuals who have lived in the same dwelling since 1985. Factor loading scores for these survey items were also high equaling 0.86 and 0.77 respectively.

There is consistency within the research that these particular variables have high reliability and factor loading scores. This study, however, had low reliability scores for these variables. Further explanation can be seen when examining the factor loading scores for these survey items. Table F14 shows that the population percentage of aged less than 19 and unemployment items have a negative factor loading score, indicating these two components do not fit within this particular variable computation. These two items in particular are weighing the alpha reliability coefficient down to an unacceptable level. To illustrate this further, the alpha reliability coefficient without these two items and including only below poverty, public assistance, female-headed household, and African American is 0.696, an acceptable level of reliability.

When constructing community scores for concentrated disadvantage and residential stability, Sampson et al. (1997) weighted the percentages for each survey items by their respective factor loading score to control for the amount variance that each

survey item contributes toward that particular variable (see also Giever, 1992). The intention of this research was to follow this same method; however, because the alpha reliability coefficient was low and the population percentage aged less than 19 and unemployment survey items were not loading in the anticipated manner, this method could not be used. The data would have been altered, where regression analysis could not produce significant results.

The residential stability measures experienced the same problem, where owner-occupied housing and individuals living in the same dwelling since 1995 had an alpha reliability coefficient of $\alpha = 0.312$. Constructing this variable using the factor loading scores would have been impractical; as a result, the exact method of creating a residential stability score for each of the six communities in this study could not be completed. The low reliability scores bring into question the conceptual relationship of these variables.

The intention of this research was to replicate the exact process used in the original collective efficacy research, with alterations present in particular areas only (i.e., adding behaviors to measurement and incorporating resident proxies). This limitation does not, however, disqualify the merits of this research. The factor loading scores of the unemployment and less than 19 years of age survey items, as well as the residential stability variable, could not be anticipated. In addition, the problems existing with concentrated disadvantage and residential stability do not impact the relationship between collective efficacy and perceptions of crime.

Demographics of Sample

The demographics, experience, and familiarity of the entire sample are unknown. Ideally, the participant demographics of the study would closely match that of the

sample, however, because this data could not be obtained it is difficult to claim that the participants in this particular study is representative of the real estate population in the Pittsburgh metropolitan area. The participants in this study may very well be representative, but without the proper data, this claim cannot be made.

Sampling Issues

Another limitation to this study came from using real estate agents as resident proxies. Although this has been presented as a strength for the purposes of collecting data for a number of different communities, sampling of this population was difficult. The problems that occurred during data collection are examined in this section. The following provides a detailed account of the sampling techniques and the problems that existed when collecting data from the real estate agent population.

Survey Administration. Qualtrics created a problem when initially administering the survey to real estate agents. The Qualtrics distribution function allows the user to upload a file of email addresses to be distributed and produce follow-up emails administered to those who have not completed the survey. While the software does not allow the user to see who has completed the survey, this function seemed to be a very useful tool for a researcher conducting survey methods through email.

The initial survey was sent out in late June 2011 to all real estate agents present on a list obtained from the RAMP website. There was an effort to understand possible reasons as to why there were very few responses approximately ten days after the initial data collection date and three days after the first follow-up reminder email. It was found that some emails were not sent to individuals on the list and return emails for non-working addresses were not provided by this program.

During this time, there was an ongoing effort to obtain support from RAMP. Initially, RAMP denied wanting to officially support this research; however, after a letter of support from a local state senator was provided to RAMP directly, assistance was given. The government affairs administrator contacted a number of real estate agents in the sample asking for participation, as well as presenting this research to the Executive Board of RAMP. In addition, this research was posted on the RAMP website homepage, asking real estate agents for participation. Participation rates increased substantially when the second reminder email was distributed using Microsoft Outlook. Microsoft Outlook was used for a total of three reminder emails. Unfortunately, this software did not allow for the tracking of those individuals who had taken the survey, but this was sidestepped by including text in the follow-up emails that read "If you have already taken this survey, you can disregard this email. Thank you for your participation."

The second reminder contacting real estate agents for participation was almost like the initial distribution because there was no way of knowing who received the initial and subsequent emails. As a result, this email reminder included more information than a traditional reminder. In addition, the support letter from the state senator was embedded into the email where an image of the letter was provided in the body of the email. Two final reminder emails were sent following this distribution approximately one week apart. Participation decreased substantially, where the final email reminder netted only a few additional responses, indicating saturation.

Survey distribution had a number of unanticipated problems. This researcher was assured the distribution function for Qualtrics worked properly. Fortunately, the problems were revealed early, where action was taken to alleviate the issues. This created problems

when attempting to understand how many individuals were actually in the sampling frame. The initial list had 1,235, but there were many undeliverable emails (i.e., 100 undeliverable emails) returned once Microsoft Outlook was used. That number is assumed to be greater considering there could be a number of emails that are still operational that real estate agents no longer use. The time frame for which the survey was sent out also produced over 100 emails stating the real estate agent was on vacation or out of the office. Approximating the exact sampling frame, therefore, is very difficult, which creates problem when attempting to measure the actual response rate for this study.

Willingness to Participate. Using resident proxies for a test of collective efficacy was a notion produced by a number of different factors. The lack of any inquiry within the literature, the potential of increased knowledge and differing perspectives, and ease of obtaining a sampling frame using the internet created this endeavor a worthwhile cause. The question still remained as to whether real estate agents understand the concepts of this theoretical model. Prior to data collection, approximately five different real estate agents within the Pittsburgh metropolitan area were contacted to understand if real estate agents were legally permitted to take such a survey. When the initial request for support was sent to RAMP, there was no mention that this survey could not be completed by real estate agents due to legal reasons. In addition, several other real estate agents were contacted outside the Pittsburgh metropolitan area inquiring the same information. All real estate agents contacted indicated they were permitted to take such a survey. One real estate agent claimed participating would be dependent upon the guarantee of anonymity.

The apparent willingness of the real estate agents contacted indicated that they were not legally restrained from participating in a survey and could legally provide data

concerning the particular topic areas in this study. Once the initial survey administration was conducted, an email from a respondent was received indicating that real estate agents are advised not to participate in such studies because it can be misinterpreted as steering. Steering is the act of directing buyers to or from specific communities based on the characteristics of the community or the buyer (Pennsylvania Association of REALTORS®, 2000). The Fair Housing Guidelines, which dictates the operation and ethics of real estate agents within Pennsylvania and published by the Pennsylvania Association of REALTORS®, claim steering can be averted by allowing the buyer to indicate the communities in which they want to inquire; however, questions concerning the demographic and social characteristics of a community are bound to arise. In this situation, the procedure is to only provide facts to the buyer. The most important steering protocol concerning this study is when real estate agents are asked to provide suggestions of various communities. The Fair Housing Guidelines suggest they provide options of various communities that match the buyer's interest in a dwelling. It was communicated to the individual who was concerned about steering that this study does inquire about the social makeup of communities, however, there are a number of various communities included in this study sidestepping the steering argument. Moreover, this research is not designed to report community characteristics to potential buyers, rather it is using the knowledge base of a professional occupation to measure social networks, informal social control, and their perceptions of crime in an area. Nonetheless, if one negative response from a potential participant was received, it can be assumed that others were not participating for the same reason.

To understand this problem further, the RAMP government affairs administrator was contacted to provide some feedback concerning the relationship between this study's survey and the concept of steering. The response provided an interesting result considering the variation in the willingness to respond amongst the sampling frame. It was indicated that this survey does inquire about subjects that could be misinterpreted as steering but only if they were directed at potential buyers. Their professional opinion is based on experience and familiarity, therefore, it can be given. To solidify this position further, a real estate agent who sits on the Executive Board of RAMP sent correspondence indicating how happy she was to participate, in addition to asking her employees (real estate agents) to take the survey if they received the survey distribution email. Consequently, interest and willingness to respond had wide variation from individuals believing they were not legally permitted to participate to a high degree of interest where they assisted with survey distribution.

The combination of the sampling distribution and potential for steering issues created problems where response rates were low, which should be viewed as a limitation. If this were traditional collective efficacy research, using community members as participants, the number of participants would not have been sufficient. The design of this research allowed the demographics, experience, and familiarity of real estate agents to be used as constants for each community survey completed. As a result, bivariate and multiple regression analysis could be conducted; however, the ideal sample size was not achieved.

Strengths

The strengths of this research center on the various intentions of this study and the overall outcomes some of the data provided. While using resident proxies, collective efficacy was found to strongly correlate with perceptions of crime. Moreover, this study has shown that there are areas of inquiry still not understood that could add to the knowledge base of collective efficacy.

Resident Proxies

One of the main intentions of this study was to incorporate resident proxies into a test of collective efficacy theory. The result of using real estate agents as resident proxies could provide a differing perspective of this theory and useful when attempting to understand the limitations of the literature currently available. At face-value, it is reasonable to assume that real estate agent understand the constructs of informal social control and social cohesion and trust; however, it was unknown as to whether the data would support the collective efficacy model.

One strength of this study is that real estate agents are a community group that can attest to the social environment in various communities throughout an urban area. This particular study incorporated real estate agents due to the apparent understanding and experience the job requires. This research question was confirmed by the data, suggesting real estate agents do understand informal social control and social cohesion and trust, while indicating a relationship with their own perceptions of crime. Moreover, collective efficacy theory advanced social disorganization research by recognizing the multicollinearity problems existing among the variables. Additional support for the model is apparent when considering real estate agents confirmed that informal social

control and social cohesion and trust are closely related concepts. Collective efficacy correctly combined these concepts, which are now supported by data collected using community members and resident proxies.

Another strength these resident proxies provided was that data could be collected for a number of communities using a minimal number of participants. With the reluctance to participate in survey research, it can be time consuming and expensive to obtain the participation needed for this type of research. This study has shown resident proxies allow for a research design that produces confirming data without incorporating community member participation from every area of inquiry. Overall, the resident proxies provided a platform for which to create an efficient research design, while potentially producing results that benefit the knowledge base of collective efficacy theory.

Accounting for Additional Behaviors

This research accounted for many different behaviors when testing collective efficacy. The purpose of this research was to understand if current collective efficacy measures are sufficient or if there are other behaviors that potentially measure collective efficacy more efficiently. Simply adding behaviors that are similar and examining the alpha coefficient would not provide adequate support. There was a need to understand how each specific survey item related to each of the concepts incorporated into the collective efficacy model. Confirmatory factor analysis was conducted on survey items testing collective efficacy, which is the process of examining the factor loading scores in order to confirm the fit and efficiency of each survey item. The data have shown that Sampson's et al. (1997) original ten survey items that have been consistently replicated

throughout the literature are acceptable measures when additional survey items are incorporated. It has also been shown, however, that there are additional behaviors that measure collective efficacy just as efficiently.

