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NEIGHBORHOOD STRUCTURE, RELIGIOUS INVOLVEMENT, AND INDIVIDUAL DELINQUENCY: CONTEXT AND BUFFERING HYPOTHESES

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree of Philosophy in the Graduate School of The Ohio State University

By

Mark A. Harris, M.S.

* * * * *

The Ohio State University

1999

Dissertation Committee:

Professor Ruth D. Peterson, Co-Advisor
Professor Sung Joon Jang, Co-Advisor
Professor Lauren J. Krivo
Professor Robert L. Kaufman

Approved by

Co-Advisors

Sociology Graduate Program
ABSTRACT

According to community scholars, detrimental neighborhood characteristics create an environment that is conducive to individual delinquency. At the same time social control and learning perspectives emphasize that individual factors are important to delinquency. Recent multi-level criminological theory suggests that both levels are important; the impact of neighborhood and individual factors on delinquency depend on one another (i.e., cross-level interactions). This argument implies that neighborhood factors may be more relevant to delinquency for some youth than others. Stated differently, some individual-level factors likely buffer the impact of neighborhood characteristics on delinquency. Unfortunately, extant multi-level studies of individual delinquency rarely consider cross-level interactions.

In light of the lack of adequate empirical attention to the notion of multi-level models, the most general goal of this dissertation is determine whether the likelihood of delinquent behavior stems from both contextual and individual sources. A major part of this effort will be to consider cross-level interactions. Specifically, this dissertation seeks
to determine whether adolescent religious involvement reduces the influence of neighborhood characteristics on delinquency, and whether affiliation with a "strict" denomination heightens this buffering capacity.

To assess these hypotheses, this dissertation examines models of delinquency which include interactions among neighborhood characteristics, individual religious involvement, and strict denominational affiliation. Substantively, the findings demonstrate that low neighborhood socioeconomic status increases the likelihood of violence. Cross-level interactions demonstrate that this effect is buffered by religious involvement. However, strict denominational affiliation does not augment this effect. An additional interesting finding is that adolescents in more advantaged economic areas have a higher likelihood of common property delinquency and a higher frequency of minor drug use. Interestingly, affiliation with a strict denomination negates this effect for drug use.
Dedicated to my wife, Kari
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VITA

May 14, 1966 .............................................. Born - Evanston, Wyoming

1990 ............................................................. B.S. Sociology, Brigham Young University

1994 ............................................................. M.S. Sociology, Brigham Young University

1994-1998 .................................................... Graduate Teaching and Research Associate,
The Ohio State University

1989-1999 ..................................................... Departmental Dissertation Fellowship

FIELDS OF STUDY

Major Field: Sociology
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CHAPTER 1

INTRODUCTION

According to community scholars, neighborhood environments are an important consideration in understanding adolescent delinquency (Bursik and Grasmick 1993, 1996; Reiss 1986; Sampson 1993; Sampson and Groves 1989; Sampson, Raudenbush, and Earls 1987). Scholars propose that detrimental neighborhood structural or organizational features create an ecological environment that is conducive to individual delinquency involvement. That is, it is posited that factors at the neighborhood-level influence delinquency outcomes at the individual-level. At the same time, individual-level factors (e.g., demographic, family, school, and peer associations) are said to be important to explaining individual-level delinquency (Akers 1985; Hirschi 1969; Sutherland 1947). This theoretical argument is multi-level in nature.

Although it is plausible that both aggregate and individual factors simultaneously affect the likelihood of delinquency, this possibility has seldom been examined directly. Most past delinquency research remains either at the macro-level (aggregate factors as predictors of neighborhood crime rates) or micro-level (individual factors as predictors of individual delinquent outcomes) (Reiss 1993). Unfortunately, research that explores
phenomena strictly either at the aggregate- or the individual-level of analysis is of limited value for answering theoretical questions regarding causal factors at multiple levels.

To elaborate, macro-level studies often show that neighborhood structural or organizational characteristics are related to crime rates (Bellair 1997; Krivo and Peterson 1996; Peterson, Krivo, and Harris 1997; Sampson and Groves 1989). And though crime and delinquency rates are properties of aggregate units, they also reflect individual offending behavior. Thus, researchers sometimes interpret the significant effects of neighborhood structural features on delinquency rates downward to the individual-level and in so doing potentially risk committing the "ecological fallacy" (Robinson 1950). Specifically, finding that a relationship exists between a structural characteristic and delinquency rates does not necessarily mean that one exists between structural characteristics and individual delinquency, or that an existing relationship between structural features and delinquency rates has the same substantive meaning as one between structural features and individual delinquency. Analogously, micro-level research also sheds little light on whether neighborhoods are relevant to individual delinquency. The problem here is that ecological contextual factors are usually not incorporated into the empirical models. As such, the amount of variation in individual delinquency attributable to ecological factors in these models is simply unknown.

Recently, scholars have recognized these deficiencies of past micro-level and macro-level delinquency research for exploring multi-level theoretical questions regarding the influence of neighborhood and individual factors. Researchers argue that to adequately explore such questions requires data which capture both individual characteristics of adolescents (e.g., demographic variables, or family, school, and peer
associations) and characteristics of the neighborhoods in which they reside (Bursik and Grasmick 1993; Farrington 1993; Reiss 1993). However, such data requirements are often prohibitively expensive and consequently, to date, only a handful of studies have been conducted which directly test whether neighborhood structural or organizational features in conjunction with individual-level factors are related to individual delinquent outcomes (Elliott, Wilson, Huizinga, Sampson, Elliott, and Rankin, 1996; Gottfredson, McNeil, and Gottfredson 1991; Peoples and Loeber 1994; Simcha-Fagan and Schwartz 1986).

Overall, these analyses have sought to determine whether neighborhood factors add to the explanation of delinquency above and beyond relevant individual-level factors. Results generally show that neighborhood factors have a rather small impact on individual delinquency. Two explanations of such findings are possible. First, it may simply be that neighborhood factors are relatively unimportant to delinquency in comparison to individual-level factors. Not all scholars agree with the theoretical idea that there are "neighborhood effects" above and beyond the impact of important individual-level correlates of delinquency. For example, Wilson and Herrnstein (1985) argue that delinquency prone individuals concentrate themselves in certain neighborhoods. If so, then once important individual-level correlates of delinquency are accounted for, there should be little if any variation in delinquency left for neighborhood factors to explain.

An alternative explanation of existing multi-level findings is their simple additive focus. Reiss (1993) suggests that multi-level models that consider only additive effects may be misspecified. He argues that the appropriate specification for multi-level models
likely includes interactions between neighborhood and individual-level factors rather than simple additive effects. Reiss's (1993) argument implies that neighborhood factors may be more relevant to delinquency for some youth than others depending upon other individual-level factors. Stated differently, some individual-level factors likely buffer (or modify) the impact of neighborhood structural or organizational features on individual delinquency.

If interactive effects are important as Reiss (1993) suggests, then failure to examine them directly in empirical models may lead to the erroneous conclusion that neighborhood structural and organizational characteristics have small effects on delinquency overall, when in fact they are very important for some youth. However, as of yet cross-level interactive effects between neighborhood structural or organizational characteristics and individual-level factors have not been explored in the delinquency literature. As such, we simply do not know whether and what individual-level factors alter the effects of neighborhood factors on individual delinquent behavior. A key research agenda, therefore, for those interested in exploring neighborhood effects is to test interactions between neighborhood structural or organizational factors and relevant individual-level factors.

In light of the lack of adequate empirical attention to the notion of multi-level effects, the most general goal of this dissertation is to shed light on the determinants of individual delinquency by assessing whether the likelihood of delinquent behavior stems from contextual as well as individual sources. A major part of this effort will be to consider interactive effects. As such, this dissertation will specifically incorporate cross-level interactions between neighborhood- and individual-level factors into a theoretical
model of individual delinquency outcomes. To do so, I take advantage of recent multi-level data examining delinquent outcomes (Udry 1998), as well as developments in multi-level modeling theory and methodology (Bryk and Raudenbush, 1992; Goldstein 1995). Examining cross-level interaction effects will serve to address an important question in the criminological literature: whether neighborhood contextual conditions are related to individual delinquency for certain youths.

A second specific purpose of this dissertation is to examine whether religious involvement moderates the influence of neighborhood characteristics on delinquency. Recent ethnographic research indicates that adolescent involvement in religious organizations or networks facilitates the creation of a socially, and to some degree physically, distinct world for adolescents within the larger neighborhood environment (Diamond 1998; Jarrett 1990; Kostarelos 1989). For example, reporting on a family living in an extremely disadvantaged Chicago neighborhood, Kostarelos (1989, p. 235) indicates that:

When Don and Angela are not working and the children are not in school they stay at home, are in church, or visit the homes of church friends or relatives ... . They avoid social relationships with people who do not go to church.

Further, according to Diamond (1998, p.11):

Most discussions of low-income ... communities, particularly those identified with the urban underclass, highlight crime, drugs, and violence and stop there. However, while the parents I interviewed acknowledged the challenges presented by their neighborhood, what emerged with striking clarity was the parents' ability to preserve and cope with seemingly insurmountable challenges and to forge strong ... bonds and networks of support. As we shall see, several parents report benefiting from supportive kinship networks, involvement with religious institutions, and various forms of community involvement. They argue that these resources help them enhance their children's ... opportunities.
Further, some scholars argue that religious involvement facilitates the internalization of religious beliefs which condemn delinquency (Marcos and Bahr 1988; Marcos, Bahr, and Johnson 1986; Rorhbaugh and Jesser 1975; Tittle and Welch 1983). Internalized religious beliefs may serve to provide normative guidance when it is lacking in the larger neighborhood context. If this is true, high levels of religious involvement among adolescents living in disadvantaged neighborhoods may insulate them from the effects of larger neighborhood factors. To assess this possibility empirically, this dissertation examines a model of delinquency which includes indicators of neighborhood characteristics and individual religious involvement, while simultaneously controlling for other known individual-level correlates of delinquency. In addition to examining an explicitly multi-level model of delinquency, this dissertation also examines the cross-level interaction between neighborhood structural features and religious involvement. This permits a determination of whether religious involvement is an important moderating or buffering factor for the relationship between neighborhood structural features and delinquency as recent ethnographic and other scholarly work suggests.

A third general purpose of this research is to assess whether the structural and religious involvement effects vary for respondents who participate in strict versus non-strict religious denominations. Research by Iannaccone (1994) shows that strict denominations enhance social capital among religious affiliates. Higher levels of social capital among strict denominations may alter the relationship between religious involvement and delinquency. The data used in the analyses to follow include information that allows me to distinguish among youth who are involved in strict versus non-strict religious denominations. Therefore, I am able to assess whether the effect of
religious involvement on delinquency is stronger for the former youths, and whether
strict denominational affiliation enhances the buffering effect of religious involvement on
the relationship between neighborhood structural features and individual delinquency.

Finally, the proposed research will examine the general determinants of
delinquency and the buffering and denominational hypotheses for three different types of
delinquent behavior: interpersonal delinquency (serious violence), common property
delinquency, and minor drug use. These distinctions make it possible to assess whether
the multi-level models apply similarly to forms of delinquency that are condemned
broadly in society (violence and theft) compared to ones that are condemned less broadly
but where religious bodies generally take a strong stand against: namely violations of
ascetic standards regarding adolescent substance use (Burkett and White 1974; Middleton
and Putney 1962).

REMAINING CHAPTERS

In Chapter 2, I more fully frame the conceptual arguments introduced in this
opening chapter. First, drawing on the social disorganization perspective, I identify
important structural features of neighborhoods and discuss the theoretical mechanisms
that link these features to individual delinquency. Second, I review in detail recent multi­
level empirical findings which examine the relationship between neighborhood
characteristics and individual delinquency. Third, I trace the theoretical connection
between religious involvement and delinquency and more completely identify the
conceptual reasons for anticipating that religious involvement conditions or moderates
the effects of neighborhood structural features on delinquency. Last, Chapter 2 identifies
two factors which potentially influence the buffering effect of religiosity on the relationship between neighborhood characteristics and delinquent behavior. The first concerns the degree to which the effect of religious involvement varies across different types of delinquency (i.e., the "asceticism" hypothesis). The second discusses the theoretical reasons for anticipating that denominational affiliation augments or enhances the buffering effect of religious involvement on delinquency.

The remaining chapters are straightforward. In Chapter 3, I present the specific theoretical model to be tested in the succeeding analysis chapters, identify the anticipated patterns of relationships, and outline the potential contributions of the model. Chapter 4 identifies the data sources, and elaborates on how the dependent and independent variables are conceptualized and operationalized. In this chapter, I also identify the specific multi-level modeling technique used to analyze the data and provide the reasons for its choice. Chapter 5, presents multi-level analyses that allow me to determine the main and interactional effects of neighborhood factors and religious involvement on delinquent outcomes across three types of delinquency. Chapter 6 presents tests to determine whether or not denominational affiliation alters the basic relationship between neighborhood characteristics and religious involvement established in Chapter 5. Finally, in Chapter 7, I review and discuss the research findings and their implications for theory and the substantive issues raised, and for the importance of considering cross-level interactions. I also provide suggestions for future research in the final chapter.
CHAPTER 2

NEIGHBORHOOD FEATURES, RELIGIOUS INVOLVEMENT, AND DELINQUENCY

NEIGHBORHOOD FEATURES

The hypothesis that aggregate structural features of neighborhoods are related to adolescent delinquent behavior is not new. Perhaps the most prominent scholarly effort to identify neighborhood structural features associated with delinquency is the pioneering work of Clifford Shaw and Henry McKay (Shaw and McKay 1942, 1969; Shaw, Zorbaugh, McKay, and Cottrell 1929). Their study of Chicago neighborhoods from the early- to mid-1900s led them to argue that low neighborhood socioeconomic status, high residential mobility, and race/ethnic heterogeneity disrupts the capacity of neighborhoods to control adolescent delinquency. They called this resulting neighborhood incapacity "social disorganization."

Recent scholarly efforts within the social disorganization perspective elaborate on how the neighborhood structural features identified by Shaw and McKay (1942, 1969) are related to an increased likelihood of adolescent delinquency (Bursik and Grasmick 1993; Kornhauser 1978; Sampson 1993; Sampson and Groves 1989). These scholars
have also identified the prevalence of single-parent families as another key structural feature potentially relevant to delinquent behavior (Sampson 1993; Sampson and Groves 1989).

Proponents of the social disorganization perspective generally postulate that structural features are related to adolescent delinquency primarily through their influence on formal and informal organizational features of neighborhoods. These, in turn, impact the collective ability of residents to supervise and sanction the behavior of youth in the community (Bursik and Grasmick 1993; Kornhauser 1978). At the aggregate-level, researchers examine the connection between neighborhood structural features and delinquency, seeking to explain variation in area rates of delinquency across different types of communities. At the individual-level, the question concerns whether exposure to particular neighborhood contextual factors affects the likelihood or frequency of individual delinquent outcomes for neighborhood residents.

References to formal organizational features in the social disorganization perspective generally focus on the presence, viability, and interconnectedness of a local institutional base (e.g., schools, businesses, voluntary associations). Kornhauser (1978) argues that a strong organizational base facilitates common behavioral norms, agreement over appropriate control methods, and the actual practice of social control. According to Kornhauser (1978), a strong neighborhood institutional base is able to accomplish these ends because it links area residents to each other and helps to coordinate and regulate community activity. When the local institutional base is weak, linking and coordinating
functions are less likely to take place. Thus, neighborhood environments lacking a strong organizational base potentially present "... discontinuities in socialization and control" (Kornhauser 1978, p. 80).

Important informal organizational features are emphasized in the "systemic" model of neighborhood social organization (Bursik and Grasmick 1993; Kasarda and Janowitz 1974; Sampson 1993; Sampson and Groves 1989; Sampson, Raudenbush, and Earls 1997). Specifically, the systemic model posits that community social organization is best represented as a "complex system" of informal associations incorporating ties among local kin, acquaintanceship or friendship ties, and ties between residents and local institutionally-based groups (Bursik and Grasmick 1993; Kasarda and Janowitz 1974, p. 329; Sampson 1993). Informal neighborhood associational networks imply relationships of trust and reciprocity among neighbors (Sampson and Groves 1989; Sampson et al. 1997).

Community scholars argue that a strong, dense neighborhood-based associational network is relevant to adolescent delinquency because it facilitates the collective supervision and control of neighborhood activities, particularly the behavior of peer groups (Sampson 1993; Sampson and Groves 1989). Such supervisory activities include the active observation of the neighborhood by residents, direct questioning of strangers or residents of the neighborhood about suspicious activities, direct admonishing of adults, adolescents, and children regarding inappropriate and illegal behavior, and the monitoring of spontaneous teenage peer groups (Bursik and Grasmick 1993; Sampson 1993; Sampson and Groves 1989).
In essence, recent social disorganization proponents suggest that certain neighborhood structural features (i.e., socioeconomic status, residential mobility, race/ethnic heterogeneity, and single-parent households) are relevant to delinquency because they affect the presence and viability of formal and informal organizational features, which in turn, affect neighborhood social control (Bursik and Grasmick 1993; Kornhauser 1978). Regarding the individual structural characteristics, neighborhood socioeconomic status may be important for two reasons. First, Kornhauser argues (1978) that communities typified by high levels of poverty or other disadvantageous socioeconomic conditions (e.g., high unemployment, high percentage of unskilled workers) simply lack the resources and skills necessary to establish and maintain a viable formal organizational base (e.g., businesses, schools, and voluntary organizations) that connects residents to informal relational networks and leads to social control. Second, Kornhauser (1978) claims that important neighborhood networks are difficult to establish when residents are uninterested in a community that they wish to leave at the first opportunity because of undesirable socioeconomic characteristics such as poor housing stock (see also Bursik and Grasmick 1993). In other words, residents of poor communities may simply have little interest in forming the relational networks with other residents that facilitate neighborhood organization and social control.

---

1 Kornhauser's (1978) arguments, however, do not imply that all existing institutions within a neighborhood context with a weak overall institutional base are themselves weak or unviable. A case in point is the African American church. To illustrate, several scholars argue that this institution has been healthy since the early 1800s even given its historic location in poor ghetto areas (Lincoln and Mamiya, 1990; Montgomery 1993; Taylor and Chatters 1991). Scholars note that the African American church has succeeded and survived in very difficult neighborhood structural circumstances because of significant voluntary labor and financial sacrifices made by poor African Americans to their churches (Lincoln and Mamiya 1990).
Turning to residential instability, Bursik and Grasmick (1993, p. 34) postulate that residential mobility is important for community organization and resulting outcomes because "... ongoing changes in the residential population of a neighborhood make it very difficult to establish and maintain ... [associational] ties within the community." Put simply, relationships of trust among neighbors take time to develop. Thus, when the population composition changes rapidly, strong associational ties are unlikely to develop and collective social control efforts are hindered.

Bursik and Grasmick (1993, p. 35) also theorize why race/ethnic heterogeneity may affect a community's ability to regulate itself. They note that "... heterogeneity in the area [potentially] limits the breadth of ... [associational] networks" (i.e., associational ties are limited to a resident's own race or ethnic group). Similarly, Kornhauser (1978) posits that associational networks that are restricted along race/ethnic lines arguably create barriers to collective efforts to establish common norms and control adolescent behavior.

Finally, a large percentage of single-parent families in an area is a potential obstacle to the formation of a dense associational network and neighborhood social control (Sampson 1993; Sampson and Groves 1989; Stack 1974). Stack (1974) argues that concerns regarding economic survival among single-parents (especially females who are poor) are immediately pressing. As such, single-parents arguably have a more limited ability to involve themselves in the lives of other neighborhood residents (particularly non-kin) or to get involved in community affairs (e.g., school issues, local voluntary associations, et cetera) beyond their immediate concerns. Sampson (1993) also argues that areas of concentrated single-parent households have a diminished neighborhood
supervisory capacity in comparison to areas with high proportions of two-parent families. Specifically, he claims that in areas of concentrated single-parent families there are fewer parents available to perform guardianship activities over their own children and the children of others.

In line with the above proposed linkages, in its most elaborated form (see Bursik and Grasmick 1993; Kornhauser 1978) the social disorganization perspective posits a model in which neighborhood structural features (e.g., low socioeconomic status, mobility, heterogeneity, and single-parent families) influence neighborhood social organizational characteristics (e.g., local institutional base, neighborhood informal associational network, and the like). Neighborhood organizational characteristics, in turn, affect the ability of communities to provide important social control mechanisms (e.g., collective supervision) that, in turn, affect the likelihood of adolescent delinquency.

In directional terms, low neighborhood socioeconomic status (SES), high residential mobility, high race/ethnic heterogeneity, and high proportions of single-parent families are important neighborhood structural features that attenuate community organization and social controls. In other words, detrimental structural characteristics ultimately lead to low levels of neighborhood social control. This argument, however, does not imply that other individual-level sources of social control such as those from family factors are unimportant (see Sampson 1993). Instead, it simply means that considering “community social control in conjunction with personal ... controls may add to a fuller understanding of delinquency” (Sampson 1987, p. 109).
Recent Empirical Evidence

Given the early development of the social disorganization perspective, one might anticipate that an extensive number of studies exist investigating the relationship between neighborhood characteristics and individual delinquency. However, relatively few empirical studies actually examine this relationship directly. The exceptions are Elliott, Wilson, Huizinga, Sampson, Elliott, and Rankin (1996), Gottfredson, McNeil, and Gottfredson (1991), Peoples and Loeber (1994), and Simcha-Fagan and Schwartz (1986).

In a recent study of 3,729 white, black, and Hispanic adolescents, drawn from 10 middle or junior high schools located in five different places (i.e., Charleston, North Carolina, Baltimore, Maryland, Kalamazoo, Michigan, and Christiansted, St Croix), Gottfredson et al. (1991) examined the effects of two neighborhood variables on self-reported theft and vandalism, interpersonal aggression, and drug use. To obtain measures of neighborhood characteristics, respondents' home addresses were matched to their corresponding census block group or census enumeration district. Neighborhood characteristics were then generated from U.S. Bureau of the Census data. The two neighborhood variables Gottfredson et al. (1991) explore are labeled "affluence and education" and "disorganization." Affluence and education indexes "high income and education, low poverty, and relatively many professional and managerial workers" (Gottfredson et al. 1991, p. 209). Disorganization indexes "high proportions of families headed by females ... , high rates of divorce and separation, high unemployment, and relatively many families on welfare" (Gottfredson et al. 1991, p. 209). This "disorganization" measure perhaps could be more appropriately labeled "low socioeconomic status/high family disruption" as it does not include any of the types of
organizational or associational features outlined above in the social disorganization perspective. Conceptually, the two neighborhood structural features Gottfredson et al. (1986) identify simply tap opposite ends of the neighborhood socioeconomic spectrum.

Separate analyses were conducted for males and females. Regression results indicate that neighborhood affluence is significantly and positively related to theft and vandalism for males but not females. This effect remained even when controlling for individual demographic factors (i.e., age, race, parents' education), peer delinquency and Hirschi's (1969) social control variables (e.g., parental attachment, school commitment, conventional belief). This positive effect of neighborhood affluence is counterintuitive, suggesting that males from higher status neighborhoods have a higher likelihood of involvement in theft and vandalism. Turning to the disorganization factor (i.e., low SES/high family disruption), Gottfredson et al. (1991) found that disorganization has a positive and significant effect on interpersonal aggression for females but not males. Thus, "disorganization" increases the likelihood of interpersonal aggression for females. Disorganization also has an independent negative effect on drug use for males but not females. This suggests that males from areas characterized by low SES and high aggregate family disruption are less likely to use drugs.

