ABSTRACT

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This paper is an exploratory and partial test of Bernard’s (1990) theory of angry aggression within disadvantaged communities as well as Agnew’s (1999) community-level strain theory. These theories posit that disadvantage and other structural characteristics of neighborhoods lead to environmental stressors, which ultimately may increase anger among individuals who externalize attributions of blame. To date, no study has assessed whether structural characteristics of neighborhoods are related to increased individual anger. Using Ross and Britt’s (1995) survey of Community, Crime, and Health: Illinois Residents, I assess Bernard’s (1990) and Agnew’s (1999) theoretical arguments. The findings show that only one structural indicator measured at the census tract level, urban location, is related to the individual outcome of anger. However, the stressors assessed in this study are positively related to anger, particularly among individuals who externalize blame. There are two main implications of these findings. (1) Community crime models should include measures of emotions such as anger, as community processes have psychological impacts on individuals that may motivate them to commit criminal acts. (2) The structural indicators identified by Bernard (1990) and Agnew (1999) require reevaluation, as only urban location was shown to be related to anger.
Disadvantaged Neighborhoods and Anger: Implications for Community-Level Theories of Crime and Delinquency

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INTRODUCTION

Criminologists have long suggested that crime and violence are not always rational in nature (see Gibbons 1971; Luckenbill 1977; Agnew and Peters 1986; Agnew 1989). Indeed, there has been growing recognition that understanding emotions may be germane for explicating criminal behaviors (Katz 1988; Loewenstein 1996; Hagan and Foster 2003; Carmichael and Piquero 2004; Sherman 2003; La Free 2007). This recognition comes at a time when it is generally accepted that crime and violence are not randomly distributed throughout neighborhoods and other geographic areas. Specifically, research consistently demonstrates that rates of violence and crime are high in socially and economically disadvantaged neighborhoods (Shaw and McKay 1942; Sampson 1985; Bursik 1988; Sampson and Groves 1989; Sampson, Raudenbush, and Earls 1997).

Although the most prominent explanations for the social distribution of crime do not pay heed to the recognition that emotions are relevant for understanding crime and violence, better understanding patterns of crime and violence may require more emphasis on the social patterning of emotions across neighborhoods. Research in the sociology of mental health has demonstrated that residing in disadvantaged neighborhoods is stressful, which can lead to a variety of negative emotional states, including depression and anxiety (see Aneshensel and Sucoff 1996; Ross et al. 2000; Ross 2000; Ross and Mirowsky 2001; Hill et al. 2005). Little empirical attention has focused on the impact of neighborhoods on the emotion of anger, with the exception of Schieman, Pearlin, and Meersman’s (2006) study on anger among older adults in disadvantaged communities. The focus of this paper is on anger because this is an
emotion that energizes persons for corrective action, including crime and violence, and thereby has found prominence in a core theory of crime – strain theory (see Agnew 1985, 1992 and 2006). In short, understanding the social distribution of anger may prove vital for understanding the social distribution of violence and crime across neighborhoods (see Berkowitz 1993).

Agnew's (1992) general strain theory is an individual-level theory that emphasizes links between stress, anger, and delinquency. The theory proposes that stressful situations lead to negative emotions, which can ultimately result in crime and violence. The stressors emphasized in the theory include the failure to achieve positively valued goals, the removal of positive stimuli, and the presentation of negative or aversive stimuli. These stressors can lead to a variety of negative emotions, with anger being the most relevant for understanding crime and delinquency. According to the theory, crime and violence provide a way for individuals to cope with the anger that results from stressful situations (Agnew 1985, 1992; Brezina 1996).

Agnew (1999) has extended this theory to account for community-level variations in crime. His community-level strain theory posits that the stressors associated with living in disadvantaged communities lead to increased levels of anger among community residents, thereby producing high rates of crime in disadvantaged areas and a high propensity for crime among the individuals who reside in these areas. Community characteristics – including economic deprivation, inequality, structural density, residential instability, and minority concentration – are posited to be related to goal blockages, the loss of positively valued stimuli, and the presentation of negatively valued stimuli. Specific examples of stressors at
the community level include exposure to street harassment, neighborhood crime, vandalism, run-down buildings, loud noise, pollution, and graffiti.

The lesson learned from Agnew’s (1999) community-level theory is that community differences in crime rates are not simply a function of a lack of social control, as social disorganization theorists typically argue. These differences may also be a function of an increased motivation for crime due to the anger produced by the stressful conditions of disadvantaged areas (Agnew 1999:126). That is, higher rates of crime in disadvantaged communities may result in part from the higher rates of anger associated with the stressors of living in these communities.

The model presented by Agnew (1999) is similar to Bernard's (1990) theory of angry aggression within disadvantaged communities. Bernard (1990) proposes that angry aggression is associated with the frequent and intense arousals associated with living in a threatening environment. Specifically, the theory posits a link between urban environments, neighborhood disadvantage, exposure to crowding, noise, pollution, and dangerous situations. Consistent with Agnew’s (1999) theory, these characteristics are considered to produce stressors and may also be stressful themselves, resulting in anger and ultimately violence or other crimes. The aversive stimuli – or stressors – discussed in both Bernard's (1990) and Agnew's (1999) theoretical arguments represent a clear link between the structural characteristics of neighborhoods and the feeling of anger, which may prove important for understanding the geographic patterning of crime and violence.

