ABSTRACT

Title: INVESTIGATING THE RELATIONSHIP BETWEEN MICRO AND MACRO LEVELS OF EFFICACY AND THEIR EFFECTS ON CRIME

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The concepts of self-efficacy and collective efficacy have both been used by scholars to explain involvement in individual-level crime. Scholars have found that both types of efficacy are related to crime at the individual level. However, little research has examined the relationship between self-efficacy and collective efficacy and its influence on youths' involvement in crime. Using the Project on Human Development in Chicago Neighborhoods (PHDCN) data, this study focuses on the independent influences of self-efficacy and collective efficacy on involvement in crime among youths ages 9 to 19, and examines the potential moderating effect of collective efficacy on the relationship between self-efficacy and crime.

The relationship between self-efficacy, collective efficacy, and crime is addressed by asking three questions. First, does a general measure of youth's self-efficacy influence their involvement in crime? Second, does a macro level measure of collective efficacy influence youths' involvement in crime? Third, does collective efficacy

moderate the relationship between self-efficacy and crime? To control for the contexts in which youths live and individual-level factors that can influence involvement in crime, and may influence efficacy, neighborhood context, family context, and individual-level demographic variables are also examined.

Using Hierarchical Linear Modeling, the analyses indicate mixed support for a relationship between efficacy and individual-level involvement in crime. First, a significant negative relationship exists between self-efficacy and crime. Second, no significant effects emerge between collective efficacy and crime. Third, collective efficacy completely moderates the relationship between self-efficacy and crime, but not in the expected direction. After controlling for collective efficacy, the significant negative relationship between self-efficacy and crime is nullified. The conclusion then is that a general measure of self-efficacy influences a youth's involvement in crime, while a macro level measure of collective efficacy does not. Areas of future research and implications for theory and policy are discussed.

INVESTIGATING THE RELATIONSHIP BETWEEN MICRO AND MACRO LEVELS OF EFFICACY AND THEIR EFFECTS ON CRIME

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Dedication

To Mildred M. Maker: Your perseverance inspires me to never give up and to work even harder, despite future uncertainties.

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It has been said before, but bears repeating – this dissertation and resultant degree were not completed in a vacuum. The mesosystem in which I found myself contributed to their completion. My ever-evolving dissertation committee, whether the members were involved from beginning to end or for a short period of time, was essential in guiding my research. Foremost, I am indebted to John Laub for opening the door to my Ph.D. journey; serving as a patient and steadfast mentor and, for most of this process, dissertation chair; and consistently providing invaluable guidance during my time at Maryland. I am grateful for your persistence in challenging my thinking and helping me to grow as a researcher and scholar. I am thankful to Ray Paternoster for graciously accepting my request to assume chairship when John was no longer able to serve in this capacity. I am lucky to have had two such distinguished scholars steer my dissertation research. I am also grateful to Doris Layton MacKenzie and Alex Piquero for remaining members of my committee without hesitation when life took them on new paths. Late in the game, Sally Simpson agreed to join the ranks of the numerous stellar scholars who have read and provided comments on this dissertation. Finally, but certainly not least, I am thankful for having the opportunity to work professionally and academically with Ken Beck.

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"Our life is what our thoughts make it."
Marcus Aurelius

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Chapter 1: Introduction

Criminological research and explanations of crime and delinquency exist at both the micro and macro level. Micro level investigations examine differences in behaviors within and between individuals. Macro level work, on the other hand, focuses on patterns in larger systems such as population groups (e.g., neighborhoods). Most criminological research examines the effects of micro *or* macro level variables on crime. The inclusion of both micro and macro level variables in research attempting to explain criminal behavior occurs less frequently (Tonry, Ohlin, and Farrington, 1991; Wikström and Sampson, 2003).

Inquiries into the interplay between micro and macro level variables are important. Macro level contexts, such as the neighborhood, provide the ecological basis for human development and human behavior is affected by both individual and macro level factors (Elder, 1994, 1995). Individuals are nested in social contexts (Bronfenbrenner, 1979; Cook, 2003; Hitlin and Elder, 2007; Sampson and Laub, 1995; Thomas and Znaniecki, 1918-1920) and individuals' choices are situated in (Hitlin and Elder, 2007; Laub and Sampson, 2003) and influenced by their environment (Elder, 1995; Silbereisen and Eyferth, 1986; Thomas and Znaniecki, 1918-1920; Wikström and Loeber, 2000). As a result, behavior is a function of the interaction between an individual and his or her environment (Bronfenbrenner, 1979, 1992; Lewin, 1935). Silbereisen and Eyferth (1986: 4) describe this interaction as "development as action in context," with action pertaining to "behavior that can be interpreted as a means to achieving certain goals" (see also Wikström, 2004, 2006). Examining both individual

and macro level variables simultaneously enhances our understanding of behavior and choices, including involvement in crime.

The concept of efficacy has been examined at both the micro and macro level to explain antisocial behaviors. Self-efficacy is individual power over an outcome (Bandura, 1986), while collective efficacy is the power of a community or group in order to achieve some outcome (Bandura, 1986; Sampson, Raudenbush, and Earls, 1997). Self-efficacy impacts an individual's ability to control a situation or outcome while collective efficacy affects a group's ability to control a situation or outcome.

Self-efficacy is "the conviction that one can successfully execute the behavior required to produce [desired] outcomes" (Bandura, 1977a: 79). In other words, self-efficacy is an individual's perception of his or her competence to complete tasks and/or achieve goals (prosocial or antisocial goals; Ludwig and Pittman, 1999). Individuals with high self-efficacy persist in their efforts to achieve their goals despite setbacks. Efficacy beliefs relate to an individual's perception that they *can* do something, rather than intent or conviction that they *will* do something. Perceptions about one's self-efficacy can influence that individual's course of action. A linear relationship between strength of perceived self-efficacy and choosing a behavior does not always exist (Bandura, 1977a). However, "a certain threshold of self-assurance is needed to attempt a course of action" (Bandura, 2006a: 313-314).

Collective efficacy is a group's perceived efficacy (Bandura, 2000). In criminology, collective efficacy is composed of two constructs: informal social control and social cohesion (Sampson et al., 1997). Informal social control pertains to the shared expectation and ability of community members to enforce norms and take action to

maintain social order. Social cohesion is defined as mutual trust and shared values among community members. Neighborhoods with high levels of collective efficacy provide increased levels of collective supervision (Kornhauser, 1978; Leventhal and Brooks-Gunn, 2000; Sampson and Groves, 1989) which also increases levels of informal social control, social cohesion, and positive role models (Leventhal and Brooks-Gunn, 2000; Mayer and Jencks, 1989; Molnar, Cerda, Roberts, and Buka, 2008).

Scholars have used these two levels of efficacy independently to explain behaviors, including individual involvement in crime (e.g., Elliott, Menard, Rankin, Elliott, Wilson, and Huizinga, 2006) and the prevention of violence at the neighborhood level (e.g., Sampson et al., 1997), but less frequently have both been studied in concert to explain individual involvement in crime (but see Sharkey, 2006). The current investigation recognizes the shortage of research on the relationship between self-efficacy and collective efficacy and the importance of including both micro and macro level concepts in explanations of crime.

To begin, this research explores the relationship between youth's perceptions of their self-efficacy and involvement in crime (defined here as self-reported violence, drug dealing, and trouble with police). A high level of prosocial self-efficacy, on its own, should be negatively related to youth involvement in these behaviors. Self-efficacy is likened to having a sense of control over one's future and the choices he or she makes (Bernard, Hutchinson, Lavin, and Pennington, 1996) and has been linked to an individual's academic beliefs, occupational paths, and ability to resist peer pressure and criminal behavior (Bandura, 2006b; see also Bandura, 1997). An individual believing that he or she is efficacious in life, should have the tools to resist involvement in

detrimental behavior and believe that he or she can successfully pursue more prosocial behaviors (see Ludwig and Pittman, 1999). Having a strong sense of prosocial self-efficacy is one possible explanation why youths refrain from crime. Alternatively, low levels of self-efficacy may contribute to involvement in crime and delinquency. People with low levels of self-efficacy are less likely to persist along prosocial paths when faced with adversity and are less able than persons with high self-efficacy to achieve desired goals (Bandura, 1997). This study tests these assumptions.

The extant literature on the relationship between self-efficacy and crime is limited and inconclusive. How to measure self-efficacy is one issue that confronts researchers. Some scholars have used a composite measure that taps into self-efficacy but also includes other constructs that are distinct from self-efficacy such as self-esteem (e.g., Elliott et al., 2006). This confounds any findings by limiting the attribution of results to the composite measure. Further, the relationship between self-efficacy and crime is often examined from a strain theory perspective (e.g., Agnew, 1992). Findings from research using a strain theory framework are inconclusive; with studies showing a positive, negative, or no relationship between self-efficacy and crime. The current study seeks to extend the literature by measuring self-efficacy directly and using a control theory framework to explain the relationship between self-efficacy and crime. Rather than examining self-efficacy as a means to responding to strain-inducing situations, this study examines self-efficacy as a means for controlling actions.

A second area of interest is the influence of collective efficacy on crime. At the macro level, collective efficacy has been shown to be negatively related to violent crime rates (Sampson et al., 1997) and intimate partner homicide rates (Browning, 2002). At

the individual-level, higher levels of collective efficacy have been shown to be associated with lower levels of nonlethal intimate partner violence (Browning, 2002), prevalence of carrying concealed firearms (Molnar, Miller, Azrael, and Buka, 2004), and arrest (Kirk, 2009). It is expected that in this study there will be a negative relationship between collective efficacy and violence, drug dealing, and trouble with police.

Research examining the influence of collective efficacy on antisocial outcomes originally focused on crime rates (e.g., Sampson et al., 1997). More recently, researchers have examined the influence collective efficacy may have on individual-level outcomes (e.g., Kirk, 2008, 2009; Molnar et al., 2008; Sampson, Morenoff, and Raudenbush, 2005; Sharkey, 2006; Simons, Simons, Burt, Brody, and Curtrona, 2005). While some researchers examining collective efficacy have investigated antisocial outcomes such as arrest, delinquency, and aggression, scholars have primarily examined the influence of collective efficacy on violent crime. The current study examines individual-level involvement in violent crime and also examines drug dealing and trouble with police as additional outcomes.

Finally, this research investigates whether collective efficacy moderates the relationship between self-efficacy and crime. It is expected that self-efficacy and collective efficacy will jointly influence youths' involvement in crime. Independently, higher levels of self-efficacy and collective efficacy are believed to be related to less involvement in crime. It is anticipated that the relationship between self-efficacy and crime will be strengthened among youths living in neighborhoods with higher levels of collective efficacy.

The relationship between self-efficacy and collective efficacy is understudied. Only a few scholars have examined the relationship between the two levels of efficacy (Fernández-Ballesteros, Díez-Nicolás, Caprara, Barbaranelli, and Bandura, 2002; Sharkey, 2006), and only Sharkey (2006) has investigated the effects of self-efficacy and collective efficacy on individual-level involvement in crime. Sharkey's study, though, is limited to one type of self-efficacy (i.e., what he calls street efficacy) and its influence on violent behavior. Subsequently, less is known about the relationship between a general measure of self-efficacy and collective efficacy, and their effects on other types of criminal behaviors. This dissertation seeks to add to the literature by expanding the scope of prior work in this area. Using the Project on Human Development in Chicago Neighborhoods (PHDCN) data, the current investigation expands Sharkey's work to include a broader conceptualization of self-efficacy and drug dealing and trouble with police as additional outcome variables.

In addition to exploring the relationship between self-efficacy and collective efficacy and their effects on crime, two constructs that may influence efficacy (neighborhood context and family context) and individual-level factors (e.g., age/cohort, sex, race/ethnicity) are examined as control variables. As stated earlier, there is a relationship between individuals and their environment and neighborhood context influences behavior (Anderson, 1999; Sampson and Bartusch, 1998). Neighborhood context is the environment in which a youth lives and plays a role in determining whether levels of self-efficacy affect choices and "perception of alternatives" to involvement in crime (Wikström and Loeber, 2000: 1110; see also Wikström, 2004, 2006). Neighborhood context may also influence levels of collective efficacy (see Sampson and

Bartusch, 1998). In order to account for neighborhood level factors that may influence the relationships between self-efficacy, collective efficacy, and crime, and the potential moderating effect of collective efficacy on the relationship between self-efficacy and crime, neighborhood context constructs (measured at the aggregate level) are incorporated into the analyses as control variables. In this study, neighborhood context is defined as residential mobility, socioeconomic status, ethnic heterogeneity, and family disruption. These constructs are typically used by scholars engaged in ecological research to describe neighborhood context and are described further in Chapters 2 and 3.

Family context may influence self-efficacy and collective efficacy, and is an important determinant of involvement in crime (Bronfenbrenner, 1986a; Burton and Jarrett, 2000; Duncan and Aber, 1997; Klebanov, Brooks-Gunn, Chase-Landsale, and Gordon, 1997; Leventhal and Brooks-Gunn, 2000; Loeber and Stouthamer-Loeber, 1986; Sampson, 1992; Sampson and Morenoff, 1997; Wells and Rankin, 1991). Similar to neighborhood context, the family provides a social context for youths and influences their development, behavior, and choices. Families influence perceptions of self-efficacy and levels of self-efficacy may depend on the availability of positive role models and other influences found within a family dynamic (see Schunk and Meece, 2006). Further, family context may influence involvement in crime by determining the amount of time a parent can spend with their child, whether his or her behavior is monitored, and availability to serve as a positive role model. Families also contribute to the larger neighborhood social fabric and environment that influences levels of collective efficacy. The family context constructs included in this study as control variables are measured at the individual respondent level and provide information on youths' primary caregivers

immigrant status, socioeconomic status, family disruption, family size, and parental monitoring. These constructs are explicated in Chapters 2 and 3.

Contextual variables such as neighborhood and family are important, but can only explain a portion of individuals' behaviors and choices. Behaviors and choices are also influenced by individual-level factors such as age/cohort, sex, and race/ethnicity. These variables can influence the development of self-efficacy and involvement in crime and are controlled for in this study.

Examining the relationship between micro and macro levels of efficacy is important primarily because an individual's actions, including involvement in crime, cannot solely be explained by individual *or* environmental factors; both need to be considered (Wikström, 2006). Combining micro and macro levels of explanation in a contextual analysis (see Sampson, 1992) can provide linkages between processes and causal mechanisms of crime (Wikström, 2004) and lead to a more comprehensive explanation of behavior.

The current investigation contributes to the literature by examining the relationships between micro and macro levels of efficacy and youths' involvement in violence, drug dealing, and trouble with police, as well as the influence of contextual and individual-level control variables on these relationships. To do this, first the relationship between crime and self-efficacy is examined. Neighborhood context, family context, and individual-level factors are believed to influence self-efficacy and are then explored as control variables. Second, the relationship between crime and collective efficacy is explored. It is anticipated that neighborhood context and family context will influence collective efficacy and the simultaneous influences of these control variables (see

Bronfenbrenner, 1979, 1989; Elliott et al., 2006) are explored in an additional model. Once the relationships between self-efficacy and crime, collective efficacy and crime, and the influence of the control variables on these relationships are established, the moderating influence of collective efficacy on the relationship between self-efficacy and crime is investigated. To begin, the relationship between self-efficacy and collective efficacy is examined. Then the moderating effect of collective efficacy on the relationship between self-efficacy and crime is explored. Finally, all control variables (neighborhood context, family context, and individual-level factors) are incorporated into a model exploring the moderating effect of collective efficacy on the relationship between self-efficacy and crime.

The remaining chapters of this dissertation detail the research. In Chapter 2, I discuss the theoretical foundation for exploring the relationships between self-efficacy, collective efficacy, and control variables (i.e., neighborhood context, family context, and individual-level factors), and the potential influence of these constructs on crime among youths. Chapter 3 presents the data and methods used in the analyses. Chapter 4 contains the results from the models investigating the independent influence of self-efficacy and collective efficacy on crime, models examining the relationships between self-efficacy, collective efficacy, and the control variables and their influence on crime, and models exploring whether collective efficacy moderates the relationship between self-efficacy and crime. Finally, Chapter 5 offers a discussion of the findings and examines the implications of these results for future research, theory, and policy.

Chapter 2: The Relationship between Micro and Macro Levels of Efficacy and Their Effects on Crime

The current chapter describes the theoretical and empirical framework for this research. First, the concepts of self-efficacy and collective efficacy are described. Second, the potential relationship between self-efficacy and collective efficacy is introduced as an explanation of crime. Third, the neighborhood context, family context, and individual-level control variables are described and their influence on efficacy and crime is discussed. Finally, the chapter concludes with the research questions addressed in the analyses.

Self-Efficacy

According to the self-efficacy construct from social cognitive theory, individuals' actions are based on their perceived capabilities (Bandura, 1986). Bandura (1997: 3) states that "perceived self-efficacy refers to *beliefs in one's capabilities to organize and execute the course of action required to produce given attainments*" (emphasis in original). The concept of self-efficacy recognizes the importance of individual perceptions and is associated with a person's sense of control over their life (Bernard, Hutchinson, Lavin, and Pennington, 1996). People's perceptions about their self-efficacy influences their thoughts and actions (Bandura, 1995), choices (Bandura, 1977), and expected outcomes (Bandura, 1997).[1] It can also influence an individual's behaviors,

[1] A similar, yet distinct, construct is locus of control (Rotter, 1966). Self-efficacy is related to an individual's perception about whether they "produce certain actions" whereas locus of control pertains to an individual's "beliefs about whether actions affect outcomes" (Bandura, 1997: 20). Additionally, Bandura (1977b) argues that individuals can believe that a behavior will produce an outcome (i.e., locus of control) but have low self-efficacy regarding their ability to engage in the behavior required to produce the outcome. However, Bandura (1984) also argues that expected outcomes are largely dependent on beliefs

resiliency, and persistence. Bandura aptly summarizes the effects of self-efficacy on behavior. He states that, "People who regard themselves as highly efficacious act, think, and feel differently from those who perceive themselves as inefficacious. [Using their efficacy] they produce their own future, rather than simply foretell it" (1986: 395). Measures similar to self-efficacy include competence, resilience, and self-mastery (Bandura, 1997). Like self-efficacy, these constructs can assist individuals in choosing prosocial paths.

It is believed that youths with higher levels of prosocial self-efficacy will be less likely to engage in criminal behavior because they feel more in control of their lives and feel as if they can achieve goals through their own volition. Research using a strain theory perspective argues that increased self-efficacy leads to prosocial coping mechanisms rather than criminal coping. From a control perspective, however, it is believed that individuals with higher self-efficacy beliefs about prosocial behaviors will be less likely to engage in crime because they feel in control of their lives and can enact personal control over situations. Ludwig and Pittman (1999: 461-462) summarize this idea by stating that "…adolescents who perceive themselves as likely to succeed at socially valued behavior are less likely to be involved in problem behaviors and more likely to make decisions that result in positive consequences."

Efficacy has been conceptualized as both a goal-oriented, or domain specific, construct and as a general construct. According to Bandura (1986), self-efficacy varies across life domains. Under this definition, a person can feel highly efficacious in one area of life, while perceiving him- or herself to be inefficacious in others. Perceptions of

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about self-efficacy and abilities. While unpacking the empirical distinction between these two constructs would be ideal, locus of control cannot be measured with the available data.

self-efficacy may also vary in magnitude depending on the domain in question (Bandura, 1997). Scholars using a more general conceptualization of self-efficacy consider it to be an individual-trait that contributes to an overall sense of ability, rather than being domain specific (Hoeltje, Zubrick, Silburn, and Garton, 1996; Jerusalem and Mittag, 1995; Jerusalem and Schwarzer, 1992; Scholz, Doña, Sud, and Schwarzer, 2002; Tipton and Worthington, 1984). Researchers who examine self-efficacy as a general concept believe that self-efficacy is a state of mind where individuals feel in control of their lives (Agnew and White, 1992; Pearlin, Menaghan, Lieberman, and Mullan, 1981; Pearlin and Schooler, 1978; Schwarzer and Born, 1997) rather than an ability to engage in a domain-specific behavior. Schwarzer and Born (1997: 179) state that "General self-efficacy aims at a broad and stable sense of personal competence to deal effectively with a variety of stressful situations."

For this study, it is anticipated that there is a high correlation between self-efficacy perceptions in various domains available for analysis (i.e., school, parents, life, and neighborhood)[2] and these self-efficacy statements are somewhat broad (e.g., "cannot make self happy in future").[3] Further, criminological research examining self-efficacy often uses a general conceptualization (e.g., Agnew and White, 1992; Baron, 2004; Benda, 2001; Elliott et al., 2006; Hagan and McCarthy, 1997; Hoffmann and Cerbone, 1999; Hoffman and Miller, 1998; Ludwig and Pittman, 1993; Paternoster and Mazerolle, 1994; see also Agnew, 1992). Therefore, the current research investigates perceptions of self-efficacy as a general trait contributing to an overall general sense of self-efficacy.

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[2] Peers is a fifth domain assessed by the Project on Human Development in Chicago Neighborhoods self-efficacy questionnaire. However, response rates for all four of the items related to peers were low (N < 480) and they were not included in the analyses.

[3] According to Scholz et al. (2002: 243), "The highest level of generality [as it pertains to self-efficacy] is given when broad optimistic self-beliefs are examined."

Self-efficacy is one possible explanation for behavior. As investigated in this dissertation research, individuals may use their general sense of self-efficacy, in connection with the resources and role models available in their environment, to make choices regarding involvement in or abstention from crime. There are four ways to attain self-efficacy. Two are related to individuals' experiences (self-mastery and physiological states in reaction to behaviors and experiences) and two are related to contextual factors (social persuasion and vicarious experiences) (Bandura, 1986). Individuals with higher levels of self-efficacy are more likely to set higher goals for themselves and persist in achieving them even when faced with setbacks (Bandura, 1989, 1997). Further, those with high levels of self-efficacy may be more likely to consider a "wider range of career options" (Bandura, 1989: 1178). On the other hand, people who do not have high perceptions of their efficacy will be less likely to reach for such goals (Bandura, 1995) and may choose to engage in crime because they do not feel self-efficacious about their abilities to pursue a conventional lifestyle. Individuals with low self-efficacy are "more inclined to visualize failure scenarios that undermine [actual] performance" (Bandura, 1989: 1176).

Self-efficacy, on its own, has been shown to be predictive of involvement in crime. Youths with higher academic and self-regulatory efficacy beliefs are better able to resist peer pressure to become involved in delinquency and openly discuss issues with their parents (Bandura, Caprara, Barbaranelli, Gerbino, and Pastorelli, 2003). Lower levels of self-efficacy/self-mastery are also associated with increases in delinquency, drug use, and risky sexual behavior (Ludwig and Pittman, 1999) while higher levels can act as a protective factor against antisocial behavior (Stouthamer-Loeber et al., 2002).

Scholars seeking to understand how individuals cope with strain (i.e., negative relationships with others) have examined self-efficacy as a means for avoiding criminal behavior. In his reformulation of strain theory, Agnew (1992) indicates that self-efficacy enables prosocial coping to be used in response to strains instead of engaging in delinquent behavior to handle problems. Using Newcomb and Harlow's (1986) three-item self-efficacy index,[4] Agnew and White (1992) tested Agnew's general strain theory and concluded that self-efficacy conditions (or moderates) the relationship between strain and delinquency.[5] The influence of strain on delinquency is greater when self-efficacy is low. Self-efficacy did not moderate the relationship between strain and drug use.

Several other researchers have investigated the relationship between self-efficacy and crime and found varied results. In an examination of boot camp graduates, increased self-efficacy was found to be associated with reduced recidivism (Benda, 2001). A study of street youth showed a positive relationship between self-efficacy and stealing (Hagan and McCarthy, 1997) and the interaction between higher levels of self-efficacy and homelessness (a source of strain) resulted in increased levels of crime (Baron, 2004). Also contrary to Agnew's (1992) hypothesis, Paternoster and Mazerolle (1994) found that the interaction between strain and higher levels of self-efficacy was significantly related to crime. Other research, however, indicates that strain influences delinquency regardless of an individual's self-efficacy (Hoffmann and Cerbone, 1999; Hoffmann and Miller, 1998; Jang and Johnson, 2003).

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[4] Newcomb and Harlow's self-efficacy scale tapped into general competence by asking respondents whether they felt they were in control of their lives, success was a matter of luck, and other people are running their lives. The Cronbach's alpha was 0.65.

[5] Delinquency was measured using a 13-item general delinquency scale asking respondents how often they engaged in offenses ranging in magnitude from truancy to robbery over the past three years.

In 2006, Elliott and colleagues examined the relationships between contextual factors, two composite measures of competence (e.g., prosocial and personal), and crime. The contextual factors included neighborhood and family context, the competence composite measures included personal efficacy and self-efficacy items, and crime was defined as arrests, self-reported offending, and drug use. To assess these relationships they collected data on 1,650 juveniles living in Denver (ages 10-18) and Chicago (ages 11-16). Prosocial competence was available for Chicago and Denver, while data on personal competence was collected only in Denver. The competence measures were created using scales originally developed for the National Youth Survey and the Denver Youth Survey. The final scales for their study were created using factor analysis. Personal efficacy in the prosocial competence measure consisted of three items with a reliability of 0.41 in Chicago and 0.63 in Denver. Self-efficacy in the personal competence measure (Denver only) consisted of 6 items, with a reliability of 0.63.

Because prosocial competence and personal competence are composite measures, they contained constructs in addition to personal/self-efficacy. Other indicators of prosocial competence were grades in school, involvement in prosocial activities, expected educational attainment, and importance of school and work. Additional indicators of personal competence were self-esteem, perceived popularity with friends, attachment to school, educational expectations, perceived opportunities in the neighborhood, and perceived opportunities for the future.

The authors focused their study on the neighborhood contexts where youths lived and found that, on average, individuals living in poorer neighborhoods (i.e., those with fewer economic and social resources) in both Chicago and Denver had less prosocial

competence and less prosocial behavior than youths living in more advantaged neighborhoods. In Denver, youths from poorer neighborhoods had, on average, lower levels of personal competence and prosocial behavior than individuals living in more advantaged neighborhoods.

Family context was the largest predictor of prosocial competence in Chicago and personal competence in Denver. Parenting practices such as supervision and monitoring were associated with higher levels of competence. Intact family structure was also an important predictor of prosocial behavior, while higher family socioeconomic status was related to a reduction in prosocial behavior – in contrast to their hypothesis. Overall, Elliott and colleagues found that including both neighborhood and family context factors increased explanatory power of prosocial development at the community-level, while explanation of prosocial development at the individual-level was primarily driven by family factors.

However, with regard to personal/self-efficacy, the results from Elliott et al.'s study are not definitive because the construct was not measured directly (see also Ludwig and Pittman, 1999). When composite measures are used, the effects of any individual construct, such as self-efficacy, can not be teased out and results in a "black box effect." We know that there is an effect, but we do not know exactly what contributed to that effect. However, the work by Elliott and his colleagues suggests (but does not test) that individuals can overcome a disadvantaged neighborhood context and attain competencies such as personal/self-efficacy that can increase their chances of developing along a positive life course.

Extant theory also supports the assertion that self-efficacy may play a role in prosocial development. Having a strong sense of self-efficacy enables individuals to stay resilient in challenging contexts, while people who have low self-efficacy are more likely to be at risk (Bandura, 1995). Individuals who have a strong sense of self-efficacy may also be better equipped to achieve goals and avoid involvement in crime, though as indicated above, there is a lack of consensus in the literature on the significance of self-efficacy in choosing alternatives to crime. Similar to Elliott et al., the current study examines the influence of self-efficacy and contextual factors (e.g., neighborhood and family context) and individual-level factors (age/cohort, sex, and race/ethnicity) on crime. Unlike their work, the current study assesses the independent effects of self-efficacy on self-reported crime without confounding it with similar, yet distinct, constructs. Additionally, the influence of collective efficacy on crime and the potential moderating effect of collective efficacy on the relationship between self-efficacy and crime are investigated.

Collective Efficacy

Collective efficacy is the macro version of self-efficacy (Sampson et al., 1997) and pertains to the interdependence between individuals and their community (Elder, 1994). General definitions of collective efficacy are the ability of individuals in a neighborhood to maintain order over the community (Sampson et al., 1997) and a group's shared belief that action can be realized through combined efforts (Bandura, 1997). More specifically, collective efficacy is the shared expectations for informal social control in

public spaces, and the mutual trust and willingness among individuals to take action against social ills such as crime in their neighborhood (Sampson et al., 1997).

Communities with high levels of collective efficacy can realize their common goals through shared expectations and beliefs and mutual trust (Bandura, 2000; Sampson et al., 1997). Measures of collective efficacy capture perceptions of informal social control and social cohesion in the neighborhood and collective efficacy is often considered to be a goal-oriented construct. Studies in criminology have examined the relationship between collective efficacy and reductions in behaviors such as violence, arrest, delinquency, and aggression (see Kirk, 2008, 2009; Molnar et al., 2008; Sampson et al., 2005; Sampson et al., 1997; Sharkey, 2006).

Research following Mayer and Jencks' (1989) social control model of neighborhood effects postulates that adults act as role models and influence the behavior and actions of all youths in the community, not just that of their own children, and also provide supervision and monitoring over their behavior (see Coleman, 1990; Sampson, 1992; Sampson and Groves, 1989). By providing informal social control and social cohesion, neighborhoods that are high in collective efficacy have a greater capability to achieve goals than those that are low in collective efficacy (Sampson et al., 1997).

Using data from the Project on Human Development in Chicago Neighborhoods (PHDCN), Sampson et al. (1997) quantified collective efficacy by measuring informal social control and social cohesion among 8,782 residents in 343 Chicago neighborhoods. The two constructs were highly correlated, and were combined into a single measure of collective efficacy by aggregating individual-level responses. Sampson and colleagues used this measure to examine the effect of collective efficacy on rates of neighborhood

violence. They discovered that neighborhoods with higher levels of collective efficacy had lower rates of violence. Additional studies provide support for the use of collective efficacy as an important predictor of crime rates (see Sampson and Raudenbush, 1999) and higher levels of collective efficacy have been shown to be related to a decrease in intimate partner homicide rates (Browning, 2002). In a meta-analysis of macro-level indicators of crime, Pratt and Cullen (2005) determined that collective efficacy, with an effect size of -0.303, is one of the most robust and promising macro-level predictors of crime rates.

Additional research has examined the influence of collective efficacy on individual-level involvement in crime. Lower levels of collective efficacy are related to increases in arrest (Kirk, 2009), and higher levels of collective efficacy are associated with lower incidences of nonlethal intimate partner violence (Browning, 2002) and lower prevalence of carrying a concealed firearm (Molnar, Miller, Azrael, and Buka, 2004). Communities high in collective efficacy also have a greater number of parents using authoritative parenting practices, lower levels of delinquent behavior, and fewer youth interactions with deviant peers (Simons et al., 2005). Further, Molnar et al. (2008) found that youths ages 11 to 18 living in neighborhoods that had high levels of collective efficacy and were rich in resources (e.g., after school programs, substance abuse treatment centers) had lower scores on delinquency and aggression scales (i.e., Achenbach Child Behavior Checklist).

These studies indicate that increases in collective efficacy have a beneficial impact on individual-level crime, but other research does not support these findings. Collective efficacy has not been found to be a significant predictor of violence (Sampson

et al., 2005), arrest (Kirk, 2008), or suspension from school (Kirk, 2009) at the individual level. Despite the equivocal findings, it is anticipated that increased collective efficacy will be related to a decrease in individual involvement in crime.

It is also believed that collective efficacy will moderate the relationship between self-efficacy and crime through the availability of informal social control, social cohesion, and positive social role models, whose presence should be more likely in neighborhoods with higher levels of collective efficacy. This social capital facilitates productive action (Coleman, 1990) and may strengthen the relationship between self-efficacy and criminal behavior (see Frytak, Harley, and Finch, 2003). The availability of social resources such as those found in communities high in collective efficacy may influence the choice of responses to stressful situations (e.g., to engage in or refrain from crime) (see Moos and Holahan, 2003).

Relationship between Self-Efficacy, Collective Efficacy, and Crime

In the current section, the relationship between self-efficacy, collective efficacy, and crime is examined. As reviewed above, increased levels of self-efficacy and collective efficacy independently reduce involvement in antisocial behaviors. Generally, individuals experiencing higher levels of individual assets (e.g., self-efficacy) and resources (e.g., collective efficacy) are less likely to engage in undesirable behaviors such as crime (see Scales, 1999). Figure 1 shows that the efficacy variables are believed to independently influence crime. Self-efficacy refers to a youth's general perception of his or her self-efficacy across four domains (school, parents, life, and neighborhood). The measure of collective efficacy provides information on informal social control and social

cohesion at the neighborhood level. Crime is defined as self-reported involvement in 12 violent crimes, dealing marijuana, cocaine/crack, and/or heroin over the past 12 months, and trouble with police since the previous interview.