Overall, Gottfredson et al. (1991, p. 276) find that the two neighborhood structural variables are only "slightly" related to delinquency (i.e., small standardized coefficients and small increases to the level of explained variance relative to other variables). Further, of the significant coefficients for the two neighborhood structural
features, only the effect of disorganization (i.e., low SES/family disruption) on interpersonal aggression is in the direction predicted by social disorganization theory and this effect is only significant for females in their full model.

Peeples and Loeber (1994) explored the relationship between residence in an "underclass" neighborhood (i.e., a dummy variable identifying underclass residence vs. non-underclass residence) and self-reported delinquency (serious and total) among a sample of 506 urban, eighth grade, public school, white and black males living in Pittsburgh, Pennsylvania. Underclass neighborhoods are identified in this study as those having high levels of public assistance, female-headed families, family poverty, families with no one employed, male joblessness, and out-of-wedlock births. As with Gottfredson et al.'s (1991) "disorganization" measure, Peeples and Loeber's (1994) "underclass neighborhood" variable tends to distinguish neighborhoods that have low socioeconomic status/high family disruption from those that do not.

Peeples and Loeber's (1994) regression results showed that underclass neighborhood residence is positively and significantly related to the frequency of serious self-reported delinquency (e.g., attacked someone with a weapon, used force to get money, etc.), as well as the frequency of total delinquency (e.g., minor and serious delinquency combined). These relationships held even when controlling for family SES, family structure, hyperactivity, and child supervision. In sum, Peeples and Loeber's results indicate that residence in a neighborhood typified by low socioeconomic status/high family disruption increases the likelihood of both adolescent serious and total delinquency for white and black males. These results are as anticipated from the social
disorganization perspective. However, of the factors examined, the authors acknowledge that the impact of neighborhood residence on delinquency relative to other variables is "modest" at best.

Neither Gottfredson et al. (1991) nor Peeples and Loeber (1994) include measures of the organizational and associational characteristics that link community structural characteristics to delinquency. Other recent empirical literature examining individual-delinquent outcomes include both neighborhood structural features and neighborhood organizational characteristics (Elliott et al. 1996; Simcha-Fagan and Schwartz 1986). Simcha-Fagan and Schwartz (1986) examine a sample of 553 adolescent males in 12 New York communities to test the hypothesized connection between neighborhood structural and organizational factors and delinquency. Their results show that an index of neighborhood socioeconomic level (median rent, median house value), and an index of neighborhood organizational participation (aggregated measure of the number of organizations in a neighborhood that adult family members belong to) are both negatively and significantly related to self-reported delinquency. These findings are consistent with the social disorganization perspective. They suggest that higher neighborhood socioeconomic level and higher levels of organizational participation reduce the likelihood of male self-reported delinquency.

Simcha-Fagan and Schwartz (1986) also found a positive and significant relationship between an index incorporating aggregated measures of neighborhood informal organizational features (e.g., network size and breadth, neighborhood attachment), scaled from high to low, and two indicators of serious delinquency involvement. This finding suggests that lower levels of informal social organization
within a neighborhood *increase* the likelihood of serious male delinquency. This relationship is anticipated by social disorganization theory. However, Simcha-Fagan and Schwartz (1986) note that the effects of the neighborhood structural features and organizational properties they identify are very small, accounting for only between two and four percent of the explained variation in delinquency.

Elliott et al. (1996) explored the relationships among neighborhood structural features, neighborhood organizational aspects, neighborhood social control mechanisms, and delinquency in samples of adolescents drawn from Chicago and Denver neighborhoods. The inclusion of these three types of factors makes this study the most complete evaluation of the social disorganization model of individual adolescent delinquency to date. The Chicago sample included 887 youths in 58 neighborhoods (i.e., census tracts). The Denver sample included 820 youths in 33 neighborhoods (i.e., census block groups). Elliott et al. (1996) specifically sought to test the "systemic model" of neighborhood organization by examining whether neighborhood organizational features and neighborhood social control intervene between neighborhood structural features and area delinquency rates, and whether the neighborhood organizational and control features predict individual delinquent outcomes. Their single index of delinquency included minor delinquency, serious delinquency, and aspects of drug use.

The neighborhood structural feature they explore (i.e., "neighborhood disadvantage") is a composite index which includes measures of neighborhood poverty, residential mobility, single-parent families, and ethnic diversity. Indices of neighborhood organizational features were created by aggregating parents' responses to questions regarding the proportion of family and friends that live in the neighborhood, the level of
interaction and support received from neighbors, and the availability of formal and informal social organizations in the neighborhood (e.g., a library, community day care service, boy and girl scout troupes). Neighborhood social control mechanisms were aggregated from parents’ responses to questions such as whether neighbors would respond if they saw someone breaking the law in their neighborhood.

Aggregate-level analyses in this study demonstrated that the effect of neighborhood disadvantage on neighborhood delinquency rates is mostly indirect through neighborhood informal associational characteristics and neighborhood social control mechanisms as predicted by social disorganization theory. In other words, organizational features mediate the impact of structural features on delinquency rates. These findings are consistent with other aggregate-level research exploring intervening mechanisms in the social disorganization perspective (Bellair 1997; Sampson and Groves 1989).

Multi-level models examining individual delinquent outcomes showed that neighborhood informal control but not organizational characteristics is negatively and significantly related to delinquency in Chicago, while organizational features but not informal control are negatively and significantly related to delinquency in Denver. While these results are not completely consistent across the two sites, they do show that previously identified neighborhood characteristics (i.e., neighborhood informal control and informal associational networks) reduce the likelihood of individual adolescent delinquency in some contexts. However, as with other research reviewed thus far, the neighborhood variables examined in this study explain only a very small proportion of the variance in individual delinquency.
Taken as a whole, recent empirical research exploring individual delinquent outcomes from the social disorganization perspective indicates that neighborhood structural features and organizational characteristics are generally associated with individual-level delinquency in the expected direction. The results are most consistent for indices of general (serious and non-serious combined) and serious forms of delinquency (Elliott et al. 1996; Peeples and Loeber 1994; Simcha-Fagan and Schwartz 1986). Results are less consistent with the social disorganization perspective when considering property delinquency and drug use (Gottfredson et al. 1991). However, regardless of the direction of effects demonstrated in these studies, the impact of structural characteristics on adolescent delinquency tends to be small.

**Critique of Current Empirical Literature**

An implicit assumption of past neighborhood-delinquency research is that the effects of detrimental neighborhood characteristics are additive (i.e., uniform) for all adolescents exposed to such risk-factors (see Sampson 1987). However, recent works argue that the relationship between neighborhood characteristics and individual delinquency may not be additive, but rather interact with important individual-level characteristics (Farrington 1993; Raudenbush 1993; Reiss 1993). In other words, causal factors at the neighborhood-level potentially interact with causal elements at the individual-level in their effects on delinquency. As, Reiss (1993, p. 342) argues: "there are reasons to expect interaction effects between individual or family behaviors and community structure and organization." Further, commenting on the general failure of past multi-level research to demonstrate conclusive neighborhood effects, Farrington
(1993, p. 8) claims that there "... could be interaction effects, so that neighborhood factors had different effects on different types of individuals, or individual factors had different effects on offending in different types of neighborhoods."

While the interaction argument is logical, no study to date specifically models cross-level interaction effects between neighborhood and individual-level characteristics. Thus, it is premature to conclude that neighborhood structural features have only a small, relatively unimportant or non-significant effect on delinquency. If neighborhood-level factors interact with individual-level characteristics, as Reiss (1993) suggests then their influence on delinquency may be more salient for some adolescents than others. Most importantly, in my view it is likely that the effects of low neighborhood social control stemming from detrimental neighborhood structural features are potentially stronger for adolescents who lack individual-level social control factors, than for those who do not lack such factors.

INDIVIDUAL-LEVEL SOCIAL CONTROL

The individual-level social control perspective traces its intellectual roots to the classical school of criminology--particularly Jeremy Bentham's *An Introduction To The Principles Of Morals And Legislation* (Bentham 1970[1787]; Gottfredson and Hirschi 1990). According to Bentham (1970[1787]), delinquency and crime are the natural consequence of unrestrained human tendencies to seek pleasure and avoid pain (Bentham 1970; Gottfredson and Hirschi 1990). What is important to delinquency control in this model is the ratio of benefits derived from delinquent activity relative to the costs associated with such behavior (Kornhauser 1978). In other words, delinquency is caused
or prevented by a "... constellation of pleasurable or painful consequences" (i.e., sanctions) (Gottfredson and Hirschi 1990, p. 5). In this model, delinquency primarily exists in the absence of efforts to prevent it (Hirschi 1969; Kornhauser 1978; Nye 1958). Further, motivation toward crime is assumed sufficient across all individuals and not considered problematic for explanation in control models (Hirschi 1969; Kornhauser 1978).

Four sources of sanctions for delinquency and crime are identified in the classical tradition: physical, religious, moral, and political (Bentham 1970; Gottfredson and Hirschi 1990). First, physical sanctions refer to the natural consequences that flow from some acts, such as physical harm, which tend to restrain these behaviors. To illustrate, intravenous drug use is to some degree reduced by the potential for social disease which can result from such behavior. Second, religious sanctions specifically refer to belief in the potential for supernatural punishment for misdeeds which can be dispensed in this life and in the next life. Third, moral sanctions refer to sanctions from primary groups associations such as those involving families, schools, or other groups. Finally, political sanctions refer to the formal sanctions imposed by governmental agencies such as fines or imprisonment.

At the time of Bentham's writing (1970[1787]) there was strong general interest in the notion of relevant political sanctions. Therefore, this source of sanction was developed more fully than the others in classical thinking (Gottfredson and Hirschi 1990). However, although deterrence theorists continue to examine the notion of political sanctions, more recent thought in the social control tradition concentrates on the other sources of sanctions identified in the classical model (Gottfredson and Hirschi
Contemporary social control scholars generally focus on control mechanisms associated with, or resulting from, primary group associations (i.e., family, school, religious organizations) (Gottfredson and Hirschi 1990; Hirschi 1969; Kornhauser 1978; Nye 1958; Reiss 1951). According to Reiss (1951, p. 198, emphasis added), "primary groups are the basic institutions for the development of personal controls (internal control) and the exercise of social control (external control) over the child." Scholars have also focused on the notion of religious sanctions identified in classical thought (Raurhbaugh and Jessor 1975; Ross 1920; Hirschi and Stark 1969).

As noted by Reiss and others, at heart, individual-level social control emanating from primary group associations incorporates both external and internal mechanisms (Kornhauser 1978; Nye 1958; Reiss 1951). Individual-level external social control specifically refers to supervision and sanctioning of young children and adolescents for misbehavior from adult family or primary group members. Supervision and sanctioning includes monitoring the behavior of youth, recognizing delinquent activity when it occurs, and punishing such behavior (Gottfredson and Hirschi 1990). Gottfredson and Hirschi (1990) argue that such external control activities of adults also lead to the development of internal control (i.e., self-control)–especially when adequate supervision and sanctioning take place early on in the developmental process. Thus, external control may lead to the development of internal social control.

Internal control refers to control that is invoked by the self and has both direct and indirect manifestations (Kornhauser 1978). Direct internal control refers to the shame and guilt resultant from effective socialization to non-delinquent beliefs and values (Hirschi 1969; Kornhauser 1978) and/or the development of internal self-control.
capacities (i.e., the ability to resist the temptations of the moment or delay gratification) (Gottfredson and Hirschi 1990). Indirect internal control, on the other hand, refers to the psychological attachments and commitments that develop in relation to specific role relationships or lines of action. For instance, attachment to parents, non-delinquent friends, religious affiliates, or others within the primary network of friends and acquaintances restrain adolescents from delinquent behavior through resultant sensitivity to opinions, beliefs, and wishes of parents or other conventional persons. Commitment to education, religion, work, or other customary activities potentially create concern that delinquency will disrupt routes to valued goals (Benda 1995; Hirschi 1969; Marcos, Bahr, and Johnson 1986). Such commitments are referred to as stakes in conformity (Toby 1957).

RELIGIOUS INVOLVEMENT

Among the various primary group sources of control, involvement with a religious organization is a potentially important source. This is true because it provides access to internal and external social control mechanisms (e.g., attachment, commitment, belief, self-control, supervision, and sanctioning), as well as the religious sanctions identified by Bentham (1970[1787]) (Benda 1995; Marcos and Bahr 1988; Marcos, Bahr, and Johnson 1986; Rohrbaugh and Jessor 1975; Tittle and Welch 1983). Thus, religious involvement is favorably positioned as a potentially potent source of social control. Further, recent research indicates that some parents use religious organizations or networks to augment family and school efforts at social control (Diamond 1998; Jarrett
1990; Kostarelos 1989). If such efforts are effective, then religious involvement may enhance social control efforts stemming from family and school factors as well.

To illustrate, in regards to external social control, Tittle and Welch argue that "involvement in a religious community normally exposes ... [adolescents] to greater interpersonal surveillance of activities, thereby increasing the probability of informal sanction[s]" for delinquent behavior (1983, p. 658; see also Rohrbaugh and Jessor 1975). Supervision and sanctioning of delinquency are available because high levels of religious involvement likely embed adolescents in an organized network of religious affiliates who share common conceptions of acceptable and unacceptable behavior and who have a vested interest in conforming behavior among adolescent members (Rohrbaugh and Jessor 1975; Tittle and Welch 1983). The effect of external social control from religious sources is potentially strongest when a large number of persons within an adolescent's primary network of friends and acquaintances share a common religious orientation and when interaction among friends and acquaintances in the religious network is frequent.

Regarding internal social control, scholars of individual religiosity argue that regular involvement in religious activities facilitates the internalization of, or socialization to, a set of religious beliefs which condemn delinquent activity for adolescents (Benda 1995; Marcos and Bahr 1988; Marcos et al. 1986; Rohrbaugh and Jessor 1975; Tittle and Welch 1983). In addition, Rohrbaugh and Jessor (1975, p. 137) argue that socialization to a religious ideology often includes the development of "... cognitive orientations about a transcendent reality and about one's relation to it ... " (i.e., the classical notion of religious sanction). Specifically, religious socialization often entails the belief in supernatural sanctions (e.g., God's sanctioning misdeeds in this life
and in the next), "... that can have important implications for control ... " (see also Ross 1929 for a similar argument). Thus, belief in supernatural sanctions potentially adds a psychological deterrent dimension to delinquency above and beyond the feelings of moral revulsion or guilt normally associated with the violation of internalized conventional norms (Benda 1995; Rorbaugh and Jessor 1975; Tittle and Welch 1983).

Others also assert that regular religious involvement leads to attachment and commitment to religious organizations and/or religious networks (Marcos et al. 1986; Tittle and Welch 1983). Commitment to a religious organization likely provides a "psychological stake in conformity" (Tittle and Welch 1983: 657) similar to the one that Hirschi (1969) claims develops in relation to parents and school. Accordingly, commitment to religious organizations, or networks of religious persons, likely restrains adolescents from delinquency because of the potential discontinuation of valued religious associations or disruption of routes to valued goals that delinquency may cause. Commitment to a religious community, therefore, extends the scope of psychological bonds beyond family and school relationships.

Extant empirical work frequently demonstrates the expected inverse relationship between religious involvement and delinquency. For instance, both early bivariate correlational analyses (S. Albrecht, Chadwick, and Alcorn, 1977; Burkett, 1977; Burkett and White, 1974; Higgins and G. Albrecht, 1977), as well as more recent research using multivariate models that control for competing theoretical factors (Benda, 1995; Brownfield and Sorensen, 1991; Chadwick and Top, 1993; Cochran, 1988, 1989; Cochran and Akers, 1989; Free, 1994; Hadaway, Ellison, and Peterson, 1984; Jensen and Erickson, 1979; Peek, Curry, and Chalfant, 1985; Sloane and Potvin 1986), demonstrate
that religious involvement significantly reduces delinquency among adolescents across a broad range of delinquency types. For example, Cochran and Akers (1989, p. 221) even stated that the inverse relationship between individual religiosity and delinquent behavior can confidently be considered an "empirical generalization" (see also Cochran, 1988).

POTENTIAL BUFFERING EFFECT OF RELIGIOUS INVOLVEMENT

Not only does religious involvement provide access to important internal and external control mechanisms which reduce delinquency, but, more central to the thesis regarding cross-level interactions introduced above, I argue that religiosity also potentially interacts with and buffers the harmful impact of disadvantageous structural features on adolescent delinquency. To illustrate how this is possible, embeddedness in a strong religious network may serve to protect adolescents from exposure to low neighborhood social control by frequently placing them in contexts of supervision and sanctioning. This can happen when adolescent out-of-home activities in the neighborhood are largely restricted to church activities or activities with other members of an adolescent's religious network (e.g., peers who are fellow congregants). Restriction of activities within such networks likely reduces the amount of time that adolescents spend unsupervised within their neighborhood. In support of this argument, Jarrett (1997) presents ethnographic evidence suggesting that parents often use members of their religious network and/or religious organizations to create a distinctive social, and to some degree physical, world for their children within the larger neighborhood community. Conceptualized this way, religious involvement potentially facilitates a situation whereby adolescents are in the neighborhood, but not necessarily of the neighborhood.
However, it would be unrealistic to expect that religious organizations or networks can completely shelter adolescents from exposure to the neighborhood environment. To illustrate, not all individuals within the network of intimate friends and acquaintances are likely to be fellow religious associates. Nor can adolescents always be in the company of adults and peers who share a similar religious orientation (e.g., when at school or work). Yet, as mentioned previously, religious involvement potentially leads to strong internalized social control mechanisms. Thus, even when young people cannot be directly exposed to and supervised by members of their religious network, the detrimental effects of neighborhood factors may be less salient for youths who have internalized strong religious norms or are strongly attached and committed to their religious organization or network. In other words, they are potentially insulated from detrimental neighborhood characteristics.

In sum, religious involvement gives an individual access to personal networks and socialization which provide internal and external social control mechanisms. These external and internal controls are expected not only to constrain youth from engaging in delinquency, but also insulate them from the detrimental impact of criminogenic neighborhood factors. Adolescents who do not have access to social control stemming from religious involvement are potentially more negatively affected by crime-producing neighborhood characteristics unless they are equally protected by other institutions. Thus, religious networks and organizations may be a significant resource for adolescents living in disadvantageous circumstances. From a multi-level perspective, the impact of disadvantageous neighborhood context on adolescent delinquency potentially varies across levels of individual adolescent religious involvement.
To date, no study has explored the potential buffering effect of religious involvement on the relationship between neighborhood structural features and delinquency. Interestingly, Bursik and Grasmick (1993) recently identified this deficiency in the body of neighborhood research and acknowledge that there may be benefits from religious organizations in combating the effects of detrimental neighborhood factors. Thus, the failure to examine this issue represents a significant gap in the literature exploring the relationship between neighborhood factors and adolescent delinquency.

RELIGIOUS INVOLVEMENT AND "CONTEXTUAL" FACTORS

Unlike social disorganization scholars, religiosity and delinquency researchers have examined interactions between individual religious involvement and "contextual" factors, even though their methodological approach has not been multi-level in nature (Evans, Cullen, Dunaway, and Burton, 1995; Stark, 1996; Stark, Doyle, and Kent 1982; Tittle and Welch 1983; Welch, Tittle, and Petee 1991). Specifically, they ask whether the effect of religious involvement on delinquency varies across contextual characteristics, which is another way of asking whether the effects of contextual characteristics (e.g., neighborhood structural features) on delinquency vary across different levels of religious involvement. Statistically speaking, both of these questions can be addressed with the same interaction term (e.g., the interaction between neighborhood factors and religious involvement); the difference simply lies in the way the interaction is interpreted.

The most developed multi-level perspective in the religiosity-delinquency literature is the "moral community" thesis of Rodney Stark and his colleagues (Stark,
Kent, and Doyle 1982). According to them, "moral communities" are found in ecological settings (e.g., cities, neighborhoods, schools) that have high aggregate levels of religious affiliation and/or religious commitment—those settings where a high proportion of residents claim a denominational affiliation or are religiously active. According to Stark, only in such ecological contexts can individual religious involvement be sanctioned sufficiently to bind people to the moral order. In conditions of low aggregate religious affiliation, Stark argues that the impact of religious involvement “will tend to be a highly compartmentalized part of the lives of [those involved] ...,” manifesting itself only during Sunday school or church (Stark et al. 1982, p. 7). Stated simply, Stark’s thesis implies that the relationship between individual religious involvement and delinquency should be at its strongest in ecological contexts of high aggregate religious affiliation and lowest in contexts of low aggregate religious affiliation$^2$.

In support of this argument, Stark et al. (1982) present empirical research findings which show that the bivariate correlation between religious involvement and delinquency is stronger for youths exposed to school contexts that have high proportions of students who scored above the mean on a religious values index compared to the correlation for youths exposed to school contexts where more than 60 percent of the student body scored

$^2$ Stark (Stark 1984; Stark and Bainbridge 1997; Stark, Doyle, Kent 1980; Stark, Kent, and Doyle 1982;) takes a radical "sociological" approach to the conceptualization of religious effects. Religion or religiosity for Stark is primarily a group rather than individual phenomena. To illustrate, he suggests that we should discard " ... the assumption that religiousness is primarily an individual trait ... " and assume instead that "... religiousness is first and foremost a group property ... " (Stark and Bainbridge 1997, p. 72). Thus, although Stark's thesis has a clear multi-level component, the perspective is predominantly macro-sociological in approach.
below the mean. In a later study testing this hypothesis with a different data set, Stark (1996) finds that the correlation between adolescent church attendance and being in trouble with the law was stronger in those geographic regions of the country that have a higher percentage of the population who belong to a church.

However, other research questions Stark's thesis. For instance, Welch, Tittle, and Petee (1991) found that exposure to high aggregate levels of religious devotion within Catholic parish boundaries does not affect the relationship between religious devotion and self-projected deviance for adult Catholics. Further, when testing the relationship between religiosity and deviance across several different pseudo-ecological contexts (i.e., individual data aggregated together to create various sociodemographic groups), Tittle and Welch (1983) demonstrate that the relationship between religious involvement and future self-projected adult misbehavior is actually weaker in contexts of high numbers of religious affiliates. This directly contradicts Stark's hypothesis. Given the inconsistent state of current empirical findings, it is still unclear whether the effect of individual religious involvement varies across differences in the aggregate level of religiosity.