The goal of this study is to explore the relationship between neighborhood disadvantage and anger so as to provide a partial test of the theoretical perspectives offered
by Bernard (1990) and Agnew (1999). In both theories, crime and violence result from the anger produced by the chronic stressors associated with living in disadvantaged neighborhood environments. For the theories to be valid there must be a relationship between neighborhood characteristics and the emotion of anger. Nonetheless, neither criminologists nor mental health researchers have systematically assessed the links between neighborhood structure, neighborhood stressors, and anger, with the aforementioned exception of Schieman et al’s (2006) study. The present study addresses this gap in the literature by providing an exploratory assessment of the links between structural characteristics of neighborhoods, neighborhood stressors – including exposure to neighborhood vandalism, graffiti, noises, drug use, and crime – and anger among residents in disadvantaged communities. Ultimately, the concern of this study is whether neighborhood conditions are related to anger, which has been shown to motivate individuals for crime and violence. Future research will be required to assess further the importance of anger in community models of crime and violence.

The paper begins with a discussion of Agnew’s (1999) community-level strain theory and Bernard’s (1990) angry aggression theory. Each of these theories posits links between structural characteristics of neighborhoods, anger, and crime. I emphasize similarities across these theories and derive broad hypotheses from the discussion, which I test using data from Ross and Britt’s (1995) Survey of Community, Crime, and Health: Illinois Neighborhoods. I conclude the paper by discussing directions for future research emphasizing the role of emotions in the literature on communities and crime.

The Relevance of Anger

Anger is among the most commonly experienced emotions (Averill 1982). It is
generally described as a complex emotion that is triggered by situational provocations, is manifested in physiological reactions, and is prone to carry social consequences (Averill 1982; Fehr and Baldwin 1996; Kemper 1987; Tavris 1989). The situations or events that cause anger are posited to be social in nature and include such things as perceived insult, interpersonal conflict, inequity, injustice, unfairness, exposure to aversive stimuli, and goal impediments (Berkowitz and Harmon-Jones 2004; Agnew 1985, 1992). The consequences of anger are also multifaceted, including health problems (i.e., heart disease, cancer, asthma, and headaches), weakened interpersonal relationships, and destructive, violent or criminal behaviors (see Guerrero 1994; Siegman 1994; Tavris 1989; Mittleman et al. 1995; Tucker and Friedman 1996). Given that the many outcomes of anger have been shown to be distributed non-randomly, it is somewhat surprising that so little research has emphasized and assessed its geographic distribution. I focus my attention here on the prominence of anger in the literature on crime and violence because the literature on the social distribution of these outcomes is prolific.

As mentioned, anger has a prominent role in criminology’s general strain theory. This theory proposes that anger increases the likelihood of crime and violence because it increases feelings of injury and generates the need for corrective actions that often are criminal in nature (Agnew 1992:60). The role of anger in general strain theory has been examined extensively. These studies demonstrate consistently that a variety of stressors and strains are associated with anger (see Aseltine, Gore, and Gordon 2000; Brezina 1996; Broidy 2001; Capowich et al. 2001; Mazerolle and Piquero 1997, 1998; Mazerolle, Piquero, and Capowich 2003; De Coster and Kort Butler 2006). Anger, in turn, predicts crime and delinquency. It is
notable that anger appears to predict violent offenses to a greater degree than it predicts nonviolent offenses (Capowich et al. 2001). Indeed, some studies report no link between anger and property and drug offenses (Piquero and Sealock 2000; Aseltine et al. 2000). As such, an emphasis on anger in community studies may be more relevant for violent offenses than for other types of offenses.

**The Neighborhood Context of Anger**

Agnew (1999) proposes that attempts to explain community differences in crime essentially focus on how community-level variables affect individual criminal behavior. As such, community theories of crime are supported when variables measured at the aggregate level – including census tracts, face-blocks, or other units – significantly predict crime rates or crime among individuals in communities. Empirical research has demonstrated that neighborhood disadvantage – measured by the percentage of female households, percentage of unemployed, percentage of households below the poverty line, and the percentage Black – influences the crime rates of neighborhoods (Sampson, Raudenbush, and Earls 1997), as well as crime and violence among individuals residing in disadvantaged areas (McNulty and Bellair 2002; Bellair and McNulty 2005; De Coster, Heimer and Wittrock 2006).

Traditional theories of community differences in crime relate neighborhood disadvantage to breakdowns in social control and/or to the development of a street culture that may result in crime (see Shaw and McKay 1942; Bursik 1988; Bursik and Grasmick 1993). The alternative explanations offered by Bernard (1990) and Agnew (1999) focus on how these variables may lead to stressors and situational provocations that lead to anger and the motivation for crime. Bernard’s (1990) perspective draws on subcultural theories of
deviance and relates increased instances of anger in disadvantaged communities to subcultural values that support angry aggression. The subcultural values that support angry aggression are hypothesized to be linked to neighborhood disadvantage and consist of attributions of blame and justifications for the use of violence when angered. That is, Bernard (1990) posits that neighborhood disadvantage increases the chances that individuals blame others for their misfortunes and stresses (i.e., external attributions of blame) and thereby view anger and violence as appropriate or legitimate (see also Miller 1962).

The reason disadvantaged neighborhoods lead to external attributions of blame that can justify anger is that the stressors associated with urban, disadvantaged, and high-turnover neighborhoods result in many situations in which individuals become aroused into angry states. The sheer frequency of angry arousal eventually impacts how individuals attribute blame and view their anger. Specifically, the theory offers that frequent arousal leads individuals to have a lower threshold for perceived wrong or injury, which ultimately leads the individual to blame others or external forces for stressors, enabling them to view anger as justified or acceptable (see also Averill 1982). Thus, individuals who reside in disadvantaged, urban, or high-turnover neighborhoods and are constantly exposed to stressors are likely to respond readily to stress with anger because they blame their stress on external sources.