The data have indicated there are two main conclusions that can be drawn by adding additional behaviors. First, among the four that were added, confirmatory factor analysis has indicated that only one survey item, out of the four added, measure collective efficacy less efficiently than the others. The survey item that is not working as expected asked real estate agents the likelihood of intervention if local government was experiencing budget problems. Although the factor loading score was still strong, the purpose was to understand how efficient current measures of collective efficacy are, considering the vast studies available that replicate the survey. If the fourteen survey items were to be reduced to ten based on their factor loading score, three of the four added by this research would be included. This confirms the fact that, although collective efficacy has strong measures of the concepts, there are other behaviors just as efficient. Future research does not have to solely focus on replication, but it should attempt to specify the conceptualization of informal social control and social cohesion and trust, and apply that understanding to operationalizing sound survey items.

Examining the factor loading scores for informal social control provided even more information towards the conceptualization of this construct. The original research re-conceptualized this concept to be a willingness to intercede (Sampson et al., 1997). A willingness to intercede was a valuable step when advancing the empirical potential of this theoretical paradigm. The factor loading scores for informal social control indicated that a willingness to intercede is most efficiently measured when spontaneity is

incorporated into each survey item. The two lowest ranked survey items, of the seven measuring informal social control, asked real estate agents about likelihood of intervention if they had to plan to attend a community meeting if the government was experiencing budgetary problems or general intervention for a local fire department with budgetary problems. It is important to keep in mind, these survey items were ranked the two lowest of the seven; however, their factor loading scores were still high. Nonetheless, this examination has potentially brought about a more focused understanding of the informal social control concept. The data indicate that informal social control is best measured when conceptualizing it as likelihood of intervention in a situation that requires immediate action and spontaneity.

Policy Implications

The policy implications drawn from this study should focus on the constructs of collective efficacy. As indicated by prior research, a willingness to intercede and working social ties are acceptable and supported conceptualizations of informal social control and social cohesion and trust respectfully. Consequently, the policy implications should focus on increasing these constructs in the community.

A policy endeavor such as this has been attempted in the past following Shaw and McKay's (1942) initial publication. The Chicago Area Projects (CAP) focused on the revitalizing the physical appearance of the area, while having implementation failures when attempting to increase informal social control and social ties with community meetings and organization participation (Miller, 1962). CAP was seen as a failure due to the relatively stable delinquency rate over its twenty-five year existence. The implicit meaning of this failure, as well as the supportive data in the literature and this study, is

that the social constructs of the community are most important. Although the physical appearance of the community can be improved, the most salient factors when explaining community crime, delinquency, violence, or perceptions of crime are the mediating constructs. As a result, policy efforts should focus on improving the social environment of a community.

Cancino (2005) suggests increasing collective efficacy in non-metropolitan areas requires a multifaceted approach, incorporating policy-creating agencies and community member participation. Although Cancino focused his efforts on non-metropolitan areas, the lessons made could benefit urban communities as well. An example of this would be the shift towards a community policing model for many police departments across the United States in both urban and rural areas. The incorporation of community members into the policing process, allows them to have stake in the community. Cancino claims a wide variety of programs are present across the United States that attempt to improve the social environment in their communities, however, the basic approach should include the police-community participation, community members voicing their concerns to government, and community member participation in local organizational meetings.

This approach will have both an indirect and direct effect on crime. Organizational and police participation will increase collective efficacy, indirectly impacting crime by having community members more willing to intercede if the situation arises. Participation in policing and voicing concerns will directly impact crime by informing the local leaders and police who can directly react to the problems that exist.

The literature and this study have shown that collective efficacy explains community crime, delinquency, violence, and perceptions of crime variance. Informal

social control and social cohesion and trust have consistently been the most important factors in collective efficacy and social disorganization research. As a result, the policy implications should focus on creating programs that increase the levels of informal social control and social cohesion and trust in the community.

Directions for Future Research

This data have indicated there are various ways to measure collective efficacy by accounting for additional behaviors and incorporating resident proxies. As with most research that makes some new connections, more questions are created. This research first showed current collective efficacy research was empirically strong but limited in the way the concepts were measured. This research examined the empirical void to create a distinctive method for which to measure collective efficacy. The data show some support for broadening this construct. The next step is to understand how empirically strong these aspects are with additional research.

Future research should focus on two areas of inquiry, further understanding the conceptualization of collective efficacy and the community resources available to effectively measure this theory. It has been shown that the conceptualization and operationalization of collective efficacy is somewhat static; however, additional behaviors can be used to effectively measure the concepts of informal social control and social cohesion and trust. Continued efforts could better understand these concepts by adding other behaviors in measurement. Though measuring these behaviors to full exhaustion may not be achievable, continued research will only create more efficient measures and methodologically sound results. Another theme to this conceptualization and operationalization advancement was when spontaneity emerged as the best indicator

of informal social control. This particular notion should be advanced by operationalizing informal social control with the elements of both spontaneity and planning. Comparing these survey items will indicate a more precise conceptualization of this concept, and therefore collective efficacy.

Future research should also concentrate efforts on understanding what particular populations have the ability to understand and produce data concerning the concepts of collective efficacy. Real estate agents were incorporated into this research, but other groups could potentially offer valid measures of collective efficacy. For example, politicians, police officers, shop owners, or school teachers work in various communities and could have a unique perspective concerning the variables measured in this type of research. Empirically supporting or contradicting the model, dependent upon the resident proxies, could offer knowledge that is important to the advancement of the theory.

The potential for advancing collective efficacy theory is vast. Incorporating various resident proxies and additional behaviors in measurement are two areas in which future research can concentrate. Only additional research will show how empirical strong these methods are compared to more traditional measurement.

Conclusion

This study has shown that collective efficacy can be measured it various ways with some empirical support. The full model of collective efficacy was not confirmed by this data. Concentrated disadvantage and residential stability had a low reliability coefficient, while residential stability did not have a strong relationship with collective efficacy or perceptions of crime measures. This is contradicts Sampson's et al. (1997) original research, where it was found that these variables did have high alpha reliability

and a strong relationship with collective efficacy and measures of violence. Due to the minimal amount of correlation and reliability, it was also difficult to determine the extent to which collective efficacy mediated the relationship between concentrated disadvantage/residential stability and perceptions of crime. Although the correlation coefficients did behave as expected once collective efficacy was added into the regression analysis.

Conversely, collective efficacy was empirically supported when examining its relationship with perceptions of crime. Real estate agents confirmed the relationship among these variables, as well as providing some support that these particular concepts (i.e., informal social control and social cohesion and trust) are related. Moreover, the theoretical model behaved as expected where collective efficacy mediated the relationship between concentrated disadvantage/residential stability and perception of crime. The multiple regression models show that collective efficacy is the most important variable when explaining perceptions of crime.

This empirical confirmation was conducted by incorporating different behaviors and resident proxies. Although there is now some support for these methods, it should be approached with caution. This study provided only some support for which to understand collective efficacy in a new way. Advancing collective efficacy using these methods will require additional research with various populations and incorporating many behaviors into the measurement.

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Appendix A- Survey Instrument

Collective Efficacy and Perceptions of Crime Survey

Individual Characteristics

Please answer the following personal questions.

1. What is your gender? Male Female
2. What is your age in years? _____
3. How many years have you been working as a real estate agent in Allegheny County? _____
4. How many years have you been familiar with various communities in Pittsburgh, Pennsylvania? _____
5. Which best describes you ethnicity or race?
   a. African American
   b. Caucasian
   c. Hispanic
   d. Other, Specify_____

Communities in question

1. Which communities do you have knowledge of and feel comfortable answering questions about the social environment and crime? Please check all that apply.
   a. Community A
   b. Community B
   c. Community C
   d. Community X
   e. Community Y
   f. Community Z

Social cohesion and trust

Please answer the following questions by indicating to what degree you agree or disagree with each statement.

1. People in community X are willing to help their neighbors.
   a. Strongly Agree
   b. Moderately Agree
   c. Neither Agree nor Disagree
   d. Moderately Disagree
   e. Strongly Disagree
2. Community X is a close-knit neighborhood
   a. Strongly Agree
   b. Moderately Agree
   c. Neither Agree nor Disagree
   d. Moderately Disagree
   e. Strongly Disagree

3. People in community X can be trusted
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
4. People in community X generally don't get along with each other (reverse coded)
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
5. People in community X do not share the same values (reverse coded)
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
6. People in community X frequently gather for community functions
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
7. Community X is a place where people mostly go their own way (reverse coded)
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree

Informal social control

Please answer the following questions.

1. How likely would residents, in community X, intervene if children were skipping school and hanging out on the street corner
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely

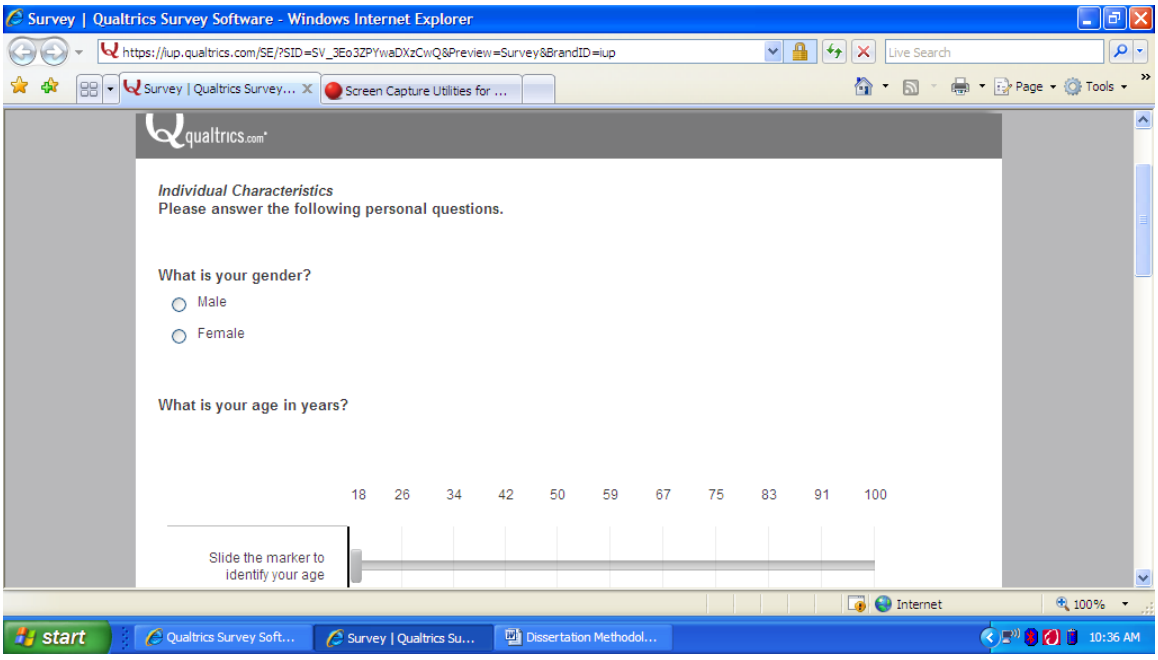
2. How likely would residents, in community X, intervene if children were spray painting graffiti on a local building
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely
3. How likely would residents, in community X, intervene if children were showing disrespect to an adult
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely
4. How likely would residents, in community X, intervene if a fight broke out in front of their house
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely
5. How likely would residents, in community X, intervene if the fire station closest to home was threatened with budget cuts
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely
6. If there were local government budgetary problems, how likely are residents of community X to attend town meetings to show their concern?
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely
7. How likely are residents of community X to call the police if a suspicious person was hanging around the block?
    a. Very Likely
    b. Likely
    c. Neither likely nor unlikely
    d. Unlikely
    e. Very Unlikely