Interestingly, Tittle and Welch's (1983) other findings led them to propose that a different contextual characteristic than that put forth by Stark may condition the relationship between religious involvement and delinquency. Specifically, Tittle and Welch (1983, p. 674) claim that their findings demonstrate that religiosity has its greatest impact in contextual conditions of secular "social disorganization" (e.g., general normative ambiguity, low social integration, etcetera). Although not meant to refer

1 Some scholars (Cochran and Akers 1989; Evans et al. 1995) place the arguments developed by Stark (Stark et al. 1982) and Tittle and Welch (1983) on opposite ends of the same theoretical continuum. In other words, some have confused low aggregate
exclusively to neighborhood contexts per se, the notion of secular social disorganization
presented by Tittle and Welch (1983) has obvious conceptual overlap with arguments
made about neighborhood social disorganization presented above (Bursik 1988; Bursik
and Grasmick 1993; Sampson 1993; Sampson and Groves 1989). Others have also made
this conceptual connection (Evans, Cullen, Dunaway, and Burton 1995).

Tittle and Welch (1983, p. 675) further speculate that in "constraining" ecological
environments (e.g., neighborhood contexts typified by effective social control), the
independent effect of religiosity on delinquency will be smaller. I interpret this to mean
that when the larger neighborhood or community environment incorporates important
conformity-generating mechanisms (e.g., general agreement about behavioral norms, the
presence of an organized relational network that provides an effective sanctioning
system), the conformity-generating features of religious involvement may be somewhat
redundant. Evans, et al. (1995) concur with this interpretation. Stated simply, this claim
implies that in neighborhood contexts typified as socially organized, religious
involvement should have a smaller independent effect on delinquency. Conversely,

religious affiliation as an indicator of social disorganization. Arguably this confusion
came about because Tittle and Welch (1983) themselves viewed low aggregate religious
affiliation as one indicator of social disorganization. However, I argue that the notion of
aggregate religious affiliation and secular social disorganization are better seen as
conceptually distinct ideas. Thus, the important contextual factor for Tittle and Welch
(1983) may best be conceptualized as ecologically based social disorganization. On the
other hand, the important ecological factor in Stark's (Stark et al. 1982) model is the
aggregate level of religious affiliation or participation. Low aggregate religious
involvement within a contextual unit may index social disorganization to some degree.
However, it seems likely that aggregate religious involvement and social disorganization
can vary independently of one another. As such, I argue that the two ideas should remain
conceptually distinct and be empirically tested as such.
in disorganized neighborhoods (i.e., areas with low neighborhood social control) religious involvement should have a stronger inverse effect on adolescent delinquency.

Unfortunately, Tittle and Welch’s (1983) thesis has only been given attention in one other study (Evans et al. 1995). Evans et al. (1995) investigate the relationship between religiosity and criminal behavior among a sample of 1,500 adults living in a single midwestern urban area. They found that indicators of neighborhood social disorganization (i.e., percent female headed households and percent renter occupied housing in a census tract) do not interact with measures of religious involvement in explaining adult crime. As such, Evans et al.’s (1995) work provides no support for the hypothesis that the effect of individual religious involvement on adult criminality is stronger in socially disorganized contexts, or conversely that the impact of religious involvement is weaker in more socially organized neighborhood contexts. It is unclear how generalizable the findings from this study are to adolescents. As such, it is premature to claim support for, or to dismiss the notion, that the level of neighborhood social disorganization conditions the relationship between religious involvement and adolescent delinquency.

Tittle and Welch’s (1983) argument provides theoretical predictions about the interaction between religious involvement and neighborhood characteristics that are similar to those implied in the buffering hypothesis. Recall that the buffering hypothesis predicts that the influence of neighborhood factors will be more salient for adolescents with low levels of religious involvement than for adolescents with high levels of religious involvement. I argue that this should be the case because in neighborhood contexts of low social control, religious involvement provides access to important buffering
mechanisms (i.e., exposure to a religious network and/or internal social control mechanisms). Tittle and Welch's (1983) thesis presumes that the effect of religious involvement on delinquency will be highest in disorganized neighborhood contexts (i.e., areas of low social control) and weaker in more socially organized contexts. They argue that this should be the case because other relevant mechanisms in the larger neighborhood environment duplicate the influence of religious involvement to some degree in socially organized contexts.

In sum, researchers have presented multi-level questions in the area of religiosity and delinquency. Specifically, Stark et al. (1982) and Tittle and Welch (1983) present arguments suggesting that the effect of religious involvement varies across ecological contextual characteristics. Key ecological mechanisms are aggregate religiosity and/or neighborhood social disorganization. Of particular importance, theoretical speculation made by Tittle and Welch (1983) regarding the influence of social disorganization on the religiosity-delinquency relationship has relevance to the buffering hypothesis tested in this dissertation.

ADDITIONAL ISSUES

It is important to address two additional issues extant in the religiosity-delinquency literature as they are directly relevant to the present study. One concerns whether the effect of religious involvement varies across ascetic vs. non-ascetic types of delinquency. The other focuses on how denominational affiliation potentially influences the relationship between religious involvement and delinquency.
**Asceticism**

Some religiosity scholars posit that religious involvement should be more strongly associated with "ascetic" forms of delinquency than non-ascetic forms because religious organizations are more likely to stand alone in opposition to ascetic delinquency (Burkett and White 1974; Middleton and Putney 1962). Ascetic forms of delinquency are proscribed behaviors that also typically involve violations of religious ascetic standards regarding adolescent minor substance use (i.e., generally operationalized as tobacco, alcohol, or marijuana use) (Burkett and White 1974; Middleton and Putney 1962). Non-ascetic delinquency, generally incorporates more serious criminal acts such as property theft, property destruction, and interpersonal violence. Scholars argue that both religious institutions and general secular society take a strong stand against non-ascetic delinquency so that the influence of religion is somewhat duplicated (Cochran 1988).

Early bivariate studies demonstrate that the effect of religious involvement is more strongly associated with ascetic forms of delinquency than with non-ascetic forms (S. Albrecht, Chadwick and Alcorn 1977; Burkett and White, 1974). More recent multivariate research by Cochran, Wood, and Arneklev (1994) report that religious involvement is significantly related to ascetic delinquency but not related to non-ascetic delinquency. They conclude that "... the notion of a blanket impact of religion on delinquent behavior may be an overgeneralization and ... the inhibiting effect of religion on deviant behavior should be limited primarily to ... substance abuse" (Cochran et al. 1994, p. 113).

Other empirical research indicates that the effect of religious involvement does not vary across ascetic and non-ascetic delinquency (Benda 1995; Cochran 1988). For
example, Cochran (1988) found that adolescent religiousness is related to non-ascetic delinquency (i.e., motor vehicle theft, assault, weapon use, major theft) as well as alcohol and marijuana use. In addition, Benda's (1995) study indicates that religious involvement is significantly related to alcohol use, heavy alcohol use, status offenses, property crimes, and person crimes (i.e., interpersonal violence). Summarizing his findings, Benda (1995, p. 460) argues that the "... results of the present study do not support the hypothesis that ... [ascetic] behaviors are more affected by religiosity than are ... [non-ascetic] behaviors".

Given these contradictory findings, the debate over ascetic versus non-ascetic delinquency remains alive in the scholarly literature. However, if there is validity to the asceticism hypothesis as some scholars claim (Cochran et al. 1994), the buffering effect of religious involvement on the relationship between neighborhood structural features and delinquency may be stronger for ascetic than non-ascetic forms of delinquency. To assess this possibility, I examine separately models of these two types of adolescent behavior.

**Denominational Affiliation**

Some religiosity scholars argue that denominational affiliation is an important consideration when examining the relationship between religious involvement and delinquency (Grasmick, Kinsey, and Cochran 1991). Three general lines of thinking have been extended on this topic. First, some claim that the relationship between religious involvement and drug use (i.e., alcohol and marijuana) may be strongest in "proscriptive denominations" (Cochran and Akers 1989; Cochran, Beeghley, and Bock
1988; Hadaway, Elifson, and Peterson 1984). These denominations have specific doctrines that prohibit the use of drugs. Some empirical support has been generated for this hypothesis. For instance, Cochran et al. (1988) reported that religious involvement is negatively and significantly related to alcohol use among a nationally representative sample of adults who are members of proscriptive denominations. Thus, greater religious involvement significantly reduced alcohol use in this sample. However, religious involvement was unrelated to alcohol use among those adults affiliated with a non-proscriptive denomination.

Further, Hadaway et al. (1984, p. 120) found that adolescents who are "members of denominations with proscriptive norms against alcohol use were less likely to use or approve the use of alcohol or drugs" in comparison to members of non-proscriptive denominations. By contrast, using data on 3,065 male and female adolescents attending grades seven through 12 in seven school districts in three midwestern states, Cochran and Akers (1989) present results which suggest that the effect of religious involvement on alcohol and marijuana use is similar across proscriptive and non-proscriptive denominations. As such, the debate concerning denominational proscriptiveness continues in the scholarly literature.

Second, some scholars claim that the relationship between religious involvement and delinquency should be strongest for those in "fundamentalist" denominations regardless of the type of delinquency examined (Grasmick et al. 1991). Fundamentalist denominations are those that subscribe to the view point that the "... Bible is inerrant and must be interpreted literally ... " (Grasmick et al. 1991, p. 100). Grasmick et al. (1991) argue that because of this doctrine, fundamentalists should be more inclined than others
to behave in accord with religious teachings regarding delinquent behavior. In support of this notion, their analysis of a simple random sample of 330 Oklahoma City adults showed that those who are affiliated with a fundamentalist denomination are significantly less likely to indicate that they would cheat on their taxes in the future as compared to respondents not affiliated with a fundamentalist church. No other study to date specifically assesses the interaction between fundamentalism and religious involvement for adolescents. As a result, little is known about how fundamentalist denominational affiliation alters the relationship between religious involvement and adolescent delinquency.

Third, Iannaccone (1994) suggests that the relationship between religious involvement and delinquency may be stronger for adolescents affiliated with "strict" versus non-strict denominations. According to Iannaccone (1994, p. 1182), strict churches are those that:

- proclaim an exclusive truth—a closed, comprehensive, and eternal doctrine. They demand adherence to a distinctive faith, morality, and lifestyle. They condemn deviance, ... and repudiate the outside world. They frequently embrace ... traits such as distinctive diet, dress, or speech ...

Iannaccone's (1994, p. 1197) empirical research demonstrates that, on average, members of strict denominations attend more religious services, contribute more money, are less involved in competing activities, and have fewer outside friends as compared to members of non-strict denominations. In a word, members of strict denominations are more intensely involved, committed, and connected to their religious networks, and as such arguably facilitate the creation of more aggregate social capital within their religious
networks than do non-strict denominations. Social capital refers specifically to the
presence of strong group norms, mutual obligations and expectations, useful information
channels, and intergenerational network closure (i.e., parents being friends with the
that increased social capital within associational networks reduces the likelihood or
frequency of individual delinquency because such networks have an increased capacity to
supervise and socialize children and adolescents.

If true, and if strict denominations have higher aggregate levels of social capital
than non-strict denominations, then strict denominations potentially have a greater
capacity to socialize and control the behavior of network members than do non-strict
denominations. Given this, affiliation with a strict denomination may heighten the effect
of religious involvement on delinquency, and may also increase the buffering effect of
religious involvement on the relationship between neighborhood characteristics and
delinquency. Unfortunately, empirical research exploring differences in the effect of
religious involvement on delinquency across strict and non-strict denominations has not
heretofore been conducted.

Iannaccone's (1997) "strict denominations" include what other scholars call
"fundamentalist denominations," but is not exclusively restricted to them. The former
implies the strong group adherence to a distinctive faith among a highly integrated,
highly committed group of religious affiliates and the latter implies adherence to a
specific religious doctrine. To illustrate, fundamentalist denominations are strict, but not
all strict denominations identified by Iannaccone (1994) are fundamentalist. For
instance, Iannaccone (1994) includes the Mormon church among his list of "strict"
denominations, but Mormon doctrine does not include the notion that the Bible is
inerrant, and as such cannot be classified as a fundamentalist denomination (McKonkie
1966). Also, it should be noted that Iannaccone's (1994) strict vs. non-strict
denominational distinction differentiates prescriptive and non-prescriptive
denominations. For example, Cochran and Akers (1989) indicate that fundamentalist
Protestant denominations hold prescriptive norms regarding minor substance use (see
also Bock, Cochran, and Beeghley 1987), while others indicate that sect like
denominations (e.g., Mormons) also have prescriptive doctrines (Jensen and Erickson
1979). All of these types of prescriptive denominations are included within Iannaccone's
(1994) strict denomination categorization.

In sum, researchers argue that denominational affiliation potentially alters the
relationship between religious involvement and delinquency. This has implications for
the buffering hypothesis examined in this dissertation. I focus on the concept of
strictness rather than prescriptiveness or fundamentalism as the denominational
characteristic relevant to the present study because the latter two focus on a single
religious doctrine: asceticism and Biblical inerrance, respectively. Strict denominational
affiliation, on the other hand, is more in keeping with the notion of attachment or
involvement in a strong religious network. However, the reader should keep in mind that
the notion of strictness also largely incorporates these two ideas as well. Specifically, I
anticipate that affiliation with a strict denomination will enhance the impact of religious
involvement on delinquency. Thus, the buffering effect of religious involvement on the
relationship between neighborhood structural features and delinquency should be
stronger for those adolescents affiliated with a strict denomination.
CHAPTER SUMMARY

The above discussion identifies several relevant neighborhood structural features that scholars hypothesize increase the probability of delinquency (e.g., low socioeconomic status, residential mobility, race/ethnic heterogeneity, presence of single parent families). Theoretical mechanisms within the social disorganization perspective were also identified which explain the relationship between these neighborhood structural features and adolescent delinquency.

Recent empirical work generally indicates that neighborhood structural features and/or neighborhood organizational characteristics are significant predictors of delinquency in the direction anticipated by social disorganization theory. Some differences in the expected direction of effects exist when separating more serious offenses from property delinquency or drug use (see Gottfredson et al. 1991). Further, regardless of the direction of effects, neighborhood factors tend to have only modest effects in relation to other individual-level correlates of delinquency. However, recent criticisms by Reiss (1993) and others (Farrington, 1993; Raudenbush 1993) from a multi-level perspective suggest that the effects of neighborhood structural features are potentially interactive rather than additive and vary across levels of individual-characteristics. If so, the effects of neighborhood structural features on delinquency may be quite strong for some adolescents depending upon their array of individual-level characteristics.

Next, theoretical reasons were given to suggest that the influence of religious involvement may be an important individual-level factor that alters the relationship between neighborhood factors and adolescent delinquency. I argue that religious
involvement provides access to important social control mechanisms which potentially insulate adolescents from the detrimental effect of low neighborhood social control (i.e., access to social control within religious networks and internalized control mechanisms).

My review of works in the religiosity-delinquency literature which explore cross-level hypotheses (Cochran and Akers 1989; Evans et al. 1995; Stark et al 1982; Tittle and Welch 1983) revealed that none of these studies has specifically examined the buffering hypothesis presented above. However, the work of Tittle and Welch (1983) does have implications for this claim. They argue that the influence of religious involvement on delinquency may be stronger in contexts of secular social disorganization and weaker in more socially organized contexts.

Some qualifications to the general buffering hypothesis are in order. First, if religious involvement is more closely related to ascetic than non-ascetic delinquency, the buffering effect of religious involvement on the relationship between neighborhood structural features and delinquency may be stronger for ascetic forms of delinquency. Second, the work of Iannaccone (1994) leads me to hypothesize that the effect of religious involvement on delinquency may be particularly strong for adolescents affiliated with strict denominations. This assumes the presence of an interaction between religious involvement and strict denominational affiliation. Iannaccone's (1994) arguments about strict denominations imply that the buffering effect of religious involvement on the relationship between neighborhood structural features and delinquency may be particularly strong for adolescents affiliated with a strict...
denominations. These hypotheses are tested in the analysis to follow. Before presenting these results, I discuss in greater detail the specific models to be tested in this dissertation.
CHAPTER 3

THE THEORETICAL MODEL

Figure 3.1 presents the theoretical model tested in this dissertation. In general, the model presented in Figure 3.1 proposes a multi-level model which specifies contextual and individual sources of variation in individual delinquent outcomes (Bottoms 1993; Farrington 1993; Reiss 1993). The model specifically posits that the likelihood of several forms of delinquency is a function of neighborhood characteristics, individual religious involvement, and several theoretical and demographic control variables.

THE GENERAL THEORETICAL MODEL

Key Neighborhood Relationships

Drawing on the social disorganization perspective, the key neighborhood variables to be examined are economic disadvantage, race/ethnic heterogeneity, and residential stability (i.e., low aggregate population mobility) (Bursik and Grasmick 1993; Kornhauser 1978; Sampson and Groves 1989). In this model neighborhood variables are drawn from census block groups. Although census block group boundaries do not
necessarily correspond exactly to neighborhoods as experienced by individuals (Bursik and Grasmick 1993), they do have several properties that overlap conceptually with a neighborhood. For example, like neighborhoods, block groups are relatively small geographical areas. They consist of a cluster of blocks which generally contain about 250 to 550 housing units. Further, they represent a relatively small population of persons with somewhat similar sociodemographic characteristics.

In terms of anticipated statistical associations, socioeconomic disadvantage and race/ethnic heterogeneity are expected to have a positive association with delinquency. Residential stability is expected to have a negative association with this outcome. Previously, it was noted that recent social disorganization scholars also consider aggregate family structure (i.e., a high percentage of single-parent households) to be an important causal factor in delinquency (Sampson 1993; Sampson and Groves 1989). Because of its strong association with other aspects of social disadvantage, this research incorporates aggregate family structure within the socioeconomic disadvantage factor. Thus, my measure of economic disadvantage incorporates what some have argued is a more direct or proximate measure of social control potential than that proposed for strictly economic factors such as aggregate poverty or unemployment (Sampson 1993; Sampson and Groves 1989).

**Individual-Level Relationships**

The second major component of the model investigated here is the role of religious involvement. Religious involvement is a multi-dimensional individual-level construct hypothesized to decrease delinquency. The religiosity measure incorporates
church and youth group attendance as well as indicators of personal religious salience (i.e., the importance of religion) and personal religious behavior (i.e., frequency of prayer). Through exposure to religious networks and the more internalized aspects of religiosity, religious involvement is expected to serve personal and external control functions that reduce the likelihood of all forms of delinquency.

The theoretical model will be estimated separately for interpersonal delinquency (serious violence), property delinquency (minor property theft and property destruction), and minor drug use (alcohol and marijuana). As such, the model allows for potential differences in the causal processes that lead to ascetic forms of delinquency (i.e., minor drug use) and non-ascetic forms of delinquency (i.e., interpersonal and property). As noted in Chapter 2, the relationship between religious involvement and delinquency may be stronger for ascetic forms of delinquency (i.e., minor drug use) because scholars argue that other institutions do not oppose or only ambiguously oppose this form of delinquency (Burkett and White 1974; Cochran 1988; Middleton and Putney 1962). Further, the model also distinguishes between more serious forms of non-ascetic delinquency (e.g., interpersonal delinquency) and common forms of non-ascetic delinquency (e.g., property delinquency). Separating non-ascetic delinquency into serious and common forms is appropriate given past research which suggests that their causal factors may be somewhat different (Farnworth, Thornberry, Krohn, and Lizotte 1994; Hagan, Gillis, and Simpson 1985).
Cross-Level Interactions

Structural-level neighborhood characteristics and the primary individual-level variable, religious involvement, are theorized to interact with one another in influencing delinquency. Thus, the theoretical model also incorporates two-way cross-level interactions between religious involvement and the three neighborhood structural variables. This is demonstrated graphically in Figure 3.1 by the arrow going from the box containing religious involvement to the arrow connecting neighborhood structural factors and delinquency. These cross-level interactions are expected to show that neighborhood structural features have less influence on delinquency among adolescents who have higher levels of religious involvement and more influence for adolescents with lower levels of religious involvement. Put differently, religious involvement is hypothesized to have smaller effects on delinquency in neighborhood contexts where disadvantageous structural features are at low levels (i.e., more advantaged contexts) and larger effects on delinquency in more disadvantaged neighborhood contexts.

The final component of the model includes three sets of control variables: theoretical, neighborhood, and individual demographic. Most of the controls represent factors that have been demonstrated to be associated with individual delinquency. They are included in the models to control for potential confounding factors at both the neighborhood and individual levels.
Theoretical Controls

In regards to the theoretical controls, some scholars argue that social bonding to family and school duplicates the effect of religious involvement on delinquency (i.e., a spurious relationship) (Cochran, Wood, and Arneklev 1994; Elifson, Peterson, and Hadaway 1983). If this is the case, then religious involvement should have no independent effect on delinquency once these factors are controlled in multivariate models. In support of this hypothesis, some research shows a nonsignificant relationship between indicators of religious involvement and delinquency when incorporating family, and school variables (Cochran et al. 1994; Elifson et al. 1983). However, other recent research demonstrates that religious involvement is a significant inverse predictor of adolescent delinquency even when controlling for other individual-level sources of social control (Benda 1995; Cochran and Akers 1989; Hadaway, Elifson, and Peterson 1983; Peek, Curry, and Chafant 1985). In the theoretical model presented here, I propose that the effect of religious involvement on delinquency is not completely duplicated by secular social bonding factors.

Peer delinquency has also been hypothesized to fully mediate the effect of religious involvement on delinquency (Burkett 1993; Elifson et al 1983). If this is true, then religious involvement may be associated with delinquency only through its influence on associations with non-delinquent peers. Some empirical work provides support for the hypothesis of completely indirect effects (Burkett 1993; Burkett and Warren 1987; Marcos, Bahr, and Johnson 1986). However, other research fails to establish such a pattern (Hadaway et al. 1984). The theoretical model presented here indicates that individual religiosity will have an independent effect on delinquency.
Taken as a whole, while previous research findings are often contradictory and inconclusive, existing research tends to suggest that individual-level social control and peer delinquency variables should be included in a model that examines the relationship between religious involvement and delinquency. Thus, I include family and school bonding (maternal attachment and grades) as well as peer delinquency in the present theoretical model. Specifically, in line with bonding theory, I anticipate that maternal attachment and grades will significantly reduce delinquency (Hirschi 1969); and consistent with differential association/learning theory, I expect that peer delinquency will significantly increase delinquency (Akers 1985; Matsueda 1982; Sutherland 1947).

**Neighborhood and Demographic Controls**

Neighborhood and individual demographic controls are also included in the model to control for potentially important confounding factors at both the neighborhood and individual levels. At the neighborhood-level I include an urban block group dummy variable to control for the possibility that neighborhood structural features are simply tapping urban vs. rural differences.

At the individual-level, I include several important demographic variables to control for possible "compositional" effects (Bursik and Grasmick 1993; Reiss 1993). The notion of compositional effects refers to the potential that neighborhood variables are merely capturing the impact of a concentration of delinquency-prone individuals within the neighborhood rather than indexing neighborhood structural or contextual characteristics (Kornhauser 1978; Wilson and Herrnstein 1985). Failure to control for
important individual variables that are associated with delinquency may lead me to interpret a spurious relationship between neighborhood factors and delinquency as real. For example,

it is a well known fact that delinquent behavior has a strong relationship with age; its prevalence tends to increase around age twelve, peak at ages sixteen or seventeen, and then declines ... . Let us assume that the average age of children in ... [Neighborhood A] is thirteen, while in ... [Neighborhood B] it is sixteen. While the delinquency rate should be much higher in the second community than the first, this difference is due strictly to the demographic composition of [the] two areas and not to any processes operating at the neighborhood level (Bursik and Grasmick 1993, p. 25).