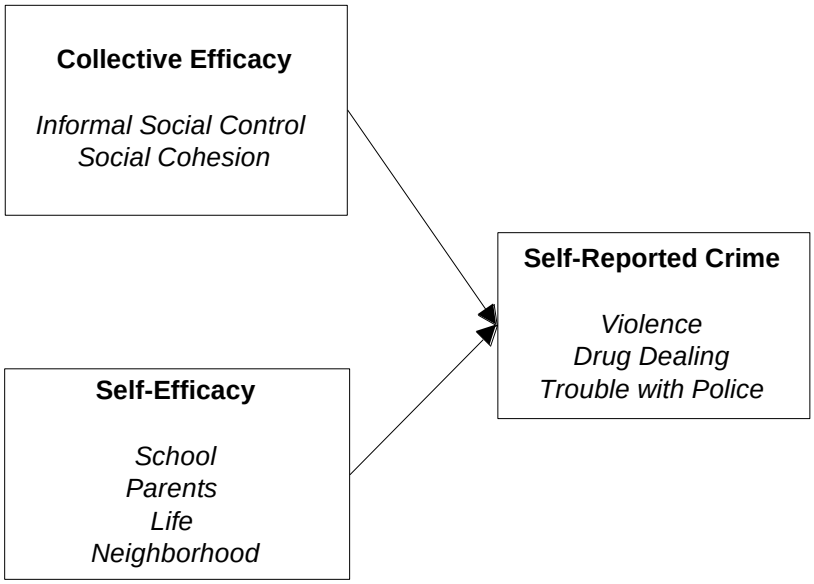

Figure 1. Effects of Collective Efficacy and Self-Efficacy on Crime

The joint effect of self-efficacy and collective efficacy on crime is less clear. One of the research questions addressed in this dissertation is whether collective efficacy moderates the relationship between self-efficacy and crime. Support for cross-level interaction effects on crime exists in the extant literature. Elliott et al. (2006) found that positive parenting practices had a stronger influence on decreasing involvement in problem behavior in disadvantaged neighborhoods. In 2009, Kirk investigated the interactive effect of collective efficacy and other informal social controls on student suspension and arrest. He found that school collective efficacy more strongly influences the likelihood of student suspension in neighborhoods with low collective efficacy. Kirk also found support for an interaction effect between collective efficacy and student-

teacher trust. Lower levels of student-teacher trust and neighborhood collective efficacy interact and increase the likelihood that students are arrested.

Research incorporating both self-efficacy and collective efficacy into a single explanation of crime is sparse; only one study was identified. In that study, Sharkey (2006) used multilevel data from the PHDCN to examine the relationship between neighborhood level collective efficacy and individual's perceptions of their street efficacy. Street efficacy was defined as an individual's perceived ability to "avoid violent confrontations and to be safe in one's neighborhood" (pp 826). Using Hierarchical Linear Modeling, the analyses showed that youths living in neighborhoods with higher levels of collective efficacy had higher levels of street efficacy. Further, youths with high levels of street efficacy were less likely to engage in violent acts. Given the findings, Sharkey hypothesizes that contextual factors (e.g., collective efficacy) are mediated by social cognitive processes. Additionally, he postulates that youths who have higher levels of street efficacy are more likely to choose environments that are less likely to be violent.

While this study by Sharkey is important, the analyses are limited to one type of self-efficacy (i.e., street) and one type of criminal behavior (i.e., violence).[6] Additionally, Sharkey adheres to a traditional definition of self-efficacy; one that argues that self-efficacy is domain specific (see Bandura, 1997). However, efficacy can be conceptualized as a general concept (see Hoeltje et al., 1996; Jerusalem and Mittag, 1995; Jerusalem and Schwarzer, 1992; Tipton and Worthington, 1984) and has been found to be

[6] Sharkey included alcohol and marijuana use as covariates of street efficacy in some of the models, but did not examine criminal outcomes other than violent behavior which was operationalized as involvement in 12 violent acts in the year prior to the interview.

a unidimensional trait (Scholz et al., 2002).[7] Further, it has been defined as a general concept in criminological research (e.g., Agnew and White, 1992; Baron, 2004; Benda, 2001; Elliott et al., 2006; Hagan and McCarthy, 1997; Hoffmann and Cerbone, 1999; Hoffman and Miller, 1998; Ludwig and Pittman, 1993; Paternoster and Mazerolle, 1994; see also Agnew, 1992). Finally, Sharkey does not examine the possibility of a cross-level interaction between self-efficacy and collective efficacy.

The current investigation extends Sharkey's study by using a broader conceptualization of self-efficacy by incorporating youths' self-efficacy perceptions in a variety of domains (i.e., school, parents, life, and neighborhood[8] efficacy) into a one factor index. I examine the effect of this general self-efficacy measure and collective efficacy on Sharkey's 12-item violent offending index, and further extend his research by examining the influence of self-efficacy and collective efficacy on youths' drug dealing and trouble with police. For certain models, the relationship between self-efficacy at Wave 2 and crime at Wave 3 is examined to test the stability of crime over time.

In this study, I also examine the relationship between collective efficacy, self-efficacy, and crime. Either a moderating or mediating model can be used to examine this relationship. A moderating model was selected for three reasons. First, it is anticipated that self-efficacy and collective efficacy are independently related to a reduction in crime. Therefore, a moderator model is appropriate because it is anticipated that collective efficacy will directly influence crime and not influence crime through self-efficacy.[9]

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[7] Using principal components analyses and confirmatory factor analyses, Scholz and colleagues (2002) tested a 10-item general self-efficacy scale measured on a four-point Likert scale with responses ranging from 1 = not at all true, to 4 = exactly true. They found consistent support for unidimensionality across 25 countries (see also Schwarzer et al., 1997; Schwarzer and Born, 1997).

[8] Sharkey labels this street efficacy.

[9] Mediator models are more appropriate when the research question is whether an independent variable (e.g., self-efficacy) indirectly influences an outcome through another variable (e.g., collective efficacy).

Second, it is believed that the interaction between self-efficacy and collective efficacy will strengthen the anticipated relationship between self-efficacy and crime. A moderator model will be used to test whether the combination of two variables (i.e., self-efficacy x collective efficacy) alters (i.e., weakens, strengthens, renders inconsequential) the relationship between an independent variable (i.e., self-efficacy) and the outcome (i.e., crime). Third, Baron and Kenny (1986) suggest that the moderating variable should be uncorrelated to the independent and dependent variables and this is true for the proposed model. Collective efficacy is weakly correlated to self-efficacy (0.082), violence (0.001), drug dealing (0.011), and trouble with police (0.028). Tangentially, the literature on contextual factors and crime suggests that an interaction effect between macro and micro-level variables is possible, but it is not known whether one exists between self-efficacy and collective efficacy.

Control Variables

By examining the mesosystem, or multiple contexts, in which people live (Bronfenbrenner, 1979, 1989), information about the interdependency among contexts can be uncovered (see also Kirk, 2009). Individual-level factors also provide important information about people and their behavior and choices. Contextual factors and individual-level factors are important when examining efficacy because they influence and inform individual's actions, including involvement in crime. They may also influence the relationship between efficacy and crime. Two important contexts (neighborhood and family, see Duncan and Raudenbush, 2001) and three individual-level variables (age/cohort, sex, and race/ethnicity) which influence behavior are examined in

the current research.[10] Figure 2 builds on Figure 1 by adding the expected relationships between the contextual and individual-level control variables to the model depicting the expected relationships between the efficacy measures and crime. Other relationships between these concepts are possible (shown in Figure 2 using dotted lines). While these relationships are important, for the purposes of this dissertation research, only the relationships shown with solid lines will be tested. Further, beyond the confines of this study are investigations into the possibility of simultaneity between variables. While the variables examined in this study may shape each other (see Duncan and Raudenbush, 2001), this will not be addressed.

[10] Two other social contexts, school and peers, are also important contextual factors (see Cook, Herman, Phillips, and Settersten, 2002; Elliott et al., 2006; Haynie, 2002; Kirk, 2009; Sampson and Laub, 1993; Warr, 2002) and not including these contexts may result in omitted variable bias (see Duncan and Raudenbush, 2001). However, the focus of this study is on the informal social controls that are exerted through neighborhood and family contexts as a first step in determining if controlling for contextual factors influences the relationship between efficacy and crime. Further, the PHDCN data set could not be linked to other data sources due to the limitations of the restricted data user's agreement with ICPSR and data available in the PHDCN publicly available data set do not provide informal social control measures on school and peers. Data on peers is limited to youths' perceptions about their peers' involvement in antisocial behavior.

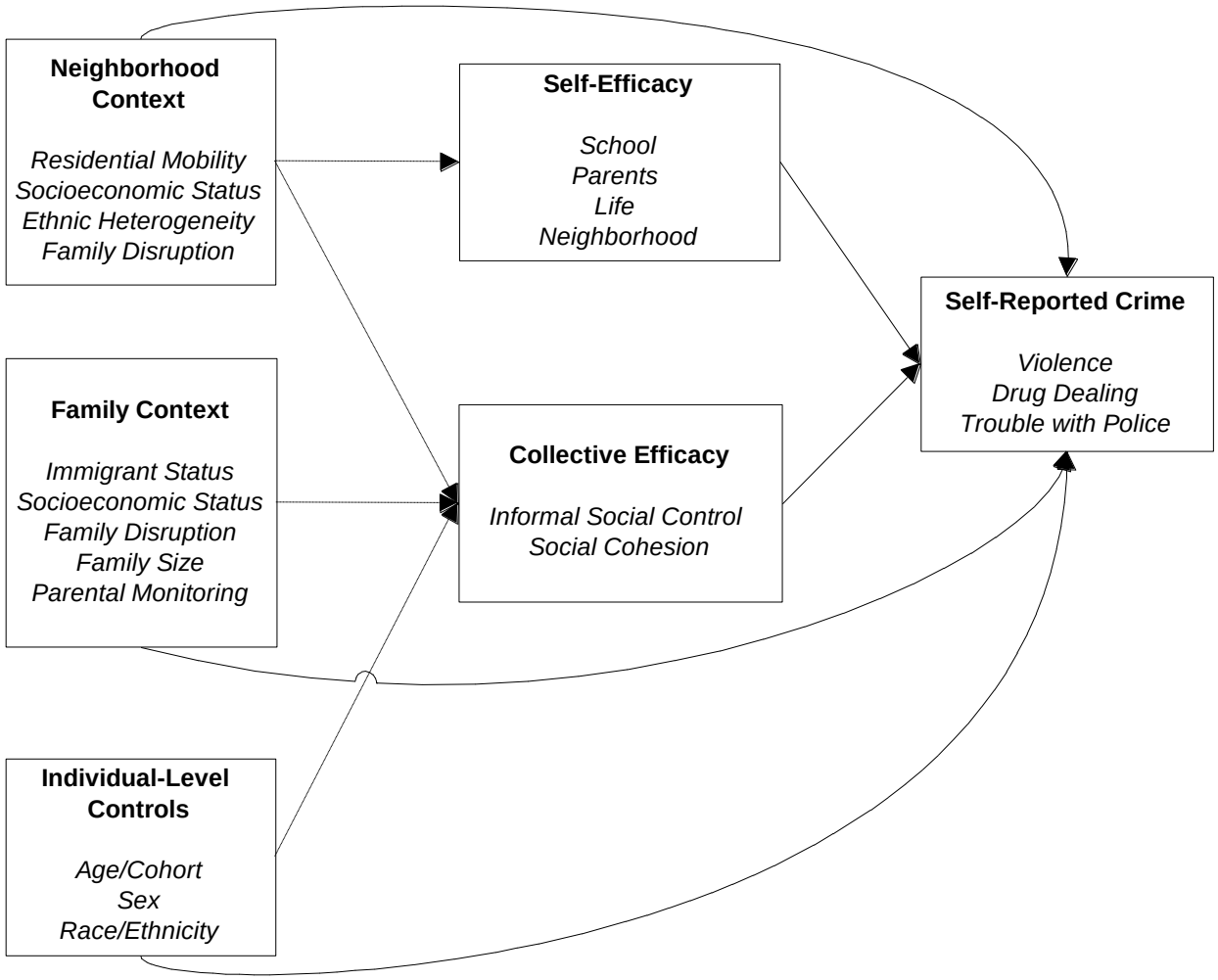

Figure 2. Effects of Self-Efficacy, Collective Efficacy, and Control Variables on Crime

The next three sections describe the effect of these control variables on efficacy and crime.

Neighborhood Context

While individuals have a great deal of influence over their actions and choices, actions and choices are partly the result of the contextual environment (Bandura, 1995; Bronfenbrenner, 1979, 1986b, 1992). Neighborhoods with abundant prosocial resources

should provide opportunities and role models that can aid in the development of prosocial cognitive skills such as self-efficacy (Fraser, 1996; Frytak, Harley, and Finch, 2003). Impoverished neighborhoods, on the other hand, will have fewer resources and fewer positive role models (Wilson, 1987) and may provide criminal opportunities and role models (Cloward and Ohlin, 1960).

Research examining the effects of neighborhood level factors on individual-level offending is an important area for criminological research. These types of studies have been sparse (Farrington, 1993; Wikström and Loeber, 2000), but are steadily growing. Neighborhood context has been shown to be related to a youth's involvement in delinquency (e.g., Wikström and Loeber, 2000) and individual-risk factors such as impulsive behavior and lying interact with neighborhood disadvantage and lead to an increased likelihood of delinquency (Lyman et al., 2000).

One key component of this dissertation research is to control for neighborhood factors that may influence the relationships between self-efficacy, collective efficacy, and crime. Research indicates that neighborhood context influences collective efficacy (see Sampson et al., 1997) and crime (see Wikström and Loeber, 2000). Less, however, is known about the relationship between neighborhood context and self-efficacy.

There are many ways to measure neighborhood context. Based on the literature and the available PHDCN data, key data elements were selected to capture neighborhood context for this research. The neighborhood context constructs used in this research are residential mobility, socioeconomic status, ethnic heterogeneity, and family disruption.[11] Neighborhoods that have less residential mobility, a higher socioeconomic status, less

[11] These variables and constructs were chosen are based on the collective efficacy and criminological literature since more is known about the effects of neighborhood context on collective efficacy and crime than self-efficacy.

ethnic heterogeneity, and lower levels of family disruption should have higher levels of informal social control and social cohesion. It is also believed that these neighborhood constructs will influence self-efficacy through the availability of resources and positive social role models to monitor behavior. Neighborhoods with more of these resources should provide a context that increases self-efficacy (through social persuasion and vicarious experiences) and involvement in prosocial behavior. A brief explanation of the importance of each of these constructs follows, and how these constructs are measured for the current study is described in Chapter 3.

Residential Mobility

Residential mobility provides a measure of residents' stability in a neighborhood. This stability may influence self-efficacy and collective efficacy. Neighborhoods with lower levels of residential mobility should positively influence the development of self-efficacy among youths. Youths living in more residentially stable environments should have increased opportunities to develop self-efficacy by being exposed to social persuasion and vicarious experiences through the steady availability of any existing positive social role models and development of ties compared to youths in residentially mobile neighborhoods. Additionally, Sampson et al. (1997) indicate that neighborhoods with higher levels of residential mobility are less likely than more stable neighborhoods to have formed informal social control networks and a sense of social cohesion – the two elements that comprise collective efficacy. Further, many studies indicate that higher levels of residential mobility are an important predictor of crime and delinquency (Brooks-Gunn, Duncan, and Aber, 1997a, 1997b; Bursik, 1988; Bursik and Grasmick,

1993; Byrne and Sampson, 1986; Kirk, 2008, 2009; Ross, Reynolds, and Geis, 2000; Sampson, 1992; Sampson and Groves, 1989; Shaw and McKay, 1942; Wikström and Loeber, 2000; Wilson, 1987). Residential mobility decreases the ability of community members to form and activate informal social controls which can lead to increases in crime.

Socioeconomic Status

The overall socioeconomic well-being of a community influences individual development and behavior (Sampson et al., 2002) and may influence the availability of community resources such as collective efficacy (Sampson et al., 1997). It is not clear how the socioeconomic status of a community will influence self-efficacy. Adults living in neighborhoods with fewer resources may have less opportunity to influence the development of self-efficacy among youths due to increased stress or constraints on their free time to act as positive role models and monitor behavior. Research shows that economic poverty hinders the creation of informal social control and social cohesion; the two constructs that comprise collective efficacy (Brody, Ge, Conger, Gibbons, Murry, Gerrard, and Simons, 2001; Brooks-Gunn, Duncan, Klebanov, and Sealand, 1993; Gephart, 1997; Gorman-Smith et al., 2000; Kirk, 2008, 2009; Sampson, 1992; Sampson and Groves, 1989; Sampson et al., 2002; Shaw and McKay, 1942; Wikström and Loeber, 2000; Wilson, 1987). Neighborhoods low in informal social controls and social cohesion are also less effective in controlling crime and, because of fewer resources, are less able to supervise youths.

Ethnic Heterogeneity

Ethnic heterogeneity, a mix of people of various races and/or ethnicities, is another neighborhood contextual variable that may influence self-efficacy, inhibit the creation of informal social control and social cohesion, and can contribute to crime. One of the ways that self-efficacy is formed is through the observation of vicarious experiences of persons who are like oneself. Youth living in ethnically heterogeneous neighborhoods may be less likely to assimilate and identify with adults in the community. Thus, ethnic heterogeneity may act as a barrier to the development of self-efficacy. It is believed that ethnic heterogeneity in a community leads to weaker and/or fewer informal social controls and social cohesion and this lack of collective efficacy can lead to increases in crime (Browning and Cagney, 2003; Bursik and Grasmick, 1993; Gorman-Smith, Tolan, and Henry, 2000; Kirk, 2008, 2009; Sampson, 1992; Sampson and Groves, 1989; Sampson and Morenoff, 1997; Shaw and McKay, 1942; Wikström and Loeber, 2000; Wilson, 1991).

Family Disruption

Family disruption (e.g., separation/divorce) may influence the development of self-efficacy and collective efficacy, and involvement in crime. Like the other neighborhood context variables, the relationship between family disruption and self-efficacy is not evident. As with the other measures, it is anticipated that higher levels of family disruption would result in fewer positive role models to assist in the development of youths' self-efficacy. Family disruption negatively influences the development of the collective efficacy constructs informal social control and social cohesion (Sampson,

1992; Sampson and Groves, 1989; Sampson and Morenoff, 1997; Shaw and McKay, 1942; Wikström and Loeber, 2000; Wilson, 1987). Higher levels of family disruption may make it less likely that informal social control and social cohesion will develop due to fewer adults residing in the neighborhood to form social networks, supervise youths, and enforce social norms. Family disruption can also lead to less available time by adults to engage in these activities. As with the other neighborhood context variables examined, family disruption can lead to low levels of informal social control and social cohesion which may contribute to increases in delinquency.

Summary of Neighborhood Context Measures

It is anticipated that these neighborhood context constructs will influence self-efficacy and they are known to influence collective efficacy and crime. Neighborhoods with high levels of residential mobility, ethnic heterogeneity, and family disruption, and lower socioeconomic status may have fewer positive social role models, lower levels of monitoring, and be less likely to provide supportive environments which are believed to influence the development of self-efficacy. These neighborhood characteristics also impede the development of collective efficacy and are related to increased crime. In this study, these neighborhood context constructs are examined as control variables that may influence the relationships between self-efficacy, collective efficacy, and crime.

Family Context

Families provide an important context for human development (e.g., see Bronfenbrenner, 1986a; Cook et al., 2002; Duncan and Aber, 1997; Furstenberg et al.,

1999; Klebanov et al., 1997; Leventhal and Brooks-Gunn, 2000; Loeber and Stouthamer-Loeber, 1986; Sampson, 1992). According to Bronfenbrenner (1979), the family (like the neighborhood) is one of the microsystems in which individuals live and have their most direct interactions with other persons who can influence their actions and behaviors. Further, Leventhal and Brooks-Gunn (2000) indicate that family context has a stronger influence on child outcomes than neighborhood context.

Individuals are born without a sense of self and early interactions with family and caregivers provide the basis for the development of a sense of self (Bandura, 1997; Hoeltje et al., 1996). As the primary agents of socialization and monitoring, the family plays a key role in the development of a youth's self-efficacy (Bandura, 1997; Elliott et al., 2006; Schunk and Meece, 2006). Two ways that individuals form their perceptions of self-efficacy are social persuasion and vicarious experiences (Bandura, 1995). These monitoring and socialization efforts assist children in forming self-efficacy beliefs about their abilities.

Families are also embedded in the larger community (Sampson, 1992), contribute to the resources that are available (such as collective efficacy), and "act as advocates or brokers for their children's receipt of [these] community resources" (Leventhal and Brooks-Gunn, 2000: 322). Neighborhoods with higher levels of collective efficacy are more likely to have prosocial resources for use by youths and their families. In neighborhoods where resources are low, family context can act as a protective factor (Elliott et al., 2006; Furstenberg et al., 1999).

Measures of family context are important predictors of crime and delinquency (see Farrington, 1993: 22) and are indicators of informal social control and socialization.

In a meta-analysis, Loeber and Stouthamer-Loeber (1986) examined several family factors to determine which ones were predictive of and associated with juvenile delinquency. They found that the best predictors were socialization variables such as a lack of parental supervision and parent involvement with the child. Living in a single parent home was also predictive of delinquency, but not as strongly.

Based on the literature and available PHDCN data, the following family context constructs are examined in the analyses: immigrant status, socioeconomic status, family disruption, family size, and parental monitoring. An explanation of these constructs follows, and how they are measured in the current study is described in Chapter 3. Appendix A presents a correlation matrix of self-efficacy and the family context variables.

Immigrant Status

It is not clear how family immigrant status may affect a youth's development of self-efficacy. However, as found in work by Sampson and Laub (1993), youths of immigrant families (i.e., youths who are children of a first generation immigrant) may spend less time under greater supervision of their parents. A decrease in monitoring may negatively influence the development of self-efficacy. Additionally, it could be that due to differences in cultural norms and values, youths of immigrant parents have less interaction with community members, who may otherwise provide an added layer of social support and opportunities for social persuasion and vicarious experiences, which may result in lower self-efficacy (see Dalgard, Thapa, Hauff, McCubbin, and Syed, 2006).

Community-level studies have shown that neighborhoods with higher levels of immigrants have lower levels of informal social control and collective efficacy and increased levels of violence (Silver and Miller, 2004; see also Shaw and McKay, 1942). At the individual level, immigrant status does not appear to be a risk factor for crime. Youths in first or second generation immigrant families are less likely to be arrested than other youths (Kirk, 2008) and youths from any immigrant family (especially those living in the United States 6 years or less) are less likely than native youths to report lifetime use of alcohol and marijuana (Blake, Ledsky, Goodenow, and O'Donnell, 2001). Similarly, Sampson and Laub (1993) indicate that parents' immigrant status (i.e., one or both parents born outside of the United States) does not have a direct effect on youths' involvement in official delinquency.

Socioeconomic Status

Socioeconomic status (SES) is another measure of family context that can influence self-efficacy (Bandura, 1997), collective efficacy (Sampson et al., 1997), and crime (Burton and Jarrett, 2000; Duncan, Brooks-Gunn, and Klevanov, 1994; Elliott et al., 2006; Kirk, 2008). Results from Elliott et al.'s (2006) study indicate that individuals living in families with a higher SES are more likely to have increased levels of personal competence (a composite measure that includes self-efficacy). It is not known from Elliott and colleagues' work if SES directly affects self-efficacy since self-efficacy is confounded with other indicators of personal competence. However, Bandura (1997) suggests that family SES has an indirect effect on self-efficacy due to fewer resources being available to provide youths with cognitive stimulation. In this study, it is expected

that perceptions of self-efficacy may be lower among youths living in families with a lower SES due to fewer resources and opportunities for monitoring behavior. Low SES families may have less time to monitor children's behavior because they are often working one or more jobs or experience economic stressors. Families with more resources (e.g., financial, education) have more to invest in their children and those who can afford to, may choose to live in neighborhoods that have higher levels of collective efficacy, less crime, and more prosocial role models.

Similar to neighborhood SES, family SES may contribute to the level of collective efficacy in a neighborhood. Low SES families may have less time and resources to expend in the community which may affect levels of collective efficacy in their neighborhood. Similarly, families with a higher SES may positively contribute to the formation of collective efficacy because they have more resources and time to supervise youths.

In addition to influencing efficacy, family SES is negatively related to antisocial behaviors such as delinquency, arrest, and conduct disorder (Farrington, 1993; Kirk, 2008; Loeber et al., 1995; but see Elliott et al., 2006). Individuals from lower SES families are more likely than youths from higher SES families to engage in crime. It is expected that this finding will be replicated in this study.

Family Disruption

Family disruption (e.g., single-parent household, divorce) is another important measure of family context (Kupersmidt, Griesler, DeRosier, Patterson, and Davis, 1995; McLeod, Kruttschnitt, and Dornfeld, 1994; Wells and Rankin, 1991; Wikström and

Loeber, 2000; Sampson, 1987). The influence of family disruption on delinquency is not necessarily due to the consequences and stressors associated with being a single-parent such as poorer home quality (e.g., enjoyment, conflict) (see Van Voorhis, Cullen, Mathers, and Garner, 1988). Two-parent families are more likely than single-parent families to have more time to monitor their children's behavior and act as a positive role model because they can share parenting and other household duties. It is expected that youths living in a two-parent household will be subject to increased amounts of monitoring and that this increase in monitoring, and opportunity for social persuasion and vicarious experiences, will result in higher levels of self-efficacy and lower levels of crime.

Family disruption leads not only to fewer adults available to adequately monitor youths and aid in the development of self-efficacy in one's own family, but as discussed earlier, also limits the number of adults to enforce social norms in the community (see Gottfredson and Hirschi, 1990; Sampson and Laub, 1993). Family disruption may also influence the development of collective efficacy in a neighborhood. Family disruption may increase the demands and stressors on those who remain in the community, which may inhibit the development of informal social controls and social cohesion.

Research indicates that family disruption is a predictor of arrest (Kirk, 2008) and delinquency (Juby and Farrington, 2001; Mack, Leiber, Featherstone, and Monserud, 2007; Matherne and Thomas, 2001; Sampson and Groves, 1989; Smith and Jarjoura, 1988; Wells and Rankin, 1991). A meta-analysis of 50 studies shows that juveniles from disrupted families are 10 to 15 percent more likely to become involved in delinquent behavior than youths living in two-parent households (Wells and Rankin, 1991). Further,

this review suggests that the effects of a broken home are stronger for minor status offenses such as running away (weighted average effect size = 0.117) than serious crimes such as violence (weighted average effect size = 0.042), theft (weighted average effect size = 0.042), or marijuana/drug use (weighted average effect size = 0.088).

Family Size

Family size is another family context variable explored in this study. The effect of family size on self-efficacy is not known. It is anticipated that a larger family provides more opportunities for monitoring and socialization for both the development of self-efficacy and prevention of crime.[12] The presence of more people in the home could also lead to more opportunities for social persuasion and vicarious experiences, which are two ways in which self-efficacy is formed. It is also possible that family size will influence self-efficacy through other family context factors, such as monitoring (see Sampson and Laub, 1993). Akin to monitoring, Bandura (1997) suggests that parents of only children have more time to spend with their child to provide experiences in which they can develop self-efficacy.

Family size may also influence collective efficacy at the neighborhood level. More persons residing in a household could contribute to an increase in collective efficacy through the availability of additional agents of informal social control and enforcers of social norms. Neighborhoods with fewer persons may have lower levels of collective efficacy.

[12] This may depend on the quality of the relationships between the child and persons residing in the home. Family size could be a predictor of increased delinquency. The current study is an exploratory analysis to determine if family size has an effect on self-efficacy and will not investigate the quality of family context. If there is a relationship, future research may seek to unravel why this might be the case.

Family size is associated with delinquency though the literature regarding its influence is mixed. A larger number of people living in the household could lead to an increase (Farrington, 1992; Sampson and Laub, 1993; West and Farrington, 1973) or have no effect (Kirk, 2008) on measures of criminal behavior (e.g., arrest, self-report). However, it is anticipated that in this study a larger family size will provide more monitoring of behavior and, thus, a reduction in crime.

Parental Monitoring

Families are essential for the development of self-efficacy (Bandura, 1997; see also Elliott et al., 2006) and families with higher levels of parental supervision and monitoring provide a prosocial environment where youths can develop a positive sense of self. According to Bandura (1997), an increase in monitoring, and opportunity for social persuasion and vicarious experiences, provides increased opportunities for the development of self-efficacy.

Parental monitoring may also influence collective efficacy. Monitoring is thought to be a key component of collective efficacy (Kirk, 2008, 2009; Sampson et al., 2002) because adults in neighborhoods high in collective efficacy monitor not only their own children, but all youths. Increases in parental monitoring of one's own child(ren) may spill over to the community and increase informal social control and social cohesion at the neighborhood level.

Poor parental monitoring is one of the most robust correlates of delinquency (Farrington, 1993; Loeber and Stouthamer-Loeber, 1986; Gorman-Smith, Tolan, Zelli, and Huesmann, 1996; Sampson, 1992). Lack of parental monitoring or supervision may

provide increased opportunities for youths to engage in crime (see Sampson and Laub, 1993), whereas families with higher levels of monitoring and supervision should provide fewer chances.

Summary of Family Context Measures

It is anticipated that these family constructs will influence the development of self-efficacy, collective efficacy, and crime. The influence of immigrant status on self-efficacy and crime is unknown. However, increases in socioeconomic status, family size, and parental monitoring should aid the development of self-efficacy, while family disruption may weaken it. Family context may also influence collective efficacy. It is expected that increases in socioeconomic status, family size, and parental monitoring would be positively related to collective efficacy, while immigrant status and family disruption may impede its development. In this study, the family context constructs are examined as control variables that may influence the relationships between self-efficacy, collective efficacy, and crime. Scholars have demonstrated that these family context constructs are associated with criminal behavior and it is expected that similar results will be found in the analyses.

Individual-Level Control Variables

Individual characteristics are also important in explanations of crime and the development of self-efficacy. The use of only contextual variables in an analysis can lead to misinterpretation of results and attribution of outcomes to contextual characteristics, when results may actually be a result of individual factors. Also,

contextual factors may operate differently for various types of individuals. Therefore, youths' age/cohort, sex, and race/ethnicity will be included in the analyses as control variables. Appendix B presents a correlation matrix to demonstrate the relationship between self-efficacy and the individual-level control variables.

Age/Cohort

Age was explored as a possible control variable not only because it is a known correlate of crime (Gottfredson and Hirschi, 1990; Hirschi and Gottfredson, 1983), but furthermore, self-efficacy is age-graded (Bandura, 1992). Self-efficacy perceptions can be enhanced or diluted by experiences individuals have over time (Bandura, 1992) and has been found to increase with age (Elliott et al., 2006; Umberson, 1993). Despite any variations that may occur in self-efficacy perceptions over time, Bandura (2002: 282) indicates that "although the relative weights of the different enabling supportive influences change with age, perceived self-efficacy retains its mediating predictive value throughout the age span." Individual-level factors may also interact and influence self-efficacy. Elliott et al. (2006) found that compared to Whites, personal competence among minorities (i.e., Hispanics and African Americans) decreased as youths aged.

Related to age is an individual's cohort assignment. The PHDCN uses a multi-cohort accelerated longitudinal research design with youths who have overlapping ages in the various cohorts (Tonry, Ohlin, and Farrington, 1991). In her examination of the National Youth Study, another multi-cohort accelerated longitudinal research study, Lauritsen (1998: 144) suggests that "if estimates of crime involvement...are not significantly different from one another in each of the cohort comparisons, then it is

logical to infer that a single development trajectory describes involvement in crime" for the entire age range. To test whether it is necessary to control for cohort in the analyses, analysis of variance (ANOVA) is used to determine whether there are cohort differences in the dependent variables and self-efficacy. For the three cohorts in the current study, the means of involvement in violence, drug dealing, and trouble with police, and self-efficacy are not equal ($p < 0.000$) (data not shown). In other words, there are cohort differences with respect to these variables. To control for these differences, cohort will be added to the models that include individual-level factors to account for potential differences in outcomes.

Because age and cohort are highly correlated (0.971), only cohort will be used as a control variable. Controlling for cohort will allow for the influence of neighborhoods and families to be investigated at varying age stages. As children age they spend less time with their families and the influence that neighborhoods have on actions and behavior may be age-graded. Elliott et al. (2006: 4) state that "neighborhood research has shown that … neighborhood properties…have different effects on different age groups." Duncan and Raudenbush (2001) also postulate that older children typically spend more time away from home which results in differential exposure to neighborhood contextual influences. While neighborhood effects do not appear to be substantial until ages 16-18, little is known about neighborhood effects during early adolescence, late adolescence, and into early adulthood (Elliott et al., 2006).

Sex

It is well documented that males are more likely than females to be delinquent (Heimer, 2000; Nagin and Paternoster, 1991; Smith and Visher, 1980; Steffensmeier and Allan, 1996; but see Steffensmeier, Schwartz, Zhong, and Ackerman, 2005). Additionally, the literature notes possible differences in self-efficacy levels among males and females (see Bandura, 1997; Britner and Parjares, 2006; Eccles, Wigfield, Harold, and Blumenfeld, 1993; Gecas, 1989; Umberson, 1993) though the research is inconclusive. Bandura et al. (2003) found that females were more likely than males to combat peer pressure, have a strong sense of self-efficacy, and less likely to engage in delinquency. Umberson (1993) found that females have less self-efficacy than males, and Baron (2007) indicates that while homeless males and females experience similar levels of strain, females are more likely to have lower levels of self-efficacy. Elliott et al. (2006), however, failed to find significant or consistent gender effects on the prosocial and personal competence measures used in their study. Baron (2007) examined the relationships between self-efficacy, sex and crime, but self-efficacy was not significantly related to property or violent crime for males or females.