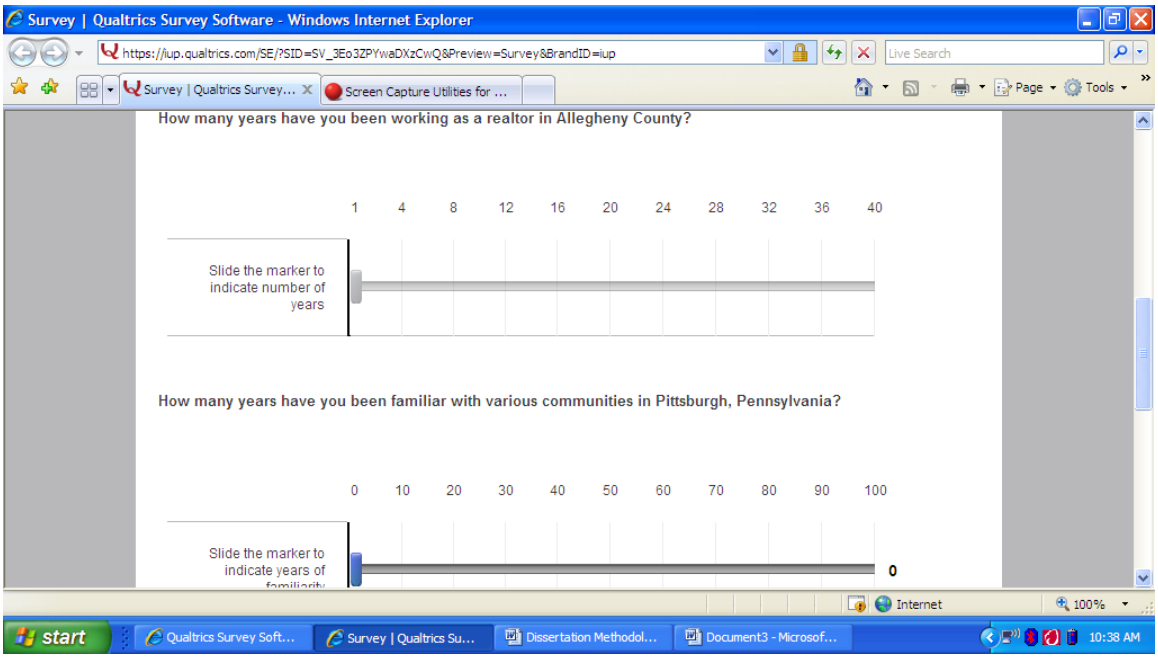
Perceptions of crime

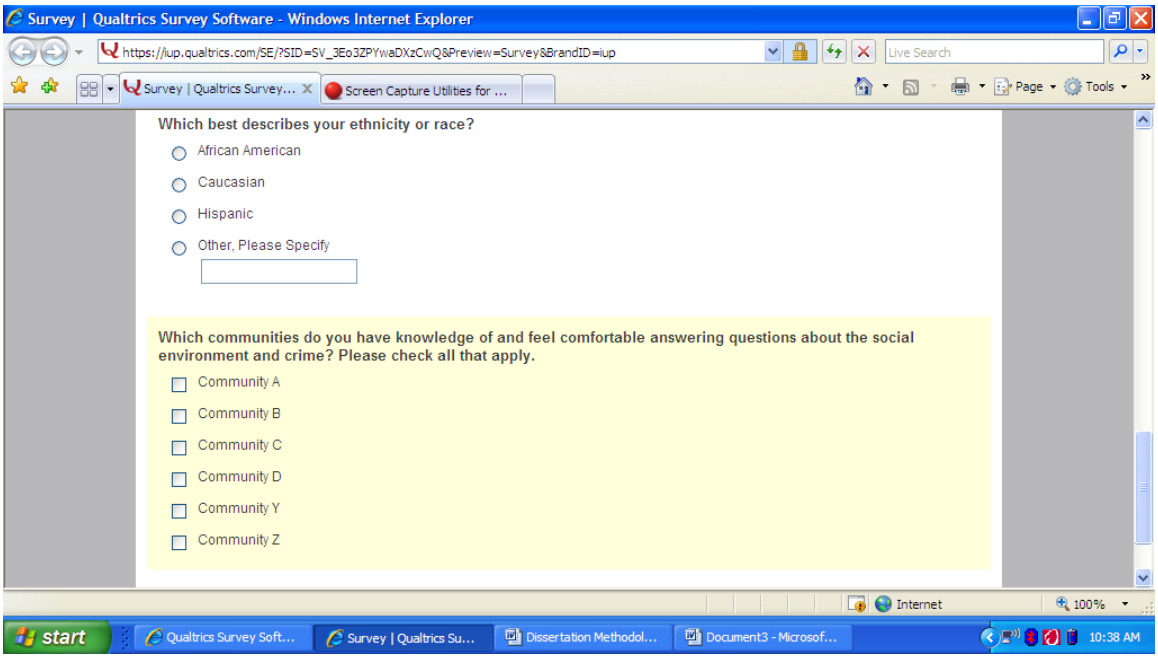
Please answer the following questions by indicating the degree to which you agree or disagree with each statement.

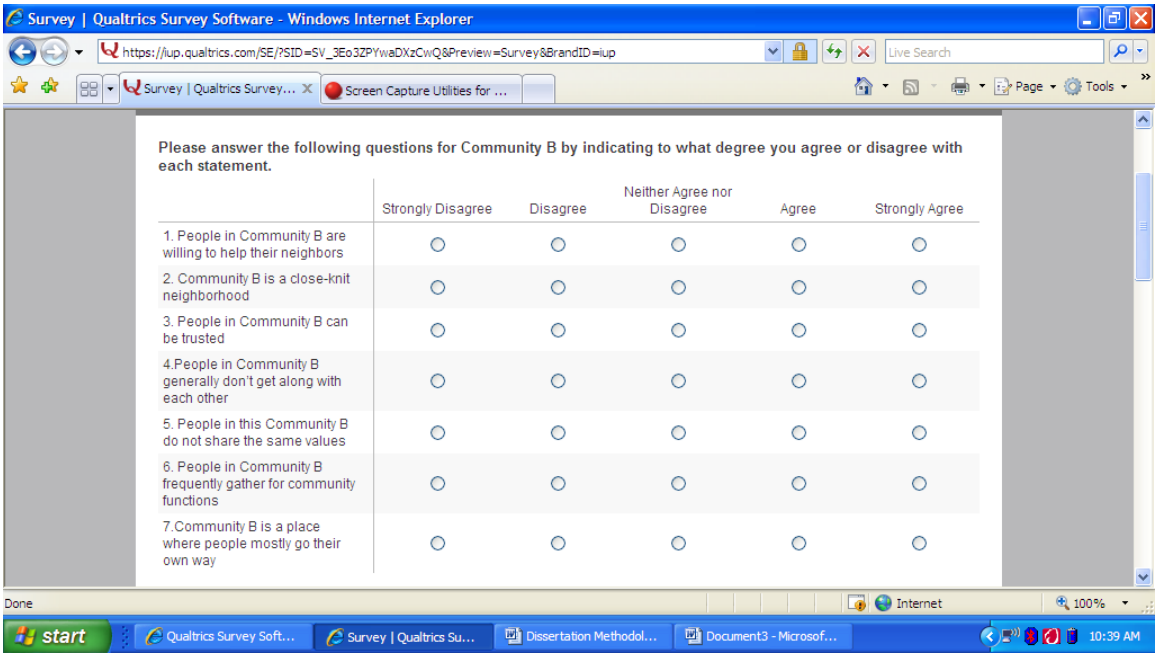
1. Crime and delinquency are serious problems in neighborhood X?
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
2. Violence is a serious problem in neighborhood X?
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
3. Illegal drugs are a serious problem in neighborhood X?
    a. Strongly Agree
    b. Moderately Agree
    c. Neither Agree nor Disagree
    d. Moderately Disagree
    e. Strongly Disagree
4. In comparison to the other communities in which you work, do you think the level of crime in community X is _____ when compared to ordinary communities within Pittsburgh, Pennsylvania.
    a. Much Higher
    b. Moderately Higher
    c. About the same
    d. Moderately Lower
    e. Much Lower