Although Agnew's (1999) strain explanation of community crime borrows elements from angry-aggression theory, it goes beyond Bernard’s (1990) almost exclusive focus on the development of subcultural values conducive to justifying blame. His theory is more analogous to a stress model, predicting that neighborhood disadvantage leads to chronic stressors which when coped with unconstructively can result in crime or delinquency. In
Agnew’s (1999) formulation, externalized attributions of blame are seen as a conditional factor which may exacerbate the effect of these stressors on anger. In other words, Agnew (1992, 1999) proposes that some individuals who experience stressors do not become overly angered or engage in crime or violence because they have buffers that protect them from maladaptive emotions and coping.

Two elements in Bernard's (1990) and Agnew's (1999) formulations are of central importance for this study. The first is the proposition that a threatening neighborhood environment is associated with increased anger among community residents. The second proposition is that this relationship is contingent upon the likelihood of residents to make external attributions of blame. Empirical support for these propositions requires a positive relationship between neighborhood structural factors – including neighborhood disadvantage, urbanicity, and residential instability – and anger among neighborhood residents. If the prediction that neighborhood characteristics impact anger is to be supported, this relationship should be significant even when controlling for individual factors – including poverty and minority status – which may confound a contextual relationship. The relationship between neighborhood characteristics and anger should be mediated at least partially by exposure to stressors/strains in the form of threatening environments. This would require that neighborhood stressors impact anger and that the effects of neighborhood structural characteristics on anger are reduced when such stressors are taken into consideration. Finally, both theoretical perspectives suggest that external attributions of blame moderate the relationship between neighborhood stressors and anger. That is, individuals who attribute the blame for their problems to external sources are more likely to respond to neighborhood
stressors with anger.

**Neighborhood-Level Stressors**

Neighborhood cues such as graffiti, vandalism, trash in the streets, abandoned buildings, and high crime represent chronic neighborhood stressors indicative of a threatening environment in strain and angry aggression theory\(^1\). Individuals who reside in disadvantaged neighborhoods contend with such stressors on a day-to-day basis. Studies in the sociology of mental health have demonstrated that these neighborhood cues are stressful for community residents, resulting in terror, foreboding, anxiety and depression (Aneshensel and Sucoff 1996; Ross et al. 2000; Ross 2000; Ross and Mirowsky 2001; Hill et al. 2005). These are relatively passive emotional responses to living in a stressful environment which may be more likely when the individual blames him/herself for the stressors. The arguments of both Bernard (1990) and Agnew (1999) suggest the more activated feeling of anger as an equally plausible response to the environmental stressors of threat, particularly among individuals who blame external causes for the problems.

**Summary and Hypotheses**

Drawing from both Bernard's (1990) theory of angry aggression and Agnew's (1999) community level general strain theory, I propose a positive relationship between neighborhood structural characteristics and anger. Structural disadvantage is perhaps the most

\(^1\) It is notable that what I have construed as neighborhood stressors are also the visible signs of social disorder. The items used to measure neighborhood stressors in this study come directly from Ross and Mirowsky’s (1999) perceived neighborhood disorder scale. The difference between social disorganization and strain models is the mechanism through which stress or disorder leads to violence and crime. Disorganization models emphasize a lack of collective efficacy. Strain models posit that neighborhood stressors, which are measured in the same way as perceived disorder, lead to anger which motivates individuals to commit crime. The fact that these perspectives emphasize links between the same variables – disorder or stressors – and crime underscores the need to assess whether or not anger is a relevant mechanism for community crime models.
important characteristic of neighborhoods that should result in anger. Structural disadvantage refers to those neighborhood characteristics typically shown to be related to high crime rates, such as poverty, percent minority population, and percent single mother households (see Shaw and McKay 1942; Sampson 1985; Bursik 1988; Sampson and Groves 1989; Sampson, Raudenbush, and Earls 1997). In addition, urban location and residence in a neighborhood with high rates of turnover should be important predictors of anger (see Bernard 1990).

Traditional social disorganization theories argue that structural characteristics of neighborhoods reduce constraints toward criminal activities. Alternatively, Bernard (1990) and Agnew (1999) suggest that structural characteristics of neighborhoods influence individual motivations for crime and violence. This is because neighborhood characteristics are associated with several types of neighborhood-specific stressors that may lead to anger. Both Agnew (1999) and Bernard (1990) discuss cues of disorder and threat as neighborhood-level stressors. The response to these stressors may be increased anger among neighborhood residents. This response is particularly likely among individuals who attribute the cause of their stressors and problems externally to others or situations beyond their control. Based on these propositions, I derive the following hypotheses:

**Hypothesis 1:** Structural characteristics of neighborhoods – including neighborhood disadvantage, urbanicity, and residential instability – will increase feelings of anger, net of individual-level controls, such as poverty status, race, and education.

**Hypothesis 2:** Neighborhood-level stressors will increase feelings of anger.

**Hypothesis 2a:** Neighborhood-level stressors will mediate partially the relationship between structural characteristics of neighborhoods and anger.

**Hypothesis 3** Individuals who externalize attributions of blame will be more likely than those
who do not attribute blame externally to become angry as a result of neighborhood-level stressors.

Figure 1 shows a conceptual diagram of the proposed relationships explored in this study.