Specific individual-level demographic variables to be controlled for in the analysis that follows include age, sex, race, family structure, socioeconomic status, and mobility. First, I expect the relationship between age and interpersonal and property delinquency to be curvilinear with a peak during mid-adolescence, whereas I anticipate a significant linear effect of age on drug use (Elliott, Huizinga, and Menard 1989; Greenberg 1981). Second, males are hypothesized to be more likely to engage in all three forms of delinquency (i.e., interpersonal, property, and drug use), but sex differences are expected to be less pronounced for common property delinquency and minor drug use than for interpersonal delinquency (Elliott et al. 1989).

Third, it is hypothesized that blacks are more likely to engage in violent and property delinquency than whites, but less likely than whites to engage in minor drug use (Elliott et al. 1989). Further, I anticipate that Hispanics will be less likely to engage in minor drug use than whites (Bachman, Wallace, O'Malley, Johnston, Kurth, and
Neighborhs 1991). Previous research does not provide a basis for making specific predictions regarding differences between Hispanics and whites for interpersonal violence or property delinquency.

Fourth, based on previous research (e.g., Loeber and Stouthamer-Loeber 1986), adolescents from single-parent families are expected to be more likely to engage in all three forms of delinquency. Fifth, I anticipate that lower status youths (i.e., low economic status) will be more likely to engage in serious interpersonal violence than higher status youths (Elliott et al. 1989; Farnworth et al. 1994). On the other hand, I expect that youths from higher status backgrounds will be more likely to engage in common property delinquency and minor drug use, with the differences in class being larger for minor drug use (Elliott et al. 1989; Hagan et al. 1985). Finally, individual residential mobility, which some scholars argue (Elliott et al. 1996) should be included when controlling for compositional effects, is hypothesized to increases adolescent delinquency.

THEORETICAL MODEL FOR DENOMINATIONAL SUB-SAMPLE

The present theoretical model (see Figure 3.1) is estimated not only for the total sample but also for a sub-sample that includes only those religious respondents who can be grouped into two broad denominational categories: strict and non-strict. The primary purpose of this sub-sample analysis is to test the hypothesized two-way interaction between religious involvement and strict denominational affiliation and the three-way interactions between religious involvement, strict denomination, and neighborhood structural features. The additional two-way interaction in this model examines whether
the influence of religious involvement varies across denomination. I anticipate that this
two-way interaction will show that the inverse effect of religious involvement on
delinquency is stronger for adolescents associated with strict denominations. Three-way
interactions incorporated in the sub-models test whether the buffering effect of religious
involvement on the relationship between neighborhood structural features and
delinquency varies across denominational affiliation. My expectation is that the
hypothesized buffering effect of religious involvement is stronger for adolescents
affiliated with strict denominations.

IMPLICATIONS OF THE THEORETICAL MODEL

The above theoretical model tests several important theoretical propositions
introduced in Chapter 2. First, it examines whether neighborhood factors are related to
individual-level delinquent outcomes. These relationships are examined while
controlling for important individual-level correlates of delinquency. This is done to
reduce the possibility that neighborhood factors merely represent compositional effects as
some have argued (Wilson and Herrnstein 1985). More important, however, the
theoretical model examined here assesses whether the influence of key neighborhood
structural features vary across an important individual-level source of social control:
religious involvement. Specifically, the model examines whether the influence of
detrimental neighborhood structural features, identified in the social disorganization
perspective, are lower for youth with high levels of religious involvement and higher for
youths with low levels of religious involvement.
The testing of two-way cross level interactions has implications for multi-level theoretical perspectives (Reiss 1993). The demonstration of a significant cross-level interaction will add support to the theory that neighborhoods are important to individual delinquency outcomes. Examining such interactions may also help explain why past neighborhood research specifying only an additive impact of neighborhood structural variables has generally found only very small effects on individual delinquency outcomes (Elliott et al. 1996; Gottfredson et al. 1991; Peeples and Loeber 1994; Simcha-Fagan and Scwhartz 1986). In other words, previous models are potentially misspecified.

Second, the present theoretical model allows for a stricter test of the relationship between religious involvement and various forms of adolescent delinquency than in past work. To the best of my knowledge, no past religious involvement-adolescent delinquency study incorporates denomination, neighborhood contextual factors, and competing theoretical variables (i.e., maternal attachment, grades, and peer delinquency) simultaneously when attempting to assess the effect of religious involvement on adolescent delinquency (for an exception regarding adult misconduct see Evans et al. 1995). Due to the incorporation of other important individual-level sources of social control and peer delinquency, the above theoretical model avoids the criticism that the inverse association between religious involvement and delinquency is merely spurious, and establishes whether religious involvement has an independent effect on delinquency that is not fully mediated by peer delinquency. In addition, the theoretical model examines the influence of religious involvement across both ascetic (i.e., minor drug use) and non-ascetic (i.e., interpersonal delinquency and property theft) forms of delinquency.
The model also examines whether the influence of religious involvement on delinquency varies across neighborhood characteristics and denominational affiliation. As previously noted, scholars argue that denominational affiliation and ecological characteristics are important factors that condition the effect of religious involvement on delinquency (Stark et al. 1982; Tittle and Welch 1983). Thus, the above model is well suited to assess the circumstances under which religious involvement has its most salient effects.
Figure 3.1 Theoretical Model for Adolescent Delinquency: Neighborhood, Individual, and Interaction Effects (Main and Sub-Sample)

**Neighborhood Level**
- Block Group Variables
  - Economic Disadvantage (+)
  - Residential Stability (-)
  - Race/Ethnic Heterogeneity (+)

**Individual Level**
- Main and Sub-Sample
  - Religious Involvement (-)
- Sub-Sample Only
  - Strict Denomination (-)

**Theoretical**
- Maternal Attachment, Grades, Peer Delinquency

**Controls**
- Neighborhood
  - Urban Block Group Status
- Individual Demographic
  - Age, Race, Sex, SES, Mobility, Family Structure

**Adolescent Delinquency**
- Interpersonal Violence
- Common Property
- Minor Drug Use
CHAPTER 4

DATA AND METHODS

DATA SOURCE

Examining the hypotheses presented above requires multi-level data collected at both individual and neighborhood levels. In this dissertation, I analyze recent data that link measures of structural characteristics of census block groups (i.e., neighborhoods) with measures of characteristics of adolescents. These data are from the National Longitudinal Study on Adolescent Health (Add Health) (Udry 1998). The Add Health study began by selecting a nationally representative sample of 80 United States high schools, and one "feeder school" (i.e., a middle or junior high school), stratified by region, urbanicity, school type, ethnic mix, and size. In some instances the sampled school served as its own feeder school because it included grades seven through twelve. A "core" sample of seventh to twelfth grade students was chosen from the class rosters of the sampled schools and were subsequently interviewed in their homes. One parental figure (typically the respondent's mother) was also interviewed. Parental data were then
matched to respondent's data to create a single file. Combined adolescent and parental data are referred to as the core In-Home sample (Udry 1998). No sample weighting procedures are needed when using the core In-Home sample because it represents a simple random sample.

To assure greater confidentiality, no paper questionnaires were used during the In-Home interview. All data were recorded by the respondents on lap-top computers. For less sensitive portions of the study the interviewer simply read the questions and the respondent recorded his/her answers on the computer. For more sensitive questions respondents listened to pre-recorded questions over earphones and then answered on the computer. This procedure was done to minimize potential interviewer or parental influence on respondents' answers to sensitive questions (Udry 1998).

Two waves of data (1994 and 1996) were collected from the original core sample of seventh through eleventh graders (N = 9,142). The Add Health study did not follow up on Wave I twelfth graders in Wave II (i.e., those who graduated between the two waves). Therefore, the two wave, core In-Home longitudinal sample is representative of U.S. seventh through eleventh grade students only.

Add Health researchers also compiled data regarding each respondent's census tract and census block group location (Udry 1998). Respondents' at-home addresses were geo-coded to their respective 1990 census track and block group locations so that census information could be attached to respondents' data. The information used by Add Health

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1 An In-School survey was conducted on the entire student body of each sampled school. Further, additional oversamples of various targeted populations (e.g., race/ethnic groups, disabled persons, twins, etc.) were drawn as part of a larger In-Home study. However, because the core In-Home sample represents a simple nationally representative sample (Udry 1998) of adolescents, I utilize this sample here.
researchers to construct variables assessing neighborhood structural characteristics are from the U.S. Census of Population and Housing 1990, Summary Tape File 3A (STF 3A). However, actual census tract and block group numbers are not available as part of the Add Health data set. Instead, Add Health researchers provide pseudo-identification numbers with the census data so that respondents can be grouped within their respective block groups. Some missing data exist on tract and block group variables because Add Health researchers were unable to geo-code the residential location of some respondents to their census tract or block group location. However, for the two wave, core In-Home sample only one percent (N = 133) of the cases have missing data on the census measures.

Sample

The analyses conducted in this dissertation are specifically based on white, African American, and Hispanic (the three largest race/ethnic groups) adolescents drawn from the two wave core longitudinal data set (N = 8,416). Asians and "Others" were excluded from the analysis because relatively little is known concerning religious involvement or denominational affiliation for this heterogeneous group. As such, the sample I employ is representative of white, African American, and Hispanic adolescents in grades seven through eleven in the U.S.

MEASURES

Since the Add Health data are longitudinal in nature, I take advantage of this feature in the analyses. Thus, my dependent variables were measured during Wave II
Dependent Variables

Three different forms of juvenile delinquency are considered as dependent variables in the analyses that follow. Ascetic forms of delinquency (minor drug use) are separated from non-ascetic forms (see Cochran 1988). Further, following other recent delinquency research, the measures of non-ascetic delinquency are divided into serious interpersonal violence and common property offenses (Farnworth et al. 1994; Hagan et al. 1985).

*Interpersonal delinquency* (violence) is a dummy variable which indicates whether or not the respondent engaged in any of seven acts of serious violent interpersonal delinquency over the past 12 months, measured at Wave II (1 = yes, 0 = no) (see Table 4.1). Interpersonal delinquency items were originally measured on ordinal scales. However, a dichotomous measure was chosen over other types for two reasons. First, the seven individual measures of interpersonal delinquency are highly skewed with all items having at least 80 percent of the cases in the never or zero category. Thus, the dichotomous dummy variable better represents the distribution of cases. Second, due to the inconsistent way in which Add Health coded the responses to the interpersonal
delinquency items, meaningful ordinal categories could not be created when combining the seven items. For example, for some items respondents were asked to indicate whether they had committed an act of interpersonal violence never, once, or more than once in the last twelve months. For other items, the choices were never, one or two times, three or four times, or five or more times.

*Property delinquency* is a dummy variable which indicates whether or not the respondent engaged in any of five common acts of property theft or property destruction over the past 12 months, measured at Wave II (1 = yes, 0 = no). Property delinquency items were originally measured on an ordinal scale (0 = never, 1 = 1 or 2 times, 2 = 3 or 4 times, 3 = five or more times). However, as with interpersonal delinquency, the five individual items of property delinquency are highly skewed with at least 82 percent of the cases in the never category. Therefore, I use a dichotomous scale for property delinquency as well.

*Drug use* is a seven point scale (0 = never, 1 = one or two days in the past 12 months, 2 = once a month or less, 3 = two or three days a month, 4 = one or two days a week, 5 = three to five days a week, and 6 = every day or almost every day) which combines the frequency of alcohol and marijuana use (see Table 4.1). Alcohol use was originally measured on this seven point scale, while marijuana use was measured by Add Health as a raw frequency (i.e., absolute number of times used in the last twelve months). To construct a single scale of drug use, I collapsed marijuana use into the same seven point scale as alcohol use. I did so by calculating the corresponding range of "raw" scores for each of the seven categories (e.g., using alcohol two or three days a month...
equals a raw score range of 24 to 36 times per year). Next, I recoded the raw marijuana score to the corresponding seven point category and added it to the alcohol use measure.

**Independent Variables**

**Key Neighborhood Structural Features.** Following much work in the disorganization perspective (Bursik and Grasmick 1993; Kornhauser 1978; Sampson and Groves 1989), neighborhood structural features are assessed via economic disadvantage, residential stability, and race/ethnic heterogeneity. Neighborhood socioeconomic disadvantage is created by taking the average of four z-scored block group items: 1) the proportion of households with a male or female householder, no spouse present, and with own children under 18 years; 2) the proportion of persons with income in 1989 below the poverty level; 3) the percent of civilian persons aged 16 and over in the labor force that are unemployed; and 4) the proportion of employed persons aged 16 years and over employed in managerial and professional specialty occupations, reverse coded. Higher scores on this index represent greater levels of socioeconomic disadvantage. The measure of single-parent households is incorporated in this index because it was not empirically distinct from the other variables included in the index. Exploratory factor analysis of the variables in this index (and variables in the residential stability index) demonstrate that percent single-parent families loads heavily with the other economic items on the same factor. Results for each item in the factor analysis are shown in Table 4.1.

Second, residential stability is created by taking the average of two z-score items: 1) the proportion of persons aged 5 and over living in the same house in 1990 as 1985;
and 2) the proportion of occupied housing units that are owner occupied. Higher scores on this index represent greater residential stability. Results from the exploratory factor analysis discussed above show that these two items load heavily on the same factor.

The third structural measure included in the analysis to follow is race/ethnic heterogeneity. This variable is created by taking one (1) minus the sum of the squared proportions for whites, African Americans, Hispanics, Asians and Others in the block group (see Bellair 1997; Sampson and Groves 1989). Higher scores on this measure indicate greater block group race/ethnic heterogeneity. I anticipate that economic disadvantage and race/ethnic heterogeneity will be positively related to adolescent delinquency whereas residential stability will be negatively associated with this outcome.

**Key Individual-Level Variables.** A goal of this research is to assess the importance of adolescent religiosity in buffering the influence of structural disadvantage on delinquency. Thus, two measures of religion are included in the analysis: 1) religious involvement, and 2) strict denominational affiliation. The index of religious involvement is created by taking the average of scores on four items assessing adolescents' frequency of church attendance, youth group attendance, and personal prayer, as well as the degree of personal religious salience (e.g., the expressed importance of religion to the respondent) (Alpha = .903). Exploratory factor analysis reveals that these items all load on a single factor (results in Table 4.1). Higher scores on this index indicate greater levels of religious involvement. I anticipate that religious involvement will be negatively related to adolescent delinquency.

The reader should be aware that the above measure of adolescent religious involvement includes items reflecting public religious participation (i.e., church and
youth group attendance) as well as items of a more personal religious nature (i.e., prayer and salience). I incorporate measures of salience and prayer to help distinguish between youths who attend religious functions, feel religion is important, and engage in personal religious behavior, from those who attend frequently, but who do not feel religion is important, and do not engage in personal religious behaviors. This distinction is important because adolescents who attend church frequently, but who do not feel that religion is important, and who do not engage in personal religious behavior are potentially attending because of coercion from parents or others. In other words, their attendance may be "less than voluntary" (Evans et al. 1995). Those with low levels of salience and personal prayer but who attend frequently may resist or resent the efforts of the religious group to engage in socialization and social control. Therefore, they need to be distinguished from frequent attenders who have higher levels of personal religious commitment.

To capture important aspects of denominational affiliation that may alter the relationship between religious involvement and delinquency, I include a measure of strict denominational affiliation. Strict churches are defined as those that fall within Iannaccone’s (1994) fundamentalist, pentecostal, or sect categories; or, they were identified by other religious scholars in very similar terms (see Kellstedt, Green, Guth, and Smidt 1994; Roof and McKinney 1987; Woodberry and Smith 1998). Specifically, respondents were categorized as having a strict denominational affiliation if they reported that their affiliation to be Adventist, Assemblies of God, Holiness, Jehovah's Witness, Mormon (LDS), or Pentecostal. Other respondents were classified as having either: 1) a non-strict denominational affiliation, or 2) a no/non-classifiable affiliation.
Unfortunately, due to a lack of information on non-Christian denominations (e.g., Bahai, Jewish, Hindu), youth specifying these religious denominations could not be categorized as belonging to a strict or non-strict denomination. As such, they fell into the non-classifiable category. Because the conceptual interest in denominational affiliation lies in the strict versus non-strict denominational comparison, and also due to the extremely heterogeneous nature of the no/non-classifiable group, cases falling into the latter group were excluded from the models that examine the strict denominational hypothesis. In short, the strict denominational variable is a two category dummy variable (1 = yes, 0 = no) indicating strict versus non-strict Christian denominational affiliation. I expect this variable to be negatively related to adolescent delinquency.

**Control Variables**

As previously mentioned, neighborhood- and individual-level demographic and theoretical variables are included to control for potential neighborhood "compositional effects," and/or potential sources of spuriousness between neighborhood structural features and delinquency and between religious involvement and delinquency. For conceptual clarity, I distinguish the neighborhood and individual-demographic controls from what I term "theoretical controls."

**Neighborhood Urban Block Group.** The analysis includes one structural control variable. *Urban block group status* is a dummy variable indicating whether or not all members of a respondent's block group were living completely within an urbanized area based on 1990 census data (1 = yes, 0 = no). Urbanized areas are the densely populated portions of metropolitan areas. In light of the fact that juvenile delinquency is more
prevalent in urban areas I control for urban block group location. The urban dummy variable considered here is a conservative estimate of urban versus non-urban block group location.

**Individual Demographic Controls.** Individual demographic controls include age, sex, race, family structure, mobility status, and individual-level SES variables. *Age* is a continuous variable measured in years and ranges from 11 to 21 at Wave I with the vast bulk (95.8 percent) of the youth falling between 13 and 19. Since for many youth delinquency peaks during middle adolescence, the relationship between the age variable and delinquency may not be linear (Elliott et al. 1989; Greenberg 1981). Therefore, to control for the potential curvilinear relationship between age and delinquency, I include an age-squared or quadratic term in preliminary multivariate analyses for interpersonal and property delinquency. The age-squared term is also included in analyses for drug use. However, given that drug use generally peaks in late adolescence or early adulthood the quadratic term for age may be unnecessary in these models. When significant, the age-squared term is included in the multivariate models I present.

*Sex* is a dummy variable where 1 = male, and 0 = female. *Race/ethnicity* is indicated by two dummy variables one for African Americans and one for Hispanics. Non-Hispanic whites are the reference category for the two race/ethnicity variables. *Family structure* is a dummy variable indicating whether or not the respondent lives in a single-parent household (1 = yes, 0 = no). *Mobility status* is a dummy variable indicating whether the respondent reported that s/he has moved since 1990. The *socioeconomic status* variables include a logged measure of household income (the original distribution
was highly skewed), a measure of average education for the respondent's parents (see Table 4.1 for the specific educational scale), and a dummy variable indicating whether or not a respondent's parents were receiving welfare (1 = yes, 0 = no).

**Individual Theoretical Controls.** Individual theoretical controls include measures of maternal attachment, grades, and peer delinquency involvement. The *maternal attachment* index consists of six items which assess the strength and quality of the relationship between respondents and their mothers (Alpha = .849) (see Table 4.1 for specific items). Higher scores on this index represent a greater degree of attachment. Exploratory factor analysis shows that these items load on a single factor (see Table 4.1 for results). *Grades* are assessed by averaging scores for respondent's most recent grades in mathematics, science, history, and English (Alpha = .75). Exploratory factor analysis demonstrates that these items load strongly on a single factor (see Table 4.1). Maternal attachment and grades assess aspects of social bonding as conceptualized by Hirschi (1969): attachment to a parental figure and commitment to school. Peer delinquency is assessed by calculating the average score for three items regarding alcohol, marijuana, and other drug use among the respondent's three best friends (Alpha = .75). Respondents were asked to report how many of their three best friends used alcohol, marijuana, or other drugs during the past thirty days. Higher scores represent higher levels of peer delinquency. Exploratory factor analysis of these items reveals that they load on a single factor (see Table 4.1). Other non-drug measures of peer delinquency involvement, such as involvement in violence and theft, are not available in the Add Health study. Given its restricted definition, I anticipate that peer delinquency will be more closely associated with respondents' drug use than with the other dependent variables considered here.
MISSING DATA

Missing data on the dependent variables and neighborhood contextual variables account for two percent of cases (N = 148). Some missing data also exists on the individual-level independent variables (i.e., data from the respondent and parental portions of the survey). Missing data on independent variables generated from the student survey ranged from less than one percent to three percent of the cases. Missing data for the three individual socioeconomic status variables generated from the parental portion of the survey ranged from 11 to 21 percent of the cases. Thus, the bulk of missing data on the independent variables in this sample stems from the parental section of the survey. To avoid substantial reduction in cases, I use mean substitution on missing data on interval variables, and mode substitution on dummy variables (Cohen and Cohen 1983). To determine if cases with missing data were systematically related to the dependent variable, dummy variables distinguishing cases with missing data on the independent variable were constructed and examined in preliminary analyses. None of these dummy variables reached statistical significance, indicating that cases with missing data are not systematically related to the dependent variables. Since missing data does not appear to be a problem for the sample these dummy variables were subsequently trimmed from the main and subsidiary analyses presented in the following chapters.

ANALYTIC PROCEDURES

In the several multivariate analyses I conduct, I employ multi-level modeling techniques to estimate the relationships of interest. I use the MLwiN (Goldstein,
Rasbash, Plewis, Draper, Browne, Yang, Woodhouse, and Healy, 1998) multi-level modeling program. Multi-level modeling techniques are employed because of the hierarchical structure of the Add Health data set. Due to the three-level nested structure of the data (i.e., students nested within census block groups, block groups nested within schools), it is appropriate to model the error structure of regression equations as having individual-level, block group-level, and school-level components. Failure to take account of this nesting may result in correlated errors across cases (e.g., students within the same school likely have unmeasured common variables that have an impact on delinquency outcomes). Left unchecked, this situation potentially results in incorrect significance tests due to biased estimates of the standard errors (Bryk and Raudenbush 1992). The MLwiN program specifically incorporates these components into the estimation routine (Goldstein et al. 1998).

Two different types of multi-level equations are estimated in the analysis section of this study. For interpersonal violence and property delinquency (i.e., those with a dichotomous dependent variable), I employ multi-level logistic regression techniques.
Drug use has a normal distribution across a 7 point scale. Therefore, I use multi-level regression techniques to estimate the coefficients of interest for this dependent response.