Appendix B- Survey Instrument Screenshots






Survey | Qualtrics Survey Software - Windows Internet Explorer
https://iup.qualtrics.com/SE/?SID=SV_3Eo3ZPYwaDXzCwQ&Preview=Survey&BrandID=iup
Which best describes your ethnicity or race?
African American
Caucasian
Hispanic
Other, Please Specify
Which communities do you have knowledge of and feel comfortable answering questions about the social environment and crime? Please check all that apply.
Community A
Community B
Community C
Community D
Community Y
Community Z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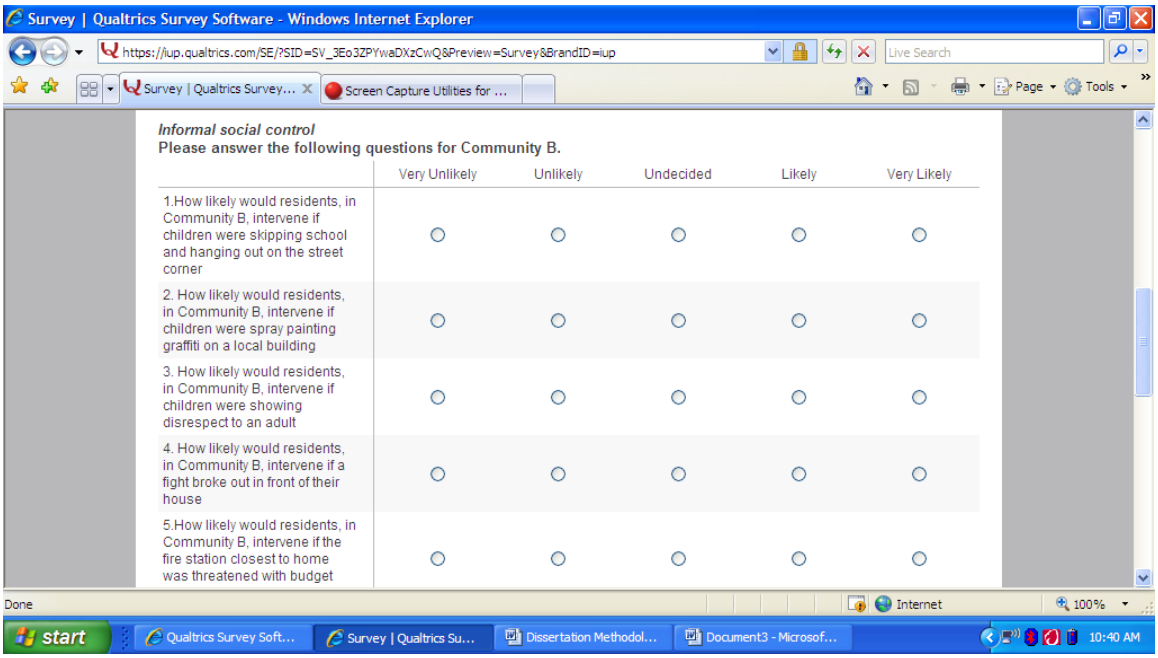
https://iup.qualtrics.com/SE/?SID=SV_3Eo3ZPYwaDXzCwQ&Preview=Survey&BrandID=iup
Please answer the following questions for Community B by indicating to what degree you agree or disagree with each statement.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
1. People in Community B are willing to help their neighbors
2. Community B is a close-knit neighborhood
3. People in Community B can be trusted
4.People in Community B generally don't get along with each other
5. People in this Community B do not share the same values
6. People in Community B frequently gather for community functions
7.Community B is a place where people mostly go their own way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Live Search
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Tools
Informal social control
Please answer the following questions for Community B.
Very Unlikely
Unlikely
Undecided
Likely
Very Likely
1.How likely would residents, in Community B, intervene if children were skipping school and hanging out on the street corner
2. How likely would residents, in Community B, intervene if children were spray painting graffiti on a local building
3. How likely would residents, in Community B, intervene if children were showing disrespect to an adult
4. How likely would residents, in Community B, intervene if a fight broke out in front of their house
5.How likely would residents, in Community B, intervene if the fire station closest to home was threatened with budget
Done
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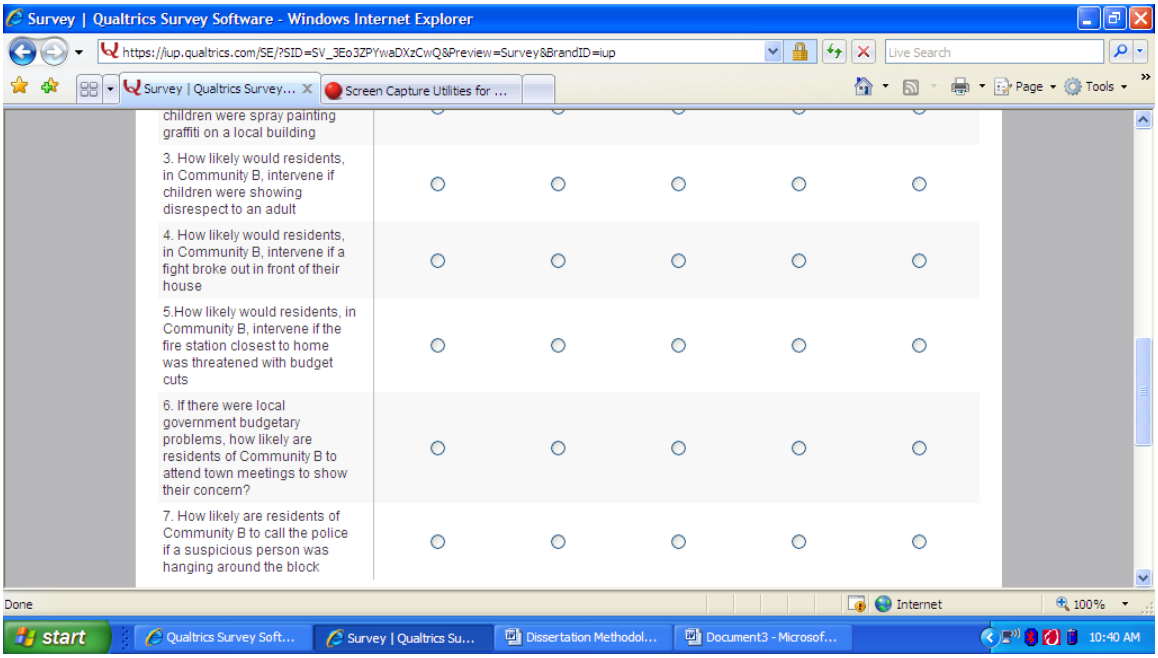
Survey | Qualtrics Survey Software - Windows Internet Explorer
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Live Search
Survey | Qualtrics Survey...
Screen Capture Utilities for ...
Page
Tools
children were spray painting graffiti on a local building
3. How likely would residents, in Community B, intervene if children were showing disrespect to an adult
4. How likely would residents, in Community B, intervene if a fight broke out in front of their house
5.How likely would residents, in Community B, intervene if the fire station closest to home was threatened with budget cuts
6. If there were local government budgetary problems, how likely are residents of Community B to attend town meetings to show their concern?
7. How likely are residents of Community B to call the police if a suspicious person was hanging around the block
Done
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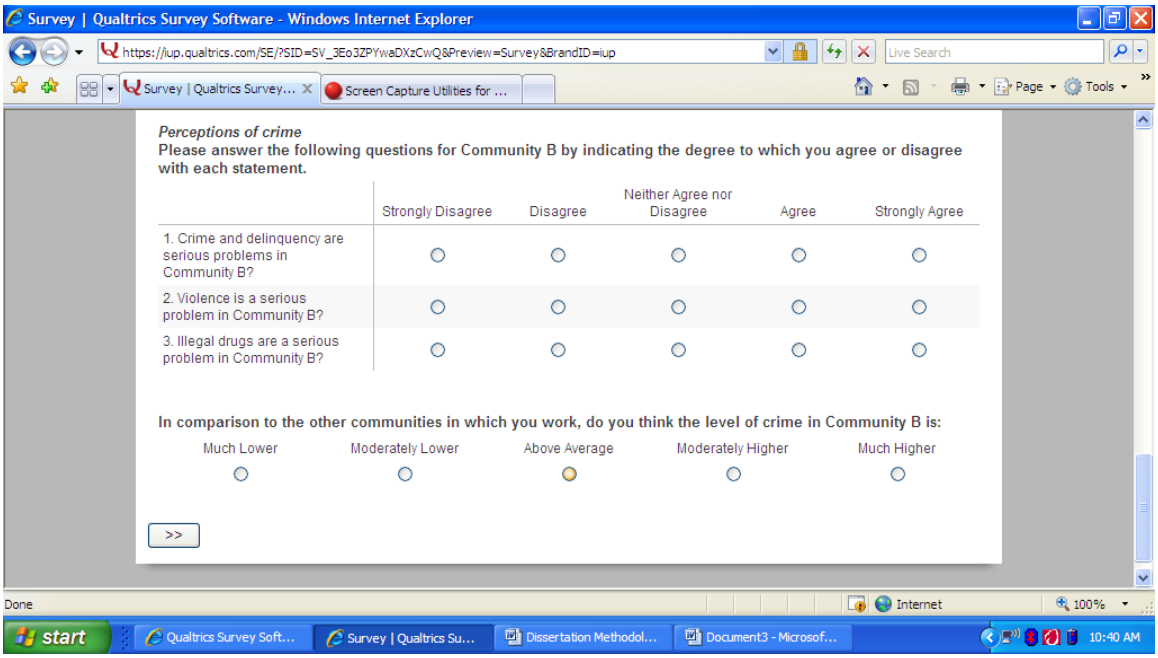
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Live Search
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Screen Capture Utilities for ...
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Tools
Perceptions of crime
Please answer the following questions for Community B by indicating the degree to which you agree or disagree with each statement.
Strongly Disagree
Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
1. Crime and delinquency are serious problems in Community B?
2. Violence is a serious problem in Community B?
3. Illegal drugs are a serious problem in Community B?
In comparison to the other communities in which you work, do you think the level of crime in Community B is:
Much Lower
Moderately Lower
Above Average
Moderately Higher
Much Higher
>>
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Appendix C- Internal Review Board Protocol

A. Purpose, research variables, and population

Purpose of Study

The purpose of this study is to conduct a test of collective efficacy theory in Pittsburgh, Pennsylvania. Collective efficacy theory is a macro-level explanation of crime and delinquency using community variables (i.e., population demographics, social ties, and informal social control).

Background

The theoretical framework of this study is derived from collective efficacy research. Emerging in the late 1990s, collective efficacy is the combination of working, less intimate, social ties (called social cohesion and trust) and the willingness to intercede given some abnormal situation that could potential arise (called informal social control) (Sampson, Raudenbush, & Earls, 1997). There has been numerous studies showing wide empirical support for this theoretical model; that is, collective efficacy mediating the relationship between crime/delinquency and areas of concentrated disadvantage and high residential mobility. In addition, research also has shown that communities with high collective efficacy have low crime rates. Overall, communities that recognize a common good through mutual trust and are willing to intercede to maintain this collectively agreed upon status quo will have less crime than areas with low levels of collective efficacy (Duncan, Duncan, Okut, Strycker, & Hix-Small's, 2003; Mazerolle, Wickes, and McBroom, 2010; Odgers, Moffitt, Tach, Sampson, Taylor, Matthews, and Caspi, 2009; Reisig & Cancino, 2004; Sampson and Wikstrom, 2007; Simons, Simons, Burt, Brody, and Cutrona, 2005; Zhang, Messner, and Liu, 2007)..