(Figure 1 about here)

DATA AND MEASURES

Sample

Assessing the theoretical arguments developed herein requires data with information on structural characteristics of neighborhoods, neighborhood stressors, and anger among community residents. Ross and Britt's (1995) Survey of Community, Crime, and Health provides this information. The data come from a probability sample of Illinois households linked with census tract information. Respondents were selected through random digit dialing and interviewed by telephone. Only English-speaking adults over the age of 18 were included in the sample. In each household, the adult with the most recent birthday was selected as a respondent. Up to 10 callbacks were made to select and contact a respondent, and up to 10 additional callbacks were made to complete the interview after initial contact. The response rate was 73 percent, with a total of 2,482 respondents completing the survey. Census tract information was linked to individual responses based on the addresses of respondents.

Sample socio-demographic characteristics are representative of the Illinois population in 1990, although males are slightly underrepresented. The age range of the sample is from 18-92, with a mean age of 44. The average level of education is 13.8 years of schooling, and
the mean household income is $48,274. Forty-one percent of respondents are male; 84.1 percent are white; and 53 percent are married. Sixteen percent of respondents lived in Chicago, with the remaining residing in suburbs (30%), small cities (12%), small towns (27%), and rural communities (14%). Appendix A provides a full description of the measures used in this study.

**Measures**

The key structural characteristics of neighborhoods discussed by community-level strain and angry-aggression theories include neighborhood disadvantage, urbanicity, and residential instability. *Neighborhood disadvantage* is an aggregate measure of structural disadvantage at the census tract level. Similar to many previous studies, the tract level is meant to generalize to the neighborhood level (see Krivo and Peterson 1996; Crutchfield, Glusker, and Bridges 1999; Peterson, Krivo, and Harris 2000; McNulty and Bellair 2003). It is measured by a mean scale that includes the percent of female headed households, percent unemployed, percent of households below the poverty line, and percent black within a census tract. The items in the scale follow from previous research demonstrating that these

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2. Since residents tend to disagree about the exact boundaries of their neighborhoods, measuring neighborhood units is problematic (see Furstenberg et al. 1999). Because of this and also due to data restrictions, census tracts are often used to represent neighborhood units in research on urban crime (see Krivo and Peterson 1996; Crutchfield, Glusker, and Bridges 1999; Peterson, Krivo, and Harris 2000; McNulty and Bellair 2003). Census tracts are derived from the boundaries drawn by census committees. Natural boundaries and population characteristics are taken into account in a way meant to represent natural social aggregates. While data at the tract level is often used to represent neighborhoods, block level data are used as well. Research comparing both the block and tract level as appropriate units of analysis tends to find both units produce similar results (see Gephart 1997), though these may be more spatial heterogeneity in socio-demographic characteristics when taken at the tract level as opposed to block level (see Hipp 2007).

3. A mean scale is a scale that sums information from each individual item and then divides the sum by the number of items included in the scale. If there is a non-response to any individual item in a five-item scale, the sum of responses is divided by four, rather than five. Using mean scores allows for the preservation of missing data without assuming that a non-response on one of the questions is the same as a zero report. I estimated additional models in which I summed the items used in the scale without taking the mean. There were no
neighborhood factors cluster together, and that it is not possible to produce valid results when the items are measured separately (see Wilson 1987; Land McCall, and Cohen 1990, Sampson et al. 1997; Sampson and Morenoff 2004; De Coster et al. 2006). Consistent with the findings of prior research, the internal reliability for the neighborhood disadvantage scale is 71. Individual items in the scale were standardized using z-scores before being summed so that any single item with a high mean and high variance will not have a disproportionate influence on results.4

*Residential instability* is measured with a mean scale including the percent of non-owner occupied houses in the census tract and the percent of residents in the census tract who have not lived in the same house for five years. This measure follows from Sampson et al.'s (1997) research on neighborhoods and crime; it has an alpha reliability of .60. *Urbanicity* is measured as the percentage of the population living in an urban location as defined by the 1990 census.

*Neighborhood stressors* are measured by individual’s reports of various signs of disorder that may be perceived as threatening. This measure incorporates items from Ross and Mirowksy’s (1999) perceived neighborhood disorder scale, which are consistent with measures of stress and aversive stimuli discussed by Agnew (1999) and Bernard (1990). The items in the scale include measures of perceived stressful conditions related to disorder in the neighborhood. Items in the scale include getting along with neighbors and perceiving one’s neighborhood as dirty, unsafe, noisy, and crime-ridden. The specific items for this scale can significant differences in substantive results.

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4. Sensitivity analysis using raw percentages instead of standardized scores shows models to be robust. That is, the effect of neighborhood disadvantage on anger is the same across models regardless of whether or not the individual items included in the composite measure are standardized.
be viewed in Appendix A. The scale has an internal reliability of .88.

Externalized blame is intended to measure an individual's tendency to blame others for problems. Ross and Britt's (1995) survey contains a single item asking individuals the extent to which they agree/disagree with the statement that “Problems come from others who are selfish, greedy, or mean.” Responses are dichotomized for the sake of conceptual clarity, where 1 = those who either strongly agree or agree with the statement and therefore are prone to blame others for problems and those who strongly disagree disagree = 0 (see Appendix A).

Anger is measured by a mean scale of how often in the past week individuals felt annoyed, angry, and/or yelled at someone. This measure is similar to measures utilized in previous research in criminology, the sociology of mental health, and psychology (Schieman 2003 and Schieman, Pearlin, and Meersman 2006; Agnew and White 1992; Brezina 1996; Piquero and Sealock 2004; De Coster and Kort Butler 2006). The internal reliability for this scale is .71.