The equations for the two dichotomous dependent variables will be of the following basic form:

\[ y_{ijk} \sim \text{Binomial}(n_{ijk}, \pi_{ijk}) \]
\[ y_{ijk} = \pi_{ijk} + e_{0ijk} \]
\[ \log \text{it}(\pi_{ijk}) = \beta_{0jk} + \beta_{1} x_{1ijk} + \beta_{2j} x_{2ijk} + \beta_{3} x_{3ijk} \]
\[ \beta_{0jk} = \beta_{0} + v_{0k} + u_{0jk} \]
\[ \beta_{2j} = \beta_{2} + u_{2jk} \]
\[ [v_{0k}] \sim N(0, \Omega_{v}) : \Omega_{v} = \begin{bmatrix} \sigma_{v}^{2} \end{bmatrix} \]
\[ [u_{0jk}] \sim N(0, \Omega_{u}) : \Omega_{u} = \begin{bmatrix} \sigma_{u0}^{2} & \sigma_{u0}^{2} \\
\sigma_{u0}^{2} & \sigma_{u2}^{2} \end{bmatrix} \]
\[ x_{ijk}^* = x_{ijk} (1 - \pi_{ijk}) / n_{ijk} \]
\[ [e_{0ijk}] \sim (0, \Omega_{e}) : \Omega_{e} = [1] \]

As can be seen in the above equation, prediction is being made for the \( i \)th person, in the \( j \)th block group, in the \( k \)th school (i.e., \( y_{ijk} \)). The individual error is denoted by the term \( e_{0ijk} \). Whereas the terms \( u_{0jk} \) and \( v_{0k} \) denote the block group and school error terms respectively. Although not fully elaborated (i.e., not including all independent variables), the above equation includes a coefficient for the intercept, \( \beta_{0jk} \), a coefficient for a neighborhood-level variable, \( \beta_{1} x_{1ijk} \), a coefficient for an individual-level variable, \( \beta_{2j} x_{2ijk} \), and a coefficient representing the cross-level interaction term, \( \beta_{3} x_{3ijk} \). Coefficients for the
above equations are interpreted as representing increases or decreases (depending upon sign) in the log odds of delinquency for every one unit change in the independent variable.

Equations for continuous dependent variables are of the form:

\[
y_{ijk} \sim \text{Normal}(X \beta, \Omega)
\]

\[
y_{ijk} = \beta_{0ijk} + \beta_{1}x_{1jk} + \beta_{2}x_{2ijk} + \beta_{3}x_{3ijk}
\]

\[
\beta_{0ijk} = \beta_{0} + v_{0k} + u_{0,ik} + e_{0ijk}
\]

\[
\beta_{2j} = \beta_{2} + u_{2jk}
\]

\[
\begin{bmatrix}
v_{0k} \\
u_{0,ik} \\
u_{2jk}
\end{bmatrix} \sim \text{N}(0, \Omega_v) : \Omega_v = \begin{bmatrix} \sigma^2_v \\
\end{bmatrix}
\]

\[
\begin{bmatrix}
v_{0,ik} \\
u_{2jk}
\end{bmatrix} \sim \text{N}(0, \Omega_u) : \Omega_u = \begin{bmatrix} \sigma^2_u & \sigma^2_v \\
\sigma^2_v & \sigma^2_v
\end{bmatrix}
\]

\[
[e_{0ijk}] \sim \text{N}(0, \Omega_e) : \Omega_e = \begin{bmatrix} \sigma^2_e \\
\end{bmatrix}
\]

As with the previous logistic outcomes, equations for continuous outcomes incorporate error terms for the individual, neighborhood, and school levels of data (i.e., \(e_{0ijk}, \mu_{0jk}, \) and \(v_{0k}\), respectively). The above example, although not inclusive of all independent variables, incorporates coefficients for the intercept, \(\beta_{0ijk}\), a coefficient for a neighborhood-level variable, \(\beta_{1}x_{1jk}\), a coefficient for an individual-level variable, \(\beta_{2}x_{2ijk}\), and a coefficient representing the cross-level interaction term, \(\beta_{3}x_{3ijk}\). Coefficients for the above equation are interpreted as representing one unit increases or decreases (depending upon sign) in the scale of delinquency for every one unit change in the respective independent variable.
Equations For Testing Interaction Slopes

Significant interaction terms will be presented graphically in the analysis chapters. The slopes presented will be tested to determine if they are statistically different from zero. More specifically, I calculate $t$ values for the slopes that I present to determine if they are statistically different from zero. The following example tests whether or not the slope for delinquency regressed on economic disadvantage at high religious involvement is different from zero: Let $b_1$ be the coefficient for economic disadvantage, $b_2$ the coefficient for religious involvement, and $b_3$ the coefficient for religious involvement * economic disadvantage. The null hypothesis is:

$$H_0 : b_1 + b_3 * RI_{hi} = 0$$

$$t = \frac{b_1 + b_3 * RI_{hi}}{\sqrt{Var(b_1) + (RI_{hi})^2 * Var(b_3) + 2 * RI_{hi} * Cov(b_1, b_3)}}$$

Specific Regression Models

Main Model. The specific regression analyses proceed through several stages. In Model 1, I regress delinquency on the neighborhood variables to establish a baseline model of neighborhood effects. Model 2 adds the measure of religious involvement to establish its effect before adding demographic and theoretical controls. In Model 3, I incorporate individual-level demographic controls and individual-level theoretical controls. And in Model 4, I add the two-way interaction terms between religious involvement and neighborhood structural variables. As such, Model 4 represents the fully elaborated model discussed previously in Chapter 3. In other words, Model 4
incorporates the key neighborhood structural features, individual religious involvement, interaction terms, and important demographic and theoretical controls necessary for determining the role of contextual and individual factors in delinquency and verifying the buffering hypothesis presented earlier.

If interactions between religious involvement and neighborhood structural features are non-significant in Model 4, they will be trimmed from the analysis and a more parsimonious model will be presented and discussed as Model 5. As before noted, separate analyses for interpersonal delinquency, property delinquency, and drug use will be explored and results will be presented in three separate tables. Before proceeding to the multi-variate results, I first present and briefly discuss bivariate results for the dependent and independent variables, focusing primary attention on the relationships between the dependent variables and key independent variables.

The Strict Denomination Models. Results for the analyses addressing the role of religious involvement in strict denominations are presented in a separate chapter. In general, the models are similar to those described above. However, since the base models will have already been established previously, I begin with full models that incorporate neighborhood structural features, individual religiosity, individual-level demographic and theoretical controls, and the dummy measure for denominational affiliation. Model 2 adds a two-way interaction between religious involvement and strict denominational affiliation. This interaction tests the hypothesis that the effect of religious involvement on delinquency is larger for those in strict versus non-strict denominations. Model 2 also incorporates relevant two-way interactions between religious involvement and neighborhood structural features that are found to be
significant in the main models discussed previously, as well as a two-way interaction between strict denominational affiliation and the same neighborhood structural features.

Model 3 adds any relevant three-way interactions between religious involvement, denominational affiliation, and neighborhood structural features. These models test whether or not the buffering effect of religious involvement on neighborhood structural features is larger across strict than non-strict denominational affiliation. An additional trimmed model may also be presented and discussed depending upon whether any three-way interactions are shown to be significant in Model 4. As before, the series of models will be run separately for each of the three types of delinquency. Further, an initial bivariate table for the sub-sample will also be presented and discussed.
Table 4.1  Operationalizations of Dependent and Independent Variables

<table>
<thead>
<tr>
<th>VARIABLES OPERATIONALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
</tr>
<tr>
<td>Interpersonal Delinquency</td>
</tr>
<tr>
<td>Property Delinquency</td>
</tr>
<tr>
<td>Drug Use</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
</tr>
<tr>
<td>Neighborhood Structural Features</td>
</tr>
<tr>
<td>Economic Disadvantage</td>
</tr>
</tbody>
</table>

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Table 4.1 (continued)

<table>
<thead>
<tr>
<th>Key Individual-Level Variables</th>
<th>Residential Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale created by taking the average of two z-score items where high scores indicate greater block group population stability. The scale includes 1) the proportion aged 5 and over living in the same house as in 1985; and 2) the proportion occupied housing units that are owner-occupied. The factor loading for these two components are .859 and .779, respectively. Mean = .063, s. d. = .847, range = -3.331 to 2.549.</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnic Heterogeneity</td>
<td>A scale created by taking one (1) minus the sum of the squared proportion of residents for each of the following racial or ethnic groups: Whites, African Americans, Hispanics, Asians, and Others. High scores on this measure indicate block groups that are more racially and ethnically heterogeneous. Mean = .165, s. d. = .173, range = .000 to .676.</td>
</tr>
<tr>
<td>Both of these variables were generated from the Add Health Wave I (1994) in home data file.</td>
<td>Scale created by taking the average of four items indexing religious involvement (Alpha = .903). Items were measured on a five point scale such that higher scores represent higher levels of religious involvement and include the following: 1) In the past twelve months, how often did you attend religious services; 2) In the past twelve months, how often did you attend youth activities (i.e., special activities for teenagers such as youth groups, Bible classes, or choir); 3) how important is religion to you; and 4) how often do you pray. The factor loading for each of the components is .915, .819, .917, and .895, respectively. Mean = 2.730, s. d. = 1.324, range = .000 to 4.250.</td>
</tr>
<tr>
<td>Strict Denomination</td>
<td>Dummy variable (1 = yes, 0 = no) indicating whether or not the respondent belonged to a &quot;strict&quot; denomination (see Iannaccone 1994). This variable applies only to a subset of respondents for whom denominational affiliation could be determined.</td>
</tr>
<tr>
<td>Control Variables</td>
<td>These variables were generated from either the 1990 census data, or the Add Health Wave I (1994) In-Home data file. SES measures came from the parental portion of the In-Home data file.</td>
</tr>
<tr>
<td>Neighborhood Control</td>
<td>A dummy variable (1 = yes, 0 = no) indicating whether or not all members of the respondent's block group were living completely within an urbanized area based on the 1990 census data. Urbanized areas are the densely populated portions of metropolitan areas. Mean = .494.</td>
</tr>
<tr>
<td>Individual Demographic Controls</td>
<td>A continuous variable measured in years. Mean = 15.610, s. d. 1.584, range = 11.417 to 21.167.</td>
</tr>
</tbody>
</table>

(Continued on the next page)
Table 4.1 (continued)

<table>
<thead>
<tr>
<th>Sex</th>
<th>A dummy variable where 1 = male, and 0 = female. Mean = .476</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td>Two dummy variables, one for African American and one for Hispanic, where white (non Hispanic) is the reference category. Black Mean = .203, Hispanic Mean = .130.</td>
</tr>
<tr>
<td>Family Structure</td>
<td>A dummy variable which indicates whether or not the respondent lives in a single parent household (1 = yes, 0 = no). Mean = .317.</td>
</tr>
<tr>
<td>Mobility Status</td>
<td>A dummy variable which indicates whether the respondent lives in the same house that s/he occupied in January 1990 (0 = yes, 1 = no). Mean = .454.</td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>Log of household income measured in thousands of dollars. Mean = 3.460, s. d. = 1.045, range = -4.605 to 6.907. Unlogged mean = $47,000, s. d. = $57,000, range = $0 to $999,000.</td>
</tr>
<tr>
<td>Income (log)</td>
<td>An educational attainment scale created by taking the average for the interviewed parent and his/her current spouse/partner. Responses were measured on a 10 point scale (0 = no education, 1 = 8th grade or less, 2 = more than 8th grade, but did not graduate from high school, 3 = went to trade/tech. high school, 4 = completed a GED, 5 = high school graduate 6 = went to a business or vocational school after completing high school, 7 = went to college but did not graduate, 8 = graduated from a college or university, 9 = professional training beyond a four year college or university). If the interviewed parent reported no current spouse or partner then parents' education represents the level of education for the responding parent only. Mean = 5.471, s. d. = 2.061, range = 0 to 9.</td>
</tr>
<tr>
<td>Welfare Status</td>
<td>Dummy variable indicating whether or not the respondent’s interviewed parent reported that s/he was &quot;... receiving public assistance such as welfare?&quot; (1 = yes, 0 = no). Mean = .086.</td>
</tr>
<tr>
<td>Individual Theoretical Controls</td>
<td>These variables were created from the Add Health Wave I (1994) In-Home data file.</td>
</tr>
<tr>
<td>Maternal Attachment</td>
<td>A scale created by taking the average of six items measured on a 5 point scale (1 = strongly disagree to 5 = strongly agree) where higher numbers represent greater levels of maternal attachment (Alpha = .849). Questions were asked in reference to the respondent's resident mother and included the following: 1) whether his/her mother was warm and loving, 2) whether she discussed ethics with him/her, 3) how satisfied s/he was with the way s/he and his/her mother communicate, 4) his/her overall level of satisfaction with the relationship with his/her mother, 5) how much his/her mother cares about him/her, and 6) how close s/he feels to his/her mother. The factor loading for each of the items is .763, .692, .830, .864, .602, and .778, respectively. Mean = 4.391, s. d. = .615. Range 1 to 5.</td>
</tr>
</tbody>
</table>

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Table 4.1 (continued)

<table>
<thead>
<tr>
<th>Grades</th>
<th>A scale created by taking the average of respondent's self-reported most recent grade in math, science, history, and English (Alpha = .755). Measured on a four point scale (1 = D or lower, 2 = C, 3 = B, 4 = A) where higher scores represent better grades. The factor loadings for each item are .705, .769, .775, and .793 respectively. Mean = 2.804, s. d. = .757, range = 1 to 4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Delinquency</td>
<td>A scale created by summing questions which asked respondents to report how many of their three best friends used, 1) tobacco at least once a day, 2) alcohol at least once a month, or 3) marijuana at least once a month (Alpha = .759). Factor loadings for these items are .801, .842, and .825, respectively. Mean = 2.381, s. d. = 2.589, range 0 to 9.</td>
</tr>
</tbody>
</table>
CHAPTER 5

A MULTI-LEVEL MODEL OF DELINQUENCY EXAMINING NEIGHBORHOOD AND INDIVIDUAL FACTORS

This chapter examines what aspects of neighborhood structure influences individual delinquency and whether religious involvement moderates the relationship between neighborhood structural characteristics (i.e., socioeconomic disadvantage, residential stability, and race/ethnic heterogeneity) and three forms of adolescent delinquency. The buffering hypothesis implies a cross-level interaction between neighborhood (i.e., block group) variables and individual religious involvement, such that the detrimental impact of high economic deprivation, low residential stability, and high race/ethnic heterogeneity will be smaller for youths with higher levels of individual religious involvement. Conversely, this hypothesis also implies that the inverse effect of religious involvement on delinquency will be smaller at lower levels of neighborhood economic disadvantage and race/ethnic heterogeneity and higher levels of residential stability.
BIVARIATE RESULTS

Before discussing the multivariate models I present the bivariate relationships between the dependent and independent variables. Table 5.1 presents these results. Primary attention is focused on the relationship between delinquency and neighborhood structural features and religious involvement. I first report the bivariate results for each measure of delinquency separately and then make observations about general differences across the three types of delinquency.

Interpersonal Delinquency

The three measures of neighborhood structure (i.e., economic disadvantage, residential stability, and race/ethnic heterogeneity) and religious involvement all have significant bivariate associations with adolescent interpersonal delinquency. The coefficient for each structural variable is in the expected direction predicted by the social disorganization perspective. Specifically, higher economic disadvantage and race/ethnic heterogeneity (a.k.a. heterogeneity) increase the likelihood of interpersonal delinquency, whereas residential stability reduces this likelihood. Further, the bivariate coefficient for religious involvement is negative and significant, indicating that religious involvement decreases the likelihood of interpersonal delinquency.

The bivariate results also reveal that individual-level theoretical controls (i.e., maternal attachment, grades, and peer delinquency) are significantly associated with interpersonal delinquency in the expected direction. Both maternal attachment and grades have a negative association with the likelihood of interpersonal delinquency. Contrariwise, peer delinquency is positively related to this likelihood.
All other neighborhood and individual demographic control variables are significantly associated with interpersonal delinquency. The following factors increase the likelihood of interpersonal delinquency: 1) residence in an urban block group, 2) being male, black, or Hispanic (as compared to white), 3) being from a single-parent family, 4) being residentially mobile, and 5) receiving welfare. Conversely, age, income, and parents' education, all have significant negative associations with the likelihood of delinquency.

**Property Delinquency**

Table 5.1 also shows that socioeconomic disadvantage, stability and religious involvement are significantly related to property delinquency. Heterogeneity is not significantly associated with this outcome. Disadvantage, stability and religious involvement are all negatively associated with property delinquency. The negative sign for economic disadvantage suggests that greater disadvantage reduces the likelihood of common property delinquency.

These results for key neighborhood variables and property delinquency are not entirely as anticipated. Only two coefficients for neighborhood structural features are significant, and only one of these (stability) is in the expected direction. The negative sign for economic disadvantage is unexpected based on social disorganization theory. Confirmation of this pattern of results awaits more stringent verification in the multivariate equations. However, the bivariate relationship between religious involvement and property delinquency is consistent with theoretical expectations.
Among the neighborhood and demographic control variables, significant inverse associations are demonstrated for age, and race (black), whereas significant positive associations are demonstrated for urban block group, sex (male), and parents' education. The coefficients for the single-parent, mobility status, income, and welfare status variables are not significant. Bivariate relationships for the three theoretical controls (i.e., maternal attachment, grades, and peer delinquency) are as expected. Maternal attachment and grades are negatively and significantly associated with property delinquency, whereas peer delinquency is positive and significant.

**Drug Use**

According to Table 5.1, socioeconomic disadvantage, heterogeneity, and religious involvement are all negatively and significantly related to drug use. However, only the coefficient for religious involvement is in the expected direction. The negative signs for disadvantage and heterogeneity are unexpected based upon social disorganization theory. According to these results, higher levels of socioeconomic disadvantage and race/ethnic heterogeneity reduce the likelihood of drug use.

Of the neighborhood and individual-level demographic control variables, significant negative associations are demonstrated for race (black), and being on welfare, whereas significant positive associations are demonstrated for urban block group, male, single-parent, income, and parents' education. The coefficients for Hispanic and mobility status are not significant. As with the bivariate results for interpersonal delinquency and property delinquency, the three theoretical controls (i.e., maternal attachment, grades, and peer delinquency) are significantly related to drug use and are in the expected direction.
Summary

In sum, it appears from the bivariate results presented above that significant differences exist across the delinquency types explored here. Overall, the results most consistent with the perspective that neighborhood structural conditions affect individual delinquency seem to be limited to interpersonal delinquency. The bivariate results for neighborhood variables and property delinquency and drug use are largely at variance with the expectations of social disorganization theory. The bivariate results for religious involvement are consistent with theoretical expectations across the three types of delinquency. Greater religious involvement is associated with lower levels of interpersonal delinquency, property delinquency, and drug use. Comparing across the three delinquency types, the coefficient for the association between religious involvement and drug use is the strongest followed by interpersonal and property delinquency, respectively. This suggests that religious involvement may have a stronger impact for some types of delinquency.

MULTI-LEVEL RESULTS FOR MULTIVARIATE MODELS

This section presents the multi-level multivariate results for the three types of delinquency noted above. As previously noted, multi-level logistic coefficients and standard errors for interpersonal and property delinquency, and multi-level regression coefficients and standard errors for drug use were generated using the MLwiN program of Goldstein et al. (1998). This program is used for estimating contextual effects on individual outcomes and accounts for the nested nature of the data structure. Failure to
account for nesting is problematic because it potentially violates the assumption of
independence of errors in traditional logistic routines or ordinary least squares regression
techniques. Traditional regression procedures produce biased standard errors and
incorrect significance tests in circumstances of data nesting when there is significant error
variation across contexts (Bryk and Raudenbush 1992). The standard errors for
contextual effects are likely to be biased downwards in these estimation procedures. The
MLwiN program avoids this problem by specifically incorporating an error term at each
level of data so that accurate standard errors are produced (Goldstein et al. 1998).

**Interpersonal Delinquency**

Table 5.2 reports the multi-level logistic regression coefficients for interpersonal
delinquency. The models proceed sequentially with the first four models reflecting
additive effects for all variables. The models begin with neighborhood variables (Model
1) and then sequentially adds in religious involvement (Model 2), demographic controls
(Model 3), and theoretical control variables (Model 4). Model 5 assesses the interaction
between religious involvement and the three neighborhood structural features. Model 6
is a trimmed model that excludes any non-significant two-way interaction terms.

As can be seen in Model 1, the coefficients for the neighborhood structural
features are in the direction anticipated by social disorganization theory. However, only
two are statistically significant. Disadvantage and heterogeneity both significantly
increase the log odds of interpersonal delinquency. The control variable for urban block
group status is positive and significant showing that location in a block group with a population entirely in an urbanized area increases the log odds of interpersonal delinquency.

Model 2 adds religious involvement to the equation to establish a baseline model for this factor. Religious involvement is significantly and negatively related to interpersonal delinquency as expected, with increasing levels of religious involvement decreasing the log odds of interpersonal delinquency.

Model 3 adds the individual-level demographic control variables to the equation. Age and parents' education have negative and significant relationships with interpersonal delinquency. Conversely, being male, black, Hispanic, or a child of a single-parent significantly increase the likelihood of interpersonal delinquency. Mobility status, income, and welfare status are non-significant predictors of interpersonal delinquency in this model. Importantly, incorporating the individual-level demographic controls in the interpersonal delinquency model reduces the effects of economic disadvantage and race/ethnic heterogeneity, with the disadvantage effect no longer being statistically significant. This suggests support for the notion that ecological variables are capturing, at least in part, compositional effects.

Model 4 adds important theoretical control variables to the logistic equation: maternal attachment, grades, and peer delinquency. Each of these factors is significant and in the direction anticipated by previous theory. Parental attachment and grades significantly decrease the log odds of interpersonal delinquency, while peer delinquency

---

1 An age-squared term was included in a preliminary analysis of interpersonal delinquency. However, the result for this variable was not significant; thus it is not incorporated in the models.
significantly increases the log odds of interpersonal delinquency. Moreover, including these theoretical controls diminishes to non-significance the effect of religious involvement on interpersonal delinquency. The reduction of religious involvement to insignificance in this model provides support for the notions of spuriousness or mediation presented in Chapter 3. However, this model is not the fully elaborated model that I presented in Chapter 3 and, as will be seen shortly, interactive effects for religious involvement on interpersonal delinquency are significant even when controlling for important competing theoretical variables.

Model 5 adds two-way interaction terms between religious involvement and the three neighborhood structural features. The coefficient for the interaction between religious involvement and neighborhood economic disadvantage is significant, indicating that the effect of neighborhood economic disadvantage on the log odds of interpersonal delinquency varies across levels of religious involvement, and conversely that the effect of religious involvement on the log odds of interpersonal delinquency varies across levels of economic disadvantage. The coefficients for the other two-way interaction terms do not reach statistical significance. Apparently, the effects of stability and heterogeneity on interpersonal delinquency do not vary across levels of religious involvement, and the effect of religious involvement does not vary across levels of stability or heterogeneity. As such, I trim these two non-significant interaction terms from the model and re-estimate the equation with only the religious involvement * disadvantage interaction. Model 6 presents these results.

The main effect for disadvantage in Model 6 indicates that when religious involvement is zero (i.e., no religious involvement) neighborhood economic disadvantage

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has a significant positive effect on the log odds of interpersonal delinquency. The main effect for religious involvement in Model 6 shows that when economic disadvantage is zero (i.e., average levels of economic disadvantage), religious involvement is not significantly related to interpersonal delinquency.

In Model 6, the coefficient for the interaction between religious involvement and disadvantage remains negative and significant. The interaction coefficient indicates that the positive effect of neighborhood economic disadvantage on interpersonal delinquency is smaller (i.e., less detrimental) at higher levels of religious involvement and larger (i.e., more detrimental) at lower levels of religious involvement. The negative significant interaction also suggests that the inverse effect of religious involvement on interpersonal delinquency is stronger (i.e., more beneficial) at higher levels of neighborhood economic disadvantage and weaker (i.e., less beneficial) at lower levels of economic disadvantage.