Collective efficacy research, however, is relatively limited due to being so new to criminological research. The studies that have been done mostly use the same data set or survey items as the original collective efficacy research. Consequently, research that expands the constructs and geographic locations is critical to understanding the empirical boundaries of this theory. This research combines these current limitations by adding to the item pool of the constructs and testing in Pittsburgh, Pennsylvania.

Characteristics of Subject Population

a) Age Range: The age range of the population will vary greatly due to the type of population that is being targeted. This study will primarily focus on real estate agents. Therefore, the age range will differ, however no participant in the study will be below the age of 18.
b) Sex: The gender of the population will also differ. It is suspected that both men and women are occupying the real estate agent positions mentioned above.
c) Number of Participants: This study will incorporate only real estate agents working in the City of Pittsburgh. Surveys will be conducted on real estate agents

throughout the city. This study will study the model in ten communities. Theoretically, a participant will be able to answer questions concerning all ten communities. Qualtrics will ask each participant to report perceptions of social relationships and crime. The survey will then be tailored to those communities. Therefore, the range of participants is completely unknown. The effect size of each community is sixty seven, which could turn out to be sixty seven participants answering questions on all ten communities. In all likelihood, this will not be the case. Sampling will continue until the effect size is met for all areas.

d) Inclusion Criteria: A list of realty companies operating in Allegheny County is provided on the Pennsylvania Association of Real estate agents website. A randomly selected group of those companies will be contacted for inclusion in this study.
e) Exclusion Criteria: It will not be necessary to interview non-experts of this particular phenomenon. If an individual does not hold a position mentioned above, the individual will be excluded from the study.
f) Vulnerable Subjects: This study will not include any vulnerable participants as defined by the Internal Review Board Application.

B. Methods

Method for Subject Selection

Past collective efficacy research has measured community member's perceptions of social cohesion and trust and informal social control of the communities in which they live. Due to logistical constraints of surveying numerous citizens in numerous communities, this research measures collective efficacy by incorporating real estate agents as the sample. Real estate agents have a unique job, where they are required to understand and know about the constructs of collective efficacy, as well as crime and delinquency in a number of different communities. Real estate agents will be able to answer survey questions for any or all of the various communities included in this study; thus sidestepping the logistical problems of past collective efficacy research.

Selection of real estate agents will be conducted by randomly selecting real estate agents from an aggregated list located on the Pennsylvania Association of Realtors (PAR) website. Access will be obtained by sending an email to each real estate agent asking for participation. The PAR website has provided that there are 1,235 real estate agents available to participate in this study. In addition, we have calculated that 107 participants will provide statistical significance. Dillman (2007) estimates that the response rates for email surveys are approximately 20 to 25 percent. Consequently, 500 real estate agents will be randomly chosen to participate in the survey. If it is necessary, additional real estate agents will be randomly selected and asked to participate in the survey in order to achieve the desired effect size, the email will also have all of the necessary informed consent information provided. A follow-up email will occur approximately one week after the initial email.

Study Site

The site of the study will take place in various real estate offices in Allegheny County. The survey can be accessed and completed on a company or personal computer. There will be no face-to-face contact will any of the participants.

Methods and Procedures Applied to Human Subjects

The data collection technique will be an online survey using Qualtrics software. Each participant will be required to understand informed consent form prior to taking the survey. The participant will understand the nature of the research in detail. Additionally, the participant will be made aware that they do not have any rights to the data being collected. However, the final product of this research, in summary, will be given to each participating companies with conclusion information.

C. Risks and Benefits

Potential Risks

This researcher does not anticipate any adverse reactions to the questions being asked, mainly because of the subject matter.

Protection against risk

The participant will be informed that their information will not be identifiable to any reader. In addition, the participant will be informed that they will have a chance to review the conclusion, in summary, which will help with any future policy decisions.

Potential Benefits

Collective efficacy theory has been shown to have strong empirical support when predicting a number of dependent variables. This research intends on expanding that knowledge. If research can show that collective efficacy can predict crime and delinquency, policy decisions can be made to increase the levels of collective efficacy in problematic communities, thus decreasing crime and delinquency and increasing public safety.

Compensation for Participation

The only compensation that will be given is access to a summary of the final product of this research.

Alternative Compensation

There will be no alternative compensation given.

Information Withheld

There will be no information withheld from the participant.

Debriefing

The participant will be given a copy of a summary of the results and the opportunity to speak to the researcher about the conclusions, if it is requested.

D. Confidentiality

The nature of this study will review perceptions of collective efficacy and crime in various communities throughout Pittsburgh, Pennsylvania. Therefore, the information given, as well as the specific areas included in this study, will not be identified in the text of the research. The study will represent the areas as letters (A, B, C, X, Y, & Z) and reveal that the area of study was in the northeastern section of the United States. All data collected will be kept locked; with only this researcher and faculty supervisor having access to the information.

Appendix D- Informed Consent

Informed Consent

You are being asked to participate in a study that focuses on the social cohesion and crime in various communities in Pittsburgh, Pennsylvania. The following is information regarding the study's design and purpose. This study has been approved by the Institutional Review Board at Indiana University of Pennsylvania. In no way will you be exposed to any dangers during the course of this study. Your participation in the study is extremely appreciated and will help in furthering our knowledge in criminology.

The purpose of this study is to conduct quantitative research that attempts to understand how collective efficacy impacts perceptions of crime. The study will require that you complete a one-time survey that can be taken online and is attached to this email. The interview will take approximately 10 minutes to complete and is completely confidential. Your participation in this study is completely **voluntary**. At any time, you can choose to cease participation in the study, with no penalty to you.

The study will inquire about the social cohesion of your community (e.g. how tight-knit a community is), and your perceptions of various crimes in that area. However, that information will be held completely confidential. At no time will the participant information be given out to anyone not included in this research project. There will be no identifying marks on the survey that can be linked back to you.

If you are willing to participate, please access the survey by clicking on the attached survey. Please feel free to contact me, if you have any other questions about the study.

Project Director: Joshua Battin
Doctoral Candidate
Indiana University of Pennsylvania
Department of Criminology
Wilson Hall
Indiana, PA 15701
724-555-5555

Appendix E- Pittsburgh Police 2010 Crime Statistics by Census Tract

	Census Tract	103	201	203	305	402	403	404	405
Part I	Homicide	0	1	0	0	1	0	0	0
	Rape	0	3	0	0	2	0	0	1
	Robbery	15	71	9	18	13	3	1	20
	Agg. Assault	16	0	15	27	7	7	2	6
	Burglary	15	71	22	33	15	5	9	45
	Theft	62	714	125	66	52	40	34	108
	MV Theft	9	13	8	11	6	3	2	6
	Arson	0	1	5	2	1	0	0	1
	Total Part I Crimes	117	914	184	157	97	58	48	187
Part II	Forgery	5	26	3	8	0	1	0	2
	Simple Assault	50	212	47	55	20	16	5	27
	Fraud	4	92	10	9	7	0	6	4
	Embezzlement	0	3	2	0	0	1	0	1
	Stolen Property	1	7	1	2	1	1	0	0
	Vandalism	32	109	54	31	13	21	10	69
	Weapon Violations	2	10	5	5	4	3	0	1
	Prostitution	68	49	0	2	0	2	0	7
	Other Sex Offenses	4	11	6	0	1	0	0	1
	Drug Violations	37	97	41	39	13	3	1	8
	Family Violence	1	2	0	1	0	0	0	0
	Drunken Driving	15	49	12	5	3	1	7	8
	Liquor Law Violation	1	7	1	2	1	0	0	1
	Public Intoxication	3	54	3	4	0	0	1	1
	Disorderly Conduct	6	90	4	6	7	2	3	8
	Other	38	64	12	14	16	3	4	5
	Total Part II Crimes	267	882	201	183	86	54	37	143

	Census Tract	406	409	501	506	507	509	510	511
Part I	Homicide	0	0	0	2	0	1	0	5
	Rape	0	1	0	0	0	0	0	3
	Robbery	10	3	18	7	12	9	3	14
	Agg. Assault	3	4	33	17	3	18	5	27
	Burglary	27	43	19	8	32	14	10	24
	Theft	27	53	60	30	58	26	40	19
	MV Theft	5	3	7	1	3	1	5	4
	Arson	0	2	0	2	0	1	2	1
	Total Part I Crimes	72	109	137	67	108	70	65	97
Part II	Forgery	1	1	13	2	10	4	1	13
	Simple Assault	8	24	83	26	19	49	26	68
	Fraud	2	3	10	6	8	2	4	3
	Embezzlement	0	0	0	0	1	0	0	0
	Stolen Property	0	0	3	2	0	2	1	4
	Vandalism	25	34	39	24	20	11	25	13
	Weapon Violations	0	3	9	3	1	4	4	15
	Prostitution	0	4	0	0	0	0	0	0
	Other Sex Offenses	3	2	2	2	2	2	0	0
	Drug Violations	2	6	109	10	7	27	9	46
	Family Violence	0	0	2	1	0	0	0	0
	Drunken Driving	4	11	9	3	5	1	2	1
	Liquor Law Violation	0	0	2	0	1	0	0	1
	Public Intoxication	0	1	4	0	2	0	0	2
	Disorderly Conduct	1	10	11	6	4	8	6	2
	Other	5	8	25	9	6	8	7	25
	Total Part II Crimes	51	107	321	94	86	118	85	193

	Census Tract	603	605	703	705	706	708	709	802
Part I	Homicide	0	1	0	0	0	0	0	0
	Rape	2	0	0	0	1	0	0	0
	Robbery	8	4	2	6	2	4	8	1
	Agg. Assault	15	5	4	4	0	4	3	7
	Burglary	34	7	12	11	15	4	25	10
	Theft	72	14	99	156	53	77	131	44
	MV Theft	9	2	6	7	8	7	4	4
	Arson	1	1	0	0	0	0	0	1
	Total Part I Crimes	141	34	123	184	79	96	171	67
Part II	Forgery	1	0	0	1	1	4	4	1
	Simple Assault	39	9	8	12	2	16	20	22
	Fraud	5	2	3	8	3	7	11	4
	Embezzlement	0	0	1	0	0	0	1	0
	Stolen Property	2	1	0	0	0	0	0	1
	Vandalism	46	12	33	46	14	22	33	25
	Weapon Violations	6	0	0	0	0	2	0	0
	Prostitution	0	0	0	0	0	0	0	1
	Other Sex Offenses	1	0	0	2	1	0	1	1
	Drug Violations	28	8	4	3	0	4	0	3
	Family Violence	0	0	0	0	1	1	0	0
	Drunken Driving	6	0	14	9	5	1	3	3
	Liquor Law Violation	0	0	1	0	0	1	0	0
	Public Intoxication	1	0	4	0	1	2	0	0
	Disorderly Conduct	7	2	3	8	6	2	10	4
	Other	13	7	8	10	4	6	11	8
	Total Part II Crimes	155	41	79	99	38	68	94	73