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5. The data include additional measures that might be relevant for assessing blame. Exploratory factor analysis was conducted using the following nine items: (1) Problems come from others who are selfish, greedy, mean, (2) I’m responsible for my own successes, (3) Problems are due to bad breaks, (4) People are afraid of being caught, (5) Take everything you can get, (6) For some people to succeed, others must fail, (7) To get ahead, people don’t do what’s right, (8) My misfortunes are because of my mistakes, (9) I’m responsible for my failures. Items 1, 3, 5, and 6 loaded on a single factor taken to represent externalized attributions of blame. Additional models showed that a scale combining these four items had the same substantive results as the single item used in this study. I report results using only item 1 due to the low alpha reliability (.55) of the four item scale.

6. Separate analysis showed that substantive results did not change whenever this measure is disaggregated into its natural categories.

7. My measure of anger is more representative of trait-based anger than situationally-based anger representing an individual’s response to a specific event or situation. Trait-based measures such as this have been used frequently in prior research (Agnew and White 1992; Brezina 1996; Mazerolle and Piquero 1997; Piquero and Sealock 2000; 2004). Such trait-based measures are highly related to situationally-based measures, suggesting that anger-prone individuals are likely to feel anger in response to events, situations, or stressors (Capowich, Mazerolle, and Piquero 2001; Agnew 1997; 2001).
The study includes the following control variables: age, education, sex, race, employment status, marital status and poverty status. These variables are included because they have been shown to be related to neighborhood dwelling and to anger (see Ross and Van Willigen 1996, 1997 Ross et al. 2000; Ross 2000; Ross and Mirowsky 2001, Schieman 1999, 2000, 2003; Simon and Nath 2004). Education and age are measured in years. Race is separated into Black, Hispanic, Other, and White categories, with White as the reference category. Poverty status is a dichotomous variable coded 0 if the individual reports making $20,000 or less annually and 1 if they make more. Marital status and employment status are dichotomous variables coded 1 if unemployed or married.

Table 1 presents intercorrelations and descriptive statistics for all variables included in the final models. It is notable that with the exception of age, neighborhood stressors show the highest correlation with anger. The correlation between externalized attributions of blame and anger is also high relative to other variables. The strongest correlate of externalized blame, however, is the measure of neighborhood stressors. It is also important to note that the variable with the strongest correlation with neighborhood stressors is the aggregate measure of neighborhood disadvantage. I now turn to a full multivariate analysis of these relationships.

(Table 1 about here)

ANALYTIC STRATEGY

I estimate a generalized linear model where I employ a generalized estimating equation to test the proposed relationships between structural neighborhood conditions and
anger. Given that this is a community study and the data are multilevel, Hierarchical Linear Modeling (HLM) would be beneficial to distinguish between-neighborhood effects from within-neighborhood effects when predicting anger. However, the vast majority of census tracts representing neighborhood clusters within these data have less than 20 individuals nested within them, which is below the acceptable cutoff recommended by Bryk and Raudenbush (1992) for HLM.8

The generalized estimating equation (GEE) corrects for the clustering effect that exists when measuring neighborhood disadvantage at the tract level while using an individual level dependent variable. Since individuals nested within the same census tract will have the same neighborhood disadvantage scores, treating such observations as independent is inappropriate and will bias standard errors in an ordinary least squares regression model. The GEE approach corrects this by taking into account these correlated responses as representing a single cluster. The model then re-estimates more precise “empirical” standard errors. Rather than model the between-cluster variation of residuals as does HLM, the GEE method focuses on the within-cluster similarity of residuals and uses this correlation to re-estimate regression coefficients and calculate robust standard errors. A key advantage of the GEE framework is that computational complexity is a function of the largest cluster as opposed to the number of clusters, which is a source of more reliable estimates when there are many small clusters (Hanley et al. 2003).

The logic and basic interpretation of the models estimated and presented is similar to ordinary least squares regression because I utilize the identity link function to specify the

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8. The majority of clusters actually had less than ten individuals nested within them and many only had one.
relationship between the independent and dependent variables. As such, the presented coefficients represent the effect a one-unit increase in an independent variable has on the dependent variable. I have centered each of the variables because the models include an interaction term, which could lead to problems of multicollinearity if not centered (Aiken and West 1991).

RESULTS

Table 2 presents regression coefficients for three models predicting anger the independent variables predicting anger in three models. Model 1 tests the first hypothesis by estimating the effects of structural characteristics of neighborhoods – structural disadvantage, residential instability and urbanicity – on anger when controlling for individual-level characteristics. Model 2 adds neighborhood-level stressors as a predictor of anger. Hypothesis 2 predicts that these stresses will increase the likelihood of anger and will mediate partially the impact of structural characteristics of neighborhoods on anger. The final model, Model 3, includes the hypothesized interaction between perceptions of disorder and externalized attributions of blame to assess hypothesis 3, predicting that external attributions of blame exacerbate the impact of neighborhood stresses on anger.

(Table 2 about here).

The results in Table 2 provide only limited support for hypothesis 1. Model 1 shows that urban location increases the likelihood of anger among neighborhood residents, as

9. I also estimated the models using basic ordinary least squares regression and multiple GLMs where the conditional distribution and link function were changed. The results proved robust across various model specifications. I report the results from a GLM employing the basic identify link function as this allows for straightforward interpretation while also correcting for potential bias in standard errors.
hypothesized. Structural disadvantage and residential instability, however, prove unimportant for understanding anger.

Model 2 adds neighborhood stressors as an independent variable. Consistent with hypothesis 2, neighborhood-level stressors increase the chances of anger. This finding provides support for both Bernard's (1990) and Agnew's (1999) notions relating these community characteristics to anger. However, hypothesis 2a is not supported because neighborhood stressors do not mediate the significant effect of urbanicity on anger. In fact, the effect of urban-location on anger remains unchanged by the inclusion of neighborhood-level stressors in the model.