Among the other variables, older adolescents, those with higher average grades, or those with higher levels of maternal attachment all have a lower likelihood of engaging in interpersonal delinquency net of other factors considered in Model 6. Conversely, males, blacks, and/or Hispanics (in comparison to whites), and those who associate with delinquent peers all have an increased likelihood of involvement in interpersonal delinquency net of other predictors.

To better see the interaction effects between religious involvement and interpersonal delinquency, I present two figures which graph these relationships. These graphs focus respectively on: 1) the effect of disadvantage on interpersonal delinquency across levels of religious involvement; and 2) the effect of religious involvement on interpersonal delinquency across levels of neighborhood disadvantage. Figure 5.1
presents predicted log odds of interpersonal delinquency across levels of block group disadvantage for low, average, and highly religiously involved youth. Absent a theoretical basis for determining religious cut off levels, low, average, and high religious involvement are defined as one standard deviation below the mean, the mean, and one standard deviation above the mean, respectively. Similarly, cut off levels for low and high economic disadvantage are defined as one standard deviation below and above the mean. In calculating the predicted log odds, all other independent variables are held constant at their mean levels.

Figure 5.1 shows that at low levels of religious involvement, economic disadvantage has a positive effect on interpersonal delinquency. At mean levels of religious involvement, disadvantage also has a positive effect on interpersonal delinquency, but the strength of this impact is lower than before. At high levels of religious involvement, economic disadvantage has an unexpected negative effect on interpersonal delinquency. Statistical tests of the slopes for disadvantage at high (b = - .114, t = 1.860, p > .05 two tailed significance) and mean (b = .047, t = .964, p > .05 one tailed significance) levels of religious involvement indicate that these effects are not significantly different from zero. Thus, these two slopes could just as accurately be presented as zero or flat. By contrast the slope for economic disadvantage at low levels of religious involvement (b = .208, t = 2.267, p < .05 one tailed significance) is significant. Apparently, economic disadvantage contributes to adolescent delinquency only when adolescent religious involvement is low. At mean or high levels of religious
involvement the detrimental effect of economic disadvantage on interpersonal
delinquency is buffered such that this factor does not increase the likelihood of engaging
in interpersonal delinquency.

Exploring the interaction in the opposite direction, Figure 5.2 presents predicted
log odds of interpersonal delinquency across levels of religious involvement for low,
average, and high levels of neighborhood disadvantage. When solving the equations for
predicted log odds, all other independent variables are held at their mean levels.

Religious involvement has a negative effect on interpersonal delinquency at high
levels of neighborhood disadvantage. This effect remains negative but is smaller at mean
levels of neighborhood disadvantage. However, religious involvement has a positive
effect on interpersonal delinquency at low levels of disadvantage. Neither slope for
religious involvement at low (b = .058, t = 1.075, p > .05 two tailed) or mean (b = -.042, t
= 1.040, p > .05 one tailed) levels of disadvantage is significantly different than zero, but
the slope for religious involvement at high levels of economic disadvantage (b = -.142, t
= 2.583, p < .05 one tailed) is significant. Apparently, religious involvement attenuates
interpersonal delinquency only in neighborhood areas having high levels of
socioeconomic disadvantage. At low and mean levels of economic disadvantage,
religious involvement does not have a significant impact on this type of delinquency.

To summarize, Model 6 provides partial support for several hypotheses presented
earlier. First, recall that social disorganization theory proposes that economic
disadvantage and race/ethnic heterogeneity increase the likelihood of delinquency, while
residential stability decreases this likelihood. The findings presented above for
interpersonal delinquency support social disorganization for two of the community
factors: economic disadvantage (as an interactive effect) and race/ethnic heterogeneity. Second, predictions about religious involvement and delinquency are also born out to some degree by the above results. Religious involvement lessens the likelihood of interpersonal delinquency, albeit only within contexts typified by higher levels of economic disadvantage. Finally, as anticipated, the buffering hypothesis presented earlier also receives some support. Religious involvement is shown to buffer the effect of one key neighborhood structural feature: economic disadvantage.

As a final point, Table 5.2 reports the results for estimates of the error variances and their associated standard errors for the random parameters in the logistic models examined here. As can be seen in the lower portion of the table, none of the level-three (school context) or level-two (block group context) errors demonstrate significant variation across the two contextual levels incorporated in this analysis. Overall, these non-significant results for the estimates of error variances at level-two and level-three suggest that accounting for the nested data structure within the MLwiN program may not have been necessary to obtain accurate estimates of the standard errors for the models of interpersonal delinquency presented above (Goldstein et al. 1998).

**Property Delinquency**

Table 5.3 presents the logistic results for property delinquency. As before, five sequential models are presented. Model 1 includes just the neighborhood-level predictors. The results show that only two of the coefficients are significant. Higher levels of neighborhood disadvantage and residential stability are associated with a lower likelihood of engaging in property delinquency. The negative effect for disadvantage is
unexpected based upon predictions made from social disorganization theory. The effects for residential stability are consistent with the social disorganization perspective. Heterogeneity and urban block group status are positive but not significant.

Model 2 adds the measure of religious involvement. The coefficient for this factor is negative and significant, indicating that religious involvement significantly reduces the log odds of property delinquency net of the neighborhood variables considered here. Model 3 includes the individual-level demographic controls. This model also incorporates an age-squared term. This quadratic term is significant, showing that the relationship between age and property delinquency is curvilinear. In other words, the positive effect of age on property delinquency peaks and then turns negative within the age distribution of this sample. Of the other variables included in this model, being male, Hispanic, or the child of a single-parent increases significantly the log odds of engaging in property delinquency. None of the other status characteristics has a significant effect in this model. Further, stability is no longer significant when incorporating individual-level demographic factors, but these characteristics do not diminish the influence of economic disadvantage on this form of delinquency.

In Model 4, I incorporate the three individual-level theoretical controls. All three variables have significant effects on property delinquency. Parental attachment and grades significantly decrease the log odds of property delinquency and peer delinquency significantly increases the log odds of this type of behavior. When these three theoretical controls are incorporated, religious involvement, age, age-squared, and single-parent are no longer significantly related to property delinquency.
The final model incorporates two-way interaction terms between religious involvement and the three key neighborhood structural features. Recall that these interactions are included to test the hypothesis that religious involvement buffers the impact of structural disadvantage on delinquency. As can be seen in Model 5, none of the two-way interactions is significant. Thus, the effects of neighborhood structural features on interpersonal delinquency do not vary significantly across levels of religious involvement; and the effect of religious involvement on property delinquency does not vary significantly across levels of neighborhood characteristics. As such, no support is demonstrated for the buffering hypothesis when considering property delinquency. Apparently, Model 4 is the more parsimonious model for this offense. Of the key independent variables considered (i.e., neighborhood structural features and religious involvement), only disadvantage demonstrates significant effects on property delinquency, and then in the opposite direction proposed by social disorganization theory.

Table 5.3 also reports estimated variance components and standard errors for the logistic models presented. These results reveal that a significant variance component exists for the level-three error term (school context) across all five models of property delinquency. Level-two (block group level) error terms did not demonstrate significant variance. Failure to account for the significant variation in the level-three error term would have led to biased estimates of standard errors if standard logistic regression had been used to model property delinquency.
**Drug Use**

Table 5.4 presents sequentially the regression results for models of drug use. The baseline model for the effects of neighborhood variables on drug use (Model 1) shows that disadvantage and heterogeneity have significant effects. However, the direction of effects for both of these variables is opposite that proposed by social disorganization theory. *Disadvantage and heterogeneity reduce rather than enhance the likelihood of involvement in drug use.* Stability has the expected negative sign but the coefficient does not reach statistical significance. Urban block group status is positive but not significant.

In Model 2 religious involvement is added to the equation for drug use, and consistent with expectations is negatively and significantly related to this type of delinquency, net of the neighborhood contextual variables. Thus, adolescents with higher levels of religious involvement have a significantly lower frequency of involvement with drug use than adolescents who are less religiously involved.

Model 3 adds the individual-level demographic control variables, including a quadratic age variable. This age-squared term is significant and suggests that the effect of age on drug use peaks and turns negative within the age range of this sample. Controlling for the demographic variables reduces the effect of disadvantage on drug use, but economic disadvantage remains a strong and significant predictor of drug involvement. Of the other variables added to this model, male, single-parent, and parents' education demonstrate significant positive effects on drug use. Conversely, black and welfare status demonstrate significant negative effects on drug use.

The three theoretical control variables are added to the equation in Model 4. These variables are all significant and in the expected direction, but adding them to the
model does not diminish the negative effect of disadvantage. The coefficient for religious involvement remains significant in this model, albeit with some considerable reduction in effect size from previous models. This suggests that only a portion of the effect of religious involvement on drug use is mediated by social bonding variables or peer delinquency.

Model 5 includes the interaction terms for testing the buffering hypothesis. None of the interaction variables has a significant effect on drug use. As such, it does not appear from these results that the effect of neighborhood structural features vary across levels of religious involvement, or conversely that the effect of religious involvement on drug use varies across levels of the three key neighborhood structural features. Indeed, the results show no support for the buffering hypothesis.

In brief, Table 5.4 provides no support for predictions made about the neighborhood structural features from the social disorganization perspective. Stability and heterogeneity are not significant predictors of drug use, and disadvantage contributes to a reduction rather than an increase in drug use, an effect that is contrary to disorganization perspectives. The results of Table 5.4 do support predictions regarding the effect of religious involvement on drug use. Religious involvement reduces drug use even when individual demographic and theoretical variables are controlled. However, there is no buffering effect of religious involvement in structurally disadvantaged communities.

Table 5.4 also presents results for the estimated error variances for the random parameters in the above drug use models, indicating that significant error variation exists.
at all three levels of analysis considered here (i.e., school, block group, and individual). As noted, this indicates the need to account for the nested data structure in the sample employed.

**SUMMARY OF MULTIVARIATE RESULTS**

Drawing on social disorganization theory, predicted that economic disadvantage and race/ethnic heterogeneity should have significant positive effects on delinquency, while residential stability should have a significant negative effect (Bursik and Grasmick 1993; Kornhauser, 1978; Sampson and Groves 1989). In line with past religiosity-delinquency research, also predicted that religious involvement would have a significant inverse effect on delinquency (Benda 1995; Cochran 1988; Cochran and Akers 1989; Rorbaugh and Jessor 1975; Tittle and Welch 1983). Further, borrowing from ethnographic work on neighborhoods and religiosity-delinquency theory, hypothesized that religious involvement provides: 1) access to external social control mechanisms which are potentially lacking in structurally disadvantaged neighborhoods; or 2) provides important internalized insulating mechanisms (Jarrett, 1997; Marcos et al. 1986; Rorbaugh and Jessor 1975; Ross 1929; Tittle and Welch 1983). Given this, anticipated that interaction terms between religious involvement and the above neighborhood structural features would demonstrate that religious involvement reduces their detrimental impacts on delinquency.

In examining these issues, three types of delinquency were explored, namely, serious interpersonal delinquency (i.e., violence), common property delinquency (i.e., theft and vandalism), and minor drug use (i.e., alcohol and marijuana use). Considering
these types of adolescent misbehavior allowed me to explore previous scholarly speculation that etiological factors may have differential influences on different kinds of delinquent behavior (see Burkett and White 1974; Cochran et al. 1994; Farnworth et al. 1994; Hagan et al. 1985).

**Social Disorganization**

Of the three types of delinquency considered here, the predictions made based on the social disorganization perspective are born out for serious interpersonal delinquency only, and then only for two neighborhood structural features: economic disadvantage and race/ethnic heterogeneity. For common property delinquency and minor drug use, the social disorganization perspective receives no support in the above analyses. Interestingly, neighborhood economic disadvantage does have consistent significant effects across the three types of delinquency examined. However, the direction of effects is unexpected for property and drug delinquency. Thus, results for property delinquency and drug use are in the opposite direction than that predicted by social disorganization theory (see Model 4 in Table 5.3 and Model 4 in Table 5.4).

Perhaps areas of greater economic advantage provide more attractive opportunities for common property crime or minor drug use. Potentially, extremely disadvantaged neighborhood areas simply lack the collective resources necessary to concentrate valuable goods, or minor substances such as alcohol and marijuana and make them available for adolescent theft or use. Recall that Gottfredson et al. (1991) derive similar findings for theft and drug use. They also posit similar opportunity speculations regarding these types of delinquency.
**Religious Involvement**

Arguments that religious involvement is relevant across a broad range of delinquency types receives support from this investigation. Religious involvement has a significant inverse relationship with interpersonal violence (interaction effect) when controlling for important theoretical controls (i.e., maternal attachment, grades, and peer delinquency) and other variables (Model 6 in Table 5.2). Religious involvement is also significantly related to drug use when controlling for all other variables (Model 4 in Table 5.4). However, for common property delinquency, religious involvement appears to be less directly important than other theoretical variables. Potentially, common property delinquency is seen as less consequential than interpersonal delinquency and minor drug use for religious youths. In other words, interpersonal violence and drug usage among adolescents may be viewed as more egregious violations of religious moral principles.

**Buffering Hypothesis**

Only the results for interpersonal delinquency provide support for the buffering hypothesis. Specifically, the interaction between religious involvement and neighborhood economic disadvantage presented in Model 6 of Table 5.2 demonstrates that the detrimental effect of disadvantage is reduced or buffered for youths who have high levels of religious involvement. Interaction effects for the stability and heterogeneity factors and religious involvement on interpersonal delinquency were not significant. For property delinquency and drug use, no significant interactions were found.
Table 5.1. Bivariate Correlations, Means, and Standard Deviations for Dependent and Independent Variables: Main Sample

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<td>.005</td>
<td>.019</td>
<td>-.031*</td>
<td>.012</td>
<td>.291*</td>
<td>.031*</td>
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Mean                     | .294   | .290   | 1.631  | -.004  | .063   | .165   | .494   | 15.610 | .476   |
Standard Deviation        | .456   | .454   | 2.272  | .825   | .847   | .173   | .500   | 1.584  | .499   |

* p < .05

(Continued on next page)
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Mean 0.203 0.130 0.317 0.454 3.460 5.471 0.086 2.730 4.391 2.804 2.381
Standard Deviation 0.403 0.336 0.465 0.498 1.045 2.061 0.280 1.324 0.615 0.757 2.589

* p < .05
Table 5.2  Interpersonal Delinquency Regressed on Neighborhood-Level, Individual-Level, and Cross-Level Interaction Variables: Multi-Level Logistic Models Main Sample

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<tr>
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<th>Model 2 Estimate (S.E.)</th>
<th>Model 3 Estimate (S.E.)</th>
<th>Model 4 Estimate (S.E.)</th>
<th>Model 5 Estimate (S.E.)</th>
<th>Model 6 Estimate (S.E.)</th>
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<tbody>
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<td>-1.117 (.057)</td>
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<td>3.428 (.451)</td>
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<tr>
<td>Economic Disadvantage</td>
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<td>.129* (.038)</td>
<td>.019 (.044)</td>
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<td>.333* (.160)</td>
<td>.378* (.151)</td>
</tr>
<tr>
<td>Residential Stability</td>
<td>-.048 (.038)</td>
<td>-.046 (.038)</td>
<td>-.028 (.039)</td>
<td>-.048 (.039)</td>
<td>-.113 (.152)</td>
<td>-.045 (.040)</td>
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<tr>
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<td>.776* (.182)</td>
<td>.463* (.189)</td>
<td>.376* (.190)</td>
<td>.867 (.1769)</td>
<td>.363* (.191)</td>
</tr>
<tr>
<td>Urban Block Group Status</td>
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<td>.028 (.067)</td>
<td>.037 (.067)</td>
<td>.036 (.067)</td>
<td>.037 (.067)</td>
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<td>-.042 (.039)</td>
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<td>-.203* (.020)</td>
<td>-.207* (.021)</td>
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<td>.469* (.091)</td>
<td>.465* (.091)</td>
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<td>.404* (.096)</td>
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<td>.158* (.013)</td>
<td>.158* (.013)</td>
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<td>.158* (.013)</td>
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Table 5.2 (continued)

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<th>Model 6 Estimate (S.E.)</th>
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<td>.021 (.014)</td>
<td>.013 (.013)</td>
<td>.004 (.012)</td>
<td>.003 (.012)</td>
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<td>Error Variance at Level-Two (block group)</td>
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N = 8268

* p < .05 (one tailed, sign in expected direction)
** p < .05 (two tailed, sign not in expected direction)
+ level one (individual) error variance set to one by default
Table 5.3  Property Delinquency Regressed on Neighborhood-Level, Individual-Level, and Cross-Level Interaction Variables: Multi-Level Logistic Models Main Sample

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<th>Model 5 Estimate (S.E.)</th>
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</thead>
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<td>-.096** (.043)</td>
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<tr>
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<td>-.058 (.037)</td>
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<td>-.033 (.088)</td>
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<td>.016 (.029)</td>
<td>.016 (.029)</td>
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<td>.047* (.015)</td>
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<td>-.035 (.101)</td>
<td>-.035 (.101)</td>
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<td>Maternal Attachment</td>
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<td>-.369* (.042)</td>
<td>-.369* (.042)</td>
<td>-.369* (.042)</td>
<td>-.369* (.042)</td>
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<tr>
<td>Grades</td>
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<td>-.190* (.037)</td>
<td>-.190* (.037)</td>
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<tr>
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<td>.136* (.011)</td>
<td>.136* (.011)</td>
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Table 5.3 (continued)

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<th>Model 2 Estimate (S.E.)</th>
<th>Model 3 Estimate (S.E.)</th>
<th>Model 4 Estimate (S.E.)</th>
<th>Model 5 Estimate (S.E.)</th>
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</thead>
<tbody>
<tr>
<td>Error Variance at Level-Three (school)</td>
<td>.094* (.026)</td>
<td>.081* (.024)</td>
<td>.063* (.018)</td>
<td>.063* (.019)</td>
<td>.063* (.019)</td>
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<td>Error Variance at Level-Two (block group)</td>
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<td>.011 (.037)</td>
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<td>.019 (.031)</td>
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<td>.004 (.015)</td>
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N = 8268

* p < .05 (one tailed, sign in expected direction)
** p < .05 (two tailed, sign not in expected direction)
+ level one (individual) error variance set to one by default
<table>
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<th>Model 2 Estimate (S.E.)</th>
<th>Model 3 Estimate (S.E.)</th>
<th>Model 4 Estimate (S.E.)</th>
<th>Model 5 Estimate (S.E.)</th>
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<tr>
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<td>.108 (.378)</td>
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<td>-.152** (.041)</td>
<td>-.177** (.035)</td>
<td>-.353** (.154)</td>
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<tr>
<td>Residential Stability</td>
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<td>-.042 (.041)</td>
<td>-.023 (.037)</td>
<td>-.046 (.032)</td>
<td>-.174 (.137)</td>
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<tr>
<td>Race/Ethnic Heterogeneity</td>
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<td>-.277 (.208)</td>
<td>.051 (.192)</td>
<td>-.014 (.160)</td>
<td>.548 (.716)</td>
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<td>Urban Block Group Status</td>
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<td>.013 (.065)</td>
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<td>.084 (.008)</td>
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<td>.084 (.008)</td>
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<tr>
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<td>.330 (.072)</td>
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<td>.095 (.076)</td>
<td>.114 (.076)</td>
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<td>.017 (.023)</td>
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<td>.017 (.023)</td>
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<td>(.035)</td>
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<td>.391* (.010)</td>
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<td>(.010)</td>
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<td>(.039)</td>
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Table 5.4 (continued)

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<td>(S.E.)</td>
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<td>.117*</td>
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<td>(.027)</td>
<td>(.012)</td>
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<td>(.038)</td>
<td>(.029)</td>
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<td>(.087)</td>
<td>(.075)</td>
<td>(.060)</td>
<td>(.064)</td>
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* p < .05 (one tailed, sign in expected direction)
** p < .05 (two tailed, sign not in expected direction)
Figure 5.1  Predicted Log Odds for Interpersonal Delinquency Across Levels of Neighborhood Economic Disadvantage for Low, Average, and Highly Religiously Involved Youth

Predicted log odds were calculated while holding all other independent variables at their mean levels.
Figure 5.2  Predicted Log Odds for Interpersonal Delinquency Across Levels of Religious Involvement for Low, Average, and High Neighborhood Economic Disadvantage*

*Predicted log odds were calculated while holding all other independent variables at their mean levels.
CHAPTER 6

MULTI-LEVEL DELINQUENCY MODELS EXAMINING STRICT DENOMINATIONAL AFFILIATION

This portion of my analysis focuses on a more restricted sample of students whose denominational affiliation could be ascertained as either strict or non-strict (see Chapter 4 for a discussion). All respondents who reported their affiliation as "none" or whose affiliation was non-classifiable (e.g., non-Christian, Other religion) were excluded from this portion of my analysis. The resulting sample consisted of 6,523 youth.

There are theoretical reasons to anticipate that religious involvement within strict denominations exposes adolescents to a greater level of social capital and stronger social control mechanisms than affiliation in non-strict denominations (Coleman 1988, 1990; Iannaccone 1994). I argue that involvement in strict denominations increases the density of personal acquaintanceship networks, enhances the probability of intergenerational ties, and facilitates the mutual guardianship of adolescents to a greater degree than affiliation in non-strict denominations. In other words, strict denominations likely enhance both internal and external social control mechanisms available to highly religious youth.

Given this argument, I anticipate that the effect of religious involvement will be stronger within strict denominational affiliations. That is, there should be a significant
two-way interaction between religious involvement and strict denominational affiliation. I also expect the buffering effect of religious involvement on the relationship between neighborhood economic disadvantage and delinquency to be larger for adolescents with a strict denominational affiliation. That is, I anticipate a significant three-way interaction between religious involvement, neighborhood economic disadvantage, and strict denominational affiliation. The test for interaction effects of neighborhood structural features in this series of models is restricted to neighborhood economic disadvantage. Other analyses not reported here show no significant two- or three-way interactions involving residential stability or race/ethnic heterogeneity with either religious involvement or strict denominational affiliation. Recall that these two variables did not interact with religious involvement in the main sample presented earlier.

BIVARIATE RESULTS

Table 6.1 reports the bivariate results for the denominational sub-sample. The bivariate associations between the independent variables and all three dependent variables reported in Table 6.1 are very similar to the results reported for the main sample (Table 5.1). Most important, the relationships between the key independent variables (i.e., neighborhood structural features and religious involvement) and the three dependent variables shown in Table 6.1 have the same sign and degree of significance as those reported in Table 5.1. Thus, the basic relationships do not differ substantially when respondents with no religious denominational affiliation or a non-classifiable denomination are excluded.
For interpersonal delinquency, the pattern of relationships for the key neighborhood structural features support the social disorganization arguments made earlier (i.e., significant relationships with the expected direction). However, as with the bivariate relationships found for the main sample, the associations for property delinquency and drug use are largely at variance with social disorganization theory. The coefficient for economic disadvantage and property delinquency is negative rather than positive as are the coefficients for economic disadvantage and drug use and race/ethnic heterogeneity and drug use. Residential stability has the expected negative relationship with property delinquency but has a non-significant association with the frequency of youthful drug use.