	Census Tract	804	806	807	809	901	902	903	1005
Part I	Homicide	0	0	0	0	0	0	0	0
	Rape	0	0	0	2	0	0	1	0
	Robbery	12	13	7	11	11	15	9	2
	Agg. Assault	4	2	2	6	10	8	5	3
	Burglary	18	13	9	14	17	10	13	11
	Theft	59	69	70	78	53	54	56	10
	MV Theft	5	3	5	8	8	5	2	2
	Arson	2	2	0	3	1	0	2	0
	Total Part I Crimes	100	102	93	122	100	92	88	28
Part II	Forgery	1	1	1	1	3	0	1	2
	Simple Assault	16	23	12	30	45	29	19	15
	Fraud	4	6	3	8	11	7	7	5
	Embezzlement	1	0	0	0	3	1	0	0
	Stolen Property	0	0	1	0	0	1	0	0
	Vandalism	22	27	17	42	38	44	37	9
	Weapon Violations	1	1	1	1	4	0	3	3
	Prostitution	2	0	2	15	7	0	0	0
	Other Sex Offenses	1	0	0	1	2	1	0	2
	Drug Violations	5	5	5	15	23	15	12	5
	Family Violence	1	0	0	0	1	1	0	1
	Drunken Driving	5	1	0	4	4	7	4	1
	Liquor Law Violation	0	0	0	0	0	0	0	0
	Public Intoxication	0	0	0	0	2	0	0	1
	Disorderly Conduct	10	3	4	8	5	5	6	8
	Other	6	9	3	6	16	10	14	5
	Total Part II Crimes	75	76	49	131	164	121	103	57

	Census Tract	1011	1014	1016	1017	1018	1102	1106	1113
Part I	Homicide	0	0	1	0	0	0	0	3
	Rape	0	0	0	0	0	0	0	2
	Robbery	16	3	4	4	2	17	4	14
	Agg. Assault	15	3	2	13	1	16	2	26
	Burglary	32	22	11	24	11	23	4	32
	Theft	48	27	14	25	20	83	54	53
	MV Theft	8	12	5	2	7	9	3	13
	Arson	3	0	0	3	0	1	1	1
	Total Part I Crimes	122	67	37	71	41	149	68	144
Part II	Forgery	2	1	0	0	0	2	0	7
	Simple Assault	85	25	23	43	11	40	24	79
	Fraud	10	9	3	7	11	11	8	8
	Embezzlement	0	1	0	0	0	0	0	0
	Stolen Property	0	0	1	2	0	2	0	2
	Vandalism	57	25	5	18	12	34	28	49
	Weapon Violations	0	1	1	4	0	1	1	10
	Prostitution	4	0	0	0	0	2	0	3
	Other Sex Offenses	2	2	0	0	1	2	0	3
	Drug Violations	26	12	2	12	3	16	10	28
	Family Violence	1	0	0	0	0	0	0	3
	Drunken Driving	7	5	1	0	1	5	10	2
	Liquor Law Violation	0	0	0	0	0	0	0	0
	Public Intoxication	1	2	0	0	0	1	0	0
	Disorderly Conduct	12	10	7	4	1	12	5	20
	Other	18	9	5	10	4	8	13	22
	Total Part II Crimes	225	102	48	100	44	136	99	236

Census Tract		1114	1115	1201	1202	1203	1204	1207	1208
Part I	Homicide	1	1	0	0	0	2	1	1
	Rape	1	0	1	0	0	0	0	1
	Robbery	14	47	11	5	7	9	9	9
	Agg. Assault	12	36	6	7	13	13	9	14
	Burglary	16	40	7	11	20	20	11	13
	Theft	33	260	89	13	30	16	34	45
	MV Theft	5	19	6	3	9	9	5	7
	Arson	0	2	0	2	2	0	0	0
Total Part I Crimes		82	405	120	41	81	69	69	90
Part II	Forgery	4	14	2	0	0	3	5	3
	Simple Assault	32	148	26	37	41	19	50	28
	Fraud	5	20	13	5	9	2	4	6
	Embezzlement	0	0	1	0	0	0	0	0
	Stolen Property	2	6	0	0	1	0	0	4
	Vandalism	43	71	20	15	22	10	15	20
	Weapon Violations	5	6	3	3	5	2	4	3
	Prostitution	7	2	0	0	0	0	0	0
	Other Sex Offenses	1	1	0	0	0	2	0	0
	Drug Violations	18	41	4	3	5	10	10	10
	Family Violence	2	2	0	0	0	0	0	0
	Drunken Driving	3	8	1	1	2	3	4	3
	Liquor Law Violation	2	1	0	0	0	0	0	0
	Public Intoxication	1	0	0	0	0	0	1	0
	Disorderly Conduct	10	12	8	7	7	6	5	4
	Other	16	30	9	3	6	10	10	4
Total Part II Crimes		151	362	87	74	98	67	108	85

	Census Tract	1301	1302	1303	1304	1306	1401	1402	1403
Part I	Homicide	2	3	3	1	1	0	0	0
	Rape	3	0	0	0	0	0	1	0
	Robbery	9	16	23	10	19	1	0	6
	Agg. Assault	28	27	12	20	24	0	1	0
	Burglary	45	30	26	43	32	12	9	13
	Theft	37	25	39	38	40	39	17	62
	MV Theft	12	9	6	8	7	6	0	1
	Arson	4	3	5	2	9	0	0	0
	Total Part I Crimes	140	113	114	122	132	58	28	82
Part II	Forgery	2	2	2	4	2	0	0	3
	Simple Assault	86	35	59	61	96	4	2	14
	Fraud	8	2	1	5	5	4	4	8
	Embezzlement	0	0	0	0	0	0	0	1
	Stolen Property	5	1	1	2	4	0	0	0
	Vandalism	40	28	32	37	56	14	6	38
	Weapon Violations	4	7	7	10	12	0	0	0
	Prostitution	0	0	2	2	0	0	0	0
	Other Sex Offenses	1	2	1	1	2	0	0	0
	Drug Violations	18	20	19	24	25	3	0	6
	Family Violence	2	0	2	1	2	0	0	0
	Drunken Driving	3	1	1	3	2	2	2	3
	Liquor Law Violation	0	0	0	0	0	0	0	0
	Public Intoxication	1	0	2	1	2	1	0	1
	Disorderly Conduct	8	5	6	8	11	2	2	2
	Other	18	10	19	14	19	4	4	3
	Total Part II Crimes	196	113	154	173	238	34	20	79

	Census Tract	1404	1405	1406	1408	1410	1411	1413	1414
Part I	Homicide	0	0	0	0	0	0	0	0
	Rape	0	0	0	0	1	0	2	0
	Robbery	2	5	5	10	2	0	6	7
	Agg. Assault	2	5	0	2	1	0	3	5
	Burglary	9	17	25	28	4	6	27	22
	Theft	28	54	46	104	28	24	125	56
	MV Theft	4	10	5	3	0	0	13	1
	Arson	0	3	0	0	0	0	0	0
	Total Part I Crimes	45	94	81	147	36	30	176	91
Part II	Forgery	0	2	0	4	0	0	3	1
	Simple Assault	5	27	21	28	3	1	14	20
	Fraud	6	9	2	15	3	4	14	16
	Embezzlement	0	0	0	0	0	0	0	1
	Stolen Property	0	1	0	0	0	0	0	0
	Vandalism	7	24	18	32	6	8	33	23
	Weapon Violations	0	2	3	7	1	1	1	1
	Prostitution	0	0	0	0	0	0	0	0
	Other Sex Offenses	0	1	0	2	0	0	5	1
	Drug Violations	1	11	12	12	1	0	2	9
	Family Violence	0	1	0	0	0	0	0	0
	Drunken Driving	2	1	4	6	1	0	5	6
	Liquor Law Violation	0	0	0	0	0	0	0	0
	Public Intoxication	0	0	0	0	1	0	1	1
	Disorderly Conduct	1	3	4	6	0	1	6	5
	Other	3	10	6	9	1	4	6	4
	Total Part II Crimes	25	92	70	121	17	19	90	88

	Census Tract	1501	1504	1515	1516	1517	1603	1604	1606
Part I	Homicide	0	0	1	0	0	0	0	0
	Rape	0	1	1	0	0	0	0	1
	Robbery	7	2	11	3	5	3	4	0
	Agg. Assault	5	5	30	4	3	8	12	1
	Burglary	12	4	36	12	33	16	4	2
	Theft	19	3	42	30	50	19	6	4
	MV Theft	4	0	6	2	4	4	1	0
	Arson	2	0	1	2	1	1	1	0
	Total Part I Crimes	49	15	128	53	96	51	28	8
Part II	Forgery	3	0	9	1	6	2	1	0
	Simple Assault	25	33	50	10	30	42	21	3
	Fraud	3	2	9	7	11	3	3	2
	Embezzlement	0	0	1	0	0	0	0	0
	Stolen Property	3	0	2	0	0	0	1	0
	Vandalism	14	3	42	27	39	23	6	4
	Weapon Violations	1	1	2	0	0	5	2	0
	Prostitution	1	0	2	0	0	0	0	0
	Other Sex Offenses	1	2	0	2	3	0	0	0
	Drug Violations	20	4	26	4	16	14	8	1
	Family Violence	0	0	2	0	2	1	0	0
	Drunken Driving	3	0	1	1	8	3	0	1
	Liquor Law Violation	0	0	1	0	0	1	1	0
	Public Intoxication	0	1	2	0	0	0	0	0
	Disorderly Conduct	7	2	4	7	10	10	1	1
	Other	15	3	20	4	12	10	9	2
	Total Part II Crimes	96	51	173	63	137	114	53	14