Race/Ethnicity

Like age and sex, race/ethnicity is another variable that is often used in criminological research because the extant literature indicates a differential involvement in crime (or crime type) by various groups. Research shows that compared to other races/ethnicities, African Americans are disproportionately involved in the criminal justice system (see Sampson and Wilson, 1995; Wilson and Herrnstein, 1985).

There is no clear consensus among studies on the relationship between self-efficacy and race. Some scholars indicate lower levels of self-efficacy among African Americans (Umberson, 1993) and Hispanics (Elliott et al., 2006) compared to other racial/ethnic groups. Additionally, Usher and Pajares (2006) showed that social persuasion was more salient to the development of self-efficacy among African Americans than Whites. Other scholars, however, have failed to find a relationship between racial identity and self-efficacy in school (Williams and Leonard, 1988; Witherspoon, Speight, and Thomas, 1997).

Research on the relationships between race/ethnicity, self-efficacy, and crime is sparse. Agnew and White (1992) did not control for race/ethnicity because their sample was primarily (90%) White (see also Hoffman and Cerbone, 1999; Hoffman and Miller, 1998). Ludwig and Pittman (1999) did find a significant negative relationship between self-efficacy and delinquency for both African Americans and Whites, but the relationship was stronger for African Americans. However, Jang and Johnson (2003) examined a sample of African Americans and failed to find a significant relationship between self-efficacy and deviance and drug use.

Summary of Individual-Level Measures

These individual-level constructs (age/cohort, sex, and race/ethnicity) are anticipated to influence self-efficacy and involvement in crime. Older youths should have increased levels of self-efficacy and those with higher levels of self-efficacy should be less likely to engage in crime. Given the extant literature, it is not clear how sex and

race/ethnicity will affect self-efficacy, but it is expected that females and Whites will be less involved in crime than males and minorities.

Research Questions

The primary goals of this dissertation are to examine the independent influence of self-efficacy and collective efficacy on youths' involvement in violence, drug dealing, and trouble with police. Also, this research examines whether collective efficacy moderates the relationships between self-efficacy and violence, drug dealing, and trouble with police. Further, contextual and individual-level control variables are examined. The following research questions are based on the review of the literature and serve as a guide for exploring the relationships between self-efficacy, collective efficacy, and crime.

1. Does self-efficacy influence self-reported involvement in crime?
2. Does collective efficacy influence self-reported involvement in crime?
3. Does collective efficacy moderate the relationship between self-efficacy and crime?

Chapter 3: Data and Methods

The current investigation uses data from the Project on Human Development in Chicago Neighborhoods (PHDCN) to examine the influence of self-efficacy and collective efficacy on youths' involvement in violence, drug dealing, and trouble with police and the potential moderating effect of collective efficacy on the relationship between self-efficacy and these behaviors. In this chapter, the PHDCN studies and data are described. Next, the measures used to test the research questions are outlined. Bivariate analyses are then presented to demonstrate the relationship between the outcomes and the family context and individual-level control variables. Finally, the analytical approach employed in this study is discussed.

PHDCN Studies and Data

Using an interdisciplinary approach, the PHDCN sought to examine causal pathways of involvement in prosocial and antisocial behaviors and the influence of neighborhood context on these behaviors. To accomplish this goal, the PHDCN integrated neighborhood level surveys and observations with multiple individual-level surveys of youths and their primary caregivers.

As a result, the PHDCN contains four separate but complimentary studies. The four PHDCN studies are the Community Survey (CS), Systematic Social Observations (SSO), Longitudinal Cohort Study (LCS), and Infant Assessment Unit (IAU). The SSO and IAU studies are not used in the current research and will not be discussed. The CS and LCS are used in this research and are described below.

Community Survey (CS)

In 1994-1995, a cross-sectional Community Survey (CS) was conducted to ascertain perceptions of residents living in Chicago.[13] The CS consisted of 8,782 household interviews of adult residents (18 and older) living in Chicago. Participants were identified by sampling residents living in Chicago's 847 census tracts. The census tracts were collapsed into 343 Chicago neighborhoods clusters (NC) and each NC contained about 2.3 census tracts and approximately 8,000 residents. The NCs were designed to be "ecologically meaningful" and were constructed using geographically relevant boundaries and first-hand knowledge about the neighborhoods (see Sampson et al., 2002).

The NCs were also representative of Chicago's racial/ethnic and social class diversity. Each NC was stratified on seven racial/ethnic categories and three social classes (Sampson et al., 1997). After the NCs were constructed, a three stage sampling technique was employed. City blocks were first sampled within each NC. Second, residential dwelling units were sampled within each block. Finally, one adult (18 years of age or older) was selected from each of the sampled dwellings. Approximately 25 residents from each NC were interviewed for the CS.

Using a distinct sample from the other PHDCN studies, the CS serves as an independent measure of community context. For this dissertation research, the CS provides individual-level data on collective efficacy and neighborhood context (i.e., residential mobility, socioeconomic status, family disruption) which are aggregated to the

[13] A second community survey was conducted in 2000. These data have not been made publicly available for analyses.

NC level.[14] Typically, scholars conducting research using the PHDCN datasets obtain some neighborhood context measures (e.g., percentage of immigrants) from United States census data. Due to the data limitations of the restricted data user's agreement with the Inter-University Consortium for Political and Social Research (ICPSR), some data (e.g., census data) are private to prevent respondent identification, are not available for use by the public or those who have a restricted data user's agreement with ICPSR, and are not used in this dissertation. Therefore, proxy measures that closely approximate the census variables are used. All measures used in the study are discussed below under the heading "Measures."

Longitudinal Cohort Study (LCS)

The Longitudinal Cohort Study (LCS) is a three wave, multi-cohort, prospective, accelerated longitudinal study of childhood and adolescent development. The LCS sampled youths, young adults, and primary caregivers living in Chicago during 1994. For the LCS, 80 NCs were sampled from the 343 NCs identified for the CS. As with the CS, the 80 NCs selected for the LCS were stratified on racial/ethnic and socioeconomic status (Table 1).

[14] Ethnic heterogeneity is not available in the CS data set. It is obtained from the Wave 1 LCS data.

Table 1. Racial/Ethnic and Socioeconomic Status Stratification of 80 LCS Neighborhood Clusters

Racial/Ethnic Stratum	Socioeconomic Status			
	Low	**Medium**	**High**	Total
≥70% African American	9	4	4	17
≥70% White	0	4	8	12
≥70% Hispanic	4	4	0	8
≥20% Hispanic and ≥20% White	4	5	4	13
≥20% Hispanic and ≥20% African American	4	4	0	8
≥20% African American and ≥20% White	2	4	4	10
Other	4	5	3	12
Total	27	30	23	80

Using a stratified random probability sample, households in Chicago were selected for the LCS in 1994, and 8,347 participants (youths and their primary caregiver) were deemed eligible for the study. Youth participants were allocated to one of seven cohorts and they, and/or their primary caregiver, were interviewed during three waves of data collection. The seven cohorts were labeled according to the respondents' youngest ages at the beginning of the study (Wave 1) which were 0, 3, 6, 9, 12, 15, and 18. Wave 1 data were collected during 1994-1997 and had 6,228 respondents (a 75 percent response rate). During 1997-2000, Wave 2 data were collected from those who participated in the study during Wave 1 and had not died[15] and had 5,338 respondents (an 86 percent response rate). During 2000-2002, Wave 3 data were collected from those who participated in the study during Wave 1 or Wave 2 and had not died (N = 6,203), and had 4,850 respondents (a 78 percent response rate).

Letters were mailed informing the study participants that PHDCN research staff would be contacting them to schedule an interview. Data collected at prior Waves were used for tracking purposes. Interviews were conducted in English, Spanish, and Polish,

[15] A total of 25 study participants died during the overall study data collection period. Sixteen died between Wave 1 and Wave 2, and 9 died between Wave 2 and Wave 3.

depending on the respondent's language needs and preferences. Participants speaking other languages were administered abbreviated questionnaires. At each Wave, respondents were paid between $5 and $20 for each interview. Other incentives included free tickets to local attractions and prize drawings of $1,000 for participants who kept their original scheduled interview.

Interviews were conducted in-person when possible. Alternatively, participants were interviewed by telephone. As with all longitudinal studies, participants often move between data collection periods. Participants residing outside of the nine counties comprising the Chicago metropolitan area were interviewed using an abbreviated telephone interview. There were 221 telephone interviews during Wave 2 (about 4 percent of the sample). Participants who were in jail or prison (Cook County jail or other state institution) were interviewed in person if they were detained in the nine county metropolitan area of Chicago. Individuals and primary caregivers detained outside of this area were interviewed by telephone. During Wave 2, four primary caregivers and two young adults were interviewed in jail.[16] Children in foster care could not be interviewed. Depending on their circumstances at a particular follow-up Wave, some children and primary caregivers may have been interviewed during one Wave but not another.

Individuals in Cohorts 3 through 18 were interviewed personally. In addition to the individual youth respondents, primary caregivers were interviewed for most cohorts.[17] Youth participants who were living away from home (emancipated minors) or were

[16] Wave 3 data are not used in this research and therefore the number of participants who moved between Wave 2 and Wave 3 is not addressed here.
[17] Primary caregivers were not interviewed for Cohort 18 because many were legally adults. The mean age for these youths at Wave 1 was 18.14.

married before the age of 18 were administered any surveys that would have been asked of their primary caregivers, resulting in proxy interviews.

In addition to CS data, the current study uses LCS data from three cohorts (9, 12, and 15) collected during Wave 1 and Wave 2 and provides individual-level information on youths and their primary caregivers (i.e., self-reported offending, self-efficacy, family context, and individual-level control variables) and ethnic heterogeneity. These three cohorts were chosen because they were administered the self-efficacy instrument at Wave 2; the other cohorts were not asked these questions. The self-efficacy instrument was also administered to Cohorts 9 and 12 at Wave 3, but Wave 2 data were selected for this study because prospective studies are subject to selective attrition (Scott and Alwin, 1998) and one less cohort was administered the survey at Wave 3. By using self-efficacy data collected at Wave 2 rather than Wave 3, there are 763 additional cases available for study inclusion. The total number of youths in Cohorts 9, 12, and 15 interviewed at Wave 2 was 2,345 and the number of youths administered the self-efficacy instrument at Wave 2 was 1,914. Table 2 displays the data sources, years of data availability, and the variables by construct.

Table 2. Data Source, Year of Data Availability, and Constructs (Variables)

Data Source	Years	Construct *(Variables)*
Community Survey (CS) *Interviews with 8,782 adult residents living in 343 Chicago neighborhood clusters*	1994-1995	Collective Efficacy: *Informal Social Control* *Social Cohesion* Neighborhood Context: *Residential Mobility* *Socioeconomic Status* *Family Disruption*
Longitudinal Cohort Study (LCS) - Wave 1 *Interviews with 6,228 youths and primary caregivers living in 80 Chicago neighborhood clusters* *Subset included in current study:* *Cohort 9* *Cohort 12* *Cohort 15*	1994-1997	Neighborhood Context: *Ethnic Heterogeneity* Family Context: *Immigrant Status* *Socioeconomic Status* *Family Disruption* *Family Size* *Parental Monitoring*
Longitudinal Cohort Study (LCS) - Wave 2 *Interviews with 5,338 youths and primary caregivers living in 80 Chicago neighborhood clusters* *Subset included in current study:* *Cohort 9* *Cohort 12* *Cohort 15*	1997-1999	Self-Efficacy: *School* *Parents* *Life* *Neighborhood* Self-Reported Crime: *Violence* *Drug Dealing* *Trouble with Police* Individual-Level Controls: *Age/Cohort* *Sex* *Race/Ethnicity*

Appropriateness of the PHDCN Data

The PHDCN data are appropriate for answering the questions addressed in this research for several reasons. First, Chicago is a large city that has significant population heterogeneity. Chicago has diversity among racial and ethnic groups, as well as social

classes, and the sampling procedures were stratified using these demographic variables. This diversity will allow the findings to be generalized to various ethnic/racial groups and social classes. Second, the PHDCN data set has a wide range of variables that are applicable to the study's research questions; including self-reported offending, self-efficacy and collective efficacy, neighborhood context, and family context. Finally, because the PHDCN contains data on individuals who are nested in neighborhood clusters, investigations can be made into the differences between and within neighborhoods.

Data Reduction

Since the analyses examine the influence of self-efficacy and collective efficacy on crime and the moderating effect of collective efficacy on the relationship between self-efficacy and crime, it is necessary to limit the analytic file to subjects who have data for these measures. The two data files (CS and LCS) for the three cohorts of interest were merged to determine the completeness of the data for the key variables of interest. Data on collective efficacy are available for all individuals. Of the 1,914 individuals administered the self-efficacy instrument, 1,850 have complete data. For the outcome variables, 1,850 have data on the 12 violent acts, 1,880 have data on the 3 drug dealing measures, and 1,907 have data on trouble with police. The final data set was compiled using listwise deletion.[18] The 578 individuals who were deleted from the data set do not differ significantly from the retained individuals with regard to sex ($t = -0.117$, d.f. = 2,340, $p > 0.05$), race/ethnicity ($t = -1.30$, d.f. = 2,013, $p > 0.05$), or neighborhood

[18] Individuals were not removed from the data set if they did not have data on the neighborhood context, family context, and/or individual-level control variables. Data reduction for these variables is handled during analyses that involve these variables.

collective efficacy ($t = -1.95$, d.f. = 2,343, $p > 0.05$). The final sample size, by cohort and sex, is depicted in Table 3.

Table 3. Sample Size by Cohort and Sex

	Cohort			
Sex	9	12	15	Total
Female	276	327	274	877
Male	333	314	243	890
Total	609	641	517	1,767

Individuals with missing data in Cohorts 9 and 15 are not statistically significantly different from individuals in their respective cohorts who have complete data (Cohort 9: $t = 1.58$, d.f. = 2,340, $p > 0.05$; Cohort 15: $t = 0.69$, d.f. = 2,340, $p > 0.05$). However, individuals in Cohort 12 with missing data are different from those in Cohort 12 who have complete data ($t = -2.25$, d.f. = 2,340, $p < 0.05$). The significant differences between those with and without missing data in Cohort 12 may affect the parameter estimates and bias the results.

Measures

The measures from the PHDCN data that are used to investigate the research questions addressed in this study are described in this section and univariate analyses are employed. The dependent variable of interest is self-reported offending, defined as violence, drug dealing, and trouble with police. Self-efficacy and collective efficacy are independent variables. The control variables are neighborhood context (residential mobility, socioeconomic status, ethnic heterogeneity, and family disruption), family context (immigrant status, socioeconomic status, family disruption, family size, and

parental monitoring), and individual-level demographics (age/cohort, sex, and race/ethnicity).

Dependent Variables

Self-Reported Offending

In this study, the dependent variables are three measures of self-reported offending: violence, drug dealing, and trouble with police. Self-report data has been shown to be a valid and reliable method for quantifying delinquency (see Hindelang, Hirschi, and Weis, 1979, 1981; Thornberry and Krohn, 2000). It also overcomes arrest and reporting biases and probability of detection issues inherent in official data sources (Mosher, Miethe, and Phillips, 2002).

The "Self-Report of Offending" survey administered during Wave 2 to youths in Cohorts 9, 12, and 15 provide data on involvement in crime. In this dissertation research self-reported crime is operationalized as involvement in violence in the past 12 months, drug dealing in the past 12 months, and/or being in trouble with police since the Wave 1 interview. The inclusion of a variety of criminal behaviors is supported by the extant literature that indicates a lack of specialization among individuals engaged in crime (Farrington, 1986, 1995, 2003; Gottfredson and Hirschi, 1990, 2003; Hirschi and Gottfredson, 2001; Junger and Dekovic, 2003; Miethe, Olson, and Mitchell, 2006; Piquero, Paternoster, Mazerolle, Brame, and Dean, 1999; Wolfgang, Thornberry, and Figlio, 1987), particularly youths (Piquero et al., 1999).

Sharkey's (2006) 12-item violence scale is used for quantifying past year involvement in violent behavior.[19] The survey items were recorded as binary variables (0 = no/1 = yes), combined into a variety scale (Hindelang et al., 1981), and are displayed in Table 4. The scale has high reliability (0.71) and its use will allow for direct comparisons between the two studies. The violence scale captures the total number of violent offenses committed in the past year by youths. The potential range is 0 to 12, although the actual responses range from 0 to 9 (Figure 3).[20]

Table 4. Item Wording and Descriptive Statistics for Self-Reported Violence (Past 12 Months) Scale

Item Wording	N	Percent	St. Dev.
Carried hidden weapon	1,767	6.2	0.241
Purposively damaged property	1,767	8.0	0.272
Set fire	1,767	0.3	0.057
Snatched purse	1,767	0.4	0.062
Hit someone not live with	1,767	18.6	0.389
Attack someone with weapon	1,767	2.6	0.159
Thrown objects at people	1,767	9.8	0.298
Chased someone to scare	1,767	9.7	0.295
Shot someone	1,767	0.3	0.051
Shot at someone	1,767	0.7	0.084
Been in gang fight	1,767	3.6	0.187
Threaten to hurt someone	1,767	4.8	0.214

Scale reliability coefficient: 0.711

[19] Sharkey's scale includes two items (purposively damaged property and snatched purse) that are not typically considered violent offenses, and does not include two items that are violent offenses (robbery and sexual assault). The removal of purposively damaged property and snatched purse reduce the scale reliability to 0.03, and the inclusion of robbery and sexual assault reduce the scale reliability to 0.04.
[20] No one engaged in all 12 violent acts in the past 12 months.

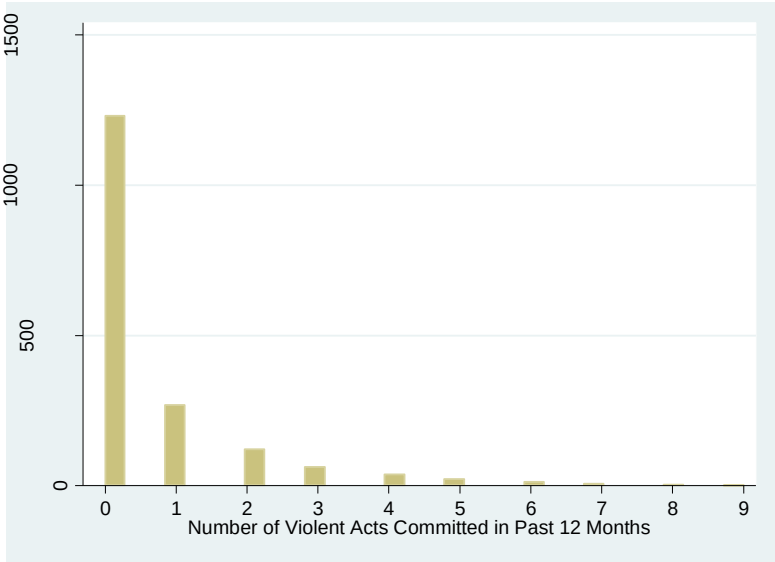

Figure 3. Number of Violent Acts Committed in Past 12 Months

Individuals were also asked about their involvement in drug dealing during the past 12 months. Youths were asked whether they sold marijuana, crack/cocaine, and/or heroin (Table 5). The range of responses was 0-3, with zero indicating no involvement in drug dealing, 1 and 2 indicating drug dealing of one or two substances, respectively, and 3 indicating the individual sold all three drugs in the past 12 months (Figure 4).

Table 5. Item Wording and Descriptive Statistics for Self-Reported Drug Dealing (Past 12 Months) Scale

Item Wording	N	Percent	St. Dev.
Sold marijuana	1,767	3.4	0.178
Sold crack/cocaine	1,767	1.2	0.111
Sold heroin	1,767	0.2	0.041

Scale reliability coefficient: 0.499

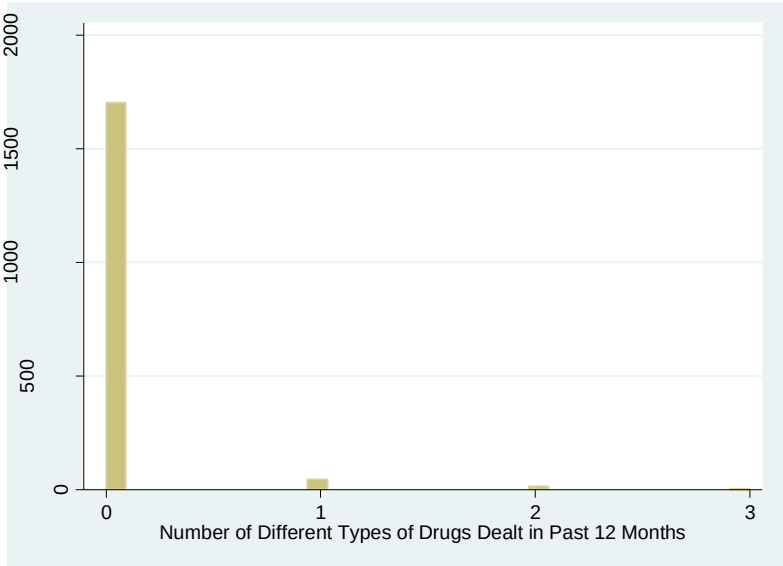

Figure 4. Number of Different Types of Drugs Dealt in Past 12 Months

Frequency scores for the violence and drug dealing scales were not generated for several reasons. Foremost, alpha coefficients are more reliable for variety scores than frequency scores (Hindelang et al., 1981). Additionally, variety scores are less skewed than frequency scores, responses about whether an event occurred are more reliable than how many times it occurred, and in variety scores equal weight is attributed to each type of offense instead of more weight being attributed to lesser (and more frequent) behaviors (Moffitt, Caspi, Rutter, and Silva, 2001).

Also examined is a binary variable (0 = no/1 = yes) indicating whether youths had been in trouble with the police since the Wave 1 interview. Of the 1,767 youths in the sample, 13.75% (N = 243) answered yes to the question "Since [Wave 1 interview], have you had any trouble with the police?" (Figure 5). This construct has face validity, and is correlated with the violence scale (0.413) and drug dealing scale (0.248).

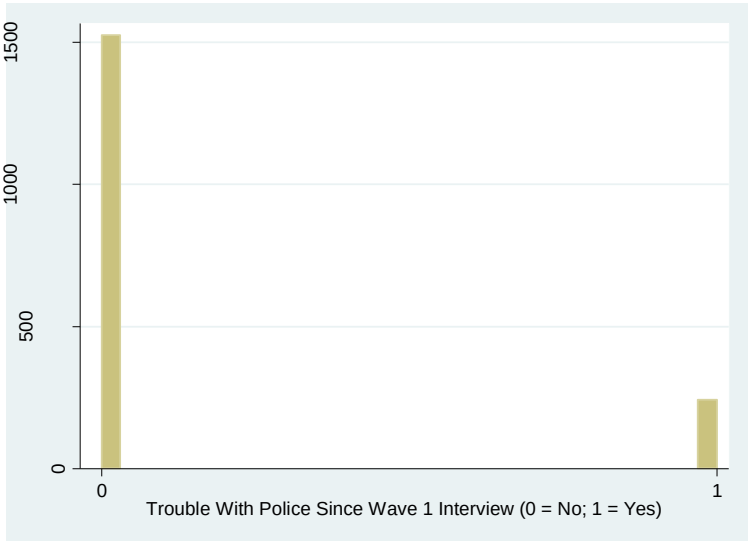

Figure 5. Trouble With Police Since Wave 1 Interview

The use of additional self-reported offending behavior (e.g., property crime, traffic offenses) and trouble with other authorities (e.g., courts, schools) was explored but was not practical due to low scale reliabilities, response rates, and extensive missing data problems.

Crime (the dependent variable) is measured at Wave 2 for this research and the time period covered by the self-reported offending questions is past 12 months for the violence and drug dealing scales, and since the Wave 1 interview (e.g., 1994-1997) for determining trouble with police. The key independent variable, self-efficacy (discussed below) is also measured at Wave 2 and does not reference a particular time period. The timing of these questions may contribute to temporal ordering concerns, including the effect of self-efficacy on crime. The relationship between Wave 2 self-efficacy and Wave 3 self-reported offending is not proposed in this research due to attrition problems inherent in longitudinal studies. Therefore, chi-square tests are employed to assess the stability of individuals' involvement in the outcomes of interest between Wave 2 and

Wave 3. Responses were dichotomized for the violence and drug dealing scales;[21] where 0 = no involvement in any of the behaviors and 1 = involvement in one or more of the behaviors. Chi-square tests (Table 6) for the three outcome variables indicate both stability and change between Wave 2 and Wave 3.

Table 6. Stability of Self-Reported Offending Between Wave 2 and Wave 3

	χ^2	d.f.	Phi
Violence Scale	239.697***	1	0.413***
Drug Dealing Scale	0.068	1	-0.007
Trouble with Police	0.196	1	-0.012

***p < 0.000

The chi-square test indicates a moderate positive relationship between violence at Wave 2 and Wave 3 and a weak negative relationship between drug dealing and trouble with police at Wave 2 and Wave 3. The correlations between the crime measures at Wave 2 and Wave 3 are positive and support these findings (violence = 0.519; drug dealing = 0.275; trouble with police = 0.261).[22] The relationship between self-reported involvement in the crimes of interest at Wave 3 and self-efficacy at Wave 2 is examined to determine the stability of the effect of self-efficacy on crime, (see Chapter 4).

Independent Variables

Self-Efficacy

Self-efficacy is perhaps best captured by asking individuals how they perceive their ability to handle different life situations (Bandura, 1995, 1997). Since efficacy is often conceptualized as being domain specific (Bandura, 1997), there is no one

[21] Trouble with police is already a binary variable.
[22] The bivariate relationships between self-reported involvement in crime at Wave 3 and self-efficacy at Wave 2 are examined below.

standardized instrument that can be used to measure self-efficacy. However, there are scholars who postulate that self-efficacy is not domain specific and maintain that it is a general concept (see Hoeltje et al., 1996; Jerusalem and Mittag, 1995; Jerusalem and Schwarzer, 1992; Tipton and Worthington, 1984) and found self-efficacy to be a unidimensional trait (Scholz et al., 2002; Schwarzer et al., 1997; Schwarzer and Born, 1997). A main tenet of the current study is that self-efficacy is a general latent variable that may serve to inform choices and perceptions of alternatives to crime. Individuals with a general sense of prosocial self-efficacy perceive themselves as able to engage in legitimate behaviors to reach their goals. Following the extant criminological literature on the relationship between self-efficacy and crime (discussed in Chapter 2) the current study examines overall perceptions of self-efficacy as a general trait.

The self-efficacy data used in this research were collected from Cohorts 9, 12, and 15 during Wave 2 using the survey instrument titled "Things I Can Do If I Try." This 30-item instrument was created by members of the PHDCN scientific group specifically for the PHDCN and has not been validated. Each efficacy statement was read to respondents and scored on a Likert-type scale. Each statement offered two perspectives (e.g., "some kids feel like they can understand math if they work at it," BUT "other kids feel no matter how hard they work at it, it is still very hard to learn math"). Respondents were asked to choose which perspective more closely reflected their beliefs about themselves. The efficacy measures included positively and negatively worded statements. Regardless of the direction of the question, in the original data set, the responses were coded as "very true," "sort of true," "sort of untrue," and "very untrue" with a value of 1 through 4, respectively. Therefore, the original data set assigned a value of 1 to any response of

"very true" and a value of 4 for any response of "very untrue" for both negatively and positively worded statements. This confounded the direction of the responses and, as necessary, the statements are recoded such that a value of 4 is equal to high self-efficacy and a value of 1 is equal to low self-efficacy.

The instrument captured five domains of efficacy. These categories are school, parents (e.g., relationships with adults), life (including expectations for the future), neighborhood,[23] and peers (e.g., social life, friends). For example, the statement "can understand math" falls under the school category, while "cannot make life better" pertains to the life category. The original index contained 30-items, however, seven of those items had low response rates (<25%). These seven items (which included all of the items in the peers domain) were dropped for the current study. The final 23-item index has high reliability (0.83).

A factor analysis, using principal components factoring, is used to test whether the remaining 23 self-efficacy items load on one factor (e.g., single domain). A correlation matrix is produced (Appendix C) and a factor analysis is conducted (see Table 7).[24] Factor 1 has an eigenvalue of 4.58 and explains 82% of the variance. The remaining factors have eigenvalues below 1.[25] A scree plot (Figure 6) reveals that a one factor model is sufficient. The self-efficacy measure is calculated using postestimation regression (i.e., summation of the factor loadings) to generate a predicted factor score. This is a continuous index ranging from -4.891 to 1.342 (mean = -3.93e-10; st. dev. = 0.929) and is slightly right skewed (skew: -0.889).

[23] Sharkey labels this street efficacy.
[24] A factor analysis was also conducted to force-fit one factor. The factor loadings did not change.
[25] No rotation method was employed because only 1 component was extracted.

Table 7. Item Wording, Descriptive Statistics, and Factor Loadings for 4 Efficacy Domains: School, Parents, Life, and Neighborhood

Item Wording	N	Mean	St. Dev.	Factor Loading
School				
Can understand math (school1)	1,767	3.183	1.044	0.328
Cannot figure out answers in school (school2)	1,767	3.457	0.848	0.394
Cannot do work expected in school (school3)	1,767	3.552	0.767	0.455
Can understand what they read (school4)	1,767	3.266	0.952	0.449
Cannot do well in school (school5)	1,767	3.617	0.733	0.477
Can finish assignments/homework (school6)	1,767	3.551	0.761	0.535
Can make school better for self (school7)	1,767	3.528	0.748	0.596
Parents				
Cannot get parents to listen (parents1)	1,767	3.183	1.044	0.352
Can get parents to do things they like (parents2)	1,767	3.124	0.949	0.501
Can get help from parents (parents3)	1,767	3.533	0.761	0.560
Can talk with parents about bad things (parents4)	1,767	3.062	1.021	0.520
Can be self with parents (parents5)	1,767	3.132	0.989	0.438
Can make things better at home with parents (parents7)	1,767	3.386	0.854	0.584
Life				
Have control over own future (life1)	1,767	2.923	1.066	0.282
Can become successful (life3)	1,767	3.673	0.658	0.549
Can go far in the world (life4)	1,767	3.573	0.748	0.515
Cannot make self happy in future (life6)	1,767	3.600	0.756	0.399
Neighborhood				
Can do things safely with friends in neighborhood (hood1)	1,767	3.088	1.001	0.366
Cannot avoid gangs in neighborhood (hood2)	1,767	3.445	0.915	0.409
Cannot avoid being scared on way to school (hood3)	1,767	3.377	0.819	0.380
Feel safe alone in neighborhood (hood4)	1,767	2.889	1.068	0.303
Can be safe within a few blocks of home (hood5)	1,767	3.044	1.048	0.331
Cannot avoid fights in neighborhood (hood6)	1,767	3.101	1.046	0.314

Index reliability coefficient: 0.832

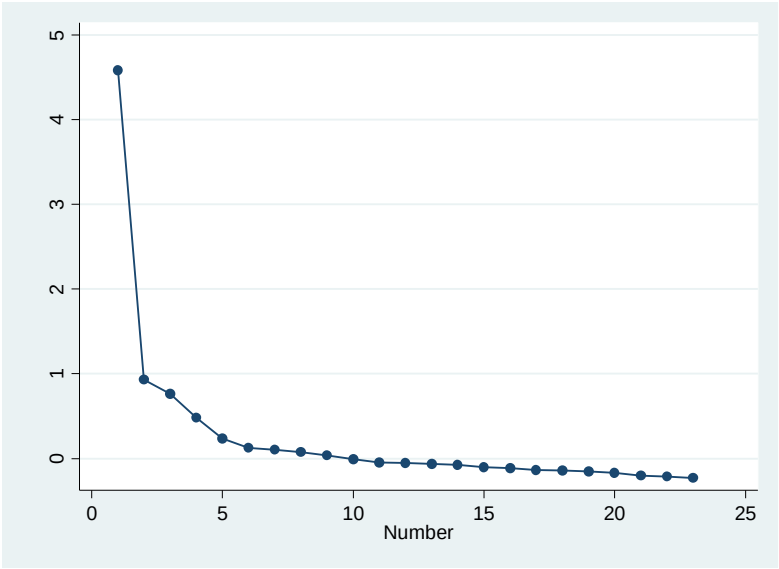

Figure 6. Scree Plot of Eigenvalues after Factor Analysis

Typically factor loadings 0.70 or larger are used to indicate that two variables represent one factor (Raubenheimer, 2004). However, the predicted factor score is used to represent general self-efficacy for this dissertation research despite the low factor loadings because this research is exploratory, and the eigenvalues and scree plot indicate that a one factor model is appropriate. It is recognized that the four domains of self-efficacy may be differentially related to the outcomes tested in this study. Correlation coefficients (Appendix D) indicate that this may be true and show that the four domains influence the outcomes either positively, negatively, or both.[26]

ANOVA is used to determine whether there are differences in self-efficacy among respondents. There are significant differences in mean self-efficacy between cohorts ($p < 0.05$) and racial/ethnic groups ($p < 0.000$). There is no difference in mean self-efficacy between males and females ($p > 0.05$).