Model 3 adds the interaction term between externalize attributions and neighborhood-level stressors. The positive coefficient for the interaction term as well as both main terms indicates that individuals who make externalized attributions of blame are indeed more likely to become angry as a result of neighborhood stressors. This finding supports hypothesis 3 and is consistent with Bernard's (1990) theoretical explanation in particular. Figure 3 illustrates the synergistic effect between externalized attributions of blame and neighborhood stressors when predicting anger. Conditional slopes are estimated for those who reported having a tendency to make attributions of blame and those who did not. While the slope for no blame is still positive, the slope for those who do have a tendency to blame is noticeably steeper, demonstrating the extent to which externalized attributions of blame exacerbate the relationship between neighborhood stressors and anger.

(Figure 2 about here)

Overall, the results presented here show mixed support for either a community level
strain theory (Agnew 1999) or structural theory of angry aggression (Bernard 1990). Only a weak relationship exists between observed structural neighborhood characteristics and anger: only urbanicity was shown to have a small positive influence on the frequency of anger. This provides very little support for Hypothesis 1, which states that neighborhood disadvantage should have a positive relationship with anger. Neighborhood stressors on the other hand have a fairly strong positive relationship with anger. This supports both strain and angry aggression theories, as this variable represents a combination of several stressors associated specifically with the neighborhood environment. Such signs of disorder can be seen as representing noxious stimuli or strain according to Agnew's (1999) formulation, and according to Bernard's (1990) formulation may represent cues that an individual is living in a threatening environment. These findings show strong support for Hypothesis 2. Finally, Hypothesis 3 is supported by the fact that externalized attributions of blame exacerbate the effect of neighborhood stressors on anger. I now turn to discuss the implications of these findings as they apply to both theoretical perspectives and suggest further directions for future research.

**DISCUSSION**

The main concern of this study is whether or not the neighborhood stressors identified by Bernard (1990) and Agnew (1999) are related to anger. Each of these theories represents an attempt to link structural community characteristics to an increased motivation for crime and violence. This is a departure from community and crime theories – including social disorganization, theories of collective efficacy and social capital, and systemic models of
crime – which focus primarily on how community characteristics such as neighborhood disadvantage constrain crime. Angry-aggression and community strain theory propose that anger is an important motivational element that is produced by structural characteristics and that can lead to violence and crime. The extent to which community characteristics influence anger is therefore crucial to further understanding the geographic distribution of crime. Indeed, as noted by Tittle (1995), an adequate theory of crime must take into account motivation as well as constraint. While recent attempts have been made to include motivational factors, such as exposure to criminal street culture or criminal others (see Bellair and McNulty 2005; De Coster, Heimer and Wittrock 2006), these attempts have not paid heed to the recognition that crime and violence often are the product of emotions, such as anger.

Results of this study provide mixed support for the potential role of anger in community and crime models. On one hand, the most emphasized structural characteristic of neighborhoods, neighborhood disadvantage, is not related to anger when potential controls are considered. There is, on the other hand, a significant relationship between urban location and anger. Inconsistent with angry-aggression or community strain theory, however, the effect of urban location on anger is not mediated by neighborhood stressors. Importantly, neighborhood stressors are a strong predictor of anger. This suggests that the neighborhood is an important domain for understanding anger even though this domain has been largely ignored by empirical studies of anger. It also suggests that the role of anger in community and crime models should not be discarded due to the null effects of some of the structural characteristics of communities.
Also consistent with both theories, the tendency to make external attributions of blame exacerbates the relationship between neighborhood stressors and anger. In other words, the neighborhoods perceived to be the most “disordered” by residents have the highest rates of anger, which supports either a community-level strain theory or an angry aggression theory.

These findings may illustrate that it is necessary to focus on community factors more proximal to the individual as opposed to more distal factors, such as concentrated poverty within a census tract. This is not to say that ecological predictors are unimportant when it comes to understanding anger. Indeed, the findings for neighborhood stressors on anger illustrate that they probably are. However, aggregate predictors such as poverty within a census tract and percent urban may be “too far” from the actual situational provocations that lead to anger for them to be reliable. Relying on smaller units of analysis, such as the face-block, may reveal stronger results for certain indicators. For instance, both Agnew (1999) and Bernard (1990) discuss how structural density and urban crowding force more situations where individuals come into conflict with one another. The finding for urbanicity may be picking up on this, but the effects of crowding on anger are likely more relevant when measured at a smaller ecological level. Future research should focus on ecological factors which are closely related to increased situational provocations, such as crowding at the block level.

Following this rationale, it is important to point out that any ecological model predicting anger is only valid to the extent that individual level processes resulting in anger are also taken into account. As was noted by Hauser (1970), contextual differences are often
the result of individual level processes, and it is a fallacy to assume a purely contextual explanation for such differences. In this case, the individual processes related to anger, such as interpersonal conflict as a result of power differentials and situational provocations in day-to-day interaction across various domains (e.g., work and home), must be taken into account to fully elucidate the nature of any proposed contextual relationship. Especially relevant are learned subcultural values which are central to Bernard’s (1990) theory. This research suffers the limitation of not fully specifying an individual level model of anger. This is due to the lack of variables measuring subcultural values, situational conflict at the individual level, and the absence of trait measures which may increase the individual propensity for anger, such as impulsivity. A fully specified model must take these variables into account, however, as it is these processes occurring at the individual level which may explain any ecological differences in anger. Indeed, based on the theoretical arguments explicated in this study, community differences in anger are in part a result of increased interpersonal conflict which is related to environmental factors such as crowding and perceptibly threatening situations. It is therefore necessary to take into account these individual level processes.