	Census Tract	1607	1608	1609	1702	1706	1803	1806	1807
Part I	Homicide	0	0	0	1	0	0	0	0
	Rape	0	0	2	4	0	4	0	0
	Robbery	0	3	13	46	15	20	1	10
	Agg. Assault	4	7	21	60	9	39	5	6
	Burglary	1	32	25	56	51	44	13	37
	Theft	4	36	155	358	82	67	18	66
	MV Theft	1	7	8	21	11	9	0	12
	Arson	0	1	1	2	1	4	0	3
	Total Part I Crimes	10	86	225	548	169	187	37	134
Part II	Forgery	0	0	5	8	4	8	1	1
	Simple Assault	24	37	45	221	43	134	10	45
	Fraud	1	12	14	30	7	8	5	7
	Embezzlement	0	0	3	4	0	0	0	1
	Stolen Property	1	2	1	2	0	4	0	0
	Vandalism	10	39	103	226	44	62	12	60
	Weapon Violations	2	2	0	4	0	6	2	0
	Prostitution	0	1	0	3	0	6	1	0
	Other Sex Offenses	0	0	3	9	0	0	1	0
	Drug Violations	2	10	13	47	20	46	18	7
	Family Violence	0	0	0	1	0	1	0	0
	Drunken Driving	0	2	21	111	10	9	16	0
	Liquor Law Violation	0	0	0	4	2	0	0	0
	Public Intoxication	0	1	6	27	2	4	0	1
	Disorderly Conduct	3	11	8	27	4	25	4	3
	Other	3	10	25	28	12	42	7	17
	Total Part II Crimes	46	127	247	752	148	355	77	142

	Census Tract	1809	1903	1911	1914	1915	1916	1917	1918
Part I	Homicide	1	0	0	0	0	1	0	0
	Rape	0	0	0	1	0	1	1	0
	Robbery	5	4	0	7	4	3	1	4
	Agg. Assault	19	2	4	15	7	8	10	15
	Burglary	29	13	24	44	26	21	5	22
	Theft	27	55	26	115	49	49	34	53
	MV Theft	4	2	3	7	4	4	5	5
	Arson	2	0	0	2	0	2	0	1
	Total Part I Crimes	87	76	57	191	90	89	56	100
Part II	Forgery	0	0	0	0	2	5	0	5
	Simple Assault	54	26	13	67	53	74	50	63
	Fraud	9	13	6	11	5	18	9	13
	Embezzlement	0	1	0	0	0	0	0	0
	Stolen Property	1	0	1	0	2	0	0	0
	Vandalism	25	14	11	55	29	50	18	46
	Weapon Violations	3	0	0	2	1	2	7	2
	Prostitution	0	0	0	0	0	0	0	0
	Other Sex Offenses	0	0	1	2	1	2	0	3
	Drug Violations	28	4	2	23	11	30	10	15
	Family Violence	1	0	0	1	2	2	0	1
	Drunken Driving	6	4	9	11	3	12	7	12
	Liquor Law Violation	0	0	0	1	0	0	1	0
	Public Intoxication	0	0	2	2	0	0	0	2
	Disorderly Conduct	6	8	3	11	6	10	9	15
	Other	22	9	8	19	9	12	16	20
	Total Part II Crimes	155	79	56	205	124	217	127	197

	Census Tract	1919	1920	1921	2016	2017	2018	2019	2020
Part I	Homicide	1	0	0	0	0	3	0	1
	Rape	0	0	0	0	0	0	1	0
	Robbery	7	6	4	0	7	18	0	20
	Agg. Assault	5	6	8	1	7	26	4	13
	Burglary	10	29	6	4	11	54	8	22
	Theft	39	63	72	18	8	48	15	55
	MV Theft	8	7	1	1	2	10	1	2
	Arson	0	1	0	0	0	6	1	2
	Total Part I Crimes	70	112	91	24	35	165	30	115
Part II	Forgery	0	3	3	1	3	2	2	1
	Simple Assault	34	53	77	7	15	86	19	84
	Fraud	6	10	4	1	0	7	4	16
	Embezzlement	0	0	0	0	0	0	0	0
	Stolen Property	0	1	1	0	0	3	0	1
	Vandalism	24	38	17	2	32	105	7	27
	Weapon Violations	2	1	1	1	2	11	0	3
	Prostitution	0	0	4	0	0	0	1	0
	Other Sex Offenses	2	3	3	0	0	3	1	5
	Drug Violations	10	4	7	2	10	45	15	22
	Family Violence	1	1	0	1	0	1	0	0
	Drunken Driving	10	12	18	2	12	5	17	2
	Liquor Law Violation	0	0	0	0	1	1	0	0
	Public Intoxication	2	1	7	0	0	0	0	1
	Disorderly Conduct	11	18	5	1	3	12	5	14
	Other	10	22	6	1	6	33	4	27
	Total Part II Crimes	112	167	153	19	84	314	75	203

	Census Tract	2021	2022	2023	2107	2108	2201	2204	2205
Part I	Homicide	0	0	0	0	0	1	1	0
	Rape	0	0	0	0	0	0	2	0
	Robbery	0	7	2	8	3	2	11	4
	Agg. Assault	10	6	7	15	4	7	12	8
	Burglary	2	19	12	19	1	7	9	8
	Theft	5	40	53	31	37	24	67	60
	MV Theft	1	6	2	4	4	2	0	4
	Arson	0	0	0	0	0	0	0	0
	Total Part I Crimes	18	78	76	77	49	43	102	84
Part II	Forgery	0	2	0	8	1	0	7	1
	Simple Assault	6	49	26	47	8	18	61	31
	Fraud	1	13	18	8	6	1	3	9
	Embezzlement	0	1	0	0	0	0	0	0
	Stolen Property	0	0	1	3	1	0	1	0
	Vandalism	5	50	22	28	14	10	30	23
	Weapon Violations	3	6	0	4	2	0	5	1
	Prostitution	0	0	7	0	0	0	10	1
	Other Sex Offenses	0	1	0	3	1	1	4	2
	Drug Violations	3	29	7	49	13	7	37	7
	Family Violence	0	1	0	1	1	0	2	1
	Drunken Driving	1	5	14	3	4	8	11	12
	Liquor Law Violation	0	1	0	0	1	0	0	1
	Public Intoxication	0	2	0	0	1	1	3	8
	Disorderly Conduct	3	11	11	8	0	3	13	9
	Other	5	15	4	16	7	2	23	9
	Total Part II Crimes	27	186	110	178	60	51	210	115

	Census Tract	2206	2304	2406	2412	2503	2507	2509	2602
Part I	Homicide	0	0	1	0	0	1	1	0
	Rape	1	2	3	0	1	0	1	1
	Robbery	11	31	19	3	6	3	8	8
	Agg. Assault	5	29	13	13	13	8	22	13
	Burglary	14	41	45	12	20	12	21	42
	Theft	48	116	77	15	26	38	17	30
	MV Theft	1	11	10	3	5	2	1	6
	Arson	1	2	2	3	3	0	0	1
	Total Part I Crimes	81	232	170	49	74	64	71	101
Part II	Forgery	2	16	3	1	2	1	17	1
	Simple Assault	45	93	68	15	26	43	51	52
	Fraud	8	10	13	4	4	3	7	6
	Embezzlement	0	1	0	0	0	0	0	0
	Stolen Property	3	2	0	0	0	0	1	3
	Vandalism	27	48	47	8	30	19	17	37
	Weapon Violations	5	8	1	2	0	5	8	4
	Prostitution	2	33	0	1	0	1	0	2
	Other Sex Offenses	1	0	2	1	0	0	0	0
	Drug Violations	34	67	22	6	21	17	57	24
	Family Violence	2	0	0	1	0	2	1	2
	Drunken Driving	6	10	7	3	1	4	2	5
	Liquor Law Violation	0	1	0	0	0	0	1	0
	Public Intoxication	3	2	0	1	0	0	0	0
	Disorderly Conduct	8	16	15	4	5	1	5	12
	Other	24	29	28	8	9	18	14	15
	Total Part II Crimes	170	336	206	55	98	114	181	163

	Census Tract	2607	2609	2612	2614	2615	2620	2701	2703
Part I	Homicide	1	1	0	1	0	0	0	0
	Rape	0	0	0	1	1	1	0	1
	Robbery	2	3	0	8	2	16	7	4
	Agg. Assault	6	23	0	23	20	16	13	14
	Burglary	11	17	3	45	43	33	30	22
	Theft	14	17	8	31	34	42	43	35
	MV Theft	2	0	0	5	5	5	6	8
	Arson	0	2	0	2	1	0	2	0
	Total Part I Crimes	36	63	11	116	106	113	101	84
Part II	Forgery	2	4	0	4	2	5	4	1
	Simple Assault	37	62	7	62	100	57	49	31
	Fraud	4	6	1	9	6	4	11	11
	Embezzlement	0	0	0	0	1	0	0	0
	Stolen Property	0	2	0	3	1	0	1	1
	Vandalism	19	29	7	37	17	37	30	17
	Weapon Violations	2	9	1	6	7	4	4	2
	Prostitution	1	0	0	0	2	5	0	0
	Other Sex Offenses	0	1	0	2	2	1	4	0
	Drug Violations	18	22	1	57	24	46	22	8
	Family Violence	0	1	0	1	0	0	0	0
	Drunken Driving	2	0	2	2	4	5	5	4
	Liquor Law Violation	1	0	0	0	0	0	0	0
	Public Intoxication	0	0	0	0	0	0	2	1
	Disorderly Conduct	6	6	0	16	4	14	11	3
	Other	10	8	2	15	9	16	17	11
	Total Part II Crimes	102	150	21	214	179	194	160	90

	Census Tract	2704	2708	2715	2805	2807	2808	2811	2812
Part I	Homicide	0	0	1	0	1	0	0	0
	Rape	0	1	0	0	0	0	0	0
	Robbery	3	3	27	0	4	0	1	2
	Agg. Assault	5	9	34	1	4	2	5	1
	Burglary	10	21	59	6	10	4	24	6
	Theft	24	33	65	7	29	8	41	13
	MV Theft	3	5	11	0	3	1	2	0
	Arson	0	0	5	0	2	0	0	0
	Total Part I Crimes	45	72	202	14	53	15	73	22
Part II	Forgery	3	1	7	0	2	0	1	0
	Simple Assault	21	36	131	9	18	7	25	6
	Fraud	3	6	9	0	3	4	12	1
	Embezzlement	0	0	0	0	0	0	1	0
	Stolen Property	0	0	2	0	0	0	0	0
	Vandalism	14	25	74	4	12	6	20	5
	Weapon Violations	0	0	5	0	4	5	1	0
	Prostitution	0	0	0	0	0	0	0	0
	Other Sex Offenses	2	1	0	0	1	0	0	0
	Drug Violations	18	9	16	1	5	1	4	3
	Family Violence	0	1	3	0	0	0	2	1
	Drunken Driving	3	1	3	0	3	1	4	0
	Liquor Law Violation	0	0	1	0	0	0	0	0
	Public Intoxication	0	0	2	0	0	0	0	0
	Disorderly Conduct	4	9	23	2	0	1	10	4
	Other	8	6	18	3	6	0	5	5
	Total Part II Crimes	76	95	294	19	54	25	85	25