[26] While Sharkey's (2006) research examined the influence of neighborhood self-efficacy on violence, additional research would be needed to investigate the influence of neighborhood self-efficacy on drug dealing and trouble with police and the influence of self-efficacy pertaining to school, parents, and life on all of the outcome measures.

Self-efficacy is measured at Wave 2; during the same interview that self-reported offending is measured. Even though Bandura (2002: 282) indicates that the "predictive value" of self-efficacy remains stable over time despite changes in influences, temporal ordering may be an issue in determining causality. This is not only because data regarding self-efficacy and offending are gathered at the same time point, but because the questions ask youths about their self-efficacy without asking about a specific time frame and the questions pertaining to involvement in crime ask about the past 12 months for violence and drug dealing and the past three to six years for trouble with police. For this study, self-efficacy as measured at Wave 2 is used because self-efficacy data were not collected at Wave 1, and because self-efficacy can change over time it is more meaningful to capture self-efficacy in close proximity to the behavior in question. Self-reported offending is measured at Wave 2 rather than Wave 3 to lessen attrition issues inherent in a longitudinal study. Further, collective efficacy, neighborhood context, and family context are measured between three and six years before Wave 2 and using Wave 3 self-reported offending data would increase this gap to six to nine years.

In order to address the temporal sequencing issue, chi-square tests were employed to determine if there is stability in self-efficacy within persons between Wave 2 and Wave 3.[27] For this test, self-efficacy at Waves 2 and 3 for 1,004 youths is measured using additive scales for the 23 self-efficacy items. A higher score indicates higher self-efficacy. The mean of self-efficacy at Wave 2 is 77.11 (st. dev. = 9.34) and scores ranged from 47 to 92. The mean of self-efficacy at Wave 3 is 75.93 (st. dev. = 9.65) and scores ranged from 35 to 92. The chi-square tests (using two different sample groupings)

[27] The chi-square tests used self-efficacy data from Cohorts 9 and 12 at Wave 2 and Wave 3; self-efficacy data are not available for Cohort 15 at Wave 3.

indicate a moderate association between self-efficacy at Wave 2 and Wave 3 (Table 8); there is some change and some stability in individual self-efficacy scores across these Waves. Further, self-efficacy scores, overall, at Wave 2 and Wave 3 are positively correlated (0.395). Pearlin and colleagues (1981) also found stability in self-efficacy between data collection waves that were four years apart in a study on the role of self-efficacy in dealing with stressful situations.

Table 8. Stability of Self-Efficacy Between Wave 2 and Wave 3

Number of groups for comparison	χ^2	df	Phi / Cramer's V
Two groups *(Above median; below median)*	76.706***	1	0.276***
Three groups *(25% bottom scores; 50% middle scores; 25% top scores)*	124.776***	4	0.249***

***p < 0.000

Collective Efficacy

Collective efficacy in youths' Wave 1 neighborhood is measured using data from the Community Survey (CS). Following Sampson et al. (1997), collective efficacy is measured as the combination of two constructs: informal social control and social cohesion. Informal social control was assessed by asking respondents how likely (responses ranging from very likely to very unlikely) their neighbors could be counted on to "intervene" in the following situations: (i) "children were skipping school and hanging out on a 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 close to their home was threatened with budget cuts."

Social cohesion was assessed by asking respondents how strongly (responses ranging from strongly agree to strongly disagree) they agreed with the following statements: (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;" and (v) "people in this neighborhood do not share the same values."[28] Sampson and colleagues (1997) found that informal social control and social cohesion were highly correlated and combined them into one construct labeled collective efficacy.

Sampson et al. (1997: 924, footnote 21) constructed the collective efficacy measure by combining responses to the 5 informal social control and 5 social cohesion items and creating an average score. They used these data to develop a neighborhood level measure of collective efficacy for each of the 342 NCs.[29] Following this logic, the informal social control and social cohesion variables from the CS were summed and averaged to develop a collective efficacy measure for each of the 80 NCs represented in the LCS data (see Table 9).

Table 9. Average Informal Social Control, Social Cohesion, and Collective Efficacy Measures for 80 Neighborhood Clusters

	N	Mean	St. Dev.	Min	Max
Informal Social Control	80	3.470	0.341	2.643	4.241
Social Cohesion	80	3.375	0.277	2.752	4.171
Collective Efficacy	80	3.423	0.293	2.859	4.182

[28] The last two items were reverse coded before they were added to the original PHDCN data set.
[29] One of the original 343 NCs was removed because it contained O'Hare airport and resulted in an insufficient sample (see Morenoff, 2003).

It is noted that the data on collective efficacy were captured between three and six years before the Wave 2 self-efficacy and self-reported offending data which were collected between 1997 and 2000. The measure of collective efficacy is only available from the 1994-1995 CS. A second community survey was conducted in 2000. However, the data is not publicly available. While there are pros and cons for using data from an earlier data collection point, an independent macro level measure of collective efficacy that is gathered from respondents other than the youths in the study is only available from the 1994-1995 CS.[30]

In the current study, 18% (N = 319) of the sample moved between Wave 1 and Wave 2, with 88 of the 319 youths moving outside of Chicago. Despite the low correlation (0.247) between neighborhood collective efficacy at Wave 1 and Wave 2 among those who moved from their Wave 1 neighborhood but remained in Chicago (N = 231), collective efficacy is measured at subjects' Wave 1 neighborhood for several reasons. First, by measuring collective efficacy at Wave 1, a temporal ordering between this construct and the dependent variables (i.e., violence, drug dealing, and trouble with police) can be investigated (Duncan and Raudenbush, 1999; Wheaton and Clarke, 2003). This assumes that collective efficacy has a lagged effect on development and behavior that endures over time. Second, neighborhood and family context constructs are measured at Wave 1 and a more comprehensive contextual picture can emerge by examining the influence of all the contextual factors at Wave 1 on the outcomes measured at Wave 2. Finally, the number of subjects nested in each NC would diminish if collective efficacy in subjects' Wave 2 neighborhood was used for this study. In Wave

[30] Primary caregivers and youths in Cohort 18 were asked about their perceptions of collective efficacy during Wave 3 of the study.

1, study subjects lived in the 80 original LCS neighborhood clusters, and only 3 of these NCs contained one youth. In Wave 2, however, study subjects lived in 137 NCs, and 76 NCs contained only one youth. Using Wave 2 collective efficacy data would therefore greatly reduce statistical power and ability to detect within neighborhood variability.

One concern with this gap between measurements is that there would be significant changes in levels of collective efficacy during these two time points. While Bursik (1986, 1988) refuted Shaw and McKay's (1942) claim that there is significant stability in neighborhoods, neighborhood changes evolve incrementally and somewhat slowly over time (see Reiss, 1986). Further, Chicago was partially chosen as the PHDCN study site because of the stability of its neighborhoods (Inter-university Consortium for Political and Social Research, Project on Human Development in Chicago Neighborhoods Website, accessed 2009) and Sampson (2006) notes the stability of collective efficacy in neighborhoods over time (but see Sampson and Sharkey, 2008).

Contextual Control Variables

The contextual control variables examined in this dissertation research are neighborhood context and family context. Appendix E displays a correlation matrix for self-efficacy, collective efficacy, neighborhood context, and family context. Some of the neighborhood context and family context variables are similar (e.g., neighborhood level family disruption and individual-level family disruption). However, the CS and LCS samples are independent and the family context variables are not highly correlated with the neighborhood context variables and therefore represent distinct concepts.[31]

[31] This may imply a weak relationship between neighborhood context and family context variables.

Neighborhood Context

For this study, indicators of neighborhood context are residential mobility, socioeconomic status, ethnic heterogeneity, and family disruption (see Table 10 for descriptive statistics). Data aggregated by neighborhood clusters (NCs) for these measures are not available and were therefore created. Residential mobility, socioeconomic status, and family disruption were estimated for the 80 NCs by collapsing individual responses to questions from the Community Survey's individual-level data file that address the construct of interest and to provide a mean response. Neighborhood ethnic heterogeneity was drawn from the LCS Wave 1 Master File.

Table 10. Neighborhood Level Context Variable Descriptive Statistics

	N	Mean	St. Dev.	Min	Max
Residential Mobility	80	1.041	0.525	0.164	2.578
Socioeconomic Status	80	1.950	0.794	1	3
Ethnic Heterogeneity	80	3.762	2.136	1	7
Family Disruption	80	0.173	0.084	0	0.390

Neighborhood level residential mobility was measured by asking CS respondents how many times they moved in the past 5 years. These data were collapsed and an average score was created for each NC. The range is 0.164 to 2.578 (mean = 1.041; st. dev. = 0.525).

Neighborhood level socioeconomic status (SES) was measured using a 3-level variable developed to stratify NC selection for the CS. The low SES category had 27 NCs (33.75%), the medium SES category had 30 NCs (37.5%), and the high SES category had 23 NCs (28.75%).

Ethnic heterogeneity is not available in the CS data due to data limitations of the restricted user's agreement with ICPSR[32] and therefore each NC's ethnic heterogeneity was measured using Wave 1 LCS data (see Table 1). NCs were stratified using seven racial/ethnic categories: ≥ 70% African American (N = 17; 21.25%), ≥ 70% White (N = 12; 15%), ≥ 70% Hispanic (N = 8; 10%), ≥ 20% Hispanic and ≥ 20% White (N = 13; 16.25%), ≥ 20% Hispanic and ≥ 20% African American (N = 8; 10%), ≥ 20% African American and ≥ 20% White (N = 10; 12.5%), and Other (N = 12; 15%).

Family disruption was measured using CS respondents current marital status. Responses included single, separated, divorced, married, widowed, and live with partner. Neighborhood level family disruption was recorded as a binary variable (0 = no/1 = yes) and was operationalized as average number of CS respondents reporting that they were separated or divorced. The data were collapsed and averaged to provide a mean score for each NC (mean = 0.173; st. dev. = 0.084; range 0 to 0.390).

Family Context

Family context was measured as the youths' primary caregiver's immigrant status, socioeconomic status, family disruption, family size, and parental monitoring (see Table 11 for descriptive statistics). This information is captured at the individual respondent level and was obtained from the Wave 1 LCS.

[32] This variable is not available for use by those with a restricted data user's agreement or the general public.

Table 11. Family Context Variable Descriptive Statistics

	N	Mean	St. Dev.	Min	Max
Immigrant Status	1,767	0.406	0.491	0	1
Socioeconomic Status	1,753	-0.108	1.424	-3.157	3.523
Family Disruption	1,744	0.161	0.368	0	1
Family Size	1,725	5.347	2.005	2	14
Parental Monitoring	1,600	21.27	2.531	6	24

Primary caregiver's immigrant status was calculated by converting the question "When did you come to live in the U.S.?" to a binary variable. Observations without a year recorded were coded as 0 and observations with a year were coded as 1.[33] This provides a no/yes response for determining whether a youth's primary caregiver immigrated to the United States. This recoding does not provide length of time living in the U.S. which may influence acculturation, country of origin, or whether they immigrated legally or illegally. Almost 41% of the primary caregivers in the study sample were immigrants (st. dev = 0.491).

Family socioeconomic status is a composite measure developed by the PHDCN scientific group and contains primary caregiver's maximum education level, salary, and description of most recent job. The average principle components measure of family socioeconomic status is -0.108.

Family disruption was operationalized as the subject's primary caregiver's marital status being separated or divorced. Other marital status options were single, married, widowed, and living with partner. Family disruption is a dichotomous variable with 1 indicating separated/divorced (N = 281; 16.11%) and 0 indicating all other categories (N = 1,463; 83.89%).

[33] The question "When did you come to live in the USA?" was only asked of people answering that they were born outside of the United States.

Family size is measured as number of persons living in the household (excluding the youth). Interviewers asked the primary caregiver for each household resident's relationship to the youth, and allowed for up to 17 possible responses. The family size variable used in this study was created by recoding the responses as a binary variable (0 = no response/1 = response) and summing to determine number of persons residing in the household with the youth. Family size ranged from 2 to 14 (mean = 5.347; st. dev. = 2.005).

Parental monitoring is measured using a validated 24-item scale (Appendix F; alpha = 0.67) developed by Caldwell and Bradley (1984) (see also Bradley et al., 2000; Browning, Leventhal, and Brooks-Gunn, 2004). Primary caregivers of the youths were asked about rules and discipline techniques as well as the youth's schedule. Responses to the 24-items were binary (0 = no/yes = 1) and the questions are worded as such that a "yes" response indicated greater supervision than a "no" response. An additive scale was created using the responses to this instrument. Scores ranged from 6 to 24 and was left skewed with the majority of scores indicating higher levels of monitoring (mean = 21.27; st. dev. = 2.531).

Individual-Level Control Variables

The individual-level control variables used in this study are youth's age/cohort, sex, and race/ethnicity (see Table 12 for descriptive statistics). These demographic variables were taken from the LCS Wave 2 Master File. The study subjects' ages at Wave 2 ranged from 9 to 19. Youths in Cohorts 9, 12, and 15 were 9 – 13, 12 – 17, and 15 – 19 years old, respectively. The subject's actual age at the time of the Wave 2

interview is recorded (e.g., 12.33 years); it is not rounded and is therefore a continuous variable. Youth's cohort membership is a categorical variable. A binary variable was created for each of the three cohorts to provide a reference group. Approximately 35% of the youth are in Cohorts 9 and 12 and about 30% are in Cohort 15. Youth's sex is included as a dichotomous variable (0 = female/1 = male). The sample is split almost evenly between percentage of females (49.63%) and males (50.37%). Race/ethnicity was measured as a categorical variable. The majority of subjects were Hispanic (N = 728; 42.18%) or African American (N = 535; 31.00%). Whites comprised 14.66% of the study sample (N = 253), and 12.17% were classified as Asian, Pacific Islander, Native American, or Other (N = 210).

Table 12. Individual-Level Control Variables Descriptive Statistics

	N	%	Mean	St. Dev.	Min	Max
Age/Cohort						
Age	1,767	100.00	14.025	2.479	9.109	19.890
Cohort 9	694	34.91			0	1
Cohort 12	701	35.26			0	1
Cohort 15	593	29.83			0	1
Sex						
Male	890	46.63			1	1
Female	877	50.37			0	0
Race/Ethnicity						
African American	535	31.00			0	1
Hispanic	728	42.18			0	1
White/Other	436	26.82			0	1

Bivariate Relationships Between Dependent and Individual-Level Variables

In this section, the bivariate relationships between the three dependent variables (violence, drug dealing, and trouble with police) and self-efficacy, family context and the individual-level control variables are examined. Bivariate analyses establish the

relationship between the dependent variables and individual-level variables without taking into account the potential influence of neighborhood context. The bivariate relationships are derived using negative binomial and logit regression models. A separate model is employed for each independent variable to determine its relationship with each dependent variable.

The violence and drug dealing scales are right skewed and follow a Poisson distribution. There is evidence of over dispersion in these dependent variables because the variances (1.655 and 0.069) are larger than the means (0.638 and 0.047) for both the violence and drug dealing scales, respectively. Likelihood ratio tests also provide significant evidence of overdispersion for the violence scale (786.91; $p < 0.000$) and drug dealing scale (60.24; $p < 0.000$). In cases of over dispersion, a Poisson model underfits the data (Long and Freese, 2006). Over dispersion results in consistent but inefficient estimates and the standard errors are biased downward which affects hypothesis tests. Since the assumptions of Poisson are violated in the violence and drug dealing scales, bivariate relationships for these outcomes were derived using negative binomial regression models. The negative binomial probability distribution is

$$P(Y_i = y_i) = \frac{\Gamma(y_i + \phi)}{y_i \Gamma(\phi)} \frac{\phi^{\phi} \lambda_i^{y_i}}{(\phi + \lambda_i)^{\phi - y_i}}$$

where Γ is the gamma function and ϕ is the reciprocal residual variance.

Trouble with police is a binary measure indicating whether subjects had contact with police since the Wave 1 interview (0 = no/1 = yes). Bivariate relationships between the trouble with police dependent variable and individual-level variables were derived using logistic regression models. The logit link is

$$\eta_{ij} = \log\left(\frac{\varphi_{ij}}{1-\varphi_{ij}}\right)$$

where η_{ij} represents the log of the odds of being in trouble with police since the Wave 1 interview and φ_{ij} represents the probability of a youth being in trouble with police since the Wave 1 interview.

The results from the bivariate regression models are presented and discussed below. In sum, the bivariate relationships indicate a negative relationship between the outcome variables and main independent variable (self-efficacy).

Violence Scale

Table 13 presents the results of the bivariate models. Several variables are significantly related to involvement in violence in the past 12 months. The results indicate that youths with higher levels of self-efficacy report less violence ($\beta = -0.346$; $p < 0.000$) than youths reporting lower levels of self-efficacy. For each unit increase in self-efficacy expected involvement in violence decreases by 0.71 and involvement in violence is expected to decrease by 27.49% for each standard deviation change in self-efficacy.[34]

For family context variables, youths with a primary caregiver who is a first generation immigrant ($\beta = -0.537$; $p < 0.000$) and youths who receive more parental monitoring ($\beta = -0.054$; $p < 0.01$) are less likely to engage in violence. Compared to youths whose primary caregiver was born in the United States, having a primary

[34] Due to potential temporal ordering issues, bivariate relationships between the outcomes at Wave 3 and self-efficacy at Wave 2 are also examined. The bivariate relationship between violence at Wave 3 and self-efficacy at Wave 2 is -0.203 ($p = 0.002$). For a standard deviation increase in self-efficacy at Wave 2, involvement in violence at Wave 3 is expected to decrease by 17.19%.

caregiver who is a first generation immigrant decreases youths expected involvement in violence by a factor of 0.58. Having a primary caregiver who is a first generation immigrant is expected to decrease involvement in violence by 12.77%. For each unit increase in parental monitoring, involvement in violence is expected to decrease by a factor of 0.95. For a standard deviation change in parental monitoring, involvement in violence is expected to decrease by 19.35%. Family SES, family disruption (i.e., primary caregiver being divorced/separated), and family size are not related to violence.

All of the individual-level control variables are significantly related to involvement in violence. Being in Cohort 9 (i.e., being younger) ($\beta = -1.044$; $p < 0.000$) and being Hispanic ($\beta = -0.481$; $p < 0.000$) are negatively related to violence. Being in Cohort 9 (compared to being in Cohort 12 or 15) or Hispanic (compared to other race/ethnicities) decreases the expected involvement in violence by a factor of 0.35 and 0.62, respectively. Being in Cohort 9 decreases expected involvement in violence by 64.79%, while being Hispanic decreases involvement in violence by 38.18%.

The other individual-level control variables are related to a positive and significant increase in violence. Youths who are African American ($\beta = 0.605$; $p < 0.000$) or male ($\beta = 0.479$; $p < 0.000$) are more likely to be involved in violence than youths of other races/ethnicities or females. Being in Cohort 12 ($\beta = 0.236$; $p < 0.05$) or Cohort 15 ($\beta = 0.581$; $p < 0.000$) is also positively related to involvement in violence compared to youths in other cohorts. Being African American or male increases expected involvement in violence by a factor of 1.83 and 1.61, respectively. In terms of percent change, being African American increases expected involvement in violence by 83.12% and being male increases expected involvement in violence by 61.44%. Finally,

being in Cohort 12 or 15 increases expected involvement in violence by a factor of 1.27 and 1.79, respectively. Compared to youths in other cohorts, being in Cohort 12 increases expected involvement in violence by 26.62%, while being in Cohort 15 increases expected involvement in violence by 78.78%.

Drug Dealing Scale

Table 13 also shows that several variables are significantly related to drug dealing in the past 12 months. The results indicate that youths who have higher levels of self-efficacy engage in less drug dealing ($\beta = -0.569$; $p < 0.000$) than youths with lower levels of self-efficacy. For each unit increase in self-efficacy expected involvement in drug dealing decreases by 0.57, and involvement in drug dealing is expected to decrease by 41.05% for each standard deviation increase in self-efficacy.[35]

For family context variables, youths who have a primary caregiver who is a first generation immigrant ($\beta = -0.768$; $p < 0.05$) and youths who experience more parental monitoring ($\beta = -0.174$; $p < 0.000$) are less likely to engage in drug dealing than youths whose primary caregiver is a native born United States citizen and youths with less parental monitoring. Having a primary caregiver who is a first generation immigrant decreases youths expected involvement in drug dealing by a factor of 0.46 and for each unit increase in parental monitoring, involvement in drug dealing is expected to decrease by a factor of 0.84. In terms of percent change, having a primary caregiver who is a first generation immigrant decreases expected involvement in drug dealing by 53.60% relative

[35] The bivariate relationship between drug dealing at Wave 3 and self-efficacy at Wave 2 is -0.154 ($p = 0.296$). Although not statistically significant, the direction remains the same between Wave 2 and Wave 3, and for a standard deviation increase in self-efficacy at Wave 2, involvement in drug dealing at Wave 3 is expected to decrease by 13.33%.

to youths whose primary caregiver was born in the United States. For each standard deviation change in parental monitoring, expected involvement in drug dealing decreases by 35.61%. Family SES, family disruption, and family size are not related to youths' involvement in drug dealing.

Most of the individual-level control variables are significantly related to involvement in drug dealing. Being in Cohort 9 ($\beta = -3.764$; $p < 0.000$), in Cohort 12 ($\beta = -0.651$; $p < 0.05$), or Hispanic ($\beta = -0.799$; $p < 0.05$) are negatively related to drug dealing. Being in Cohort 9, in Cohort 12 or Hispanic decreases the expected involvement in drug dealing by a factor of 0.02, 0.52, and 0.45, respectively. Compared to other Cohorts, being in Cohort 9 or Cohort 12 decreases the expected involvement in drug dealing by 97.68% or 47.85%, respectively. Relative to other races/ethnicities, being Hispanic decreases the expected involvement in drug dealing by 55.02%. Being African American is not related to expected involvement in drug dealing.

Other individual-level control variables are related to a positive and significant increase in drug dealing. Youths who are male ($\beta = 0.554$; $p < 0.000$) are more likely to engage in drug dealing than youths who are female. Being male (as opposed to female) increases expected involvement in drug dealing by a factor of 1.74, and increases expected involvement in drug dealing by 74.02%. Finally, compared to other cohorts, being in Cohort 15 ($\beta = 2.030$; $p < 0.000$) is also positively related to drug dealing. Compared to Cohorts 9 and 12, being in Cohort 15 increases expected involvement in drug dealing by a factor of 7.61, and increases expected involvement in drug dealing by 661.41%.

Trouble with Police

Results (Table 13) indicate that several variables are significantly related to being in trouble with police since the Wave 1 interview. Youths with higher levels of self-efficacy are less likely to be in trouble with police ($\beta = -0.439$; $p < 0.000$). For each unit increase in self-efficacy the odds of being in trouble with police decreases by 0.64, and trouble with police is expected to decrease by 33.49% for each standard deviation change in self-efficacy.[36]

For family context variables, youths who have a primary caregiver who is a first generation immigrant ($\beta = -0.536$; $p < 0.000$) and youths who experience more parental monitoring ($\beta = -0.112$; $p < 0.000$) are less likely to be in trouble with police. Compared to having a primary caregiver who was born in the United States, having a primary caregiver who is a first generation immigrant decreases the odds of being in trouble with the police by 0.58. In terms of percent change, having a primary caregiver who is a first generation immigrant decreases expected trouble with police by 41.49%. Increased levels of parental monitoring are related to a decrease in the odds of youths being in trouble with the police by 0.89. For each standard deviation change in parental monitoring, expected trouble with police decreases by 24.67%.

On the other hand, experiencing family disruption (i.e., having a primary caregiver who is separated/divorced) increases the odds of being in trouble with police by 1.44 ($\beta = 0.366$; $p < 0.05$). Expected trouble with police is 44.19% higher among youths whose primary caregiver is separated or divorced compared to youths who do not

[36] The bivariate relationship between trouble with police at Wave 3 and self-efficacy at Wave 2 is -0.183 ($p = 0.004$). For a standard deviation increase in self-efficacy at Wave 2, trouble with police Wave 3 is expected to decrease by 15.63%.

experience family disruption. Family SES and family size are not related to trouble with police.

Most of the individual-level control variables are significantly related to being in trouble with the police. Being in Cohort 9 ($\beta = -1.512$; $p < 0.000$) or Hispanic ($\beta = -0.486$; $p < 0.01$) is negatively related to trouble with police and decrease the odds of being in trouble with police by 0.22 and 0.61, respectively. Compared to youths in other cohorts, being in Cohort 9 decreases expected trouble with police by 77.95%. Being Hispanic (as opposed to another race/ethnicity) decreases expected trouble with police by 38.49%. Compared to other cohorts, being in Cohort 12 is negatively related to trouble with police, but is not statistically significant.

The other individual-level control variables are positively and significantly related to trouble with police. Youths who are African American ($\beta = 0.459$; $p < 0.01$) or male ($\beta = 0.761$; $p < 0.000$) are more likely to be in trouble with the police than youths who are non-African American or female. Compared to other cohorts, being in Cohort 15 ($\beta = 1.258$; $p < 0.000$) is positively related to trouble with police. Being African American, being male, or in Cohort 15, increases the odds of being in trouble with police by 1.58, 2.14, and 3.52, respectively. Being African American (as opposed to other races/ethnicities) and male (as opposed to female) are related to a 58.25% and 114.04% increase in expected trouble with police, respectively. Compared to youths in other cohorts, being in Cohort 15 increases expected trouble with police by 251.84%.

Table 13. Bivariate Relationship Between Dependent and Individual-Level Variables

	Violence Scale			Drug Dealing Scale			Trouble With Police		
Variable	b	SE	Factor Change	b	SE	Factor Change	b	SE	Odds Ratio
Self-Efficacy	-0.346***	0.053	0.707	-0.569***	0.122	0.566	-0.439***	0.069	0.645
Family Context									
Immigrant	-0.537***	0.103	0.584	-0.768*	0.304	0.464	-0.536***	0.149	0.585
SES	-0.038	0.036	0.963	-0.031	0.097	0.969	-0.034	0.049	0.966
Family Disruption	0.029	0.136	1.029	0.309	0.357	1.362	0.366*	0.174	1.442
Family Size	-0.005	0.023	0.995	-0.102	0.069	0.903	0.042	0.033	1.043
Parental Monitoring	-0.054**	0.021	0.947	-0.174***	0.049	0.840	-0.112***	0.025	0.894
Control Variables									
Cohort 9	-1.044***	0.113	0.352	-3.764***	1.016	0.023	-1.512***	0.205	0.220
Cohort 12	0.236*	0.103	1.266	-0.651*	0.311	0.521	-0.129	0.146	0.879
Cohort 15	0.581***	0.104	1.788	2.030***	0.286	7.614	1.258***	0.142	3.518
Male	0.479***	0.099	1.614	0.554*	0.281	1.740	0.761***	0.145	2.140
African American	0.605***	0.104	1.831	0.269	0.291	1.309	0.459**	0.144	1.582
Hispanic	-0.481***	0.104	0.618	-0.799**	0.303	0.449	-0.486**	0.148	0.615

* $p < 0.05$
** $p < 0.01$
*** $p < 0.00$

Analytic Approach and Models

This study uses data on 1,767 youths nested in 80 neighborhood clusters (NCs) which necessitates the exploration of multilevel modeling. One statistical method for analyzing multilevel, nested data is Hierarchical Linear Modeling (HLM). The practical utility of this method is aptly stated by Raudenbush and Bryk (2002), "With hierarchical linear models, each of the levels in this structure is formally represented by its own submodel. These submodels express relationships among variables within a given level, and specify how variables at one level influence relations occurring at another" (pp 6-7). Multilevel modeling allows for the estimation of variance between individuals within the same NC, and variance between NCs. Further, it allows for the estimation of effects at each level and across levels.

Multilevel modeling accounts for similarities in standard errors since observations may not be independent – individuals will likely share some characteristics with others who live in their NC. These correlated error terms violate the assumptions of ordinary least squares regression. To accommodate this lack of independence, HLM includes an error term for level-2 data (Raudenbush and Bryk, 2002).

For the analyses, two study data sets were created: one each for individual-level and neighborhood level data. The CS and LCS data share a common variable, neighborhood cluster, for data linking purposes and this variable appears in both study data sets. Individual-level data are fitted to a regression equation at level-1. The level-1 model estimates individual-level outcomes. Neighborhood level data are fitted to a regression equation at level-2. Level-2 data provides information on whether individual-

level variables differ by neighborhood context. The models examined in this study are described in the next section.

It is anticipated that multilevel models will be appropriate for answering the research questions examined in this dissertation due the nested nature of the data. To test this assumption, I will run one-way ANOVA with random effects baseline models (e.g., unconditional or null models) and calculate Intra-class Correlation Coefficients (ICC).

The unconditional (null) mixed-effects model is

$$\eta_{ij} = \gamma_{00} + u_{01} + r_{ij}$$

and the ICC equation is

$$\rho = \frac{\sigma_{u0}^2}{(\sigma_{u0}^2 + \sigma_r^2)}$$

where

ρ = intraclass correlation; which measures variance in the outcome explained by the level-2 units

σ_{u0}^2 = between group variability; level-2 variance

σ_r^2 = within group variability; level-1 variance.

The ICC measures the proportion of variance in the dependent variable accounted for by the level-2 variables (e.g., collective efficacy). The equation divides the level-2 variance by the sum of the level-1 variance and level-2 variance to arrive at the ICC. A higher ICC indicates that the level-2 variables explain some of the variance in the dependent variable and that multilevel methods should be used.

After these diagnostics are conducted, and assuming multilevel models are indeed appropriate, Hierarchical Linear Models will be employed to address the research

questions.[37] In multilevel modeling, the systems of equations models (depicting the level-1 and level-2 equations separately), mixed-effects models (depicting an equation combining the level-1 and level-2 models), or both can be used to demonstrate the multilevel model (Luke, 2004). Here, only the mixed-effects models are shown to demonstrate the relationship between variables at both levels.

Research question 1: Does self-efficacy influence self-reported involvement in crime?

The first research question is separated into four subquestions and models. Model 1a is a random-intercept model and addresses whether there is a relationship between self-efficacy and each of the crime outcomes, regardless of neighborhood. To answer this question, self-efficacy is entered into the models uncentered and the intercept and slope error terms are fixed. By not centering the independent variable, the intercept is equal to the expected value of Y_{ij} when X_{ij} is zero and the overall influence of self-efficacy on involvement in violence, drug dealing, and trouble with police can be determined. For this model the error terms are fixed because the focus is on the overall influence of self-efficacy on various measures of crime. This means that, for this model, it is assumed that crime and self-efficacy do not differ across neighborhoods.[38] This model does not contain any level-2 predictors.

The mixed-effects models are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + r_{ij}$$

[37] The models shown are the standard HLM models. During analyses, a hierarchical generalized linear model (HGLM) is used because the outcome variables follow a Poisson (i.e., violent crime and drug dealing scales) and logistic distribution (i.e., trouble with police), respectively.

[38] The models allowing the intercept and slope error terms to vary were also employed. The chi-square tests were not significant for drug dealing and trouble with police indicating that the error terms should be fixed. For all models, the overall results did not change when error terms were allowed to vary and those results are not reported here.

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij})$$[39]

To address whether the relationship between self-efficacy and crime varies by neighborhood, a second set of models are employed. Model 1b is a random coefficients regression model and the intercepts and slopes in level-1 are allowed to vary across level-2 neighborhoods. Self-efficacy is entered into the models group-mean centered and the error terms were allowed to vary. Group-mean centering the independent variable accounts for contextual effects. In more simple terms, these models will indicate whether there is variation in the key independent variable, self-efficacy, across neighborhoods by centering on the average of the group within a neighborhood. Therefore, the error terms are freed and allowed to vary to test whether the intercept and the average influence of self-efficacy on crime vary by neighborhood. This model does not contain any level-2 predictors. The mixed-effects models are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_0 + u_1(\textit{self-efficacy at Wave 2}_{ij}) + r_{ij}$$

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_o + u_1(\textit{self-efficacy at Wave 2}_{ij}) + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_0 + u_1(\textit{self-efficacy at Wave 2}_{ij})$$

[39] There are no error terms in binary outcome variables; the variance is a function of the mean (Luke, 2004).

Additional models are employed to examine the influence of potential individual and contextual variables. Model 1c controls for individual-level variables and Model 1d controls for individual-level, neighborhood context, and family context variables.