The associations between religious involvement and the three measures of delinquency for the denominational sub-sample are negative and significant with the coefficient for drug use being the strongest. These negative coefficients are consistent with expectations. Table 6.1 also demonstrates that strict denominational affiliation has a negative relationship with all three types of delinquency, but only the coefficient for drug use reaches statistical significance. Thus, strict denominational affiliation may be most relevant in the case of drug use. However, multivariate results are needed to confirm these bivariate associations for strict denominational affiliation and to determine if important two- and three-way interactive effects are present.

MULTIVARIATE MODELS FOR THE DENOMINATIONAL SUB-SAMPLE

The multi-level multivariate models for interpersonal delinquency, property delinquency, and drug use are presented in separate tables for the analyses conducted
using the denominational sub-sample. Model 1 for this series of multivariate results includes neighborhood variables, religious involvement, strict denominational affiliation, and individual-level demographic and theoretical controls. This model establishes a baseline effect for neighborhood structural features, strict denominational affiliation, and religious involvement net of all other independent variables.

Model 2 adds three two-way interaction terms: the interaction between religious involvement and strict denominational affiliation, the interaction between religious involvement and neighborhood economic disadvantage, and the interaction between strict denomination and neighborhood economic disadvantage. The interaction between strict denomination and neighborhood economic disadvantage is not of central theoretical interest in this analysis. It is included here so that all relevant two-way interactions are present prior to testing the three-way interaction of interest. The interaction between religious involvement and strict denominational affiliation will show whether the inverse effect of religious involvement varies across strict versus non-strict denominational affiliation. I anticipate that the inverse effect of religious involvement on interpersonal delinquency is stronger for adolescents who report affiliation with a strict denomination. The interaction between religious involvement and neighborhood disadvantage will demonstrate whether or not the effect of neighborhood economic disadvantage varies across levels of religious involvement. As before, I expect religious involvement to buffer the effect of economic disadvantage on delinquency such that the effect of economic disadvantage is smaller for those youths who have higher levels of religious involvement.
Model 3 adds the three-way interaction between religious involvement, neighborhood economic disadvantage, and strict denominational affiliation. This interaction is important because it will establish whether the buffering effect of religious involvement on the relationship between neighborhood economic disadvantage and delinquency varies across strict versus non-strict denominational affiliation. I anticipate that the buffering effect will be stronger for adolescents affiliated with strict denominations. Finally, Model 4 excludes any non-significant interaction terms. If no interaction terms are significant in Models 2 or 3, I focus attention on the findings for Model 1.

MULTIVARIATE RESULTS

Interpersonal Delinquency

The multivariate logistic regression results for interpersonal delinquency are reported in Table 6.2. As can be seen in Model 1, of the three key neighborhood variables, only race/ethnic heterogeneity is significantly related to interpersonal delinquency. However, as with models for the main sample (Model 6, Table 5.2), economic disadvantage does have significant interactive effects (shown in subsequent models). Model 1 also shows that the coefficient for strict denominational affiliation is negative and significant as anticipated. Affiliation with a strict rather than non-strict denomination reduces the likelihood of interpersonal delinquency net of all other independent variables in the model. The coefficient for religious involvement is not
significant in Model 1. However, as shown previously for the main sample (Model 6, Table 5.2), religious involvement is negatively and significantly related to interpersonal delinquency in socioeconomically disadvantaged contexts (shown by interaction terms in subsequent models).

Turning to Model 2, only one of the two-way interaction terms discussed above reaches statistical significance. As found previously for the main sample (Model 6, Table 5.2), the interaction between religious involvement and neighborhood economic disadvantage is significant. The sign and significance of this coefficient indicate support for the buffering hypothesis. Substantively speaking, this interaction indicates that the detrimental effect of economic disadvantage on interpersonal delinquency is smaller for youths with high levels of religious involvement. The other interaction of central interest here (religious involvement * strict denomination) did not reach statistical significance. As such, the findings do not support the notion that the effect of religious involvement on interpersonal delinquency varies by strict denominational affiliation. The strict denomination * disadvantage variable also does not reach statistical significance in Model 2. This indicates that the effect of strict denomination on interpersonal delinquency does not vary by levels of neighborhood economic disadvantage, and conversely, that the effect of economic disadvantage on interpersonal delinquency does not vary by strict versus non-strict denominational affiliation. These results indicate that the buffering effect in this instance has to do with an individual's religious involvement and not whether s/he belongs to a strict denomination.

1 Other results not shown indicate that religious involvement is non-significant in a similar model that excludes strict denominational affiliation.
As shown in Model 3, the coefficient for the three-way interaction term for religious involvement, strict denomination, and economic disadvantage is not significant. Thus, Model 3 fails to support the hypothesis that strict denominational affiliation enhances the buffering effect of religious involvement on the relationship between economic disadvantage and interpersonal delinquency.

Model 4 excludes all non-significant interaction terms. Main effects of this model show that economic disadvantage has a positive, significant effect on interpersonal delinquency when religious involvement is zero (i.e., no religious involvement). In other words, higher levels of neighborhood economic disadvantage increase the likelihood of involvement in interpersonal delinquency for adolescents with no religious involvement. The main effect for religious involvement shows that this variable is a non-significant predictor of interpersonal delinquency when economic disadvantage is at the mean level (i.e., zero). As with the main sample (Model 6, Table 5.2), the significant two-way interaction in this model shows that at higher levels of religious involvement, the detrimental impact of neighborhood economic disadvantage on interpersonal delinquency is reduced (i.e., buffered). Conversely, this interaction also demonstrates that the inverse effect of religious involvement on interpersonal delinquency is smaller in contexts typified by low levels of economic disadvantage. Therefore, religious involvement is relevant to interpersonal delinquency only at higher levels of economic disadvantage.

Other independent variables demonstrating significant inverse effects in Model 4 include age\(^2\), parents' education, maternal attachment, and grades. Thus increasing age.

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\(^{\text{2}}\) I included an age-squared term in preliminary models but this variable was not significantly related to interpersonal delinquency, and was therefore trimmed from the analysis.
parents' education, maternal attachment, and grades all reduce the likelihood of involvement in interpersonal delinquency. Independent variables demonstrating significant positive effects include male, race (black), Hispanic, and peer delinquency. Thus respondents who are black or Hispanic as compared to white, and who are exposed to greater levels of peer delinquency all have a higher likelihood of involvement in interpersonal delinquency. Urban block group status, single-parent, mobility status, income, and welfare status were not significant predictors of interpersonal delinquency in Model 4.

The bottom portion of Table 6.2 reports variance components for the multilevel logistic models examined for interpersonal delinquency. None of the variance components for school, or block group (i.e., neighborhood) error terms are significant in any of the models. Given these findings, multilevel modeling may not have been necessary to obtain unbiased standard errors and accurate significance tests for interpersonal delinquency.

In sum, the analyses for interpersonal delinquency presented in Table 6.2 demonstrate support for the notion that religious involvement buffers the detrimental effect of high neighborhood economic disadvantage on interpersonal delinquency. However, results do not support the contention that the effect of religious involvement varies by denominational affiliation, or that the buffering effect of religious involvement varies for strict versus non-strict denominational affiliation. Instead, results from Model 2 in Table 6.2 show that the effect of religious involvement on interpersonal delinquency is unconditioned by strict denominational affiliation. Interestingly, however, results do
indicate that association with a strict denomination has independent effects on interpersonal delinquency that are not conditioned by religious involvement or neighborhood economic disadvantage.

**Property Delinquency**

Table 6.3 reports results for multi-level logistic models for property delinquency. Model 1 shows that among the three neighborhood variables only economic disadvantage is significant. Similar to an earlier model for the full sample (Model 4, Table 5.3), economic disadvantage is negatively and significantly related to property delinquency. This finding indicates that higher levels of neighborhood economic disadvantage are associated with a lower rather than higher likelihood of individual property delinquency.

Model 1 demonstrates that net of other neighborhood- and individual-level variables, the dummy variable for strict denominational affiliation is non-significant. This model also shows that the coefficient for religious involvement is non-significant. Apparently, the effect of religious involvement on property delinquency is either duplicated or mediated by the inclusion of maternal attachment, grades, and peer delinquency. These findings are consistent with those for the main sample (Model 4, Table 5.3). Other research suggests that the most plausible interpretation is indirect effects through bonding variables and peer delinquency (Lee 1998).

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3 Other models not shown here demonstrate that when excluding religious involvement there is still a non-significant effect for strict denomination on property delinquency.
Other significant positive predictors of property delinquency include being male, Hispanic as compared to white, parents' education, and peer delinquency. Significant inverse predictors of property delinquency include parental attachment and grades. Model 2 adds the three two-way interactions to the model for property delinquency. As can be seen in Model 2, none of the two-way interaction terms is significant. Given that the interaction between religious involvement and strict denomination is non-significant, no support exits to suggest that the effect of religious involvement on property delinquency is stronger for strict versus non-strict denominational affiliation.

Further, the non-significant three-way interaction incorporated in Model 3 fails to support the hypothesis that strict denominational affiliation enhances the buffering effect of religious involvement on the relationship between economic disadvantage and property delinquency. In fact, the non-significant two-way interaction between economic disadvantage and religious involvement shown previously implies that there is no buffering effect to modify for property delinquency. Thus, for property delinquency, Model 1 appears to be the most appropriate model.

Table 6.3 also reports variance components for the multivariate models examined for property delinquency. As can be seen in the bottom portion of the table, significant error variance for the level-three or school-level error term is demonstrated. Failure to account for this significant error variation would have produced biased standard errors and incorrect significance tests.
**Drug Use**

Table 6.4 reports multi-level regression results for drug use. According to Model 1, results for the neighborhood structural features are not entirely as expected from social disorganization theory. First, only the coefficient for residential stability is in the expected direction and significant. Second, the coefficient for race/ethnic heterogeneity is non-significant. Third, the effect of economic disadvantage is significant but this effect is negative rather than positive. Model 1 also demonstrates that the coefficients for both religious involvement and strict denominational affiliation are negative and significant. As such, both more intense religious involvement and strict denominational affiliation, in comparison to non-strict denominational affiliation, reduce the likelihood of drug use net of other important variables.

There is no evidence in Model 2 to support the notion that the effect of religious involvement on drug use varies across strict versus non-strict denominational affiliation. Model 2 also fails to show support for the buffering hypothesis. Specifically, neither of the relevant two-way interaction terms (religious involvement * strict denomination, and religious involvement * economic disadvantage) considered in Model 2 are statistically significant. Further, the three-way interaction term is non-significant in Model 3 as well. The lack of a significant three-way interaction among religious involvement, strict denominational affiliation, and economic disadvantage means that these data do not support the notion that the buffering effect of religious involvement on the relationship between neighborhood economic disadvantage and property delinquency is stronger for
strict versus non-strict denominations. In fact, the non-significant two-way interaction between religious involvement and neighborhood economic disadvantage fails to support the notion that a buffering effect exists for drug use.

Interestingly, the interaction between neighborhood economic disadvantage and strict denominational affiliation is significant in Model 2. So, I estimated an additional model that includes this interaction but excludes the other non-significant interaction variables. These results are presented in Model 4.

The main effect for economic disadvantage in this model (Model 4, Table 6.4) shows that economic disadvantage has a negative and significant effect on drug use for adolescents who have a non-strict denominational affiliation (i.e., when the strict variable is zero). The main effect for strict denomination indicates that at mean levels of economic disadvantage (i.e., when economic disadvantage is zero), strict denominational affiliation significantly reduces the frequency of drug use.

Findings for the significant two-way interaction term in this model show that the effect of economic disadvantage on drug use varies across strict versus non-strict denominational affiliation. This interaction also indicates that the effect of strict versus non-strict denominational affiliation on drug use varies across levels of economic disadvantage. More specifically, the inverse effect of neighborhood economic disadvantage on the frequency of minor drug use is stronger for youths affiliated with non-strict denominations.

Figure 6.1 shows these results graphically. It presents the predicted frequency of drug use across levels of neighborhood economic disadvantage for adolescents affiliated with strict versus non-strict denominations. For calculating predicted frequencies, low
and high economic disadvantage are defined as one standard deviation below and above the mean, respectively. In the equations, non-strict denomination is equal to zero and strict denomination is equal to one. All other independent variables are held constant at their mean values. The figure demonstrates that the slope for economic disadvantage is highly negative for adolescents in non-strict denominations, whereas the slope for economic disadvantage for adolescents in strict denominations is slightly positive. Significance tests for these two slopes indicate that the disadvantage slope for non-strict denominations is significantly different from zero (b = -.207, t = 5.165, p < .05), but the disadvantage slope for strict denominations is not (b = .064, t = .634, p > .05), and could just as accurately have been presented as flat. Overall, this graph shows that strict denominational affiliation reduces the effect of low economic disadvantage on minor forms of drug use. Apparently, low neighborhood economic disadvantage (i.e., an advantaged neighborhood) increases the frequency of adolescent minor drug use. Results from the previous chapter for the main sample were similar to this. However, as can be seen in the graph, this neighborhood effect only holds for adolescents with a non-strict denominational affiliation. Adolescents who have a non-strict denominational affiliation in neighborhood areas typified by low economic disadvantage have a significantly higher frequency of drug use. Neighborhood disadvantage has no effect on drug delinquency for youths in strict denominations.

Figure 6.2 reports results for the interaction term considered in the other direction. Specifically, it presents the predicted frequency of drug use for adolescents with a strict versus non-strict denominational affiliation across low, average, and high levels of neighborhood economic disadvantage. Low, average, and high disadvantage are defined
as one standard deviation below the mean, the mean, and one standard deviation above the mean, respectively. All other variables retain the definitions presented above. According to Figure 6.2, strict denomination has a significant inverse relationship with drug use across two levels of economic disadvantage. The strict denomination slope is significantly different from zero at both low and mean levels of disadvantage ($b = -.490, t = 3.642, p < .05$ and $b = -.270, t = 3.154, p < .05$ respectively). However, the strict denomination slope is not significant for high economic disadvantage ($b = -.052, t = .508, p > .05$). These findings show that strict denominational affiliation significantly reduces the frequency of drug use at average and low levels of economic disadvantage. However, at high levels of disadvantage, strict denominational affiliation has little impact on this form of adolescent behavior.

Other significant inverse predictors of drug use in Model 4 include religious involvement, race (black), welfare status, maternal attachment, and grades. Thus, adolescents who have higher levels of religious involvement, are black as compared to white, receive welfare, have higher levels of maternal attachment, or higher grades have lower frequencies of drug use. Variables that show a significant positive effect on the frequency of minor drug use include male, single-parent, parents' education, and peer delinquency. These findings indicate that adolescents who are male, from single-parent families, have parents' with higher education, or more delinquent peers all have an increased frequency of minor drug use. Non-significant variables in this model include race/ethnic heterogeneity, urban block group status, age, and age-squared, Hispanic, mobility status, and income.
As with the other analyses conducted here, Table 6.4 shows that significant error variation for both level-three (school) and level-two (neighborhood) exists for drug use. Failure to account for this would have led to biased standard errors and incorrect significance tests. Thus, these analyses demonstrate support for the contention that failure to account for the nested data structure employed in this dissertation could have led to wrong conclusions regarding variables being examined here.

Overall, results for the regression equations presented for drug use are somewhat contrary to predictions made from social disorganization theory. Only residential stability was significantly related to drug use in the expected direction. As seen previously in analyses of the main sample, neighborhood economic disadvantage is unexpectedly negative and significant. Further, results indicate no support for the hypothesis that strict denominational affiliation alters the effect of religious involvement on drug use, or that strict denominational affiliation augments the buffering effect of religious involvement on the relationship between economic disadvantage and drug use. Results instead indicate that religious involvement and strict denominational affiliation have largely independent inverse effects on drug use. Strict denominational affiliation does interact with and reduce the impact of low neighborhood economic disadvantage on adolescent drug use. Further, these interaction results also indicate that the effect of strict denomination on drug use is limited to neighborhood contexts typified by average or low levels of economic disadvantage.
Multivariate Summary

In regards to predictions made about key neighborhood structural features (i.e., economic disadvantage, residential mobility, and race/ethnic heterogeneity), the multivariate results for the sub-analyses are similar to those for the larger sample. Overall, the results for interpersonal delinquency are the most consistent with social disorganization theory. In this case, each of the variables is in the expected direction with economic disadvantage and race/ethnic heterogeneity having significant effects (Model 4, Table 6.2). By contrast, but consistent with findings for the larger sample, only economic disadvantage has a significant effect on property delinquency and drug use. However, for these types of adolescent behavior, the influence of economic disadvantage is unexpectedly negative. Thus, adolescents who are exposed to lower levels of economic disadvantage have a higher likelihood of property delinquency and a higher frequency of drug use.

The results for religious involvement in the sub-analyses are also very similar to those for the main analysis. Religious involvement demonstrates inverse effects on both interpersonal violence (interactional) and drug use. Moreover, this factor has a buffering effect on the relationship between neighborhood economic disadvantage and interpersonal delinquency as expected. Still, religious involvement does not significantly affect property delinquency when other key theoretical control variables are considered.

Predictions regarding the effect of strict denominational affiliation are largely unsupported in the preceding analysis. Strict denominational affiliation does not significantly interact with religious involvement. Further, results from the sub-analyses indicate that strict denominational affiliation does not augment or heighten the buffering
effect of religious involvement. Instead, the effects of strict denominational affiliation
and religious involvement are independent of each other. Both variables reduce the
frequency of interpersonal delinquency and drug use net of other factors.

Additional analyses presented for the sub-sample show that strict denominational
affiliation reduces the impact of low neighborhood economic disadvantage on minor drug
use. Results also indicate that the effect of neighborhood economic disadvantage on
minor drug use is limited to those adolescents who have a non-strict denominational
affiliation.
Table 6.1  Bivariate Correlations, Means, and Standard Deviations for Dependent and Independent Variables: Sub-Sample

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Mean                      | .288   | .280   | 1.566  | -.008  | .080  | .168   | .482   | 15.571 | .467   | .213   |

Standard Deviation        | .453   | .449   | 2.197  | .809   | .847  | .174   | .500   | 1.574  | .499   | .409   |

* p < .05 (N=6523)         

(Continued on next page)
Table 6.1 (continued)

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<td>-.028*</td>
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<td>-.007</td>
<td>.006</td>
<td>.033*</td>
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<td>.136*</td>
<td>.012</td>
<td>1.000</td>
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<td>-.088*</td>
<td>.149*</td>
<td>.246*</td>
<td>-.115*</td>
<td>.172*</td>
<td>-.032*</td>
<td>.106*</td>
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<td>-.065*</td>
<td>.048*</td>
<td>-.245*</td>
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<td>-.181*</td>
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* p < .05
Table 6.2  Interpersonal Delinquency Regressed on Neighborhood-Level, Individual-Level, and Cross-Level Interaction Variables: Multi-Level Logistic Models
Denominational Sub-Sample

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<th>Model 4</th>
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<td>Estimate (S.E.)</td>
<td>Estimate (S.E.)</td>
<td>Estimate (S.E.)</td>
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<td>3.334 (.447)</td>
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<td>.381* (.148)</td>
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<td>-.045 (.039)</td>
<td>-.047 (.039)</td>
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<td>.438* (.187)</td>
<td>.433* (.186)</td>
<td>.441* (.187)</td>
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<td>.036 (.066)</td>
<td>.035 (.065)</td>
<td>.034 (.066)</td>
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<td>-.044 (.040)</td>
<td>-.047 (.040)</td>
<td>-.045 (.039)</td>
</tr>
<tr>
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<td>-.070 (.479)</td>
<td>.035 (.507)</td>
<td>-.201* (.106)</td>
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<td>-.195* (.020)</td>
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<td>.009 (.031)</td>
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<td>.071 (.113)</td>
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<td>Maternal Attachment</td>
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<td>-.230* (.048)</td>
<td>-.232* (.048)</td>
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<td>Grades</td>
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<td>-.368* (.042)</td>
<td>-.372* (.043)</td>
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<td>Peer Delinquency</td>
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<td>.158* (.012)</td>
<td>.156* (.012)</td>
<td>.158* (.012)</td>
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<tr>
<td>Relig. Inv. * Strict Denom.</td>
<td>-.030 (.136)</td>
<td>-.058 (.144)</td>
<td>-.122* (.045)</td>
<td>-.123* (.045)</td>
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<tr>
<td>Relig. Inv. * Disadvant.</td>
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<td>-.122* (.047)</td>
<td>-.123* (.047)</td>
<td>-.123* (.047)</td>
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<td>Strict Denom. * Disadvant.</td>
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<th>Model 3 Estimate (S.E.)</th>
<th>Model 4 Estimate (S.E.)</th>
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<td>.004 (.012)</td>
<td>.005 (.011)</td>
<td>.004 (.012)</td>
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<td>.343 (.489)</td>
<td>.349 (.491)</td>
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<td>Error Variance for Religious Invol. at Level-Two</td>
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<td>.033 (.050)</td>
<td>.033 (.050)</td>
<td>.033 (.050)</td>
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<td>.000 (.000)</td>
<td>.000 (.000)</td>
<td>.000 (.000)</td>
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<td>Error Variance at Level-One (individual)</td>
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<td>1.000 (.000)</td>
<td>1.000 (.000)</td>
<td>1.000 (.000)</td>
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N = 6523
* p < .05 (one tailed, sign in expected direction)
** p < .05 (two tailed, sign not in expected direction)
+ level one (individual) error variance set to one by default
Table 6.3  Property Delinquency Regressed on Neighborhood-Level, Individual-Level, and Cross-Level Interaction Variables: Multi-Level Logistic Models Denominational Sub-Sample

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<th>Model 3 Estimate (S.E.)</th>
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<td>-.103 (.151)</td>
<td>-.120 (.158)</td>
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<td>Residential Stability</td>
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<td>-.084* (.041)</td>
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<tr>
<td>Race/Ethnic Heterogeneity</td>
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<td>.244 (.207)</td>
<td>.252 (.2110)</td>
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<tr>
<td>Urban Block Group Status</td>
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<td>.096 (.075)</td>
<td>.106 (.077)</td>
</tr>
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<td>Religious Involvement</td>
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<td>-.019 (.040)</td>
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<td>.743 (.489)</td>
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<td>.122 (.354)</td>
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<td>Age-Squared</td>
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<td>-.011 (.011)</td>
<td>-.011 (.011)</td>
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<td>Male</td>
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<td>.467* (.060)</td>
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<td>.022 (.032)</td>
<td>.023 (.032)</td>
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<td>Grades</td>
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<td>.137* (.012)</td>
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<td>Relig. Inv. * Disadvant.</td>
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<td>.005 (.048)</td>
<td>.005 (.048)</td>
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<td>Strict Denom. * Disadvant.</td>
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(Continued on the next page)
Table 6.3 (continued)

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<td>.063* (.021)</td>
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<td>Error Variance for Strict Denom. at Level-Two</td>
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N = 6523

* p < .05 (one tailed, sign in expected direction)
** p < .05 (two tailed, sign not in expected direction)
+ level one (individual) error variance set to one by default
Table 6.4  Drug Use Regressed on Neighborhood-Level, Individual-Level, and Cross-Level Interaction Variables: Multi-Level Models Denominational Sub-Sample

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<td>(.034)</td>
<td>(.034)</td>
<td>(.034)</td>
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<td>.384*</td>
<td>.384*</td>
<td>.384*</td>
</tr>
<tr>
<td>(S.E.)</td>
<td>(.010)</td>
<td>(.010)</td>
<td>(.010)</td>
<td>(.010)</td>
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Relig. Inv. * Strict Denom.    \( \text{ holds} \)

(Continued on the next page)
Table 6.4 (continued)

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<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<td></td>
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<td>Estimate (S.E.)</td>
<td>Estimate (S.E.)</td>
<td>Estimate (S.E.)</td>
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<td>.034* (.013)</td>
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<td>2.380* (.472)</td>
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<td>.105* (.036)</td>
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<tr>
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<td>.000 (.000)</td>
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<td>26556.5</td>
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*p < .05 (one tailed, sign in expected direction)

**p < .05 (two tailed, sign not in expected direction)
Figure 6.1 Predicted Frequency of Drug Delinquency Across Levels of Neighborhood Economic Disadvantage for Adolescents Affiliated with Strict versus Non-Strict Denominations*

*Predicted frequencies were calculated while holding all other independent variables at their mean levels
Figure 6.2  Predicted Frequency of Drug Delinquency for Adolescents with a Strict Versus Non-Strict Denominational Affiliation Across Low, Average, and High Levels of Neighborhood Economic Disadvantage*

*Predicted frequencies were calculated while holding all other independent variables at their mean levels
SUMMARY AND CONCLUSIONS

REVIEW OF RESEARCH QUESTIONS AND CONCEPTUAL ISSUES

The analyses conducted in this dissertation were guided by several important questions related to juvenile delinquency. The first concerns the degree to which neighborhood characteristics, as well as individual factors, are important to the etiology of delinquency. The second question asks whether religious involvement is related to delinquency, and more importantly, whether it buffers or reduces the impact of neighborhood factors on delinquency. The third issue examined is whether the buffering effect of religious involvement is enhanced or augmented by affiliation with "strict" churches. The final question concerns the degree to which the hypothesized relationships outlined above vary across different types of delinquent outcomes.