	Census Tract	2814	2815	2901	2902	2904	3001	3101	3102
Part I	Homicide	1	0	0	0	1	2	0	0
	Rape	1	0	0	0	1	2	0	1
	Robbery	7	3	24	16	10	28	0	1
	Agg. Assault	18	1	11	18	13	54	2	8
	Burglary	30	9	32	45	52	89	5	10
	Theft	33	19	49	107	80	75	5	16
	MV Theft	4	1	12	5	9	9	1	1
	Arson	2	0	0	3	5	2	0	1
	Total Part I Crimes	96	33	128	194	171	261	13	38
Part II	Forgery	3	3	0	2	8	13	1	2
	Simple Assault	58	10	53	106	95	157	14	22
	Fraud	4	4	7	20	21	11	1	7
	Embezzlement	0	1	1	1	0	0	0	0
	Stolen Property	3	0	2	0	0	4	0	0
	Vandalism	32	7	31	71	71	91	4	27
	Weapon Violations	2	1	2	1	6	9	1	0
	Prostitution	0	0	9	3	4	7	0	0
	Other Sex Offenses	2	0	3	1	2	7	1	1
	Drug Violations	19	10	23	17	26	142	5	0
	Family Violence	0	1	0	4	0	5	0	1
	Drunken Driving	1	0	7	6	6	8	1	4
	Liquor Law Violation	1	0	0	0	1	0	0	0
	Public Intoxication	1	1	0	1	1	0	0	0
	Disorderly Conduct	12	7	10	21	22	15	0	8
	Other	21	8	19	28	24	41	1	8
	Total Part II Crimes	159	53	167	282	287	510	29	80

	Census Tract	3103	3204	3206	3207	4810	5599	6699	7799
Part I	Homicide	0	0	0	0	0	0	0	0
	Rape	0	0	0	0	0	0	0	0
	Robbery	0	3	2	2	0	0	0	0
	Agg. Assault	1	5	5	5	2	0	0	0
	Burglary	3	20	9	12	0	0	0	0
	Theft	7	27	17	35	2	7	0	1
	MV Theft	0	4	0	2	0	2	0	0
	Arson	0	1	0	1	0	1	0	0
	Total Part I Crimes	11	60	33	57	4	10	0	1
Part II	Forgery	0	4	1	1	1	2	0	0
	Simple Assault	3	27	20	11	4	3	2	2
	Fraud	0	6	7	1	0	6	2	1
	Embezzlement	0	0	0	0	0	1	0	0
	Stolen Property	0	0	0	0	0	41	5	0
	Vandalism	2	6	17	11	0	0	0	0
	Weapon Violations	0	0	0	0	0	1	0	0
	Prostitution	0	0	0	1	3	0	0	0
	Other Sex Offenses	0	0	1	0	0	0	0	0
	Drug Violations	0	8	7	2	6	37	0	1
	Family Violence	0	0	1	0	1	1	0	0
	Drunken Driving	1	1	3	3	1	1	0	0
	Liquor Law Violation	0	0	1	0	0	0	0	0
	Public Intoxication	0	0	1	0	0	0	0	0
	Disorderly Conduct	1	5	10	6	0	0	0	1
	Other	2	12	7	9	1	7	0	0
	Total Part II Crimes	9	69	76	45	17	100	9	5

2010 Part I Crimes Known to Law Enforcement		Total
Part I	Homicide	54
	Rape	66
	Robbery	1174
	Agg. Assault	1503
	Burglary	2910
	Theft	7508
	MV Theft	703
	Arson	151
Total Part I Crimes		14069

2010 Part II Crimes Known to Law Enforcement		Total
Part II	Forgery	395
	Simple Assault	5671
	Fraud	1059
	Embezzlement	37
	Stolen Property	171
	Vandalism	4195
	Weapon Violations	388
	Prostitution	292
	Other Sex Offenses	174
	Drug Violations	2415
	Family Violence	84
	Drunken Driving	807
	Liquor Law Violation	45
	Public Intoxication	195
	Disorderly Conduct	1084
	Other	1692
Total Part II Crimes		18704

Appendix F: Tables

Table F1

Descriptive Statistics for Demographic, Experience, and Familiarity Variables

	Mean	Median	Mode	Range	Min.	Max.	n
Gender	.37	---	---	1	0	1	130
Age	51.72	55.5	56	52	28	80	138
Race	---	---	2	3	1	4	134
Experience	15.40	14.00	6	39	1	40	136
Familiarity	34.30	39.50	30	65	7	72	138

Table F2

Standardized Mean for Perceptions of Crime

	Standardized Mean	Crime Rate per 1,000 Residents
Squirrel Hill North	2.194	24.31
Point Breeze	2.605	39.01
Marshall-Shadeland (Brightwood)	3.895	90.05
Lawrenceville Central	3.284	81.67
South Side Flats	3.218	309.47
East Allegheny	3.029	215.56

Table F3

Cronbach's Alpha for Concentrated Disadvantage when Deleting Each Item

	Cronbach's Alpha if Item Deleted	Corrected Item – Total Correlation
Below Poverty	.370	.073
Public Assistance	.166	.371
Female-headed Households	.096	.465
Unemployment	.433	-.233
Less than 19	.503	-.323
African American	.521	.743

Note. n = 6; α = 0.301

Table F4

Cronbach's Alpha for Residential Stability when Deleting Each Item

	Cronbach's Alpha if Item Deleted	Corrected Item – Total Correlation
Owner Concentration	--	.206
Same Dwelling since 1995	--	.206

Note. n = 6; α = 0.312

Table F5

Descriptive Statistics for Community Variables

	Mean	Median	Mode	Range	Min.	Max.	n
Concentrated Disadvantage	75.46	9.32	9.32	10.8	59.3	123.3	139
Residential Stability	101.89	45.15	45.15	27.7	73.9	129.3	139
Collective Efficacy	50.77	52.00	*Multiple*	36	28.0	64.00	133
Informal Social Control	26.41	27	25	23	12.0	35.00	137
Social Cohesion & Trust	24.20	24	25	18	14.0	32.00	135

Table F6

Cronbach's Alpha for Informal Social Control when Deleting Each Item

	Cronbach's Alpha if Item Deleted	Corrected Item – Total Correlation
Skipping School	.882	.669
Graffiti	.867	.790
Disrespect to Adult	.879	.686
Fight Begins	.878	.698
Fire Station	.886	.623
Community Meeting	.883	.652
Suspicious Person	.872	.749

Note. n = 137; α = 0.894

Table F7

Cronbach's Alpha for Social Cohesion and Trust when Deleting Each Item

	Cronbach's Alpha if Item Deleted	Corrected Item – Total Correlation
Help Neighbors	.687	.566
Close-knit Neighborhood	.685	.548
Trust in Neighbors	.701	.490
Lack of Relationships	.728	.363
Lack of Shared Values	.734	.334
Event Participation	.715	.435
Isolation	.709	.457

Note. n = 135; $\alpha = 0.740$

Table F8

Principal Component Analysis for Seven Informal Social Control Survey Items

	Component 1
Skipping School	.765
Graffiti	.857
Disrespect to Adult	.772
Fight Begins	.784
Fire Station	.723
Community Meeting[a]	.754
Suspicious Person[a]	.827

Note. [a] new survey item; n = 137

Table F9

Principal Component Analysis for Seven Social Cohesion and Trust Survey Items

	Component 1
Help Neighbors	.747
Close-knit Neighborhood	.735
Trust in Neighbors	.679
Lack of Relationships	.508
Lack of Shared Values	.470
Event Participation*	.623
Isolation*	.597

Note. * new survey item; n = 135

Table F10

Collinearity Statistics[a]

	Collinearity Statistics	
Model	Tolerance	VIF
Concentrated Disadvantage	.700	1.428
Residential Stability	.786	1.272
Collective Efficacy	.877	1.140
Gender	.791	1.265
Age	.273	3.668
Experience	.405	2.469
Familiarity	.402	2.485

Note. [a] Dependent Variable: Perceptions of Crime

Table F11

Bivariate Correlation Matrix

	1	2	3	4	5	6	7	8
1 Collective Efficacy	1							
2 Concentrated Disadvantage	-0.302**	1						
3 Residential Stability	.056	-.433**	1					
4 Perception of Crime	-.472**	.248**	.042	1				
5 Age	.051	.093	-.089	.017	1			
6 Gender	.129	-.070	-.020	.046	.232**	1		
7 Experience	-.026	.135	-.020	.050	.644**	-.079	1	
8 Familiarity	.067	.132	-.096	.079	.757**	.197	.548**	1

Note. p<0.01**

Table F12

Regression Analysis of Collective Efficacy

Independent Variables	Model 1	Model 2	Model 3
	B (se)	B (se)	B (se)
Gender	1.92 (1.514)		1.40(1.46)
Age	-.030 (.088)		-.043 (.084)
Familiarity	-.058 (.056)		.076 (.054)
Experience	-.034 (.088)		-.013 (.054)
Concentrated Disadvantage		-.116** (.031)	-.117** (.033)
Residential Stability		-.045 (.041)	-.042 (.043)
Constant	51.65** (3.244)	64.13** (5.71)	64.23** (6.63)
R^2	.031	.100	.129
F	.944	7.193**	2.883*
n	124	133	124
df	4	2	6

Note. p<0.05*, p<0.01**

Table F13

Regression Analysis of Perceptions of Crime

Independent Variables	Model 1	Model 2	Model 3	Model 4
	B (se)	B (se)	B (se)	B (se)
Gender	.433 (.717)			.795 (.639)
Age	-.029 (.035)			-.039 (.037)
Familiarity	.027 (.025)			.031 (.024)
Experience	.015 (.034)			.015 (.037)
Concentrated Disadvantage		.050*** (.014)	.026* (.014)	.025* (.015)
Residential Stability		.037*(.019)	.022 (.018)	.027 (.019)
Collective Efficacy			-.200*** (.038)	-.215*** (.041)
Constant	12.45*** (1.55)	4.17 (2.58)	17.52*** (3.45)	18.90*** (3.95)
R^2	.013	.087	.246	.267
F	.399	6.637***	13.788***	5.995***
n	127	137	131	123
df	4	2	3	7

Note. p<0.10*, p<0.05**, p<0.01***

Table F14

Principal Component Analysis for Concentrated Disadvantage

	Component 1
Below Poverty	.763
Public Assistance	.569
Female-headed Households	.826
Unemployment	-.753
Less than 19	-.722
African American	.604

Note. n = 6