Model 1c is a random coefficients regression model where only the level-1 intercept is allowed to vary. Self-efficacy is group-mean centered and the other variables are entered into the model uncentered. The mixed-effects models for Model 1c are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}(\textit{self-efficacy}_{ij}) + \gamma_{20}(\textit{cohort 12}_{ij}) + \gamma_{30}(\textit{cohort 15}_{ij}) + \gamma_{40}(\textit{male}_{ij}) + \gamma_{50}(\textit{African American}_{ij}) + \gamma_{60}(\textit{Hispanic}_{ij}) + u_{0j} + r_{ij}$$

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{10}(\textit{self-efficacy}_{ij}) + \gamma_{20}(\textit{cohort 12}_{ij}) + \gamma_{30}(\textit{cohort 15}_{ij}) + \gamma_{40}(\textit{male}_{ij}) + \gamma_{50}(\textit{African American}_{ij}) + \gamma_{60}(\textit{Hispanic}_{ij}) + u_{0j} + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{10}(\textit{self-efficacy}_{ij}) + \gamma_{20}(\textit{cohort 12}_{ij}) + \gamma_{50}(\textit{cohort 15}_{ij}) + \gamma_{40}(\textit{male}_{ij}) + \gamma_{50}(\textit{African American}_{ij}) + \gamma_{60}(\textit{Hispanic}_{ij}) + u_{0}$$

Model 1d is also a random coefficients regression model. In this model, self-efficacy and family SES are group-mean centered. Neighborhood context variables residential mobility, SES, and ethnic heterogeneity are grand-mean centered.[40] All other variables are entered in to the model at their natural metrics. Only one model is shown below since the level-1 model and level-2 model for a count outcome (i.e., violence scale, drug dealing scale) are the same as the level-1 and level-2 models for a binary outcome (i.e., trouble with police) (Raudenbush and Bryk, 2002: 295-296 and 310). The mixed-effects model for Model 1d is:

[40] Models using the raw metric (not centering) and grand-mean centering are equivalent (Kreft et al., 1995).

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{neighborhood residential mobility}_j) + \gamma_{02}(\textit{neighborhood SES}_j) + \gamma_{03}(\textit{neighborhood ethnic heterogeneity}_j) + \gamma_{04}(\textit{neighborhood family disruption}_j) + \gamma_{10}(\textit{self-efficacy}_{ij}) + \gamma_{20}(\textit{immigrant status}_{ij}) + \gamma_{30}(\textit{family SES}_{ij}) + \gamma_{40}(\textit{family disruption}_{ij}) + \gamma_{50}(\textit{family size}_{ij}) + \gamma_{60}(\textit{parental monitoring}_{ij}) + \gamma_{70}(\textit{cohort 12}_{ij}) + \gamma_{80}(\textit{cohort 12}_{ij}) + \gamma_{90}(\textit{male}_{ij}) + \gamma_{100}(\textit{cohort 15}_{ij}) + \gamma_{110}(\textit{African American}_{ij}) + \gamma_{120}(\textit{Hispanic}_{ij}) + u_{0j} + r_{ij}$$

Research question 2: Does collective efficacy influence self-reported involvement in crime?

The second research question examines the influence of collective efficacy on youths' involvement in crime. Model 2a employs a means-as-outcomes regression model where the emphasis is on the level-2 predictor collective efficacy. Collective efficacy is not centered in order to retain variability across neighborhoods. The intercept error term is fixed and is assumed to not vary randomly across neighborhoods. The mixed-effects models are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + r_{ij}$$

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j)$$

Model 2b employs a means-as-outcomes model and examines the relationship between collective efficacy and crime while controlling for neighborhood context and family context. In this model the intercept variance is allowed to vary while the error terms for family context variables are fixed. Neighborhood context variables residential

mobility, SES, and ethnic heterogeneity are grand-mean centered. Family context variables family SES and parental monitoring are group-mean centered. All other variables are entered into the model at their natural metrics. The mixed-effects model is:[41]

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + \gamma_{02}(\textit{neighborhood residential mobility}_j) + \gamma_{03}(\textit{neighborhood SES}_j) + \gamma_{04}(\textit{neighborhood ethnic heterogeneity}_j) + \gamma_{05}(\textit{neighborhood family disruption}_j) + \gamma_{10}(\textit{immigrant status}_{ij}) + \gamma_{20}(\textit{family SES}_{ij}) + \gamma_{30}(\textit{family disruption}_{ij}) + \gamma_{40}(\textit{family size}_{ij}) + \gamma_{50}(\textit{parental monitoring}_{ij}) + u_{0j} + r_{ij}$$

Research question 3: Does collective efficacy moderate the relationship between self-efficacy and self-reported involvement in crime?

Model 3a examines the relationship between collective efficacy, self-efficacy, and crime by including self-efficacy at level-1 and collective efficacy at level-2. This model is an extension of a random-effects ANCOVA model and adds a level-2 covariate. In this model, self-efficacy is group-mean centered and its error term is fixed. The error term for the level-2 covariate is allowed to vary. The mixed-models are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_{0j} + r_{ij}$$

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_{0j} + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + \gamma_{10}\,(\textit{self-efficacy at Wave 2}_{ij}) + u_{0j}$$

[41] Models for the drug dealing scale and trouble with police are omitted and only one full mixed-effects model is shown for Model 2b.

In Model 3b, intercepts- and slopes-as-outcomes models are employed to examine whether collective efficacy moderates the relationship between crime and self-efficacy. Here the level-1 intercept and slopes are modeled using the level-2 predictor collective efficacy. These models result in a cross-level interaction term (collective efficacy x self-efficacy) by modeling the level-1 slope for self-efficacy using collective efficacy. Self-efficacy is group-mean centered and collective efficacy is entered into the model uncentered. The error term for self-efficacy is fixed and freed for collective efficacy. The mixed-effects models are:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave } 1_j) + \gamma_{10}(\textit{self-efficacy at Wave } 2_{ij}) + \gamma_{11}(\textit{collective efficacy at Wave } 1_j * \textit{self-efficacy at Wave } 2_{ij}) + u_{0j} + r_{ij}$$

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave } 1_j) + \gamma_{10}(\textit{self-efficacy at Wave } 2_{ij}) + \gamma_{11}(\textit{collective efficacy at Wave } 1_j * \textit{self-efficacy at Wave } 2_{ij}) + u_{0j} + r_{ij}$$

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave } 1_j) + \gamma_{10}(\textit{self-efficacy at Wave } 2_{ij}) + \gamma_{11}(\textit{collective efficacy at Wave } 1_j * \textit{self-efficacy at Wave } 2_{ij}) + u_{0j}$$

Model 3c builds on the previous model by adding neighborhood context, family context, and individual-level control variables. In this model the intercept variance is allowed to vary while the error terms for self-efficacy, the family context variables, and the individual-level control variables are fixed. Self-efficacy and the family context variable family SES are group-mean centered. Neighborhood context variables residential mobility, SES, and ethnic heterogeneity are grand-mean centered. All other

variables are entered into the model at their natural metrics. The mixed-effects model for the violence scale is:[42]

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + \gamma_{01}(\textit{collective efficacy at Wave 1}_j) + \gamma_{02}(\textit{neighborhood residential mobility}_j) + \gamma_{03}(\textit{neighborhood SES}_j) + \gamma_{04}(\textit{neighborhood ethnic heterogeneity}_j) + \gamma_{05}(\textit{neighborhood family disruption}_j) + \gamma_{10}(\textit{self-efficacy at Wave 2}_{ij}) + \gamma_{20}(\textit{collective efficacy at Wave 1}_j * \textit{self-efficacy at Wave 2}_{ij}) + \gamma_{30}(\textit{immigrant status}_{ij}) + \gamma_{40}(\textit{family SES}_{ij}) + \gamma_{50}(\textit{family disruption}_{ij}) + \gamma_{60}(\textit{family size}_{ij}) + \gamma_{70}(\textit{parental monitoring}_{ij}) + \gamma_{80}(\textit{cohort 12}_{ij}) + \gamma_{90}(\textit{cohort 15}_{ij}) + \gamma_{100}(\textit{male}_{ij}) + \gamma_{110}(\textit{African American}_{ij}) + \gamma_{120}(\textit{Hispanic}_{ij}) + u_{0j} + r_{ij}$$

In this chapter the data used in this dissertation research was outlined, univariate statistics and bivariate relationships were examined, and the research questions and models for testing those questions were presented. In the next chapter, the results from these models will be displayed and interpreted.

[42] Models for the drug dealing scale and trouble with police are omitted and only one full mixed-effects model is shown for Model 3c.

Chapter 4: Relationships Between Self-Efficacy, Collective Efficacy, and Crime

In this chapter, first the appropriateness of multilevel modeling is explored. Second, the relationships between crime and self-efficacy (research question 1), crime and collective efficacy (research question 2), and the moderating influence of collective efficacy on the relationship between crime and self-efficacy (research question 3) are examined.

Appropriateness of Multilevel Models

It is anticipated that multilevel models will be appropriate due to the nested nature of the data. Luke (2004) suggests three criteria for determining whether multilevel models are appropriate: statistical, theoretical, and empirical justifications. Each criterion is discussed in turn below.

There is sufficient statistical rationale for employing multilevel models in this dissertation research. The youths in this study are nested in 80 Chicago neighborhoods and it is anticipated that there will be similarities between individuals who reside in the same neighborhood due to clustering. This clustering will likely violate the assumptions of ordinary least squares regression (OLS) that errors are independent, normally distributed, and have a constant variance. Multilevel modeling controls for the clustering of observations within level-2 variables (in this case, neighborhoods).

A second method suggested by Luke (2004) is to base methodological decisions on theoretical grounds. Involvement in violence and drug dealing, as well as being in trouble with the police, are expected to vary between neighborhoods. It is believed that

neighborhood characteristics will influence youths' behavior. Further, offending behavior is likely to vary within neighborhoods. Therefore, using multilevel modeling techniques will allow for these assumptions to be tested.

A final method suggested by Luke (2004) for determining the appropriateness of using multilevel methods is to base the decision on empirical justification. One method to assess empirical justification is to visually show the variation between neighborhoods using graphs. Figures 7-9 depict the variation in the dependent variables by showing the mean involvement in the outcome behavior for each neighborhood.[43]

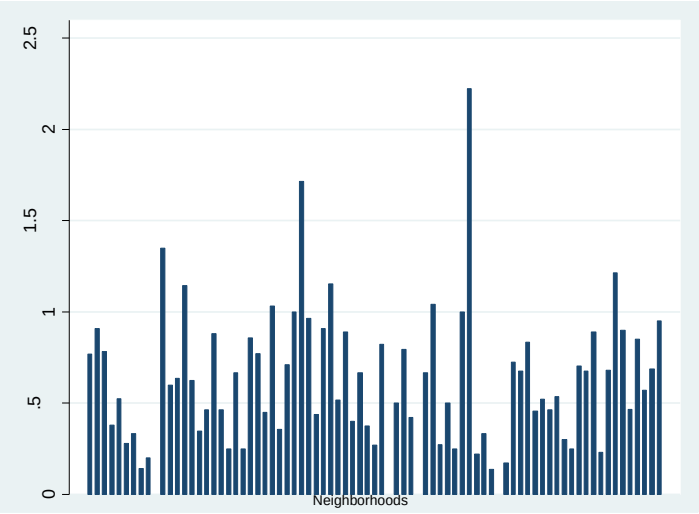

Figure 7. Violence Scale (Mean) for Each Neighborhood

[43] Some neighborhoods do not have any youths involved in the criminal behaviors measured in this study. Those neighborhoods are included in the figure, but are represented by blank bars since there is no data to report.

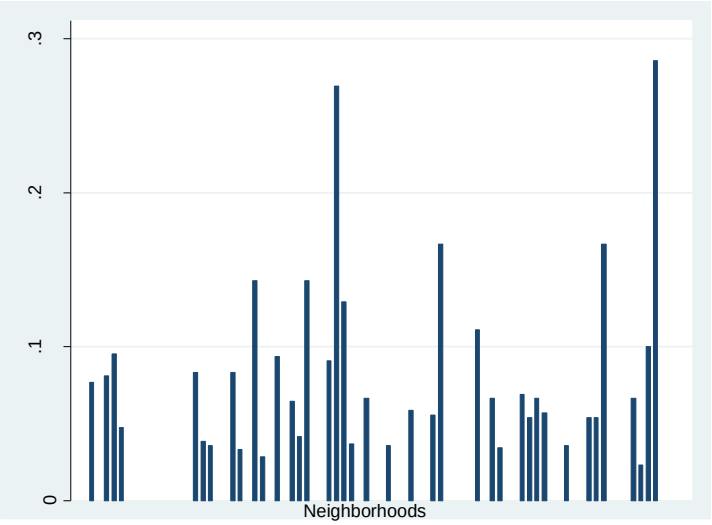

Figure 8. Drug Dealing Scale (Mean) for Each Neighborhood

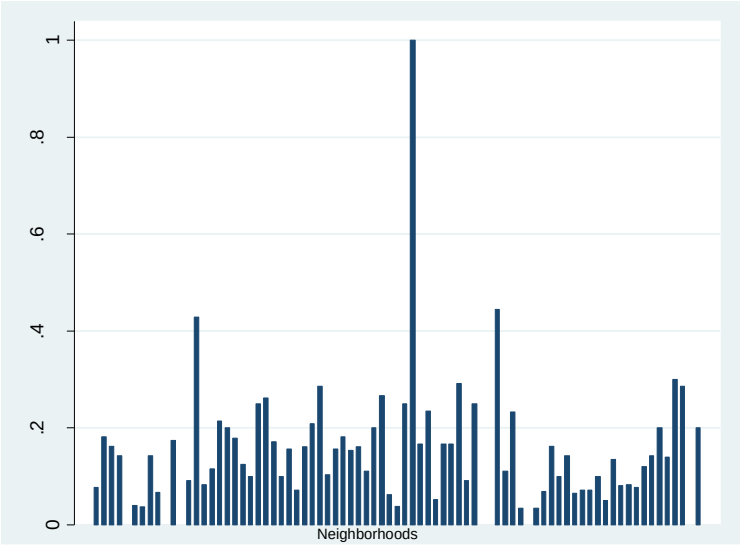

Figure 9. Trouble with Police (Mean) for Each Neighborhood

A more formal and sophisticated empirical justification for the use of multilevel models is to calculate intraclass correlations (ICCs). ICCs determine the proportion of variance in the outcomes explained by the level-2 variables. ICCs greater than zero indicate that neighborhood differences explain at least some of the variance. Fully

unconditional (null) models are employed to obtain the variance components necessary to calculate the ICC for each dependent variable.

Unconditional (Null) Models

One-way ANOVA with random effects models provide information pertaining to the variation between neighborhoods and the three dependent variables. A fully unconditional, or null, model is constructed for each dependent variable. The unconditional mixed-effects model for the violence scale is:

$$\textit{violence scale (past 12 months)}_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

The *violence scale* variable is a youth's score on the violence scale where the potential range of scores is 0 to 12, and the actual range is 0 to 9. The violence scale is an additive scale of 12 items that ask youths whether they have been involved in a series of violent acts in the past 12 months. The fixed effect, γ_{00}, represents the grand mean across all youths. The two error components represent the variability between neighborhoods (u_{0j}) and the variability between youths (r_{ij}). The unconditional mixed-effects model for the drug dealing scale is:

$$\textit{drug dealing scale (past 12 months)}_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

In this model, *drug dealing scale* is a youth's score on the drug dealing scale, where the (potential and actual) range is 0 to 3. The drug dealing scale is an additive scale of 3 items which ask youths whether they have engaged in dealing three drugs (marijuana, crack/cocaine, and heroin) in the past 12 months. The fixed effect, γ_{00}, represents the grand mean across all youths. The two error components represent the variability

between neighborhoods (u_{0j}) and the variability between youths (r_{ij}). The unconditional mixed-effects model for the binary outcome trouble with police is:

$$\textit{trouble with police (since Wave 1)}_{ij} = \gamma_{00} + u_{0j}$$

In this model, *trouble with police* is a youth's expected odds of being in trouble with the police since the Wave 1 interview. The fixed effect, γ_{00}, represents the expected odds across all youths. The error component represents the variability between neighborhoods (u_{0j}).

Intraclass Correlations

After the one-way ANOVA with random effects models were fitted to the data, ICCs were calculated by using the variance components from those models. ICCs are more appropriate for continuous outcomes. However, quasi-ICCs are calculated here for the nonlinear models as an added justification for multilevel modeling. In binary outcomes the variance equals the mean and therefore a level-1 variance component is not generated for null models. Following Snijders and Bosker (1999: 223), the level-1 variance is calculated as $\pi^2/3$.

The ICCs indicate that a proportion of the variance in each of the dependent variables is accounted for by neighborhood. According to the ICCs, 4.1% (violence scale), 23.0% (drug dealing scale), and 1.6% (trouble with police) of the variance in these variables is attributed to neighborhood level differences. The percentage of variance explained, and statistical and theoretical justifications, suggests that multilevel models are appropriate. The following sections outline the research questions, models employed to

address these questions, and findings. The results reported are from the population-average models with robust standard errors.

Research Question 1: Does self-efficacy influence self-reported involvement in crime?

Model 1a: Influence of Self-Efficacy on Crime

Model 1a examines the influence of self-efficacy on crime, regardless of neighborhood. Table 14 displays the results from this model. According to the intercept coefficients expected involvement in violence decreases by 0.50 ($\beta = -0.500$; $p < 0.000$), expected involvement in drug dealing decreases by 3.28 ($\beta = -3.278$; $p < 0.000$), and being in trouble with police decreases by 1.89 ($\beta = -1.897$; $p < 0.000$).[44]

Each unit increase in self-efficacy decreases expected involvement in violence and drug dealing in the past 12 months by a factor of 0.72 ($\beta = -0.332$; $p < 0.000$) and 0.52 ($\beta = -0.656$; $p < 0.000$), respectively. Increased self-efficacy also decreases the odds of being in trouble with the police since Wave 1 by a factor of 0.65 ($\beta = -0.430$; $p < 0.000$).[45] In terms of percent change, for a standard deviation change in self-efficacy, involvement in violence and drug dealing are expected to decrease by 26.54% and 45.63%, respectively. Trouble with police is also expected to decrease by 32.93% for a standard deviation change in self-efficacy.[46]

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[44] Similar models were employed to examine the relationship between self-efficacy at Wave 2 and crime at Wave 3. The intercept coefficients for these models are -0.61 ($p < 0.000$; violence), -3.08 ($p < 0.000$; drug dealing), and -1.09 ($p < 0.000$; trouble with police).

[45] For Wave 3 crime outcomes, each unit increase in self-efficacy decreases expected involvement in violence by a factor of 0.83 ($p < 0.001$) and decreases the odds of being in trouble with police by 0.83 ($p < 0.01$). The influence of self-efficacy at Wave 2 does not significantly influence drug dealing at Wave 3 ($\beta = -0.168$; $p > 0.05$).

[46] Percent change was calculated using the formula: $100*\{\exp(\beta *\delta)-1\}$, where δ equals 0.929.

Table 14. Negative Binomial and Logistic HGLM Model 1a: Influence of Self-Efficacy on Crime

PHDCN Data, N = 1,764

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-0.500***	0.060	0.606	-3.278***	0.162	0.038	-1.897***	0.080	0.150
Self-Efficacy	-0.332***	0.046	0.717	-0.656***	0.119	0.519	-0.430***	0.065	0.650

*** $p < 0.000$

Model 1b: Influence of Self-Efficacy on Crime by Neighborhoods

Model 1b examines whether the influence of self-efficacy on crime varies by neighborhood (Table 15). According to the intercept coefficients, expected involvement in violence decreases by 0.49 ($\beta = -0.494$; $p < 0.000$) and expected involvement in drug dealing decreases by 3.21 ($\beta = -3.206$; $p < 0.000$). Further, trouble with police is decreased by 1.88 ($\beta = -1.880$; $p < 0.000$), holding self-efficacy constant.[47]

Compared to other youths in the neighborhood, youths with an average self-efficacy score are 0.72 ($\beta = -0.326$; $p < 0.000$) times less likely to engage in violent behaviors and 0.59 ($\beta = -0.526$; $p < 0.000$) times less likely to engage in drug dealing. Having an average level of self-efficacy also decreases a youth's likelihood of being in trouble with police by 0.66 ($\beta = -0.413$; $p < 0.000$).[48] In terms of percent change, for a standard deviation change in self-efficacy, involvement in violence and drug dealing are expected to decrease by 26.13% and 38.65%, respectively. Trouble with police is also expected to decrease by 31.86% for a standard deviation change in self-efficacy.

Comparing the findings from Models 1a and 1b, there appear to be no neighborhood differences with regard to the relationship between self-efficacy and violence, drug dealing, and trouble with police. The chi-square tests indicate that there is good model fit for the trouble with police outcome, but that a one factor model is an insufficient explanation of violence and drug dealing.

[47] The intercept coefficients for the models examining the outcomes at Wave 3 are -0.63 ($p < 0.000$; violence), -3.21 ($p < 0.000$; drug dealing), and -1.10 ($p < 0.000$; trouble with police).

[48] For Wave 3 crime outcomes, each unit increase in self-efficacy decreases expected involvement in violence by a factor of 0.81 ($p < 0.000$), drug dealing by a factor of 0.59 ($p < 0.000$), and decreases the odds of being in trouble with police by 0.80 ($p < 0.01$).

Table 15. Negative Binomial and Logistic HGLM Model 1b: Influence of Self-Efficacy on Crime by Neighborhoods

PHDCN Data, N = 1,764

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-0.494***	0.062	0.610	-3.206***	0.120	0.040	-1.880***	0.076	0.153
Self-Efficacy	-0.326***	0.049	0.722	-0.526***	0.091	0.591	-0.413***	0.065	0.662

*** $p < 0.000$

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.363	0.132	75	132.370***
	Self-Efficacy	0.184	0.034	75	73.753
Drug Dealing Scale	Intercept	0.772	0.596	75	107.265**
	Self-Efficacy	0.542	0.294	75	80.929
Trouble with Police	Intercept	0.337	0.114	75	94.631
	Self-Efficacy	0.195	0.038	75	75.832

* $p < 0.05$
** $p < 0.01$
*** $p < 0.00$

Model 1c: Influence of Self-Efficacy on Crime – Controlling for Individual-Level Variables

Model 1c builds on Model 1a[49] by controlling for the following individual-level characteristics: cohort, sex, and race/ethnicity (Table 16). After adding these control variables to the model, the intercepts remain statistically significant. Expected involvement in violence, drug dealing, and trouble with police are decreased by 1.69 (β = -1.691; $p < 0.000$), 6.50 (β = -6.499; $p < 0.000$), and 3.57 (β = -3.586; $p < 0.000$), respectively, when all other coefficients are held constant.

Self-efficacy remains statistically significant in this model. Compared to other youths in the neighborhood, youths with an average level of self-efficacy are 0.73 (β = -0.315; $p < 0.000$) times less likely to engage in violent behaviors, 0.62 (β = -0.472; $p < 0.000$) times less likely to engage in drug dealing, and 0.68 (β = -0.386; $p < 0.000$) times less likely to be in trouble with the police. For a standard deviation change in self-efficacy, violence is expected to decrease by 25.37%, drug dealing is expected to decrease by 35.49%, and trouble with police is expected to decrease by 30.13%.

Cohort membership (Cohort 12 and Cohort 15) was entered into the model.[50] Compared to youths in Cohort 9, being in Cohort 12 or Cohort 15 is positively and significantly related to involvement in violence, drug dealing, and trouble with police. Compared to Cohort 9, being in Cohort 12 increases a youth's expected involvement in violence by 2.51 (β = 0.921; $p < 0.000$), drug dealing by 16.58 (β = 2.808; $p < 0.01$), and

[49] Model 1c and Model 1d build on Model 1a instead of Model 1b because there do not appear to be any significant differences in self-efficacy between neighborhoods. Therefore the slope error terms in Model 1c and Model 1d mimic Model 1a and are fixed.
[50] Cohort 9 was chosen as the reference group based on the negative bivariate relationship between Cohort 9 and the outcome variables.

trouble with police by 3.01 ($\beta = 1.101$; $p < 0.000$). Compared to youths in Cohort 9, being in Cohort 12 is expected to increase involvement in violence, drug dealing, and trouble with police by 151.18%, 1557.67%, and 200.72%, respectively. Compared to Cohort 9, being in Cohort 15 increases a youth's expected involvement in violence by 3.08 ($\beta = 1.124$; $p < 0.000$), drug dealing by 65.23 ($\beta = 4.178$; $p < 0.00$), and trouble with police by 7.30 ($\beta = 1.988$; $p < 0.000$). In terms of percent change, compared to youths in Cohort 9, being in Cohort 15 is expected to increase involvement in violence, drug dealing, and trouble with police by 207.71%, 6423.52%,[51] and 630.09%, respectively. There is an obvious increase in expected involvement in the three self-reported offending behaviors among older youths in Cohorts 12 and 15 compared to younger youths in Cohort 9.[52]

Being male is significantly related to involvement in violence, drug dealing, and trouble with police. Compared to females, being male increases a youth's expected involvement in violence by 1.71 ($\beta = 0.539$; $p < 0.000$), drug dealing by 2.11 ($\beta = 0.749$; $p < 0.01$), and trouble with police by 2.56 ($\beta = 0.942$; $p < 0.000$). Being male increases expected involvement in violence, drug dealing, and trouble with police by 71.43%, 111.49%, and 156.51%, respectively.

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[51] The percent change in drug dealing for Cohort 15 compared to Cohort 9 is unexpectedly large. The data available for the drug dealing measure is sparse which may affect the estimates. Few youths reported involvement in drug dealing (N = 58; marijuana; N = 22; crack/cocaine; N = 3; heroin) and the behavior is concentrated in a small number of neighborhoods (N = 39).

[52] Models incorporating age and age-squared was also employed (complete data not shown). There were no substantive changes between the violence scale model including age and age-squared and the model excluding these variables. There were three substantive changes in the drug dealing scale between the two models. Once age and age-squared were removed, the intercept coefficient became significant and the coefficients for Cohort 12 and Cohort 15 changed direction and became significant. The coefficients for these variables in the drug dealing scale model incorporating age and age-squared were: intercept ($\beta = -31.674$; $p > 0.05$), Cohort 12 ($\beta = -0.035$; $p > 0.05$), and Cohort 15 ($\beta = -0.021$; $p > 0.05$). The same changes occurred in the trouble with police model. The coefficients for these variables in the trouble with police model incorporating age and age-squared were: intercept ($\beta = -9.499$; $p > 0.05$), Cohort 12 ($\beta = -0.189$; $p > 0.05$), and Cohort 15 ($\beta = -0.509$; $p > 0.05$).

Being African American is also significantly related to expected involvement in violence. Compared to youths of other races/ethnicities, African Americans are 1.70 (β = 0.529; $p < 0.000$) times more likely to be involved in violence than youths of other races/ethnicities. Being African American increases expected involvement in violence by 69.72%. In this model, being African American is not related to drug dealing or trouble with police. Compared to other races/ethnicities, being Hispanic is not related to any of the outcomes.

Table 16. Negative Binomial and Logistic HGLM Model 1c: Influence of Self-Efficacy on Crime – Controlling for Individual-Level Variables

PHDCN Data, N = 1,726

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-1.691***	0.155	0.184	-6.499***	0.923	0.002	-3.586***	0.252	0.028
Self-Efficacy	-0.315***	0.050	0.729	-0.472***	0.121	0.624	-0.386***	0.067	0.680
Cohort 12	0.921***	0.127	2.513	2.808**	0.911	16.571	1.101***	0.231	3.006
Cohort 15	1.124***	0.128	3.077	4.178***	0.849	65.248	1.988***	0.209	7.298
Male	0.539***	0.102	1.715	0.749**	0.242	2.116	0.942***	0.137	2.565
African American	0.529***	0.142	1.698	-0.136	0.305	0.873	0.353	0.186	1.423
Hispanic	-0.218	0.134	0.804	-1.083	0.285	0.339	-0.394	0.204	0.674

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.177	0.031	78	99.594*
Drug Dealing Scale	Intercept	0.763	0.583	78	146.305***
Trouble with Police	Intercept	0.168	0.028	78	83.335

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Model 1d: Influence of Self-Efficacy on Crime – Controlling for Individual-Level Variables, Neighborhood Context, and Family Context

Model 1d adds neighborhood context and family context variables to Model 1c. The intercepts in Model 1d remain statistically significant (Table 17). Expected involvement in violence ($\beta = -1.256$; $p < 0.05$), drug dealing ($\beta = -4.774$; $p < 0.000$), and trouble with police ($\beta = -3.016$; $p < 0.000$) are decreased by 1.26, 4.77, and 3.02, respectively, when all other coefficients are held constant.

In this model the influence of neighborhood context variables on the intercept is investigated. One question of interest is whether involvement in crime varies by neighborhood context.[53] The results indicate that neighborhood SES is significantly related to a decrease in violence and drug dealing. Compared to youths in other neighborhoods, youths living in average SES neighborhoods are 0.88 ($\beta = -0.129$; $p < 0.05$) times less likely to experience violence and 0.65 ($\beta = -0.433$; $p < 0.01$) times less likely to experience drug dealing. In terms of percent change, for a standard deviation change in neighborhood SES, involvement in violence and drug dealing are expected to decrease by 16.78% and 29.28%, respectively. Neighborhood SES does not influence trouble with police, and neighborhood level ethnic heterogeneity, residential mobility, and family disruption do not influence individual involvement in any of the behaviors.

Self-efficacy remains statistically significant and negatively related to violence, drug dealing, and trouble with police. Youths with an average level of self-efficacy are 0.71 ($\beta = -0.344$; $p < 0.000$), 0.64 ($\beta = -0.453$; $p < 0.01$), and 0.67 ($\beta = -0.397$; $p < 0.000$) times less likely to engage in violence or drug dealing or be in trouble with police,

[53] In comparing the results from Models 1a and 1b, it was determined that the influence of self-efficacy did not vary by neighborhood.

respectively. For a standard deviation change in self-efficacy, involvement in violence is expected to decrease by 27.35% and drug dealing is expected to decrease by 34.25%. Trouble with police is expected to decrease by 30.84% for a standard deviation change in self-efficacy.

Third, in this model the influence of family context variables on youths' involvement in violence, drug dealing, and trouble with police is investigated. Relative to youths whose primary caregiver was born in the United States, having a primary caregiver who is a first generation immigrant significantly decreases a youth's expected involvement in violence by 0.72 ($\beta = -0.330$; $p < 0.05$), but does not influence drug dealing or trouble with police. Having a primary caregiver who is a first generation immigrant is expected to reduce involvement in violence by 28.11%.

Having a primary caregiver who is separated or divorced decreases a youth's expected involvement in violence by 1.30 ($\beta = -0.266$; $p < 0.05$), compared to youths not experiencing family disruption. In terms of percent change, experiencing family disruption is expected to decrease involvement in violence by 23.36%. Family disruption does not influence drug dealing or trouble with police.

A larger family size is positively and significantly related to trouble with police, but is unrelated to violence and drug dealing. Compared to youths in smaller families, being from a larger family increases a youths expected trouble with police by 1.11 ($\beta = 0.107$; $p < 0.01$). For a standard deviation change in family size, the likelihood of a youth being in trouble with the police increases by 23.99%. Family SES and parental monitoring do not influence any of the outcomes.

Finally, individual-level variables are also included in this model. Being in Cohort 12 or Cohort 15 is positively and significantly related to involvement in violence, drug dealing, and trouble with police. Compared to youths in Cohort 9, youths in Cohort 12 are 2.55 ($\beta = 0.937$; $p < 0.000$) times more likely and youths in Cohort 15 are 3.13 ($\beta = 1.140$; $p < 0.000$) times more likely to engage in violence. Compared to youths in Cohort 9, youths in Cohort 12 are 11.87 ($\beta = 2.474$; $p < 0.01$) times more likely and youths in Cohort 15 are 55.31 ($\beta = 4.013$; $p < 0.000$) times more likely to engage in drug dealing. Compared to youths in Cohort 9, youths in Cohort 12 are 3.09 ($\beta = 1.129$; $p < 0.000$) times more likely and youths in Cohort 15 are 7.34 ($\beta = 1.994$; $p < 0.000$) times more likely to be in trouble with the police. In terms of percent change, compared to youths in Cohort 9, being in Cohort 12 is expected to increase expected involvement in violence by 155.23%, drug dealing by 1086.98%, and trouble with police by 209.26%. Similarly, being in Cohort 15 is expected to increase involvement in violence by 212.68%, drug dealing by 5431.25%, and trouble with police by 634.48%.[54]

Compared to females, males are more likely to be involved in violence, drug dealing, and trouble with police. It is expected that males' involvement in violence and

[54] Models incorporating age and age-squared was also employed (complete data not shown). There were two substantive changes in the violence scale between the two models. Once age and age-squared were removed, the intercept and family disruption coefficients became significant. The coefficients for these variables in the violence scale model incorporating age and age-squared were: intercept ($\beta = -6.308$; $p > 0.05$) and family disruption ($\beta = -0.259$; $p > 0.05$). There were eight changes in the drug dealing scale between the two models. Once age and age-squared were removed, four coefficients became significant. These are for the intercept, Cohort 12, Cohort 15, and Hispanic. The coefficients for these variables in the drug dealing scale model incorporating age and age-squared were: intercept ($\beta = -29.043$; $p > 0.05$), Cohort 12 ($\beta = -0.378$; $p > 0.05$), Cohort 15 ($\beta = -1.064$; $p > 0.05$), and Hispanic ($\beta = -0.408$; $p > 0.05$). The coefficients for Cohort 12 and Cohort 15 also changed from negative to positive with the removal of age and age-squared. Four additional coefficients changed from positive to negative (neighborhood residential mobility, neighborhood family disruption, family disruption, and family size), but remained non-significant. For the trouble with police model, there were three substantive changes between the two models. Once age and age-squared were removed, the intercept, Cohort 12, and Cohort 15 coefficients became significant. The coefficients for these variables in the trouble with police model incorporating age and age-squared were: intercept ($\beta = -8.696$; $p > 0.05$), Cohort 12 ($\beta = -0.378$; $p > 0.05$), and Cohort 15 ($\beta = -1.064$; $p > 0.05$). The coefficients for Cohort 12 and Cohort 15 also changed from negative to positive.

drug dealing, and trouble with police will be 1.74 ($\beta = 0.553$; $p < 0.000$), 2.61 ($\beta = 0.958$; $p < 0.000$), and 2.62 ($\beta = 0.965$; $p < 0.000$) times greater than that of females, respectively. Being male increases expected involvement in violence, drug dealing, and trouble with police by 73.85%, 260.65%, and 162.48%, respectively.