The remainder of this chapter briefly reviews the conceptual issues revealed in extant literature that guided the research questions elaborated on above, summarizes the specific empirical findings of this study, and elaborates on the implications of the current findings for theory, methodology, and additional research. Lastly, I discuss future research questions not touched upon in this dissertation.
Two bodies of literature were brought to bear on the basic issues mentioned above: the social disorganization perspective and recent scholarly work on religiosity and delinquency. A number of social disorganization scholars present a theoretical model whereby neighborhood structural features and/or organizational characteristics (macro-level independent variables) affect the ability of a community to exercise social control which, in turn, increases the likelihood of individual delinquency (a micro-level outcome) (Bursik and Grasmick 1993; Elliott, Wilson, Huizinga, Sampson, Elliott, and Rankin 1996; Sampson 1993). Unfortunately, there are few multi-level studies attempting to test this proposition, and existing studies show significant but relatively small effects for neighborhood factors on individual delinquency (Elliott et al. 1996; Gottfredson et al. 1991; Peeples and Loeber 1994; Simcha-Fagan and Scwhartz 1986). Moreover, these models largely consider only additive effects.

Cross-level interactive effects have been proposed as an alternative model specification for establishing neighborhood effects (Farrington 1993; Reiss 1993). If cross-level interactions are the appropriate model specification, then past additive models are misspecified and ill-equipped to demonstrate the conditions under which neighborhood characteristics have their most salient effects on delinquency. In response to this critique, I proposed that the effects of neighborhood characteristics may be more salient for youths who lack access to important individual-level sources of external and internal social control resulting from individual religious involvement.

My argument is that religious involvement connects adolescents to religious organizations and/or networks that provide access to external supervision and sanctioning as well as facilitating individual internalized social control in the form of attachment,
commitment, and religious belief (Diamond 1998; Jarrett 1990; Kostarelos 1989; Marcos and Bahr 1988; Marcos, Bahr, and Johnson 1986; Rorhbaugh and Jesser 1975; Tittle and Welch 1983). Such mechanisms likely reduce delinquency and buffer the impact of disadvantageous neighborhood structural features on delinquency (i.e., a cross-level interaction). Youths who do not have access to religious organizations or networks are potentially more detrimentally affected by neighborhood structural features.

Religion and delinquency literature also suggests that affiliation with certain denominations may heighten the impact of religious involvement on delinquency (Grasmick, Kinsey, and Cochran 1991). Extant research indicates that strict denominations heighten the collective level of participation and voluntary contributions of members (Iannaccone 1994). Therefore, strict denominations likely have higher levels of social capital in comparison to non-strict denominations (Coleman 1988, 1990). Such increased primary group social capital may enhance the delinquency reducing effect of religious involvement. This hypothesis was also assessed above.

Finally, the extant religiosity-delinquency literature suggests that the effect of religious involvement may vary depending upon whether ascetic (i.e., alcohol and marijuana use) or non-ascetic forms of delinquency are considered (Burkett and White 1974; Cochran et al. 1994; Middleton and Putney 1962). Religiosity potentially has a stronger effect on ascetic forms of delinquency since religious organizations are more likely to take a strong stand against, or be less ambiguous in their opposition toward, ascetic delinquency in comparison to general secular society (Cochran 1988). To assess
this possibility, I divided delinquency into ascetic and non-ascetic forms. I also examined two different types of non-ascetic delinquency: more serious interpersonal violence, and less serious common property crimes.

SUMMARY AND IMPLICATIONS OF EMPIRICAL RESULTS

Neighborhood Factors

Analyses presented in Chapters 5 and 6 indicate that neighborhood variables (economic disadvantage, race/ethnic heterogeneity, and residential mobility) are significantly related to all three types of individual delinquency for both the main sample and the sub-analyses of strict denominations. Importantly, since the analysis controls for individual demographic (i.e., age, sex, race, gender, socioeconomic status, mobility, and family structure) and theoretical variables (i.e., maternal attachment, grades, peer delinquency) it seems fair to conclude that the significant effects demonstrated for structural variables are real and not mere compositional or selection effects (Bursik and Grasmick 1996; Kornhauser 1978; Reiss 1993).

However, the nature and importance of their influence depends upon which of the three structural characteristics is under consideration, the type of delinquency, and the type of model (additive or interactive). First, residential stability is unrelated to all three types of delinquency regardless of the type of model. Second, race/ethnic heterogeneity significantly influences interpersonal delinquency, but not property delinquency and drug use. This neighborhood factor increases the likelihood of youthful violence as predicted by social disorganization theory.
Third, economic disadvantage has a significant effect on all three forms of
delinquency, but not always in the direction predicted by social disorganization. For
interpersonal delinquency the effect of economic disadvantage is positive and significant
(Model 6, Table 5.2). Thus, economic disadvantage increases the likelihood of
interpersonal delinquency. However, the detrimental effect of economic disadvantage is
not the same for all adolescents, instead it is contingent upon the level of adolescent
religious involvement. This finding provides support for the theoretical notion that multi­
level models which do not incorporate cross-level interactions are misspecified. In the
present case, without exploring cross-level interactions I would have concluded that
neighborhood economic disadvantage is unrelated to interpersonal delinquency (Model 4,
Table 5.2) when, in fact, it is positively and significantly related to this type of
delinquency for those adolescents who have low levels of religious involvement (Model
6, Table 5.2 and Figure 5.1). Thus, as was hypothesized previously, the effect of this key
neighborhood structural feature varies across levels of religious involvement.

For property delinquency and drug use the coefficient for economic disadvantage
is opposite to that anticipated by social disorganization theory (Model 4, Table 5.3 and
Model 4, Table 5.4, respectively). Neighborhood economic disadvantage significantly
reduces rather than increases the likelihood of adolescents engaging in these two forms of
delinquent behavior.

Overall, in terms of the predicted direction of effects, the social disorganization
perspective receives support only in the case of serious interpersonal violence. If
neighborhood contextual factors contribute to common property delinquency and minor
drug use in the direction predicted by social disorganization theory they must be different
than the structural features (i.e., economic disadvantage, race/ethnic heterogeneity, residential stability) considered here. One factor which is not included in social disorganization perspectives, but which may have relevance to individual property delinquency and drug use, is the notion of structural "opportunity" for delinquency.

The "routine activity" perspective posits that suitable targets, motivated offenders, and low supervision must coexist in time and space in order for a delinquent act to occur (Cohen and Felson 1979). Even if one assumes that structurally disadvantaged areas concentrate motivated offenders and low supervision jointly, such areas may simply lack an abundance of suitable targets for adolescent common property delinquency. To illustrate, high area poverty, high unemployment, few skilled workers, and high aggregate family disruption may indicate a general lack of suitable targets within a neighborhood context. Specifically, if poor economic conditions prevail in a neighborhood then residents (collectively) may have few attractive goods to steal. Poor economic conditions may also reduce the presence of local retail establishments (i.e., grocery and convenience stores, department stores, et cetera) (Kornhauser 1978), which, in turn, reduces the availability of small valuable items to shoplift.

Further, fewer accumulated resources among adolescents in general (i.e., few part-time jobs or little collective cash) in disadvantaged neighborhoods may diminish the collective capacity (i.e., a pooling of resources) of juveniles living in such areas to purchase alcohol and marijuana. Simply speaking, alcohol and marijuana are costly. Adolescent residents of impoverished areas potentially lack the resources both individually and collectively to secure such items in comparison to their counterparts living in areas of greater collective and individual resources.
If the notion of structural opportunity or availability is relevant to individual delinquency, then a potentially important structural characteristic to consider is the aggregate level of available targets both in terms of available items to steal or resources to acquire minor drugs. Thus, future research should incorporate measures of structural opportunity (e.g., aggregate availability of attractive targets for theft). This may assist in accounting for the unexpected inverse relationship between neighborhood disadvantage and property delinquency and drug usage.

Another possible explanation for findings that only partially support social disorganization theory may revolve around the degree of attributed crime seriousness. For example, recent ethnographic research indicates that serious forms of property delinquency like robbery and burglary, as well as more serious drug related crimes (e.g., sale or use of crack cocaine), are concentrated in or near disadvantaged areas (Anderson 1990; Sullivan 1989; Wright and Decker 1997). If this is true, these more serious forms of individual property and drug delinquency (compared to the minor forms considered here) may demonstrate a positive association with socioeconomic disadvantage in empirical models as predicted by social disorganization theory. Future research should examine and compare the determinants of serious and minor interpersonal delinquency, property delinquency, and drug use to test this hypothesis.

**Religious Involvement**

Models presented above indicate that religious involvement is significantly related to both interpersonal delinquency (interactional) (Model 6, Table 5.2) and drug use (Model 4, Table 5.4) in the expected direction. For property delinquency, religious
involvement has no independent direct effect once the theoretical factors (i.e., maternal
attachment, grades, and peer delinquency) are accounted for (Model 4, Table 5.3).
Although the results are not consistent across all three types of delinquency, they do
indicate that the effect of religious involvement is not limited strictly to ascetic forms of
delinquency as some have suggested (Burkett and White 1974; Cochran et al. 1994;
Middleton and Putney 1962). They also demonstrate that the effect of religiosity is not
fully mediated by other competing theoretical factors (Burkett 1993; Burkett and Warren
1987; Cochran et al. 1994; Elifson et al. 1983).

Instead, religious involvement has an effect on interpersonal delinquency and
drug use that is independent of maternal attachment, grades, and peer delinquency. Still,
they also show that the effect of this variable on all three forms of delinquency is reduced
when controlling for these factors (compare Model 3 with Model 4 in Tables 5.2, 5.3, and
5.4, respectively), with property delinquency being reduced to insignificance. So,
religiosity apparently is at least partially mediated by these other theoretical variables.
The results also indicate that religious involvement has a stronger relationship with
ascetic (i.e., drug use) than non-ascetic (serious violence or common theft) forms of
delinquency. Religious involvement is significantly related to only one form of non-
ascetic delinquency (i.e., interpersonal delinquency) when controlling for important
theoretical factors, and then only under conditions of high economic disadvantage
(compare Model 5, Table 5.2 with Model 5, Table 5.3, respectively). The relationship
between religiosity and drug use is not contingent upon neighborhood characteristics
(Model 5, Table 5.4).
It is important to note that the association between religious involvement and interpersonal delinquency would not have been discovered in a model that did not examine cross-level interaction effects. If the above analysis had stopped with an examination of a model including the theoretical control variables but not the cross-level interactions (Model 4, Table 5.4), it would have been erroneously concluded that religious involvement is unrelated to interpersonal delinquency when in fact it is significant in economically disadvantaged contexts (see discussion of the buffering hypothesis below). Therefore, results from this study indicate that examining cross-level interactions between contextual factors and religious involvement is an important methodological consideration. It also supports the theoretical notion that the effect of religious involvement on interpersonal delinquency is duplicated by the larger social structure in more advantaged neighborhood contexts. Thus, a more complete understanding of the relationship between adolescent religious involvement and delinquency was achieved by exploring cross-level contextual models (Stark et al., 1982; Tittle and Welch 1983).

There are several possible explanations for the non-significant relationship between religious involvement and common property delinquency. It may simply be that religious involvement is less relevant to common property delinquency. Compared to violent delinquency or violations of religious codes of asceticism, common property delinquency may be less threatening to an adolescents' standing in the religious congregation. Potentially, greater socialization and external control efforts within religious organizations are directed toward adolescent violence and drug use, whereas
common property delinquency may simply be seen as "horseplay." Further, this type of delinquency may be less predictable overall because it is an opportunity-based crime driven to some degree by spur of the moment considerations.

Another possibility is that different or additional aspects of religiosity may improve predictability for property delinquency as well as ascetic and violent delinquency. Religious involvement in this study captures the frequency of attendance (church and youth group), prayer, and religious salience (self-reported importance of religion). These measures tap important external and internal aspects of religiosity, but they do not directly measure belief in a supernatural sanctioning entity. Extant religiosity research indicates that internalized religious belief is an important aspect or dimension of religious involvement (Cornwall, S. Albrecht, Cunningham, and Pitcher 1986; Stark and Bainbridge 1985; Stark and Glock 1968). Therefore, incorporating direct measures of internalized belief in the supernatural into religiosity-delinquency models may demonstrate effects across all three types of delinquency examined above, even when controlling for other important theoretical factors. Recent research also suggest that plans for religious activity in the future (i.e., missionary service, et cetera) is another important dimension of religiosity which may serve to reduce delinquency (Litchfield, Thomas, and Li 1997). Such religious orientations toward the future reflect a strong commitment to abiding by religious behavioral standards. Additional research assessing direct measures of belief in the supernatural and future religious plans is needed to test these notions.
Buffering Hypothesis

The buffering hypothesis receives some support in the analyses presented above. There is a significant interaction between religious involvement and neighborhood economic disadvantage (Model 6, Table 5.4, Figure 5.1, Figure 5.2). Substantively, this interaction demonstrates that the detrimental effect of neighborhood economic disadvantage on interpersonal delinquency is substantially reduced for adolescents with high levels of religious involvement. This effect was anticipated. It suggests support for the theoretical position that religious involvement among adolescents is a potent insulating mechanism which serves to buffer the effect of poor neighborhood economic conditions on the most serious form of delinquency considered here: namely interpersonal violence.

This interaction also supports Tittle and Welch’s (1983) claim that religious involvement has its most salient effects in socially disorganized contexts. Religious involvement is unrelated to interpersonal delinquency in areas of average or low economic disadvantage. Perhaps Tittle and Welch (1983) are correct in assuming that these social contexts provide external and internal social control mechanisms that duplicate the influence of religious involvement on interpersonal delinquency. In areas of high neighborhood economic disadvantage these mechanisms are potentially missing and religious involvement likely fills the void and/or provides other mechanisms which buffer neighborhood factors.

No buffering effects of religious involvement on the relationship between neighborhood structural features and property delinquency or drug use were demonstrated. Race/ethnic heterogeneity and residential stability were not significantly
related to property delinquency and drug use, and economic disadvantage was
significantly related to these two forms of delinquency in the opposite direction of that
expected (Model 4, Table 5.3 and Model 4, Table 5.4). The significant inverse
relationship between economic disadvantage and property and drug delinquency indicates
that youths from areas suffering from poor economic conditions actually fare better in
terms of involvement in common property delinquency and minor drug usage than youths
residing in more advantaged areas. Thus, there are no detrimental effects of low
socioeconomic status, high/race ethnic heterogeneity, or low residential stability on
common property delinquency or minor drug use for religious involvement to buffer.

**Strict Denominational Affiliation**

As predicted, strict denominational affiliation is inversely related to both
interpersonal delinquency and minor drug use (Model 4, Table 6.2, and Model 4, Table
6.4). No significant effect was demonstrated between strict denominational affiliation
and property delinquency. Moreover, strict denominational affiliation does not alter the
relationship between religious involvement and delinquency. Two-way interactions
between religious involvement and strict denominational affiliation were not significant
for any of the three types of adolescent delinquency considered here (Model 2, Table 6.2,
6.3, and 6.4, respectively). Further, there is no evidence that strict denominational
affiliation augments the buffering effect of religious involvement on the relationship
between neighborhood economic disadvantage and delinquency. Apparently, the impact
of religious involvement on delinquency and its buffering effects are not different for
youths involved in either strict or non-strict denominations.
Although the hypothesized effects of strict denomination were not upheld, the denominational analyses turned up an interesting and somewhat unexpected finding: a significant interaction effect between neighborhood economic disadvantage and strict denominational affiliation for drug use (Model 4, Table 6.4). Recall that economic disadvantage has a significant negative main effect on drug use (i.e., reduces the frequency of drug use). The interaction results showed that this inverse effect is stronger for youths affiliated with non-strict denominations (Figure 6.1), but is unrelated to drug use for those who are part of strict denominational affiliations. Apparently, advantaged contexts concentrate opportunity for minor drug use for adolescents but affiliation with a strict denomination negates or neutralizes this effect. This neutralizing effect is independent of religious involvement which also has a negative effect on drug use (Model 4, Table 6.4). Speculating on these findings, I posit that the general denominational proscriptiveness of strict churches concerning the use of minor drugs for adolescents provides an additional control over drug use even in those contexts (less disadvantaged) where there are potentially greater opportunities to use alcohol and marijuana.

Therefore, among those affiliated with Christian denominations, the enhancing effect of low neighborhood economic disadvantage on drug use is isolated to those who are non-strict church members. For adolescents who are members of non-strict denominations, residential location in more advantaged contexts actually heightens or enhances the frequency of minor forms of substance use. Discovering this interesting finding was only possible through the examination of the interaction between strict denominational affiliation and neighborhood economic disadvantage. Thus, consistent
with Reiss's (1993) argument, this research supports the contention that neighborhood contextual factors and individual-level characteristics are potentially best understood as interacting with each other.

Overall then, the present analysis demonstrates a number of important points. First, it underscores the need to consider both neighborhood and individual-level characteristics in trying to understand delinquency, including its various types. Second, it illustrates the importance of considering cross-level interactions in such multi-level models. Research considering only additive effects may risk serious model misspecification. Third, and from a substantive viewpoint, the findings confirm the buffering hypothesis for one form of delinquency—interpersonal violence. High levels of neighborhood disadvantage are associated with a greater likelihood of interpersonal delinquency (serious violence), but this effect is reduced by high levels of adolescent religious involvement. Consistent with the writings of Tittle and Welch (1983), I interpret this to mean that religious involvement provides access to important external and internal control mechanisms which insulate adolescents from detrimental neighborhood factors. Finally, lower levels of neighborhood disadvantage are associated with a greater frequency of adolescent minor substance use. However, affiliation with a strict church negates this effect, suggesting that the proscriptive doctrines of these denominations serve to reduce alcohol and marijuana use even when the neighborhood context presents greater opportunities to engage in this form of delinquency.
ADDITIONAL RESEARCH.

While the research reported in this dissertation has contributed to our understanding of adolescent crime and misconduct, it also points to the need for additional research that refines our understanding further. I have already pointed to a number of areas that need empirical investigation. First, the inclusion of both serious and minor forms of interpersonal delinquency, property delinquency, and drug delinquency will aid in determining whether neighborhood characteristics differentially affect serious versus non-serious types of delinquency. Second, I recommended incorporating measures of structural opportunity into delinquency models (e.g., aggregate availability of attractive targets for theft) to help determine whether these contextual factors increase the likelihood of common property delinquency or minor drug use. Third, additional research assessing direct measures of internalized religious beliefs and commitments will help to more fully establish the relationship between religiosity and delinquency.

An additional issue for future research not mentioned previously includes addressing whether there are significant cross-level interactions between neighborhood factors and involvement in voluntary organizations other than religious ones. In other words, is there a buffering effect of other voluntary organizations on the relationship between neighborhood economic disadvantage and interpersonal delinquency? To illustrate, close association with sports leagues, YMCA/YWCA, girl and boy scout troops, or other similar voluntary groups may serve the same function as affiliation with a religious group. This hypothesis should be examined in future research.

Although it seems plausible that other organizations provide important buffering mechanisms, not all scholars agree that other institutions can offer the same level of
support or integration that religious organizations provide. This seems especially questionable when considering the role that religious institutions have historically played in impoverished areas. For instance, in regards to the role of black churches in disadvantaged neighborhoods, Lincoln and Mamiya (1990, p.334-335) claim that:

What churchgoing behavior can do for black young people is to reduce the social isolation of their backgrounds and put them into contact with important role models. The successful internalization of the values of the black self-help tradition is dependent upon a socializing environment that will continually reinforce and reaffirm those values in a caring way. While there may be a few alternative institutions that can perform some of these functions, like a highly motivated, disciplined athletic team with an astute coach or a black fraternity/sorority group, none of them has the extensive network of black churches in thousands of large and small black communities across the country.

If this is the case broadly, then it may be difficult for other voluntary associations to match the effectiveness of religious organizations in providing access to social, physical, and human capital for adolescents who live in disadvantaged neighborhood contexts.

However, given that not all adolescents can be attracted to voluntarily participate in religious organizations, buffering effects for other types of institutional associations should be examined empirically. Demonstrating buffering effects across a broader range of voluntary institutions will give policymakers greater flexibility in developing, or enhancing, the types of programs or organizations that serve youth in disadvantaged areas.

One final issue deserving future research attention concerns whether there are race/ethnic differences in the effect of religious involvement. Given that neighborhood economic disadvantage so disproportionately affects African Americans (Wilson 1987), and given the importance of African American churches within such communities,
religious involvement may be more important for blacks than whites. Future research should consider whether the buffering effect of religious involvement varies across race and ethnic groups. Potentially, some race/ethnic groups derive greater benefits from religious involvement than others.

Investigating the above issues should enhance considerably our understanding of other organizations within the context of the buffering hypothesis as well as the potential differential impact of race/ethnicity on the relationship between religious involvement and delinquency. In the meantime, the research presented above indicates that augmenting the efforts of religious institutions that serve the needs of youth will likely have the beneficial impact of reducing levels of serious interpersonal violence within disadvantaged communities as well as reducing minor forms of drug use within more advantaged contexts.
LIST OF REFERENCES


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