An approach which weds both structural and individual level processes would also be able to discern how anger triggered by neighborhood stressors may result in interpersonal aggression in other domains as a result of stress-spillover. That is, anger triggered by a threatening neighborhood environment may “spill over” and result in conflict and aggression in other domains, such as at home or at work (see Pearlin, Aneshensel, and Leblanc, 1997). A fully specified model including both structural and individual level indicators of anger may assess these possibilities.
The relationship between neighborhood stressors and anger may indicate further just what ecological factors are important to consider when applying either Bernard's (1990) or Agnew's (1999) theories. The neighborhood stressors represent indicators of what is likely construed as a threatening and dangerous environment. Bernard (1990) explicitly discusses how a response to a threatening high-crime environment may increase anger and aggression, as residents in violent communities learn to be violent almost by necessity (see Anderson 1999). Agnew (1999:128) also emphasizes the effect crime within a community might have on influencing further crime, characterizing the relationship as an “amplifying loop.” A study by Patchin et al. (2006) illustrates this idea by finding that exposure to community violence is related to increased violence and weapon carrying among youth who reside in such communities. Though factors such as neighborhood disadvantage and residential instability are related to crime overall, more direct indicators of violent crime at the aggregate level are likely more important when predicting anger and aggression at the individual level. Factors directly related to witnessing more crime in a community are likely to be those community-level factors most strongly related to anger. The findings for neighborhood stressors on anger indicate this fact: individuals in disadvantaged communities may be prone to anger and aggression only when they witness and perceive threats on a day-to-day basis.

The findings regarding externalized attributions of blame further reinforce this notion, as well as offer some possible insight as to why sometimes individuals witnessing the same stressors do not respond with an “activated” feeling such as anger. As Bernard (1990) discusses, attitudes justifying aggression form in the most threatening environments. This is likely why individuals who externalize blame toward others are more likely to respond to
neighborhood stressors with anger than are those who do not. When the tendency to externalize blame is not present, the effect of stressors on anger attenuates noticeably. Other findings show that these same stressors also tend to be related to distress, depression, and anxiety (see Aneshensel and Sucoff 1996; Ross et al. 2000; Ross 2000; Ross and Mirowsky 2001; Hill et al. 2005.) Learned attitudes justifying anger and aggression might explain why some individuals respond to neighborhood stressors with anger as opposed to more passive emotions. In effect, learning to meet aggression with aggression represents a good example of a delinquent coping response. Future research on this topic should further address those specific community factors related to the adoption of such attitudes.

Finally, this research only constitutes a partial test of Bernard (1990) and Agnew's (1999) respective theories. Ultimately, the effect of neighborhood stressors must be related to violence and other types of crime indirectly through anger for either theory to be valid. Due to data limitations, this study stops at anger. It is therefore unclear based on these data whether or not anger as a result of neighborhood stressors is related to crime or violence at all. In fact, anger as a result of disorder could actually represent a motivation toward more positive action. It may be possible that increased anger among residents in a community with strong ties leads to efforts to “clean up” the neighborhood. It might also be possible that such anger be “bottled up” and lead to a variety of physical and mental health conditions. It may be fruitful for future research to address such varied outcomes.

Directions for Future Research

This study represents a partial test of Bernard’s (1990) or Agnew’s (1999) respective theories. The next step should be to assess whether or not anger as a result of neighborhood
stressors has a significant relationship with violence or other types of crime. Agnew (1999) proposes that such stressors contribute to higher overall levels of anger within disadvantaged communities. A full test of either theory requires that individual levels of anger be aggregated to the community level such that they could then be related to the crime rates within such communities (Agnew 1999).

Based on the results of this study, however, it is doubtful that many of the structural characteristics proposed by Bernard (1990) and Agnew (1999) are actually related to anger, with the exception of urbanicity and neighborhood stressors. In particular, the findings regarding urbanicity suggest that structural density and crowding are more directly related to anger than predictors such as neighborhood disadvantage or residential instability. Future research should attempt to specify just which community factors are directly related to those situational provocations and stressors at the individual level which can lead to anger. It is also likely necessary to rely on a smaller unit of analysis than the tract level to adequately assess such relationships. Future research should attempt to discern these relationships using smaller units of analysis, such as blocks or face-blocks.

Future research should also focus on structural predictors of perceived neighborhood stressors. Sampson and Raudenbrush (2004) point out that racial composition tends to be the most important predictor of these perceived stressors, which are construed as perceived disorder in their study. The extent to which the perception of a threatening environment is related to racial stereotypes labeling minorities as violent may be particularly important for this line of research. In general, future research should also attempt further to discern what the structural predictors of these perceived neighborhood characteristics are. These predictors
should then be included in models predicting anger and violence as well as other crime as they may provide more support for either Bernard's (1990) or Agnew's (1999) theories.

Apart from specific tests of community strain theory or angry aggression theory, community crime models in general may benefit by including measures of anger or other emotions. As social disorganization theory typically only takes into account the effects of reduced constraint on crime, including an aggregate measure of anger could serve to give a fuller explanation for variations in crime rates. For instance, it is plausible that a disorganized community with reduced constraints toward criminal activities might not have high aggregate levels of anger, for whatever reasons. A similarly disordered community with the same reduced constraints but with higher aggregate levels of anger may show a higher crime rate. By taking into account anger, community crime models can better discern the differential effects of constraint vs. motivation at the structural level.