Race/ethnicity is also examined. Compared to other races/ethnicities, youths who are African American are 1.50 ($\beta = 0.408$; $p < 0.01$) times more likely to engage in violence than youths of other races/ethnicities, and being African American increases expected involvement in violence by 50.38%. On the other hand, Hispanic youths are 0.32 ($\beta = -1.123$; $p < 0.01$) times less likely to be involved in drug dealing than other youths. Being Hispanic decreases expected involvement in drug dealing by 67.47%. Race/ethnicity was not related to trouble with police.

Table 17. Negative Binomial and Logistic HGLM Model 1d: Influence of Self-Efficacy on Crime – Controlling for Individual-Level Variables, Neighborhood Context, and Family Context

PHDCN Data, N = 1,767

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-1.256*	0.510	0.285	-4.774***	1.242	0.008	-3.016***	0.781	0.049
Neighborhood Residential Mobility	0.143	0.126	1.154	-0.273	0.238	0.761	0.211	0.187	1.235
Neighborhood SES	-0.129*	0.064	0.879	-0.433**	0.154	0.649	-0.130	0.115	0.878
Neighborhood Ethnic Heterogeneity	-0.005	0.032	0.995	0.118	0.065	1.125	0.001	0.043	1.001
Neighborhood Family Disruption	-0.136	0.704	0.873	-1.309	1.262	0.270	0.721	1.060	2.057
Self-Efficacy	-0.344***	0.054	0.709	-0.453**	0.132	0.638	-0.397***	0.076	0.674
PC Immigrant Status	-0.330*	0.155	0.719	-0.209	0.388	0.811	-0.421	0.229	0.656
Family SES	-0.020	0.042	0.980	-0.160	0.109	0.852	-0.043	0.068	0.957
Family Disruption	-0.266*	0.134	0.766	-0.164	0.262	0.848	0.051	0.198	1.052
Family Size	0.015	0.026	1.016	-0.101	0.089	0.904	0.107**	0.040	1.113
Parental Monitoring	-0.016	0.018	0.984	-0.043	0.036	0.958	-0.050	0.034	0.953
Cohort 12	0.937***	0.138	2.554	2.474**	0.897	11.876	1.129***	0.246	3.094
Cohort 15	1.140***	0.142	3.128	4.013***	0.819	55.297	1.994***	0.236	7.349
Male	0.553***	0.108	1.739	0.958***	0.241	2.601	0.965***	0.151	2.625
African American	0.408**	0.158	1.504	-0.037	0.357	0.964	0.025	0.214	1.026
Hispanic	-0.122	0.181	0.885	-1.123**	0.376	0.325	-0.382	0.314	0.683

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.223	0.049	74	88.517
Drug Dealing Scale	Intercept	0.879	0.772	74	163.777***
Trouble with Police	Intercept	0.243	0.059	74	79.937

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Research Question 2: Does collective efficacy influence self-reported involvement in crime?

Model 2a: Influence of Collective Efficacy on Crime

According to the intercept coefficients, when collective efficacy is held constant expected involvement in drug dealing decreases by 3.76 ($\beta = -3.756$; $p < 0.05$) and being in trouble with police decreases by 2.84 ($\beta = -2.843$; $p < 0.001$). The intercept for violence is not significant. Contrary to the hypothesis, neighborhood collective efficacy does not influence individual-level involvement in violence, drug dealing, or trouble with police (Table 18). Reported results are from the population-average model with robust standard errors. The event rate ratios for the violence and drug dealing scales and the odds ratio for trouble with police are not significant.

Table 18. Negative Binomial and Logistic HGLM Model 2a: Influence of Collective Efficacy on Crime

PHDCN Data, N = 1,764

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-0.478	0.615	0.620	-3.756*	1.519	0.023	-2.843**	0.819	0.058
Collective Efficacy	0.008	0.178	1.008	0.203	0.435	1.225	0.292	0.233	1.339

* $p < 0.05$
** $p < 0.01$
*** $p < 0.00$

Model 2b: Influence of Collective Efficacy on Crime – Controlling for Neighborhood Context and Family Context

Model 2b examines the influence of collective efficacy on crime while controlling for neighborhood context and family context. Individual-level demographic variables (cohort, sex, and race/ethnicity) are not expected to influence the relationship between collective efficacy and crime, and therefore are not included in this model. In this model, none of the intercepts are significant (Table 19). Contrary to the hypotheses tested in this study and the extant literature none of the neighborhood context variables are related to the violence scale, drug dealing scale, or trouble with police.[55]

Turning to the family context variables, youths whose primary caregiver is a first generation immigrant are less likely to engage in violence and be in trouble with the police. Compared to youths whose primary caregiver was born in the United States, having a primary caregiver who is a first generation immigrant significantly reduces expected involvement in violence by 0.57 ($\beta = -0.554$; $p < 0.01$) and also decreases the odds of being in trouble with police by 0.60 ($\beta = -0.514$; $p < 0.05$). In terms of percent change, involvement in violence and trouble with police are expected to decrease by 42.53% and 40.19%, respectively.

Family disruption is positively and significantly related to being in trouble with the police. Youths whose primary caregiver is separated or divorced have 1.80 ($\beta = 0.589$; $p < 0.01$) greater odds of being in trouble with the police than youths whose

[55] While these findings are contrary to the hypothesis, Sampson et al. (2005) examined neighborhood predictors of self-reported violence and found similar results for similar neighborhood context variables. For example, collective efficacy, concentrated disadvantage (measured using the following variables from 1990 census data: percentage of poor families, percentage of single-parent families, percentage of families receiving welfare, and unemployment rate) and residential stability were not significant predictors of violence (see also Kirk, 2009). Additionally, Molnar et al. (2008) failed to find a significant main effect of collective efficacy on self-reported delinquency.

primary caregiver is single, married, widowed, or lives with their partner. Experiencing family disruption increases youths expected trouble with police by 80.22%.

Family size is positively and significantly related to being in trouble with police. An increase in family size increases a youth's odds of being in trouble with police by 1.12 ($\beta = 0.118$; $p < 0.05$), compared to youths who reside with smaller family. For a standard deviation increase in family size, trouble with police is expected to increase by 26.77%.

There is a negative and significant relationship between parental monitoring and all three outcomes. Youths experiencing average levels of parental monitoring are 0.92 ($\beta = -0.085$; $p < 0.01$) times less likely to engage in violence, 0.85 ($\beta = -0.163$; $p < 0.000$) times less likely to engage in drug dealing, and 0.87 ($\beta = -0.136$; $p < 0.01$) times less likely to be in trouble with the police. For a standard deviation change in parental monitoring, expected involvement in violence decreases by 19.35% and expected drug dealing decreases by 33.79%. Expected trouble with police decreases by 29.11% for each standard deviation change in parental monitoring.

Table 19. Negative Binomial and Logistic HGLM Model 2b: Influence of Collective Efficacy on Crime – Controlling for Neighborhood Context and Family Context

PHDCN Data, N = 1,767

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-0.885	1.122	0.413	-1.374	3.145	0.253	-3.076	1.717	0.046
Neighborhood Residential Mobility	0.123	0.173	1.131	-0.268	0.352	0.765	0.399	0.207	1.492
Neighborhood SES	-0.131	0.089	0.877	-0.114	0.214	0.892	-0.011	0.162	0.988
Neighborhood Ethnic Heterogeneity	-0.029	0.041	0.971	0.079	0.077	1.082	-0.059	0.051	0.943
Neighborhood Family Disruption	-0.070	0.776	0.932	-0.759	1.907	0.468	0.811	0.955	2.251
Neighborhood Collective Efficacy	0.111	0.286	1.117	-0.184	0.805	0.832	0.173	0.488	1.189
Immigrant Status	-0.554**	0.154	0.575	-0.562	0.404	0.569	-0.514*	0.210	0.598
Family SES	0.001	0.067	1.001	0.030	0.161	1.031	0.104	0.077	1.109
Family Disruption	0.018	0.201	1.019	0.199	0.379	1.220	0.589**	0.206	1.804
Family Size	0.033	0.042	1.034	-0.124	0.172	0.884	0.118*	0.048	1.125
Parental Monitoring	-0.085**	0.025	0.919	-0.163***	0.041	0.849	-0.136**	0.041	0.872

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.163	0.026	71	66.973
Drug Dealing Scale	Intercept	0.133	0.018	71	60.109
Trouble with Police	Intercept	0.088	0.008	71	79.414

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Research Question 3: Does collective efficacy moderate the relationship between self-efficacy and self-reported involvement in crime?

The next section of this chapter explores the relationship between self-efficacy and collective efficacy. The first model (3a) examines the influence of collective efficacy and self-efficacy on crime. The second model (3b) examines whether collective efficacy moderates the relationship between crime and self-efficacy. The final model (3c) includes contextual variables (neighborhood context and family) and individual-level variables (cohort, sex, and race/ethnicity) believed to influence crime.

Model 3a: Relationship between Collective Efficacy, Self-Efficacy, and Crime

Model 3a examines the relationship of both collective efficacy and self-efficacy on crime (Table 20). According to the intercepts, drug dealing decreases by 4.09 (β = -4.088; $p < 0.01$) and trouble with police decreases by 2.78 (β = -2.778; $p < 0.01$), when all other variables are held constant. The intercept for violence is not significant.

Collective efficacy does not influence involvement in any of the three outcomes. Self-efficacy remains negatively related to involvement in violence, drug dealing, and trouble with police. Expected involvement in violence and drug dealing in the 12 months before the interview among youths with an average level of self-efficacy is decreased by 0.72 (β = -0.328; $p < 0.000$) and 0.52 (β = -0.648; $p < 0.000$), respectively. Expected trouble with police since the Wave 1 interview among youths with an average level of self-efficacy is also expected to decrease by 0.66 (β = -0.418; $p < 0.000$). In terms of percent change, for a standard deviation change in self-efficacy, involvement in violence,

drug dealing, and trouble with police are expected to decrease by 26.27%, 45.23%, and 32.18%, respectively.

Table 20. Negative Binomial and Logistic HGLM Model 3a: Relationship between Collective Efficacy, Self-Efficacy, and Crime

PHDCN Data, N = 1,767

	Violence Scale			Drug Dealing Scale			Trouble with Police		
Variable	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Average Crime									
Intercept	-0.435	0.627	0.647	-4.088**	1.243	0.017	-2.778**	0.847	0.062
Collective Efficacy	-0.019	0.181	0.981	0.238	0.365	1.269	0.258	0.239	1.295
Self-Efficacy Slope									
Intercept	-0.328***	0.051	0.720	-0.648***	0.125	0.523	-0.418***	0.069	0.658

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.328	0.107	77	126.264**
Drug Dealing Scale	Intercept	0.454	0.206	77	72.946
Trouble with Police	Intercept	0.225	0.051	77	95.029

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Model 3b: Moderating Effect of Collective Efficacy on the Relationship between Self-Efficacy and Crime

Model 3b examines whether collective efficacy moderates the relationship between self-efficacy and crime which was found to be significant for the three outcomes in Models 1a, 1b, 1c, and 1d. First, as was found in Model 3a, two intercepts were significant. According to the intercepts, drug dealing decreases by 4.92 ($\beta = -4.923$; $p < 0.01$) and trouble with police decreases by 2.69 ($\beta = -2.686$; $p < 0.01$), when all other variables are held constant (Table 21). The intercept for violence is not significant.

Second, by testing a moderation effect, I seek to determine whether the relationship between self-efficacy and crime changes as a function of collective efficacy.[56] It is hypothesized that the influence of self-efficacy on crime will increase and become stronger by interacting self-efficacy and collective efficacy. A test of the moderator effects of collective efficacy is supported by the findings thus far. According to Baron and Kenny (1986), moderator variables should be uncorrelated to the independent and outcome variables. Collective efficacy meets this criterion. The correlation between collective efficacy and self-efficacy is 0.082; and the correlations between collective efficacy and violence, drug dealing, and trouble with police are 0.001, 0.011, and 0.028, respectively.

An interaction term is added by modeling collective efficacy on the self-efficacy coefficient to determine if the relationship between self-efficacy and crime is dependent on collective efficacy. Collective efficacy completely moderates the relationships

[56] Moderation occurs if the relationship between the independent variable and outcome variable increases or decreases with the addition of the moderating variable. Moderation can also occur when a relationship between the independent variable and outcome variable is no longer apparent once the moderating variable is introduced (Baron and Kenny, 1986).

between self-efficacy and crime (Table 21).[57] The previously significant relationship between self-efficacy and the crime outcomes disappears when self-efficacy is interacted with collective efficacy resulting in complete moderation where the causal effect of self-efficacy on crime disappears when collective efficacy is added to the model. Contrary to the hypothesis, the interaction between self-efficacy and collective efficacy does not influence youths' involvement in crime. The influence of self-efficacy on involvement in crime is no different for youths living in neighborhoods with higher levels of collective efficacy than youths living in neighborhoods with lower levels of collective efficacy. The relationship between self-efficacy and crime does not depend on collective efficacy.

[57] Similar results were obtained using models where the error terms were allowed to vary (data not shown). One difference between these two models is the gamma value (γ_{10}) for the self-efficacy slope (β_1) for the drug dealing outcome. This value is -1.837 ($p = 0.072$) in the model with fixed error terms and -1.004 ($p = 0.208$) in the model with random error terms.

Table 21. Negative Binomial and Logistic HGLM Model 3b: Moderating Effect of Collective Efficacy on the Relationship between Self-Efficacy and Crime

PHDCN Data, N = 1,767

	Violence Scale			Drug Dealing Scale			Trouble with Police		
Variable	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Average Crime									
Intercept	-0.324	0.647	0.723	-4.923**	1.348	0.007	-2.686**	0.915	0.068
Collective Efficacy	-0.052	0.187	0.949	0.480	0.392	1.616	0.232	0.260	1.262
Self-Efficacy slope									
Intercept	0.039	0.471	1.039	-1.837	1.020	0.159	-0.065	0.716	0.937
Self-Efficacy x Collective Efficacy	-0.107	0.140	0.898	0.348	0.300	1.417	-0.102	0.206	0.903

Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.327	0.107	77	126.091**
Drug Dealing Scale	Intercept	0.415	0.172	77	70.384
Trouble with Police	Intercept	0.223	0.049	77	94.763

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Model 3c: Moderating Effect of Collective Efficacy on the Relationship between Self-Efficacy and Crime – Controlling for Individual-Level Variables, Neighborhood Context, and Family Context

Model 3c builds on Model 3b by examining the influence of neighborhood context, family context, and individual-level factors on the moderating model. Similar to Models 3a and 3b, two intercepts were significant. According to the intercepts, drug dealing decreases by 5.35 ($\beta = -5.354$; $p < 0.05$) and trouble with police decreases by 6.11 ($\beta = -6.107$; $p < 0.000$), when all other variables are held constant (Table 22). The intercept for violence is not significant.

In this model, self-efficacy does not influence crime. As in Model 3b, collective efficacy moderates the relationship between self-efficacy and crime (Table 22). The relationship between the interaction term (collective efficacy x self-efficacy) is positively related to all three outcomes, though not statistically significant. The relationship between self-efficacy and violence, drug dealing, and trouble with police is substantially reduced when self-efficacy is interacted with collective efficacy. Models 1a, 1b, 1c, and 1d show a significant and negative relationship between self-efficacy and the crime outcomes, and these relationships disappear in Models 3b and 3c when collective efficacy is introduced as a moderating variable.

Neighborhood residential mobility is positively and significantly related to being in trouble with police. Youths living in neighborhoods with an average level of residential mobility are 1.49 ($\beta = 0.398$; $p < 0.05$) times more likely to be in trouble with the police since the Wave 1 interview than youths living in neighborhoods with below or

above average mobility. For a standard deviation change in neighborhood residential mobility, trouble with the police is expected to increase by 23.48%.

There is a statistically significant and negative relationship between neighborhood SES and involvement in violence, drug dealing, and trouble with police. Youths living in neighborhoods with an average SES are 0.84 ($\beta = -0.178$; $p < 0.05$), 0.66 ($\beta = -0.412$; $p < 0.05$), and 0.74 ($\beta = -0.298$; $p < 0.05$) times less likely to experience violence, drug dealing, and trouble with police, respectively, than youths living in neighborhoods with below or above average SES levels. In terms of percent change, for a standard deviation change in neighborhood SES, involvement in violence, drug dealing, and trouble with police are expected to decrease by 13.27%, 28.08%, and 21.21%, respectively.

The final neighborhood context variable to be significantly related to crime is collective efficacy. Neighborhood collective efficacy is positively related to trouble with police. A unit increase in collective efficacy increases the odds of being in trouble with police by 2.39 ($\beta = 0.870$; $p < 0.05$). In terms of percent change, for a standard deviation change in collective efficacy, trouble with police is expected to increase by 28.70%. This is in contrast to the hypothesis that increased levels of collective efficacy will be related to a reduction in crime. Neighborhood ethnic heterogeneity and neighborhood family disruption are not related to any of the outcomes.

In this model, only two family context variables are significant. There is a significant and negative relationship between primary caregiver's immigrant status and involvement in violence. Youths with a primary caregiver who is a first generation immigrant are 0.73 ($\beta = -0.314$; $p < 0.05$) times less likely to engage in violence, compared to youths whose primary caregiver was born in the United States. Having a

primary caregiver who is a first generation immigrant is expected to decrease involvement in violence by 26.95%.

There is a positive relationship between family size and trouble with police. Compared to youths from smaller families, youths from a larger family are 1.12 (β = 0.110; $p < 0.01$) times more likely to be in trouble with the police. For a standard deviation change in family size, the odds of a youth being in trouble with police increases by 24.74%.

Five individual-level variables are related to some involvement in crime. With respect to involvement in violence, youths in Cohort 12 are 2.55 (β = 0.937; $p < 0.000$) and youths in Cohort 15 are 3.12 (β = 1.139; $p < 0.000$) times more likely to engage in violent behaviors compared to youths in Cohort 9. Youths in Cohort 12 are 11.95 (β = 2.481; $p < 0.01$) and youths in Cohort 15 are 55.40 (β = 4.014; $p < 0.000$) times more likely to engage in drug dealing compared to youths in Cohort 9. Similarly, youths in Cohort 12 are 3.06 (β = 1.119; $p < 0.000$) and youths in Cohort 15 are 7.30 (β = 1.988; $p < 0.000$) times more likely to be in trouble with police compared to youths in Cohort 9. In terms of percent change, compared to youths in Cohort 9, being in Cohort 12 is expected to increase involvement in violence, drug dealing, and trouble with police by 155.23%, 1095.32%, and 206.18%, respectively. Similarly, compared to youths in Cohort 9, being in Cohort 15 is expected to increase involvement in violence, drug dealing, and trouble with police by 212.36%, 5436.79%, and 630.09%, respectively.[58]

[58] Models incorporating age and age-squared were also employed (complete data not shown). There was one substantive change in the violence scale between the two models. Once age and age-squared were removed, the immigrant status coefficient became significant. The coefficient for this variable in the violence scale model incorporating age and age-squared was: immigrant status (β = -0.303; $p > 0.05$). There were six changes in the drug dealing scale between the two models. Once age and age-squared were removed, four coefficients became significant. These are for intercept, neighborhood SES, Cohort 12, and Cohort 15. The coefficients for these variables in the drug dealing scale model incorporating age and age-

Being male, as opposed to female, increases expected involvement in violence, drug dealing, and trouble with police. Males are 1.74 ($\beta = 0.552$; $p < 0.000$), 2.71 ($\beta = 0.996$; $p < 0.000$), and 2.62 ($\beta = 0.962$; $p < 0.000$) times more likely to engage in these behaviors than females, respectively. Being male increases the expected involvement in violence, drug dealing, and trouble with police by 73.67%, 170.74%, and 161.69%, respectively.

Compared to youths of other races/ethnicities, African American youths are 1.53 ($\beta = 0.428$; $p < 0.01$) times more likely to be involved in violence (a 53.42% increase), while Hispanics are 0.32 ($\beta = -1.134$; $p < 0.01$) times less likely to be involved in drug dealing (a 67.83% decrease). Race/ethnicity is not related to trouble with police.

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squared were: intercept ($\beta = -29.047$; $p > 0.05$), neighborhood SES ($\beta = -0.315$; $p > 0.05$), Cohort 12 ($\beta = -0.457$; $p > 0.05$), and Cohort 15 ($\beta = 2.563$; $p > 0.05$). Cohort 12 also changed from negative to positive with the removal of age and age-squared. The neighborhood ethnic heterogeneity coefficient became non-significant after age and age-squared were removed from the model. In the model incorporating age and age-squared, the coefficient was: ethnic heterogeneity ($\beta = 0.126$; $p < 0.05$). The family size coefficient changed to negative (but remained non-significant) from a positive coefficient in the age and age-squared model. For the trouble with police model, there were three substantive changes between the two models. Once age and age-squared were removed, the intercept, Cohort 12, and Cohort 15 coefficients became significant. The coefficients for these variables in the trouble with police model incorporating age and age-squared were: intercept ($\beta = -11.627$; $p > 0.05$), Cohort 12 ($\beta = -0.375$; $p > 0.05$), and Cohort 15 ($\beta = -1.041$; $p > 0.05$). The coefficients for Cohort 12 and Cohort 15 also changed from negative to positive.

Table 22. Negative Binomial and Logistic HGLM Model 3c: Moderating Effect of Collective Efficacy on the Relationship between Self-Efficacy and Crime – Controlling for Individual-Level Variables, Neighborhood Context, and Family Context

PHDCN Data, N = 1,767

	Violence Scale			Drug Dealing Scale			Trouble with Police		
	b	SE	Event Rate Ratio	b	SE	Event Rate Ratio	b	SE	Odds Ratio
Intercept	-2.124	1.075	0.119	-5.354*	2.570	0.005	-6.107***	1.606	0.002
Neighborhood Residential Mobility	0.194	0.136	1.214	-0.257	0.245	0.773	0.398*	0.191	1.489
Neighborhood SES	-0.178*	0.071	0.837	-0.412*	0.179	0.662	-0.298*	0.131	0.743
Neighborhood Ethnic Heterogeneity	-0.004	0.032	0.995	0.113	0.066	1.119	0.006	0.044	1.006
Neighborhood Family Disruption	-0.059	0.726	0.942	-1.235	1.375	0.291	1.035	1.113	2.815
Neighborhood Collective Efficacy	0.244	0.229	1.276	0.169	0.626	1.185	0.870*	0.390	2.388
Self-Efficacy	-0.464	0.511	0.628	-1.862	1.127	0.155	-0.634	0.748	0.530
Self-Efficacy x Collective Efficacy	0.035	0.152	1.036	0.415	0.336	1.515	0.069	0.218	1.071
Immigrant Status	-0.314*	0.153	0.730	-0.251	0.393	0.778	-0.358	0.225	0.699
Family SES	-0.018	0.042	0.982	-0.157	0.107	0.855	-0.035	0.067	0.967
Family Disruption	-0.264	0.135	0.768	-0.170	0.266	0.843	0.064	0.198	1.066
Family Size	0.016	0.027	1.016	-0.101	0.088	0.904	0.110**	0.040	1.116
Parental Monitoring	-0.016	0.018	0.984	-0.044	0.035	0.956	-0.052	0.033	0.949
Cohort 12	0.937***	0.137	2.552	2.481**	0.885	11.953	1.119***	0.247	3.062
Cohort 15	1.139***	0.140	3.124	4.014***	0.806	55.399	1.988***	0.238	7.299
Male	0.552***	0.108	1.738	0.996***	0.237	2.708	0.962***	0.151	2.617
African American	0.428**	0.159	1.534	-0.023	0.345	0.978	0.119	0.214	1.127
Hispanic	-0.112	0.181	0.894	-1.134**	0.383	0.322	-0.337	0.317	0.713

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Table 22 (continued). Variance Components

		St. Dev.	Variance	df	χ^2
Violence Scale	Intercept	0.226	0.051	73	87.829
Drug Dealing Scale	Intercept	0.898	0.807	73	166.684***
Trouble with Police	Intercept	0.183	0.033	73	76.871

* $p < 0.05$
** $p < 0.01$
*** $p < 0.000$

Chapter 5: Discussion

Most explanations of crime are at the micro or macro level with few attempting to incorporate both micro and macro level variables into a single explanation. For example, scholars have examined the independent influences of self-efficacy and collective efficacy on crime. Less attention has been paid to the relationship between self-efficacy and collective efficacy and how these constructs may jointly influence crime. The current study investigates both the independent and joint influences of self-efficacy and collective efficacy on three measures of crime: violence, drug dealing, and trouble with police. Specifically, the research examines three research questions: 1) Does self-efficacy influence self-reported involvement in crime? 2) Does collective efficacy influence self-reported involvement in crime? and 3) Does collective efficacy moderate the relationship between self-efficacy and crime? Using data from three cohorts of youths (ages 9 to 19) who participated in the Project on Human Development in Chicago Neighborhoods (an accelerated longitudinal study), three main conclusions can be drawn from the analyses.

First, self-efficacy is negatively related to involvement in violence, drug dealing, and trouble with police, independent of neighborhood. Thus, as self-efficacy increases, expected involvement in violence, drug dealing, and trouble with police significantly declines. These findings are congruent with other studies that examine the relationship between self-efficacy and crime (e.g., Elliott et al., 2006; Ludwig and Pittman, 1999; Sharkey, 2006). Further, the findings emerge after controlling for neighborhood context (residential mobility, SES, ethnic heterogeneity, and family disruption), family context (primary caregiver's immigrant status, SES, family disruption, family size, and parental

monitoring), and individual-level control variables (cohort, sex, and race/ethnicity). In other words, self-efficacy remains negatively related to the outcome variables after neighborhood context, family context, and individual level variables are added to the models.

These findings about the relationship between self-efficacy and crime add to the literature in several ways. First, in this study self-efficacy is examined as a mechanism of control over one's life (i.e., choosing alternatives to crime to achieve prosocial goals) rather than as a means for prosocial coping in reaction to strain-inducing situations (e.g., Agnew, 1992). This adds to the literature in two ways: (1) the research on self-efficacy from a strain perspective is equivocal and the relationship between self-efficacy and crime may be best explained by another theory and (2) whether self-efficacy serves to inform choices and perceptions of alternatives to crime is relatively unexplored. Second, and similar to other criminological research on self-efficacy, this study adds support for the use of self-efficacy as a general concept. This conceptualization is in contrast to traditional social cognitive theorists (e.g., Bandura, 1997) who believe self-efficacy to be domain specific. However, as found in this study, concepts that are broad enough to encompass general perceptions can be used to tap into a general sense of self-efficacy (Scholz et al., 2002). Finally, unlike most research, which has used composite measures of self-efficacy, in this study self-efficacy is independent from other related, yet distinct, concepts (e.g., self-esteem). The "black box effect" inherent in studies using composite measures to tap into self-efficacy is avoided in the current research because self-efficacy is not confounding with other concepts. Therefore, the results can be attributed directly to self-efficacy.

The second main finding is that, for the most part, collective efficacy does not influence involvement in violence, drug dealing, or trouble with police; contrary to the hypothesis. However, one exception is Model 3c. In this model, collective efficacy is positively and significantly related to trouble with police since the Wave 1 interview. This relationship only emerges after all of the variables (neighborhood context, family context, individual-level variables, and interaction term) are added to the model.

While, in general, this hypothesis is not supported by the current study, the findings are not surprising. Other studies using the PHDCN data also failed to uncover a significant relationship between collective efficacy and individual-level crime (Kirk, 2009; Molnar et al., 2008; Sampson et al., 2005). More consistent support exists for the influence of collective efficacy on crime rates (e.g., Browning, 2002; Sampson et al., 1997; Sampson and Raudenbush, 1999; see also Pratt and Cullen, 2005) than for the influence of collective efficacy on individual-level involvement in crime. Another explanation for the finding that collective efficacy does not influence involvement in crime is the fact that the collective efficacy measure (and other neighborhood level variables) was collected between three and six years before Wave 2, when the self-efficacy and self-reported crime variables were captured *(see section on Data Availability for a discussion on related implications)*.

The third main finding of this dissertation research is that collective efficacy completely moderates the relationships between self-efficacy and violence, drug dealing, and trouble with police,[59] though not in the expected direction. It was hypothesized that

[59] In cases of moderation, it is expected that the relationship between the independent variable (i.e., self-efficacy) and dependent variables (i.e., violence, drug dealing, and trouble with police) will change direction and/or strength after a moderator variable (i.e., collective efficacy) is added to the model (see Baron and Kenny, 1986).

higher levels of collective efficacy would strengthen the influence of self-efficacy on violence, drug dealing, and trouble with police. However, according to the models, collective efficacy in a youth's neighborhood does not strengthen these relationships. In fact, the relationships between self-efficacy and the outcomes disappear (i.e., are no longer significant) when collective efficacy is added to the model. This unexpected finding is understandable since collective efficacy does not influence individual-level crime and there is a weak correlation between self-efficacy and collective efficacy (0.082). Additional research is needed to investigate whether collective efficacy influences self-efficacy and if other neighborhood factors are related to self-efficacy.

A preliminary analysis of these relationships indicates that collective efficacy ($p < 0.01$) and neighborhood socioeconomic status ($p < 0.000$) are significantly and positively related to self-efficacy when each variable was examined as the only independent variable in the model. The other neighborhood factors (residential mobility, ethnic heterogeneity and family disruption) are not related to self-efficacy. After adding all the neighborhood factors into one model, the relationship between self-efficacy and collective efficacy disappears. As noted earlier, the community measures may be misrepresenting what is currently occurring in the youths' neighborhoods since the data were collected at two different time points and neighborhoods can change (Bursik, 1986, 1988).

Baron and Kenny (1986: 1174) indicate that "At a conceptual level, a moderator may be more impressive if we go from a strong to a weak relation or to no relation at all as opposed to finding a crossover interaction." This is precisely what happened when collective efficacy was interacted with self-efficacy. The strong positive relationship

between self-efficacy and crime was nullified with the addition of collective efficacy. The findings suggest that a multi-contextual approach does not appear to be necessary to explain the relationship between crime and self-efficacy. While not direct support, these findings may suggest that family influences are more important than neighborhood factors (see Leventhal and Brooks-Gunn, 2000; Elliott et al., 2006). At the conceptual level, future research on the relationship between self-efficacy and crime can be informed by these results.

A secondary, yet interesting, finding from this study is the clustering of drug dealing in certain neighborhoods.[60] Unlike violence and trouble with police which are spread throughout more neighborhood clusters, drug dealing appears to be concentrated in a smaller number of neighborhood clusters. This concentration of drug dealing could be due to crime specialization in neighborhoods. For example, neighborhood clusters without any self-reported drug dealing may specialize in other types of crimes. At the macro-level, Schreck, McGloin, and Kirk (2009) found that PHDCN neighborhoods do experience crime specialization. Some neighborhoods appear to specialize in violence while non-violence is the norm in other neighborhoods. Additional research is needed to determine the causes of neighborhood specialization in crime-type and whether there is specialization at the micro-level.

[60] Figure 5 displays the mean involvement in drug dealing by neighborhood cluster and reveals that drug dealing is limited to 39 neighborhood clusters (compared to violence and trouble with police which are reported in 75 and 72 neighborhood clusters, respectively). Further, the intra-class correlation indicates a clustering effect where neighborhood explains 23% of the variance related to involvement in drug dealing.

Limitations and Areas of Future Research

The current study provides insight into the relationships between self-efficacy, collective efficacy, and crime. Overall, the study findings contribute to the literature by providing evidence that self-efficacy, measured as a general concept, negatively influences involvement in a variety of crimes. This research, however, is not without limitations. Future research could build on this study and address three such limitations: data availability, measurement error, and omitted variable bias.

Data Availability

All studies based on secondary data, including the current one, are limited by the data available. For example, data available for analysis in this study somewhat dictate testing collective efficacy as having an enduring, rather than situational, effect on crime. The argument for an enduring effect is based in socialization, while situational effects occur through monitoring. If collective efficacy has an enduring effect on behavior, the collective efficacy in the neighborhood where a youth lives will influence his or her behavior in other contexts. If it is situational, the collective efficacy of a specific neighborhood (e.g., the one in which he or she lives) will only influence a youth's behavior if it occurs in that same neighborhood. Parental monitoring was significantly related to decreases in the outcomes, and it would be a logical next step to determine if monitoring in the neighborhood where crimes occur is also beneficial for reducing crime.

Because collective efficacy data were only collected during the Community Survey conducted in 1995 and self-efficacy is only available at Wave 2 (1997-2000) and Wave 3 (2000-2002), it is not possible to test a situational effect of collective efficacy on

the outcomes. Such a test would require additional data. First, contemporaneous measurements of collective efficacy and crime are necessary. In order to determine if collective efficacy influences a behavior at a given point in time, both variables should be captured in close proximity and, ideally, simultaneously. Further, it would be essential to know the neighborhood where a crime occurred and that neighborhood's level of collective efficacy. None of these variables are available in the PHDCN data. This is a limitation to the current study because the extant literature shows evidence that the influence of collective efficacy is more situational than enduring at the micro level (Kirk, 2009; Sampson, 2006) and macro level (Sampson et al., 1997). If collective efficacy indeed has a situational effect on behavior, this could explain why collective efficacy was not found to be related to involvement in crime and did not strengthen the relationship between self-efficacy and crime.

Measurement Error

A possible issue related to measurement error concerns the data available for this dissertation research. Due to the restricted data user's agreement with ICPSR, additional data sources (e.g., census data) could not be linked to the PHDCN data. This limitation resulted in some of the neighborhood context variables (i.e., residential mobility, socioeconomic status, and family disruption) collected at the individual-level being aggregated at to the neighborhood cluster level to create a mean for each NC; resulting in the atomistic fallacy. Therefore, there is increased risk of inference errors. This is because individual-level responses are used as indicators of neighborhood level variables and the relationship between two variables at the individual-level may differ from the

relationship between those variables had they been measured at the group level. While the results of the current research show that the majority of neighborhood context variables do not influence the outcomes, the measurement of these variables may contribute to the null findings.

Omitted Variable Bias

Another limitation of this study is the omission of contextual variables known to influence involvement in crime. By limiting the contextual variables examined in this study, the chances of omitted variable bias are increased. The current study examines neighborhood context and family context as control variables to explain involvement in crime. Neighborhood context (a macro level construct) and families (a micro level construct) are key predictors of behavior. However, schools and peers are additional contexts known to influence involvement in crime. Unlike the contextual variables examined in this study, schools and peers may not necessarily reflect the composition of a single neighborhood. Schools often enroll students from several neighborhoods and peers can be situated in several neighborhoods. While the exclusion of these contexts may overestimate neighborhood effects (Cook, 2003; Duncan and Raudenbush, 2001; Elliott et al., 2006; Kirk, 2009), the significance of neighborhood effects examined in this study were limited[61] which may lessen concerns regarding omitted variable bias.

Future research could build on the findings reported here by investigating the influence of schools and peers on the relationship between self-efficacy and crime.

[61] Neighborhood SES is significantly related to violence (Models 1d and 3c), drug dealing (Model 1d), and trouble with police (Model 3c); neighborhood ethnic heterogeneity is significantly related to drug dealing (Models 1d and 3c); and collective efficacy is significantly related to trouble with police (Model 3c). The other neighborhood level variables (residential mobility and family disruption) are not related to the outcomes.

Schools may influence the relationship between self-efficacy and involvement in crime independently from neighborhoods (see Kirk, 2009). For example, like neighborhoods, each school has their own form of collective efficacy (Bandura, 1997) enacted through informal social control and social cohesion to control student behavior (see Kirk, 2009). Teachers, like parents, have the ability to encourage the development of self-efficacy in youths (Goddard et al., 2004) and can provide opportunities for social persuasion and vicarious experiences, which aid the development of self-efficacy. Further, Elliott and colleagues (2006) found that school environment can influence the development of prosocial competence, a composite measure that includes self-efficacy.

Peers can also influence self-efficacy (Bandura, 1986) and behavior (Elliott et al., 2006). Peers may influence a youth's self-efficacy through social persuasion and vicarious experiences; similar to the influence families and teachers can have on the development of self-efficacy. Social persuasion and vicarious experiences may also influence involvement in crime. Youths with peers who do not engage in crime may also choose to refrain from crime. Further, unlike other contexts (e.g., family), youths' peers are at least partially a result of choice and peers may or may not be chosen based on a youth's own involvement in crime (Akers and Jensen, 2006; see also Bandura, 1986). Knowing which peers youths choose as friends could provide insight into their self-efficacy and the relationship between self-efficacy and crime.

School and peers are important contextual variables that can aid explanations of criminal behavior. They were not explored in the current study because the PHDCN data set does not contain information on school collective efficacy and data pertaining to peers are limited to youths' perceptions about other students' involvement in a variety of

antisocial behaviors. Additionally, the data do not address the potential influence of schools or peers on youths' development of self-efficacy. Further, the PHDCN data could not be linked to additional data sets for the current study due to the limitations of the restricted data user's agreement with the Inter-University Consortium for Political and Social Research (ICPSR).

Theoretical Implications

The findings from this study evoke several theoretical implications. Four are examined in this section. First, it is unclear why self-efficacy is related to a reduction in crime. Second, alternative theories may be responsible for the findings. Third, the influence of neighborhood contextual variables on the development of self-efficacy is relatively unexplored. Finally, youths may have self-efficacy regarding antisocial behaviors as well as prosocial behaviors. These four theoretical implications are discussed in turn below.

Why is Self-Efficacy Related to a Reduction in Crime?

According to the results of this study, increased levels of self-efficacy are related to a reduction in crime. However, what is not known is what it is about self-efficacy that leads to a decrease in crime. It is expected (but not tested) that locus of control mediates the relationship between self-efficacy and behavior (see Bandura, 1977b). In other words, self-efficacy related to prosocial behaviors operates through an individual's locus of control and influences their decision to choose alternatives to crime. According to the concept of locus of control, events are a result of actions and efforts; they are not random

(Rotter, 1966). Because direct measurement of locus of control is not feasible with the available data, there is a missing link in the relationship between self-efficacy and crime in the current study. It could be hypothesized that an increased level of self-efficacy would increase an individual's locus of control (or, more simply, an individual's belief that they can control events), leading to a decrease in crime. This hypothesis, however, cannot be tested with the available data and additional research would need to be conducted to test this relationship.

Alternative Explanations of Crime

The current study examines the influence of self-efficacy on involvement in crime from a control perspective. As such, the major tenets of this study are: (1) youths have personal control over situations and their reactions to them, via self-efficacy and (2) neighborhoods have the ability to enact control through collective efficacy. While this is the framework tested in this dissertation research, alternative theoretical explanations of involvement in crime are feasible. Three such theoretical explanations are social learning, routine activities, and self-control.

Social learning theory is a well-established explanation of crime and delinquency (Akers, 1985; Akers and Jensen, 2006). Like self-efficacy, social learning is a social cognitive theory. Social learning theory posits that antisocial behaviors are learned by the same mechanisms used in learning prosocial behaviors. Two mechanisms for developing self-efficacy, social persuasion and vicarious experiences, are similar to the social learning theory concepts differential reinforcement and imitation, respectively (Akers, 1985). While the mechanisms of social persuasion and reinforcement are similar,

they are conceptually distinct. Social persuasions are verbal cues from others that can strengthen self-efficacy and beliefs regarding capabilities to engage in behavior. Reinforcement, however, focuses on the individual's anticipated rewards or punishments that can result from a given behavior. Vicarious experiences and imitation are more closely aligned. Vicarious experiences assist in the development of self-efficacy when an individual sees someone who is like them succeeding at an activity. Similarly, imitation occurs when individuals model the behavior of others.

It is possible that instead of self-efficacy influencing prosocial behavior (as is tested in this study), social learning better explains involvement in crime. Under social learning theory, youths may be differentially reinforced towards prosocial behavior and may imitate prosocial adults. One important distinction between self-efficacy and social learning theory is the use of choice to explain behavior. In this study, it is anticipated (but not tested) that higher levels of self-efficacy increase a youth's locus of control, which leads to prosocial behavior. It is anticipated that youths with higher levels of self-efficacy related to prosocial behaviors would have a higher locus of control and be better equipped to choose alternatives to crime. The notion of choice in social learning theory, on the other hand, is subsumed under differential reinforcement (Akers, 1990). Accordingly, youths choose to engage in behaviors based on the anticipated rewards and punishments associated with that behavior and the mechanism or process by which youths choose alternatives to crime is not addressed.

Routine activities theory is another theoretical explanation that supports the findings of the current research. According to routine activities theory, crime is more likely when there is a convergence of three elements: motivated offender, opportunity for

the behavior, and an absence of capable guardians. Motivated offenders are considered to be constant and ubiquitous, and therefore, researchers do not often test this component of the theory. The second element, opportunity, varies across individuals and is often called the root cause of crime (Felson, 2002). For example, if there are no vulnerable victims to attack and no one to whom to sell drugs, opportunity is lacking. The final element, absence of capable guardians, is also variable across individuals and situations. Capable guardians can take the form of either formal (e.g., police) or informal (e.g., primary caregiver, parent) social controls. Crime is less likely when a capable guardian is present because the guardian may intervene or call the police (e.g., collective efficacy) and they are a potential witness to the act who could later implicate the offender to formal and/or informal social controls. Absence of capable guardians works in tandem with opportunity. If the opportunity to engage in crime is present, and guardians who can prevent a criminal act are not present, crime is more likely to occur.

Again, as with social learning theory, routine activities theory does not explicate the mechanisms by which a youth chooses to engage in crime. Under routine activities theory, it is assumed that offenders rationally choose their activities and that activities are related to involvement in crime. Routine activities theory, however, does not unpack how offenders make this choice.

Another potential explanation of crime is self-control. Self-control is a consistently significant predictor of crime and delinquency (Pratt and Cullen, 2000) but differs from self-efficacy.[62] Self-control is conceptualized as a stable trait that is relative set by age 8 (Gottfredson and Hirschi, 1990), while self-efficacy is dynamic and can

[62] While conceptually different, their origins are similar. Like self-efficacy, self-control is considered to be a function of parental monitoring and socialization (Gottfredson and Hirschi, 1990).

change over time (Bandura, 1997). Further, self-control does not consider agency or individual choice in decision-making. Paternoster and Pogarsky (2009: 110) aptly state: "Low self-control... is not a process of decision making or a way in which choices over alternative courses of action are made, indeed one low in self-control may be completely unaware that alternatives exist."[63] On the other hand, self-efficacy may facilitate decision-making and whether individuals choose alternatives to crime.

While social learning, routine activities, and self-control may explain youths' involvement in crime, the focus of the current study is on the use of prosocial efficacy to control behavior and facilitate choice. Self-efficacy is examined as a way of enacting personal control over situations and choosing alternatives to crime, and collective efficacy is examined as a method for neighborhoods to control crime among youths. The alternative explanations of crime reviewed above are unable to address this notion of control, and they do not address the mechanisms associated with choice.

Influence of Contextual Variables on Self-Efficacy

Another theoretical implication stemming from this study is the need to determine whether context influences self-efficacy. In the current study, neighborhood and family context are examined as control variables and their direct effects on self-efficacy are not explored. Family context is known to influence children's development of self-efficacy (Bandura, 1997; Hoeltje et al., 1996), but what about neighborhood factors? Additional research could investigate the influence of contextual variables on self-efficacy to determine if any are important in the development of self-efficacy.[64] Further, it is not

[63] It is not clear if the opposite is true, if high self-control can contribute to decision making.
[64] Preliminary results (discussed above) indicate that neighborhood contexts may influence self-efficacy.

known whether collective efficacy influences youths' perceptions of their general self-efficacy.[65] Contextual variables that are significantly related to self-efficacy could be targeted in the development of policies aimed at increasing self-efficacy.

Self-Efficacy Perceptions and Antisocial Behaviors

While the self-efficacy measures in this study are interpreted as being prosocial, self-efficacy may address antisocial behavior (see Ludwig and Pittman, 1999). Theoretically, people can have self-efficacy about prosocial or antisocial behaviors and self-efficacy pertains to any desired outcome whether achieved through prosocial or problem behavior (Ludwig and Pittman, 1999). In this study, prosocial self-efficacy is significantly related to a reduction in crime. Self-efficacy scales that take into account problem behaviors may yield different results (see Ludwig and Pittman, 1999). Further, the self-efficacy measures used in this research may tap into antisocial behaviors, depending on the youths' interpretation of the questions. For example, "Can go far in the world" does not ask the youth to differentiate whether this would be achieved through legitimate or illegitimate means. Similarly, the question asking if youths' "Feel safe alone in neighborhood" does not determine if youths feel safe because they are comfortable deterring or fighting combatants as the need arises or if neighborhood is generally safe (see Anderson, 1999).

[65] Collective efficacy significantly influences street efficacy, or one's ability to avoid neighborhood violence (Sharkey, 2006), but it is not known if collective efficacy influences a youth's general sense of efficacy.

Policy Implications

Policy implications from this research stem from the finding that higher levels of self-efficacy are significantly related to a reduction in violence, drug dealing, and trouble with police, independent of neighborhood. Most neighborhood context variables do not influence individual-level behavior in the current study. This is similar to Elliott and colleagues (2006) who found modest neighborhood effects on prosocial behavior. This finding is suggestive that it is more important to channel resources towards improving individuals' prosocial self-efficacy than neighborhoods' collective efficacy. Further, programs aimed at improving self-efficacy among youths may be useful in reducing antisocial behavior.[66]

In order to increase self-efficacy, first we need to know how it is developed. According to Bandura (1986), there are four ways to attain self-efficacy: self-mastery, social persuasion, vicarious experiences, and physiological states (somatic and emotional) in reaction to behaviors and experiences. Two of these four mechanisms contributing to the development of self-efficacy, social persuasion and vicarious experiences (Bandura, 1995), are related to the contextual environment of individuals. Social persuasion refers to an external support system which can facilitate development of high or low self-efficacy. Positive social persuasion from others should provide encouragement and social support to an individual thereby increasing their self-efficacy perceptions. Self-efficacy from vicarious experiences is attained through observations of others, who are like oneself, successfully complete tasks, and achieve their goals. These

[66]As discussed above, it is not known whether neighborhood variables such as collective efficacy influence self-efficacy. The current study only examines the relationships between self-efficacy, collective efficacy and crime, not the influence of context on self-efficacy.

monitoring and socialization efforts assist children in forming self-efficacy beliefs about their abilities.

Due to their importance in the development of self-efficacy, increasing monitoring and socialization efforts among parents and other early childhood caregivers should be a focus of policy implications. Intervening early with parents and caregivers is essential because individuals are born without a sense of self. This sense of self is socially constructed (Bandura, 1997) and its development is based in early interactions with family and caregivers (Bandura, 1997; Hoeltje et al., 1996). Further, as the primary agents of socialization and monitoring (see Bronfenbrenner, 1979), the family plays a key role in the development of a youth's self-efficacy (Bandura, 1997; Elliott et al., 2006; Schunk and Meece, 2006) and a lack of supervision and parental involvement with children is related to delinquency (Stouthamer-Loeber and Loeber, 1986). Because of the importance of the family in developing self-efficacy, early intervention programs aimed at socialization, monitoring, and increasing self-efficacy are ideal.

Several family-based prevention programs are effective and improve parenting skills such as monitoring and socialization as well as child outcomes (Farrington and Welsh, 2003; Piquero et al., 2009; Sherman, 1997). Because self-efficacy development begins at an early age, a program which focuses on early developmental periods (i.e., pre-natal, infancy, and early childhood) is preferred. One such program is home visitation services provided by nurses to families at risk of child abuse and neglect. This program pairs nurses with at-risk pregnant women (e.g., young, low income, unmarried) during their first pregnancy. Nurses visit the mother 9 times during the pregnancy and 23 times before the child's first birthday. During these visits, the nurse teaches the mother

parenting self-efficacy and essential skills such as proper prenatal health behaviors (e.g., proper nutrition, avoiding drug and alcohol use) to reduce poor outcomes (e.g., preterm birth, neurocognitive deficits), how to care for the child, and to plan for additional children.

In a randomized experiment of this home-visitation program, Olds and colleagues (1997, 1998) found long-term benefits among 400 women and their children over 15 years. Compared to women in the control group, who did not receive home visitation, women assigned to the program were less likely to abuse their child, have subsequent births, and require welfare assistance (e.g., Aid to Families with Dependent Children). Children of women assigned to the program were less likely to have behavioral problems resulting from drug and alcohol use by the mother and be arrested (self-report and official record) than children of mothers who were not enrolled in the home-visitation program. This program teaches mothers how to be good parents and instills in them parenting self-efficacy (see Olds, 2002). These skills and the self-effectiveness they teach can translate into better parenting (e.g., socialization, monitoring), which can influence the development of self-efficacy in the child. Similarly, less intensive parenting classes for low-risk families who wish to increase their capabilities to effectively socialize and monitor their children would also aid the development of self-efficacy (see Elliott et al., 2006).

Additional research is needed to link the benefits of family-based prevention programs to offending behavior (see Farrington and Welsh, 2003). It is anticipated that these programs will increase self-efficacy among youths which, according to the findings from the current study, should reduce involvement in crime. However, measures of self-

efficacy at baseline and post-program participation would be necessary for determining that self-efficacy was increased as a result of such programs.

Appendices

Appendix A: Correlation Matrix for Self-Efficacy and Family Context Variables

	Self-Efficacy	Immigrant Status	SES	Family Disruption	Family Size	Parental Monitoring
Self-Efficacy	1.000					
Immigrant Status	-0.081	1.000				
SES	0.156	-0.342	1.000			
Family Disruption	-0.031	-0.159	-0.072	1.000		
Family Size	-0.056	0.153	-0.218	-0.164	1.000	
Parental Monitoring	0.125	-0.069	0.116	-0.049	-0.030	1.000

Appendix B: Correlation Matrix for Self-Efficacy and Individual-Level Variables

	Self-Efficacy	Cohort 9	Cohort 12	Cohort 15	Male	African American	Hispanic
Self-Efficacy	1.000						
Cohort 9	0.051	1.000					
Cohort 12	0.033	-0.546	1.000				
Cohort 15	-0.089	-0.467	-0.486	1.000			
Male	-0.051	0.069	-0.023	-0.047	1.000		
African American	0.041	-0.018	0.023	-0.006	-0.034	1.000	
Hispanic	-0.116	0.022	-0.019	-0.002	0.019	-0.572	1.000

Appendix C: Correlation Matrix for 23 Self-Efficacy Items

	school1	school2	school3	school4	school5	school6	school7
school1	1.000						
school2	0.164	1.000					
school3	0.182	0.374	1.000				
school4	0.209	0.191	0.191	1.000			
school5	0.176	0.305	0.398	0.156	1.000		
school6	0.203	0.209	0.275	0.317	0.261	1.000	
school7	0.218	0.227	0.233	0.279	0.294	0.413	1.000
parents1	0.058	0.176	0.228	0.084	0.260	0.116	0.159
parents2	0.154	0.177	0.152	0.198	0.172	0.228	0.254
parents3	0.163	0.152	0.179	0.231	0.217	0.320	0.336
parents4	0.157	0.129	0.175	0.215	0.179	0.234	0.284
parents5	0.148	0.141	0.142	0.163	0.098	0.231	0.273
parents7	0.149	0.183	0.203	0.214	0.235	0.291	0.350
life1	0.128	0.074	0.099	0.178	0.091	0.116	0.160
life3	0.225	0.178	0.217	0.280	0.280	0.349	0.385
life4	0.179	0.182	0.205	0.275	0.251	0.289	0.399
life6	0.066	0.200	0.232	0.104	0.302	0.168	0.222
hood1	0.129	0.138	0.138	0.179	0.117	0.160	0.197
hood2	0.104	0.185	0.252	0.157	0.223	0.166	0.188
hood3	0.068	0.128	0.200	0.155	0.203	0.197	0.195
hood4	0.085	0.039	0.056	0.169	0.045	0.159	0.155
hood5	0.108	0.072	0.057	0.192	0.039	0.165	0.195
hood6	0.065	0.155	0.155	0.160	0.148	0.110	0.135

	parents1	parents2	parents3	parents4	parents5	parents7	life1
parents1	1.000						
parents2	0.302	1.000					
parents3	0.248	0.360	1.000				
parents4	0.313	0.406	0.403	1.000			
parents5	0.113	0.273	0.278	0.333	1.000		
parents7	0.314	0.384	0.419	0.462	0.331	1.000	
life1	-0.009	0.132	0.135	0.117	0.143	0.091	1.000
life3	0.101	0.244	0.352	0.221	0.192	0.283	0.202
life4	0.113	0.239	0.231	0.167	0.192	0.256	0.192
life6	0.157	0.162	0.210	0.151	0.147	0.215	0.116
hood1	0.062	0.177	0.157	0.166	0.204	0.184	0.170
hood2	0.161	0.156	0.195	0.162	0.148	0.206	0.102
hood3	0.122	0.135	0.185	0.107	0.120	0.187	0.115
hood4	-0.001	0.120	0.131	0.082	0.168	0.110	0.204
hood5	-0.018	0.115	0.147	0.121	0.194	0.142	0.182
hood6	0.115	0.142	0.121	0.144	0.125	0.168	0.067

	life3	life4	life6	hood1	hood2	hood3	hood4
life3	1.000						
life4	0.363	1.000					
life6	0.251	0.249	1.000				
hood1	0.178	0.186	0.133	1.000			
hood2	0.219	0.202	0.167	0.178	1.000		
hood3	0.212	0.185	0.188	0.184	0.277	1.000	
hood4	0.139	0.191	0.078	0.227	0.129	0.235	1.000
hood5	0.140	0.199	0.060	0.288	0.182	0.183	0.435
hood6	0.100	0.158	0.256	0.125	0.282	0.192	0.077

	hood5	hood6
hood5	1.000	
hood6	0.100	1.000

Appendix D: Correlation Matrices for Self-Reported Offending and Self-Efficacy Domains

Violence and Self-Efficacy Domains

	Violence	School	Parents	Life	Neighborhood
Violence	1.000				
School	0.024	1.000			
Parents	0.161	0.279	1.000		
Life	0.016	0.286	0.294	1.000	
Neighborhood	-0.123	0.166	0.064	0.143	1.000

Drug Dealing and Self-Efficacy Domains

	Drug Dealing	School	Parents	Life	Neighborhood
Drug Dealing	1.000				
School	0.016	1.000			
Parents	0.111	0.279	1.000		
Life	0.059	0.286	0.294	1.000	
Neighborhood	-0.021	0.166	0.064	0.143	1.000

Trouble with Police and Self-Efficacy Domains

	Trouble with Police	School	Parents	Life	Neighborhood
Trouble with Police	1.000				
School	-0.021	1.000			
Parents	0.137	0.279	1.000		
Life	0.016	0.286	0.294	1.000	
Neighborhood	-0.089	0.166	0.064	0.143	1.000

Appendix E: Correlation Matrix for Self-Efficacy, Collective Efficacy, Neighborhood Context, and Family Context Variables

				NEIGHBORHOOD				FAMILY				
		Self-Efficacy	Collective Efficacy	Residential Mobility	SES	Ethnic Heterogeneity	Residential Mobility	Immigrant Status	SES	Family Disruption	Family Size	Parental Monitoring
	Self-Efficacy	1.000										
	Collective Efficacy	0.067	1.000									
NEIGHBORHOOD	Residential Mobility	-0.035	-0.479	1.000								
NEIGHBORHOOD	SES	0.111	0.658	-0.229	1.000							
NEIGHBORHOOD	Ethnic Heterogeneity	-0.049	-0.236	0.448	-0.108	1.000						
NEIGHBORHOOD	Residential Mobility	-0.013	-0.231	-0.018	-0.226	-0.069	1.000					
FAMILY	Immigrant Status	-0.081	-0.239	0.248	-0.110	0.246	-0.207	1.000				
FAMILY	SES	0.156	0.349	-0.144	0.402	-0.128	-0.021	-0.342	1.000			
FAMILY	Family Disruption	-0.031	0.004	-0.025	-0.003	-0.049	0.062	-0.158	-0.072	1.000		
FAMILY	Family Size	-0.056	-0.128	-0.002	-0.154	0.016	-0.008	0.153	-0.218	-0.164	1.000	
FAMILY	Parental Monitoring	0.125	-0.008	-0.024	-0.007	0.016	0.040	-0.069	0.116	-0.049	-0.030	1.000

Appendix F: Home Inventory

1. Subject has a set time [curfew] to be home on school nights.	A. Yes B. No
2. Subject routinely obeys curfew on school nights.	A. Yes B. No
3. Subject has a set time [curfew] to be home on weekend nights.	A. Yes B. No
4. Subject routinely obeys curfew on weekend nights.	A. Yes B. No
5. PC has established rules about homework and checks to see if homework is done.	A. Yes B. No
6. PC assisted subject with homework and school assignments every other week during current or most recent school year.	A. Yes B. No
7. PC requires subject to sleep at home on school nights.	A. Yes B. No
8. When PC is not available to subject at home, reasonable procedures have been established for him/her to check in with PC, or their designee, on weekends and after school.	A. Yes B. No
9. After school subject goes somewhere that adult supervision is provided.	A. Yes B. No
10. PC establishes rules for subject's behavior with peers and asks questions to determine whether they are being followed.	A. Yes B. No
11. Subject is not allowed to wander in public places without adult supervision for more than 1 hour *(Cohort 9)*/2 hours *(Cohort 12)*/3 hours *(Cohort 15)*.	A. Yes B. No
12. PC has had contact with two of the subjects' friends in the last week *(Cohort 9)*/two weeks *(Cohorts 12 and 15)*.	A. Yes B. No
13. PC talks daily with subject about his/her day.	A. Yes B. No
14. PC has visited school or talked to the teacher or counselor within the last 3 months.	A. Yes B. No
15. Family has TV, and it is used judiciously, not left on continuously.	A. Yes B. No
16. PC has discussed television programs with subject during the past two weeks.	A. Yes B. No
17. PC has discussed current events with subject during the past two weeks.	A. Yes B. No
18. PC has discussed the hazards of alcohol and drug abuse with subject during the past year.	A. Yes B. No
19. PC denies subject access to alcohol (including beer or wine) in the home.	A. Yes B. No
20. PC knows signs of drug usage and remains alert to possible experimentation.	A. Yes B. No
21. Subject is taken regularly to a doctor's office or clinic for check-ups and preventive health care (once a year).	A. Yes B. No
22. Family has a fairly regular and predictable schedule for subject.	A. Yes B. No
23. PC sets limits for subject and generally enforces them.	A. Yes B. No
24. PC is generally consistent in establishing or applying family rules.	A. Yes B. No

Bibliography

Agnew, Robert. 1992. Foundation for a General Strain Theory of Crime and Delinquency. *Criminology* 30:47-87.

Agnew, Robert, and Helene Raskin White. 1992. An Empirical Test of General Strain Theory. *Criminology* 30:475-499.

Akers, Ronald L. 1985. *Deviant Behavior: A Social Learning Approach*. Belmont, CA: Wadsworth.

------. 1990. Rational Choice, Deterrence, and Social Learning in Criminology: The Path Not Taken. *The Journal of Criminal Law & Criminology* 81:653-676.

Akers, Ronald L., and Gary F. Jensen. 2006. The Empirical Status of Social Learning Theory of Crime and Deviance: The Past, Present, and Future. Pp. 37-76 in *Taking Stock: The Status of Criminological Theory, Advances in Criminological Theory, Volume 15*. eds. Francis T. Cullen, John Paul Wright, and Kristie R. Blevins. New Brunswick, NJ: Transaction.

Anderson, Elijah. 1999. *Code of the Street.* New York: W.W. Norton and Company.

Bandura, Albert. 1977a. *Social Learning Theory*. New York: General Learning Press.

------. 1977b. Self-Efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review* 84:191-215.

------. 1984. Recycling Misconceptions of Perceived Self-Efficacy. *Cognitive Theory and Research* 8:231-255.

------. 1986. Self-Efficacy. Pp. 390-453 in *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

------. 1989. Human Agency in Social Cognitive Theory. *American Psychologist* 44:1175-1184.

------. 1992. Social Cognitive Theory. Pp. 1-60 in *Six Theories of Child Development: Revised Formulations and Current Issues*. ed. Ross Vasta. Philadelphia, PA: Jessica Kingsley Publishers.

------. 1995. Exercise of Personal and Collective Efficacy in Changing Societies. Pp. 1-45 in *Self-Efficacy in Changing Societies.* ed. Albert Bandura. Cambridge, UK: Cambridge University Press.

------. 1997. *Self-Efficacy: The Exercise of Control.* New York: Freeman and Company.

------. 2000. Exercise of Human Agency Through Collective Efficacy. *Current Directions in Psychological Science* 9:75-78.

------. 2002. Social Cognitive Theory in Cultural Context. *Applied Psychology: An International Review* 51:269-290.

------. 2006a. Guide for Constructing Self-Efficacy Scales. Pp. 307-337 in *Self-Efficacy Beliefs of Adolescents.* eds. Frank Pajares and Tim Urdan. Greenwich, CT: Information Age Publishing.

------. 2006b. Toward a Psychology of Human Agency. *Perspectives on Psychological Science* 1:164-180.

------. 2006c. Adolescent Development from an Agentic Perspective. Pp. 1-43 in *Self-Efficacy Beliefs of Adolescents*. eds. Frank Pajares and Tim Urdan. Greenwich, CT: Information Age Publishing.

Bandura, Albert, Gian Vittorio Caprara, Claudio Barbaranelli, Maria Gerbino, and Concetta Pastorelli. 2003. Role of Affective Self-Regulatory Efficacy in Diverse Spheres of Psychosocial Functioning. *Child Development* 74:769-782.

Baron, Reuben M., and David A. Kenny. 1986. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology* 51: 1173-1182.

Baron, Stephen W. 2004. General Strain, Street Youth and Crime: A Test of Agnew's Revised Theory. *Criminology* 42:457-483.

------. 2007. Street Youth, Gender, Financial Strain, and Crime: Exploring Broidy and Agnew's Extension to General Strain Theory. *Deviant Behavior* 28:273-302.

Benda, Brent B. 2001. Factors That Discriminate Between Recidivists, Parole Violators, and Nonrecidivists in a 3-Year Follow-Up of Boot Camp Graduates. *International Journal of Offender Therapy and Comparative Criminology* 45:711-729.

Bernard, Larry C., Steven Hutchinson, Alexander Lavin, and Pamela Pennington. 1996. Ego-Strength, Hardiness, Self-Esteem, Self-Efficacy, Optimism, and Maladjustment: Health-Related Personality Constructs and the "Big Five" Model of Personality. *Assessment* 3:115-131.

Blake, Susan M., Rebecca Ledsky, Carol Goodenow, and Lydia O'Donnell. 2001. Recency of Immigration, Substance Use, and Sexual Behavior Among Massachusetts Adolescents. *American Journal of Public Health* 91:794-798.

Bradley, Robert H., Robert F. Corwyn, Bettye M. Caldwell, Leanne Whiteside-Mansell, Gail A. Wasserman, and Iris T. Mink. 2000. Measuring the Home Environments of Children in Early Adolescence. *Journal of Research on Adolescence* 10:247-288.

Britner, Shari L., and Frank Pajares. 2006. Sources of Science Self-Efficacy Beliefs of Middle School Students. *Journal of Research in Science Teaching* 45:485-499.

Brody, Gene H., Xiaojia Ge, Rand D. Conger, Frederick X. Gibbons, Velma McBride Murry, Meg Gerrard, and Ronald L. Simons. 2001. The Influence of Neighborhood Disadvantage, Collective Socialization, and Parenting on African American Children's Affiliation with Deviant Peers. *Child Development* 72:1231–1246.

Bronfenbrenner, Urie. 1979. *The Ecology of Human Development: Experiments by Nature and Design.* Cambridge, MA: Harvard University Press.

------. 1986a. Ecology of the Family as a Context for Human Development: Research Perspectives. *Developmental Psychology* 22:723-742.

------. 1986b. Recent Advances in Research on the Ecology of Human Development. Pp. 285-309 in *Development as Action in Context: Problem Behavior and Normal Youth Development.* eds. Rainer K. Silbereisen, Klaus Eyferth, and Georg Rudinger. New York: Springer-Verlag.

------. 1992. Ecological Systems Theory. Pp. 187-249 in *Six Theories of Child Development: Revised Formulations and Current Issues.* ed. Ross Vasta. Philadelphia, PA: Jessica Kingsley Publishers.

Brooks-Gunn, Jeanne, Greg J. Duncan, and J. Lawrence Aber. 1997a. *Neighborhood Poverty: Context and Consequences for Children, Volume 1.* New York: Russell Sage Foundation.

------. 1997b. *Neighborhood Poverty: Policy Implications in Studying Neighborhoods, Volume 2.* New York: Russell Sage Foundation.

Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela Kato Klebanov, and Naomi Sealand. 1993. Do Neighborhoods Influence Child and Adolescent Development? *American Journal of Sociology* 99:353-395.

Browning, Christopher R. 2002. The Span of Collective Efficacy: Extending Social Disorganization Theory to Partner Violence. *Journal of Marriage and Family* 64:833-850.

Browning, Christopher R., and Kathleen A. Cagney. 2003. Moving Beyond Poverty: Neighborhood Structure, Social Processes, and Health. *Journal of Health and Social Behavior* 44:552-571.

Browning, Christopher R., Tama Leventhal, and Jeanne Brooks-Gunn. 2004. Neighborhood Context and Racial Differences in Early Adolescent Sexual Activity. *Demography* 41:697-720.

Bursik, Robert J., Jr. 1986. Ecological Stability and the Dynamics of Delinquency. Pp. 35-66 in *Communities and Crime.* eds. Albert J. Reiss and Michael H. Tonry. Chicago, IL: Chicago University Press.