The same stressors related to anger in this study have also been shown to relate to more passive negative emotions, such as depression (see Aneshensel and Sucoff 1996; Ross et al. 2000; Ross 2000; Ross and Mirowsky 2001; Hill et al. 2005.) Just why some individuals facing the same stressors become angry as opposed to depressed is a question which deserves further attention. The findings related to attributions of blame may give one possible direction for future research. If the tendency to blame others exacerbates the relationship between stressors and anger, the inverse may also be true. Individuals with a tendency to blame themselves for problems or otherwise internalize the effects of stressors may be those individuals who are more likely to become depressed as opposed to angry. Future research should attempt to elaborate this relationship in fuller detail, as it has
implications for both criminological theory as well as the sociology of mental health. Such research should also aim to assess the extent to which the relationship between emotions, such as anger and depression, and attributions of blame are reciprocally related, which would require longitudinal data.

CONCLUSION

In this study, I test Bernard’s (1990) and Agnew’s (1999) theories which argue that apart from reducing constraint toward crime, characteristics of disadvantaged communities might also increase the motivation for crime. This research represents the first logical starting point in testing a community theory emphasizing emotions as criminogenic. Findings show that the structural predictors of neighborhood disadvantage and residential instability are not related to anger and therefore unlikely related either directly or indirectly to an increased motivation for crime. There was, however, a positive relationship between urbanicity and anger. More importantly, the positive relationship between neighborhood stressors and anger provides support for the idea that community factors may motivate individuals to commit violent or other criminal acts. Thus, I find at least partial support for both theories. Nonetheless, the findings suggest that better structural predictors of anger, such as those described above, first need to be specified before either theory can be fully tested.

I argue that understanding the geographic patterning of emotions is the first step in further investigating the community context of anger and crime. These results indicate that much work still needs to be done in order to understand these geographic patterns more fully. Indeed, this research shows that the first major hurdle for either a community-level strain
theory or angry aggression theory is to show that there are actual structural predictors of anger that operate at the neighborhood level. The relationship between these factors and the outcome of violence is ultimately what matters, but much work still needs to be done simply to understand the relationship between community factors and emotions – anger in particular. The findings presented here suggest that neighborhood stresses and the tendency to make external attributions of blame are two important elements to start with. Understanding the extent to which structural neighborhood characteristics are related to these two variables may be the key in further elaborating either theory.
REFERENCES


Hill, Terrence D; Ross, Catherine E; and Ronald J. Angel. 2005 “Neighborhood Disorder, Psychophysiological Distress, and Health.” Journal of Health and Social Behavior 46(2):170-186.


Table 1. Intercorrelations and descriptive statistics for variables in generalized linear model.

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Notes: Numbers in parentheses are empirical standard error estimates. N = 2,348. All continuous variables are mean-centered.

***p<.001, **p<.01, *p<.05 (two-tailed test)
Figure 1. Diagram of relationships tested in this study.
Figure 2. Graph of the Interaction between Externalized Attributions of Blame and Neighborhood Stressors on Anger
APPENDIX A. Description of Variables

**Individual Level Characteristics**

**Age**
Continuous variable coded in years.

**Education**
Continuous variable coded in years of completed education.

**Poverty Status**
Binary variable where 1 = a combined family income <20k and 0 = else.

**Sex**
Binary variable, 1 = Male and 0 = Female.

**Race**
Binary variables where 1 = Black, 1 = Hispanic, and 1 = Other, where White=0 as the reference category.

**Unemployed**
Binary variable where 1 = unemployed and 0 = else.

**Marital Status**
Binary variable where 1 = married and 0 = else.

**Neighborhood Stressors**
Mean scale of 9 items representing aversive neighborhood conditions. Each item is measured with a 5 item Likert scale, ranging from strongly agree, neutral, to strongly disagree. Respondents were asked to agree/disagree with the following items: (1) my neighborhood is safe, (2) my neighborhood is clean, (3) too many people hanging out, (4) there’s lots of crime, (5) too much drug use, (6) lots of graffiti, (7) the neighborhood is noisy, (8) vandalism is common, (9) there are lots of abandoned buildings. Items 1 and 2 are coded so that 0=strongly agree, 1=agree, 2=neutral, 3=disagree, 4=strongly disagree. Items 3-9 are coded in reverse. All items are summed and divided by 9 so that each score represents the mean of the 9 items. Cronbach’s $\alpha = .88$.

**Externalized Attributions of Blame**
Binary variable where 1 = blame and 0 = no blame. Item asks respondents the extent to which they agree/disagree with the following statement: “Problems come from others who are selfish, greedy, or mean.” Response categories are strongly agree, agree, don't know, disagree, and strongly disagree. Strongly agree/agree = 1 while strongly disagree/agree=0. Don't know is coded as missing.
**Structural Neighborhood Characteristics**

**Neighborhood Disadvantage**
Mean scale of 4 items measured at the census tract level. Indicators of neighborhood disadvantage which are included in this study are the percent female headed households, percent unemployed, percent of households below the poverty line, and percent black. Score is sum of these 4 items divided by 4. Cronbach's $\alpha = .71$.

**Residential Instability**
Mean scale of 2 items measured at the census tract level. First item is the percentage of residents living in homes they do own. Second item is percentage of residents who have not lived in the same house for 5 years. Cronbach's $\alpha = .60$.

**Urbanicity**
Percentage of the population living in an urban location, measured at the census tract level.

**Dependent Variable**

**Anger**
Mean scale measured by asking respondents how often in the past seven days they (1) felt annoyed with things or people, (2) felt angry and (3) yelled at someone. Cronbach's $\alpha = .71$. 

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