------. 1988. Social Disorganization and Theories of Crime and Delinquency: Problems and Prospects. *Criminology* 26:519-551.

Bursik, Robert J., Jr., and Harold G. Grasmick. 1993. *Neighborhoods and Crime: The Dimensions of Effective Community Control*. New York: Lexington Books.

Burton, Linda M., and Robin L. Jarrett. 2000. In the Mix, Yet on the Margins: The Place of Families in Urban Neighborhood and Child Development Research. *Journal of Marriage and the Family* 62:1114-1135.

Byrne, James M., and Robert J. Sampson. 1986. Key Issues in the Social Ecology of Crime. Pp. 1-22 in *The Social Ecology of Crime*. eds. James M. Byrne and Robert J. Sampson. New York: Springer-Verlag.

Caldwell, Bettye, and Robert H. Bradley. 1984. *Home Observation for Measurement of the Environment (HOME) - Revised Edition.* Little Rock, AR: University of Arkansas.

Cloward, Richard A., and Lloyd E. Ohlin. 1960. *Delinquency and Opportunity*. New York: Free Press.

Coleman, James S. 1990. *Foundations of Social Theory.* Cambridge, MA: Belknap Press.

Cook, Thomas D. 2003. The Case for Studying Multiple Contexts Simultaneously. *Addiction* 98:151-155.

Cook, Thomas D., Melissa R. Herman, Meredith Phillips, and Richard A. Settersten, Jr. 2002. Some Ways in Which Neighborhoods, Nuclear Families, Friendship Groups, and Schools Jointly Affect Early Adolescent Development. *Child Development* 73:1283-1309.

Dalgard, Odd Stefen, Suraj Bahadur Thapa, Edvard Hauff, Michael McCubbin, and Hammad Raza Syed. 2006. Immigration, Lack of Control and Psychological Distress: Findings from the Oslo Health Study. *Scandinavian Journal of Psychology* 47:551-558.

Duncan, Greg J., and J. Lawrence Aber. 1997. Neighborhood Models and Measures. Pp. 62-78 in *Neighborhood Poverty: Context and Consequences for Children, Volume 1.* eds. Jeanne Brooks-Gunn, Greg J. Duncan, and J. Lawrence Aber. New York: Russell Sage Foundation.

Duncan, Greg J., Jeanne Brooks-Gunn, and Pamela K. Klebanov. 1994. Economic Deprivation and Early-Childhood Development. *Child Development 65:*296-318.

Duncan, Greg J., and Stephen W. Raudenbush. 1999. Assessing the Effects of Context in Studies of Child and Youth Development. *Educational Psychologist* 34:29-41.

Duncan, Greg J., and Stephen W. Raudenbush. 2001. Neighborhoods and Adolescent Development: How Can We Determine the Links? Pp. 105-136 in *Does It Take a Village? Community Effects on Children, Adolescents and Families.* eds. Alan Booth and Ann C. Crouter. Mahwah, NJ: Lawrence Erlbaum Associates.

Eccles, Jacquelynne, Allan Wigfield, Rena D. Harold, and Phyllis Blumenfeld. 1993. Age and Gender Differences in Children's Self-Efficacy and Task Perceptions during Elementary School. *Child Development* 64:830-847.

Elder, Glen H., Jr. 1994. Time, Human Agency, and Social Change: Perspectives on the Life Course. *Social Psychology Quarterly* 57:4-15.

------. 1995. Life Trajectories in Changing Societies. Pp. 46-68 in *Self-Efficacy in Changing Societies*. ed. Albert Bandura. Cambridge, UK: Cambridge University Press.

Elliott, Delbert S., Scott Menard, Bruce Rankin, Amanda Elliott, William Julius Wilson, and David Huizinga. 2006. *Good Kids from Bad Neighborhoods: Successful Development in Social Context.* Cambridge, UK: Cambridge University Press.

Farrington, David P. 1986. Age and Crime. Pp. 189-250 in *Crime and Justice: A Review of Research, Vol. 7.* eds. Michael H. Tonry and Norval Morris. Chicago, IL: University of Chicago Press.

------. 1992. Explaining the Beginning, Progress and Ending of Antisocial Behavior from Birth to Adulthood. Pp. 253-286 in *Facts, Frameworks and Forecasts, Advances in Criminological Theory, Volume 3*. ed. Joan McCord. New Brunswick, NJ: Transaction.

------. 1993. Have any Individual, Family or Neighbourhood Influences on Offending been Demonstrated Conclusively? Pp. 7-37 in *Integrating Individual and Ecological Aspects of Crime*. eds. David P. Farrington, Robert J. Sampson, and Per-Olof H. Wikström. Stockholm, Sweden: National Council for Crime Prevention.

------. 1995. The Development of Offending and Antisocial Behaviour from Childhood: Key Findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry* 360:929-964.

------. 2003. Developmental and Life-Course Criminology: Key Theoretical and Empirical Issues – The 2002 Sutherland Award Address. *Criminology* 41:221-255.

Farrington, David P., and Brandon C. Welsh. 2003. Family-Based Prevention of Offending: A Meta-Analysis. *The Australian and New Zealand Journal of Criminology* 36: 127-151.

Felson, Marcus. 2002. *Crime and Everyday Life.* Thousand Oaks, CA: Sage.

Fergus, Stevenson, and Marc A. Zimmerman. 2005. Adolescent Resilience: A Framework for Understanding Healthy Development in the Face of Risk. *Annual Review of Public Health* 26:399-419.

Fernández-Ballesteros, Rocio, Juan Díez-Nicolás, Gian Vittorio Caprara, Claudio Barbaranelli, and Albert Bandura. 2002. Determinants and Structural Relation of Personal Efficacy to Collective Efficacy. *Applied Psychology: An International Review* 51:107-125.

Fraser, Mark W. 1996. Aggressive Behavior in Childhood and Early Adolescence: An Ecological-Developmental Perspective on Youth Violence. *Social Work* 41:347-361.

Frytak, Jennifer R., Carolyn R. Harley, and Michael D. Finch. 2003. Socioeconomic Status and Health Over the Life Course: Capital as a Unifying Concept. Pp. 623-643 in *Handbook of the Life Course*. eds. Jeylan T. Mortimer and Michael J. Shanahan. New York: Kluwer Academic/Plenum Publishers.

Furstenberg, Frank F., Jr., Thomas D. Cook, Jacquelynne Eccles, Glen H. Elder, Jr., and Arnold Sameroff. 1999. *Managing to Make It: Urban Families and Adolescent Success.* Chicago, IL: University of Chicago Press.

Gecas, Viktor. 1989. The Social Psychology of Self-Efficacy. *Annual Review of Sociology* 15:291-316.

Gephart, Martha A. 1997. Neighborhoods and Communities as Contexts for Development. Pp. 120-131 in *Neighborhood Poverty: Context and Consequences for Children, Volume 1.* eds. Jeanne Brooks-Gunn, Greg J. Duncan, and J. Lawrence Aber. New York: Russell Sage Foundation**.**

Goddard, Roger D., Wayne K. Hoy, and Anita Woolfolk Hoy. 2004. Collective Efficacy Beliefs: Theoretical Developments, Empirical Evidence, and Future Directions. *Educational Researcher* 33:3-13.

Gorman-Smith, Deborah, Patrick H. Tolan, and David B. Henry. 2000. A Developmental-Ecological Model of the Relation of Family Functioning to Patterns of Delinquency. *Journal of Quantitative Criminology* 16:169-198.

Gorman-Smith, Deborah, Patrick H. Tolan, Arnaldo Zelli, and L. Rowell Huesmann. 1996. The Relation of Family Functioning to Violence Among Inner-City Minority Youths. *Journal of Family Psychology* 10:115-129.

Gottfredson, Michael R., and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford, CA: Stanford University Press.

------. 2003. Self-control and Opportunity. Pp. 5-20 in *Control Theories of Crime and Delinquency, Advances in Criminological Theory, Volume 12.* eds. Chester L. Britt and Michael R. Gottfredson. New Brunswick, NJ: Transaction Publishers.

Hagan, John, and Bill McCarthy. 1997. *Mean Streets: Youth Crime and Homelessness.* Cambridge, UK: Cambridge University Press.

Haynie, Dana L. 2002. Friendship Networks and Delinquency: The Relative Nature of Peer Delinquency. *Journal of Quantitative Criminology* 18:99-134.

Heimer, Karen. 2000. Changes in the Gender Gap in Crime and Women's Economic Marginalization. Pp. 427-484 in *The Nature of Crime: Continuity and Change, Criminal Justice 2000, Volume 1*. ed. Gary LaFree. Washington, DC: U.S. Department of Justice.

Hindelang, Michael J., Travis Hirschi, and Joseph G. Weis. 1979. Correlates of Delinquency: The Illusion of Discrepancy between Self-Report and Official Measures. *American Sociological Review* 44:995-1014.

------. 1981. *Measuring Delinquency*. Beverly Hills, CA: Sage.

Hirschi, Travis, and Michael R. Gottfredson. 1983. Age and the Explanation of Crime. *American Journal of Sociology* 89:552-584.

------. 2001. Self-Control Theory. Pp 81-96 in *Explaining Criminals and Crime: Essays in Contemporary Criminological Theory*. eds. Raymond Paternoster and Ronet Bachman. Los Angeles, CA: Roxbury.

Hitlin, Steven, and Glen H. Elder, Jr. 2007. Time, Self, and the Curiously Abstract Concept of Agency. *Sociological Theory* 25:170-191.

Hoeltje, Claudia O., Stephen R. Zubrick, Sven R. Silburn, and Alison F. Garton. 1996. Generalized Self-Efficacy: Family and Adjustment Correlates. *Journal of Clinical Child Psychology* 25:446-453.

Hoffmann, John P., and Felicia Gray Cerbone. 1999. Stressful Life Events and Delinquency Escalation in Early Adolescence. *Criminology* 37:343-373.

Hoffmann, John P., and Alan S. Miller. 1998. A Latent Variable Analysis of General Strain Theory. *Journal of Quantitative Criminology* 14:83-110.

Hox, J.J. 1995. *Applied Multilevel Analysis*. Amsterdam: TT-Publikaties.

Inter-university Consortium for Political and Social Research, Project on Human Development in Chicago Neighborhoods Website. http://www.icpsr.umich.edu/PHDCN/site-selection.html. Date Accessed: January 4, 2009.

Jang, Sung Joon, and Byron R. Johnson. 2003. Strain, Negative Emotions, and Deviant Coping Among African Americans: A Test of General Strain Theory. *Journal of Quantitative Criminology* 19:79-105.

Jerusalem, Matthias, and Waldemar Mittag. 1995. Self-Efficacy in Stressful Life Transitions. Pp. 177-201 in *Self-Efficacy in Changing Societies*. ed. Albert Bandura. Cambridge, UK: Cambridge University Press.

Jerusalem, Matthias, and Ralf Schwarzer. 1992. Self-Efficacy as a Resource Factor in Stress Appraisal Processes. Pp. 195-213 in *Self-Efficacy: Thought Control of Action*. ed. Ralf Schwarzer. Philadephia, PA: Hemisphere Publishing Corporation.

Juby, Heather, and David P. Farrington. 2001. Disentangling the Link Between Disrupted Families and Delinquency. *British Journal of Criminology* 41:22-40.

Junger, Marianne, and Maja Deković. 2003. Crime as Risk-Taking: Co-occurrence of Delinquent Behavior, Health Endangering Behaviors and Problem Behaviors. Pp. 213-248 in *Control Theories of Crime and Delinquency, Advances in Criminological Theory*. eds. Chester L. Britt and Michael R. Gottfredson. New Brunswick NJ: Transaction Publisher.

Kirk, David S. 2008. The Neighborhood Context of Racial and Ethnic Disparities in Arrest. *Demography* 45:55-77.

------. 2009. Unraveling the Contextual Effects on Student Suspension and Juvenile Arrest: An Examination of School, Neighborhood, and Family Controls. *Criminology* 47:479-520.

Klebanov, Pamela K., Jeanne Brooks-Gunn, P. Lindsay Chase-Lansdale, and Rachel A. Gordon. 1997. Are Neighborhood Effects on Young Children Mediated by Features of the Home Environment? Pp. 119-144 in *Neighborhood Poverty: Context and Consequences for Children, Volume 1*. eds. Jeanne Brooks-Gunn, Greg J. Duncan, and J. Lawrence Aber. New York: Russell Sage Foundation.

Kornhauser, Ruth. 1978. *Social Sources of Delinquency*. Chicago, IL: University of Chicago Press.

Kreft, Ita G.G., Jan de Leeuw, and Leona S. Aiken. 1995. The Effect of Different Forms of Centering in Hierarchical Linear Models. *Multivariate Behavioral Research* 30:1-21.

Kupersmidt, Janis B., Pamela C. Griesler, Melissa E. DeRosier, Charlotte J. Patterson, and Paul W. Davis. 1995. Childhood Aggression and Peer Relations in the Context of Family and Neighborhood Factors. *Child Development* 66:360-375.

Laub, John H., and Robert J. Sampson. 2003. *Shared Beginnings, Divergent Lives: Delinquent Boys to Age 70.* Cambridge, MA: Harvard University Press.

Leventhal, Tama, and Jeanne Brooks-Gunn. 2000. The Neighborhoods They Live In: The Effects of Neighborhood Residence on Child and Adolescent Outcomes. *Psychological Bulletin* 126:309-337.

Lewin, Kurt. 1935. *A Dynamic Theory of Personality*. New York: McGraw-Hill.

Loeber, Rolf, Stephanie M. Green, Kate Keenan, and Benjamin B. Lahey. 1995. Which Boys Will Fare Worse? Early Predictors of the Onset of Conduct Disorder in a Six-Year Longitudinal Study. *Journal of the American Academy of Child and Adolescent Psychiatry* 34:499-509.

Loeber, Rolf, and Magda Stouthamer-Loeber. 1986. Family Factors as Correlates and Predictors of Juvenile Conduct Problems and Delinquency. *Crime and Justice* 7:29-149.

Long, J. Scott, and Jeremy Freese. 2006. *Regression Models for Categorical Dependent Variables Using Stata.* College Station, TX: Stata Press.

Ludwig, Kristin B., and Joe F. Pittman. 1999. Adolescent Prosocial Values and Self-Efficacy in Relation to Delinquency, Risky Sexual Behavior, and Drug Use. *Youth & Society* 30:461-482.

Luke, Douglas A. 2004. *Multilevel Modeling*. Thousand Oaks, CA: Sage.

Lyman, Donald R., Avshalom Caspi, Terrie E. Moffitt, Per-Olof H. Wikström, Rolf Loeber, and Scott Novak. 2000. The Interaction Between Impulsivity and Neighborhood Context on Offending: The Effects of Impulsivity Are Stronger in Poorer Neighborhoods. *Journal of Abnormal Psychology* 109:563-574.

Mack, Kristin Y., Michael J. Leiber, Richard A. Featherstone, and Maria A. Monserud. 2007. Reassessing the Family-Delinquency Association: Do Family Type, Family Processes, and Economic Factors Make a Difference? *Journal of Criminal Justice* 35:51-67.

Matherene, Monique M., and Adrian Thomas. 2001. Family Environment as a Predictor of Adolescent Delinquency. *Adolescence* 36:655-664.

Mayer, Susan E., and Christopher Jencks. 1989. Growing Up in Poor Neighborhoods: How Much Does It Matter? *Science* 243:1441-1445.

McLeod, Jane D., Candace Kruttschnitt, and Maude Dornfeld. 1994. Does Parenting Explain the Effects of Structural Conditions on Children's Antisocial Behavior? A Comparison of Blacks and Whites. *Social Forces* 73:575-604.

Miethe, Terance D., Jodi Olson, and Ojmarrh Mitchell. 2006. Specialization and Persistence in the Arrest Histories of Sex Offenders: A Comparative Analysis of Alternative Measures and Offense Types. *Journal of Research in Crime and Delinquency* 43:204-229.

Moffitt, Terrie E., Avshalom Caspi, Michael Rutter, and Phil A. Silva. 2001. *Sex Differences in Antisocial Behavior: Conduct Disorder, Delinquency, and Violence in the Dunedin Longitudinal Study.* Cambridge, UK: Cambridge University Press.

Molnar, Beth E., Magdalena Cerda, Andrea L. Roberts, and Stephen L. Buka. 2008. Effects of Neighborhood Resources on Aggressive and Delinquent Behaviors Among Urban Youths. *American Journal of Public Health* 98:1086-1093.

Molnar, Beth E., Matthew J. Miller, Deborah Azrael, and Stephen L. Buka. 2004. Neighborhood Predictors of Concealed Firearm Carrying among Children and Adolescents: Results from the Project on Human Development in Chicago Neighborhoods. *Archives of Pediatrics and Adolescent Medicine* 158:657-664.

Moos, Rudolf H., and Charles J. Holahan. 2003. Dispositional and Contextual Perspectives on Coping: Toward an Integrative Framework. *Journal of Clinical Psychology* 59:1387-1403.

Morenoff, Jeffrey D. 2003. Neighborhood Mechanisms and the Spatial Dynamics of Birth Weight. *American Journal of Sociology* 108:976-1017.

Mosher, Clayton J., Terance D. Miethe, and Dretha M. Phillips. 2002. *The Mismeasure of Crime.* Thousand Oaks, CA: Sage.

Nagin, Daniel S., and Raymond Paternoster. 1991. On the Relationship of Past to Future Participation in Delinquency. *Criminology* 29:163-189.

Newcomb, Michael D., and Lisa L. Harlow. 1986. Life Events and Substance Use Among Adolescents: Mediating Effects of Perceived Loss of Control and Meaninglessness in Life. *Journal of Personality and Social Psychology* 51:564-577.

Olds, David L. 2002. Prenatal and Infancy Home Visiting by Nurses: From Randomized Trials to Community Replication. *Prevention Science* 3:153-172.

Olds, David L., John Eckenrode, Charles R. Henderson, Jr., Harriet Kitzman, Jane Powers, Robert Cole, Kimberly Sidora, Pamela Morris, Lisa M. Pettitt, and Dennis Luckey. 1997. Long-term Effects of Home Visitation on Maternal Life Course and Child Abuse and Neglect. *Journal of the American Medical Association* 278:637-643.

Olds, David L., Charles R. Henderson, Jr., Robert Cole, John Eckenrode, Harriet Kitzman, Dennis Luckey, Lisa Pettitt, Kimberly Sidora, Pamela Morris, and Jane Powers. 1998. Long-term Effects of Nurse Home Visitation on Children's Criminal and Antisocial Behavior. *Journal of the American Medical Association* 280:1238-1244.

Park, Young-Shin, Uichol Kim, Kab-Soon Chung, Sang-Mi Lee, Hyug-Ho Kwon, and Kye-Min Yang. 2000. Causes and Consequences of Life-Satisfaction among Primary, Junior High, and Senior High School Students. *Korean Journal of Health Psychology* 5:94-118.

Paternoster, Raymond, and Paul Mazerolle. 1994. General Strain Theory and Delinquency: A Replication and Extension. *Journal of Research in Crime and Delinquency* 31:235-263.

Paternoster, Ray, and Greg Pogarsky. 2009. Rational Choice, Agency and Thoughtfully Reflective Decision Making: The Short and Long-Term Consequences of Making Good Choices. *Journal of Quantitative Criminology* 25:103-127.

Pearlin, Leonard I., and Carmi Schooler. 1978. The Structure of Coping. *Journal of Health and Social Behavior* 19:2-21.

Pearlin, Leonard I., Elizabeth G. Menaghan, Morton A. Lieberman, and Joseph T. Mullan. 1981. The Stress Process. *Journal of Health and Social Behavior* 22:337-356.

Piquero, Alex, David P. Farrington, Brandon C. Welsh, Richard Tremblay, and Wesley G. Jennings. 2009. Effects of Early Family/Parent Training Programs on Antisocial Behavior and Delinquency. *Journal of Experimental Criminology* 5:83-120.

Piquero, Alex, Raymond Paternoster, Paul Mazerolle, Robert Brame, and Charles W. Dean. 1999. Onset Age and Offense Specialization. *Journal of Research in Crime and Delinquency* 36:275-299.

Pratt, Travis, and Francis T. Cullen. 2000. The Empirical Status of Gottfredson and Hirschi's General Theory of Crime: A Meta-Analysis. *Criminology* 38:931-964.

Pratt, Travis, and Francis T. Cullen. 2005. Assessing Macro-Level Predictors and Theories of Crime: A Meta-Analysis. *Crime and Justice* 32:373-438.

Raubenheimer, J. 2004. An Item Selection Procedure to Maximize Scale Reliability and Validity. *South African Journal of Industrial Psychology* 30:59-64.

Raudenbush, Stephen W., and Anthony S. Bryk. 2002. *Hierarchical Linear Models. Applications and Data Analysis Methods.* Thousand Oaks, CA: Sage.

Reiss, Albert J. 1986. Why are Communities Important in Understanding Crime? Pp. 1-33 in *Communities and Crime*. eds. Albert J. Reiss and Michael H. Tonry. Chicago, IL: Chicago University Press.

Ross, Catherine E., John R. Reynolds, and Karlyn J. Geis. 2000. The Contingent Meaning of Neighborhood Stability for Residents' Psychological Well-Being. *American Sociological Review* 65:581-597.

Rotter, Julian B. 1966. Generalized Expectancies for Internal Versus External Control of Reinforcement. *Psychological Monographs* 80: 609.

Sampson, Robert J. 1987. Urban Black Violence: The Effect of Male Joblessness and Family Disruption. *American Journal of Sociology* 93:348-382.

------. 1992. Family Management and Child Development: Insights from Social Disorganization Theory. Pp. 63-93 in *Facts, Frameworks, and Forecasts, Advances in Criminological Theory, Volume 3*. ed. Joan McCord. New Brunswick, NJ: Transaction.

------. 2006. How Does Community Context Matter? Social Mechanisms and the Explanation of Crime Rates. Pp. 31-60 in *The Explanation of Crime*. eds. Per-Olof H. Wikström and Robert J. Sampson. Cambridge, UK: Cambridge University.

Sampson, Robert J., and Dawn J. Bartusch. 1998. Legal Cynicism and (Subcultural?) Tolerance of Deviance: The Neighborhood Context of Racial Differences. *Law & Society Review* 32:777-804.

Sampson, Robert J., and W. Byron Groves. 1989. Community Structure and Crime: Testing Social-Disorganization Theory. *American Journal of Sociology* 94:774-802.

Sampson, Robert J., and John H. Laub. 1993. *Crime in the Making: Pathways and Turning Points Through Life.* Cambridge, MA: Harvard University Press.

------. 1995. Understanding Variability in Lives Through Time: Contributions of Life-Course Criminology. *Studies on Crime & Crime Prevention* 4:143-158.

Sampson, Robert J., and Jeffrey D. Morenoff. 1997. Ecological Perspectives on the Neighborhood Context of Urban Poverty: Past and Present. Pp. 1-22 in *Neighborhood Poverty: Policy Implications in Studying Neighborhoods, Volume 2.* eds. Jeanne Brooks-Gunn, Greg J. Duncan, and J. Lawrence Aber. New York: Russell Sage Foundation.

Sampson, Robert J., Jeffrey D. Morenoff, and Thomas Gannon-Rowley. 2002. Assessing "Neighborhood Effects": Social Processes and New Directions in Research. *Annual Review of Sociology* 28:443-478.

Sampson, Robert. J., Jeffrey D. Morenoff, and Stephen Raudenbush. 2005. Social Anatomy of Racial and Ethnic Disparities in Violence. *American Journal of Public Health* 95:224-232.

Sampson, Robert J., and Stephen W. Raudenbush. 1999. Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighborhoods. *American Journal of Sociology* 105:603-651.

Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science* 277:918-924.

Sampson, Robert J., and Patrick Sharkey. 2008. Neighborhood Selection and the Social Reproduction of Concentrated Racial Inequality. *Demography* 45:1-29.

Sampson, Robert J., and William Julius Wilson. 1995. Toward a Theory of Race, Crime, and Urban Inequality. Pp. 37-54 in *Crime and Inequality*. eds. John Hagan and Ruth Peterson. Stanford, CA: Stanford University Press.

Scales, Peter C. 1999. Reducing Risks and Building Developmental Assets: Essential Actions for Promoting Adolescent Health. *Journal of School Health* 69:113-119.

Scholz, Urte, Benicio Gutiérrez Doña, Shonali Sud, and Ralf Schwarzer. 2002. Is General Self-Efficacy a Universal Construct? Psychometric Findings from 25 Countries. *European Journal of Psychological Assessment* 18:242-251.

Schreck, Christopher J., Jean Marie McGloin, and David S. Kirk. 2009. On the Origins of the Violent Neighborhood: A Study of the Nature and Predictors of Crime-Type Differentiation across Chicago Neighborhoods. *Justice Quarterly* 26:771-794.

Schunk, Dale H., and Judith L. Meece. 2006. Self-Efficacy Development in Adolescence. Pp. 71-96 in *Self-Efficacy Beliefs of Adolescents.* eds. Frank Pajares and Tim Urdan. Greenwich, CT: Information Age Publishing.

Schwarzer, Ralf, Judith Bäßler, Patricia Kwiatek, and Kerstin Schröder. 1997. The Assessment of Optimistic Self-beliefs: Comparison of the German, Spanish, and Chinese Versions of the General Self-efficacy Scale. *Applied Psychology: An International Review* 46:69-88.

Schwarzer, Ralf, and Aristi Born. 1997. Optimistic Self-Beliefs: Assessment of General Perceived Self-Efficacy in Thirteen Cultures. *World Psychology* 3:177-190.

Scott, Jacqueline, and Duane Alwin. 1998. Retrospective versus Prospective Measurement of Life Histories in Longitudinal Research. Pp. 98-127 in *Methods of Life Course Research: Qualitative and Quantitative Approaches*. eds. Janet Z. Giele and Glen H. Elder, Jr. Thousand Oaks, CA: Sage.

Sharkey, Patrick T. 2006. Navigating Dangerous Streets: The Sources and Consequences of Street Efficacy. *American Sociological Review* 71:826-846.

Shaw, Clifford R., and Henry D. McKay 1942/1969. *Juvenile Delinquency and Urban Areas*. Chicago, IL: University of Chicago Press.

Sherman, Lawrence W. 1997. Family-Based Crime Prevention. in *What Works, What Doesn't, and What's Promising. A Report to the United States Congress.* eds. Lawrence W. Sherman, Denise Gottfredson, Doris MacKenzie, John Eck, Peter Reuter, and Shawn Bushway. Washington, DC: National Institute of Justice.

Silbereisen, Rainer K., and Klaus Eyferth. 1986. Development as Action in Context. Pp. 3-16 in *Development as Action in Context*. eds. Rainer K. Silbereisen, Klaus Eyferth, and Georg Rudinger. New York: Springer-Verlag.

Silver, Eric, and Lisa L. Miller. 2004. Sources of Informal Social Control in Chicago Neighborhoods. *Criminology* 42:551-583.

Simcha-Fagan, Ora, and Joseph E. Schwartz. 1986. Neighborhood and Delinquency: An Assessment of Contextual Effects. *Criminology* 24:667-703.

Simons, Ronald L., Leslie Gordon Simons, Callie Harbin Burt, Gene H. Brody, and Carolyn Curtrona. 2005. Collective Efficacy, Authoritative Parenting and Delinquency: A Longitudinal Test of a Model Integrating Community- and Family- Level Processes. *Criminology* 43:989-1029.

Smith, Douglas A., and G. Roger Jarjoura. 1988. Social Structure and Criminal Victimization. *Journal of Research in Crime and Delinquency* 25:27-52.

Smith, Douglas A., and Christy A. Visher. 1980. Sex and Involvement in Deviance/Crime: A Quantitative Review of the Empirical Literature. *American Sociological Review* 65:767-782.

Snijders, Tom A.B., and Roel J. Bosker. 1999. *Multilevel Analysis: An Introduction to Basic and Multilevel Modeling.* Thousand Oaks, CA: Sage.

Steffensmeier, Darrell J., and Emilie Allan. 1996. Gender and Crime: Toward a Gendered Theory of Female Offending. *Annual Review of Sociology* 22:459-487.

Steffensmeier, Darrell J., Jennifer Schwartz, Hua Zhong, and Jeff Ackerman. 2005. An Assessment of Recent Trends in Girls' Violence using Diverse Longitudinal Sources: Is the Gender Gap Closing? *Criminology* 43:355-406.

Stouthamer-Loeber, Magda, Rolf Loeber, Evelyn Wei, David P. Farrington, and Per-Olof H. Wikström. 2002. Risk and Promotive Effects in the Explanation of Persistent Serious Delinquency in Boys. *Journal of Counseling and Clinical Psychology* 70:111-123.

Thomas, William I., and Florian W. Znaniecki. 1918-1920. *The Polish Peasant in Europe and America: Monograph of an Immigrant.* Boston, MA: Gorham Press.

Thornberry, Terence P., and Marvin D. Krohn. 2000. The Self-Report Method for Measuring Delinquency and Crime. Pp. 33-83 in *Measurement and Analysis of Crime and Justice, Criminal Justice 2000, Volume 4*. ed. David Duffee. Washington, DC: U.S. Department of Justice.

Tipton, Robert M., and Everett L. Worthington, Jr. 1984. The Measurement of Generalized Self-Efficacy: A Study of Construct Validity. *Journal of Personality Assessment* 48:545-548.

Tonry, Michael, Lloyd E. Ohlin, and David P. Farrington. 1991. *Human Development and Criminal Behavior*. New York: Springer-Verlag.

Umberson, Debra. 1993. Sociodemographic Position, Worldviews, and Psychological Distress. *Social Science Quarterly* 74:575-589.

Usher, Ellen L., and Frank Pajares. 2006. Sources of Academic and Self-Regulatory Efficacy Beliefs of Entering Middle School Students. *Contemporary Educational Psychology* 31:125-141.

Van Voorhis, Patricia, Francis T. Cullen, Richard A. Mathers, and Connie Chenoweth Garner. 1988. The Impact of Family Structure and Quality on Delinquency: A Comparative Assessment of Structural and Functional Factors. *Criminology* 26:235-261.

Warr, Mark. 2002. *Companions in Crime: The Social Aspects of Criminal Conduct.* Cambridge, UK: Cambridge University Press.

Wells, L. Edward, and Joseph H. Rankin. 1991. Families and Delinquency: A Meta-Analysis of the Impact of Broken Homes. *Social Problems* 38:71-93.

West, Donald J., and David P. Farrington. 1973. *Who Becomes Delinquent?* London: Heinemann.

Wheaton, Blair, and Philippa Clarke. 2003. Space Meets Time: Integrating Temporal and Contextual Influences on Mental Health in Early Adulthood. *American Sociological Review* 68:680-706.

Wikström, Per-Olof H. 2004. Crime as Alternative: Towards a Cross-Level Situational Action Theory of Crime Causation. Pp. 1-37 in *Institutions and Intentions in the Study of Crime: Beyond Empiricism, Advances in Criminological Theory, Volume 13.* ed. Joan McCord. New Brunswick, NJ: Transaction.

------. 2006. Individuals, Settings, and Acts of Crime: Situational Mechanisms and the Explanation of Crime. Pp. 61-107 in *The Explanation of Crime*. eds. Per-Olof H. Wikström and Robert J. Sampson. Cambridge, UK: Cambridge University.

Wikström, Per-Olof H., and Rolf Loeber. 2000. Do Disadvantaged Neighborhoods Cause Well-Adjusted Children to Become Adolescent Delinquents? A Study of Male Juvenile Serious Offending, Individual Risk and Protective Factors, and Neighborhood Context. *Criminology* 38:1109-1142.

Wikström, Per-Olof H., and Robert J. Sampson. 2003. Social Mechanisms of Community Influences on Crime and Pathways in Criminality. Pp. 118-148 in *Causes of Conduct Disorder and Juvenile Delinquency*. eds. Benjamin B. Lahey, Terrie E. Moffitt, and Avshalom Caspi. New York: Guilford Press.

Williams, Thelma M., and Mary M. Leonard. 1988. Graduating Black Undergraduates: The Step Beyond Retention. *Journal of College Student Development* 29:69-75.

Wilson, James Q., and Richard J. Herrnstein. 1985. *Crime and Human Nature.* New York: Simon and Schuster.

Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago, IL: University of Chicago Press.

------. 1991. Studying Inner-City Social Dislocations: The Challenge of Public Agenda Research. 1990 Presidential Address. *American Sociological Review* 56:1-14.

Witherspoon, Karen McCustis, Suzette L. Speight, and Anita Jones Thomas. 1997. Racial Identity Attitudes, School Achievement, and Academic Self-Efficacy Among African American High School Students. *Journal of Black Psychology* 23:344-357.

Wolfgang, Marvin, Terence Thornberry, and Robert Figlio. 1987. *From Boy to Man: From Delinquency to Crime*. Chicago, IL: University of Chicago Press.

Zimmerman, Barry J., and Timothy J. Cleary. 2006. Adolescents' Development of Personal Agency. The Role of Self-Efficacy Beliefs and Self-Regulatory Skill. Pp. 45-69 in *Self-Efficacy Beliefs of Adolescents*. eds. Frank Pajares and Tim Urdan. Greenwich, CT: Information Age Publishing.