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Neighborhood Characteristics and Crime: A Test of Sampson and Groves' Model of Social Disorganization

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ABSTRACT

In 1989 Sampson and Groves proposed a model of social disorganization. In this model, neighborhoods with low socioeconomic status, high residential mobility, racial heterogeneity, and family disruption were predicted to have sparse local friendship networks, low organizational participation, and unsupervised youth groups. These, in turn, were predicted to increase neighborhood crime rates. Although Sampson and Groves' work represents the most complete model of social disorganization to date, it has only been tested twice and then on the same data set. Using data from 36 neighborhoods from 7 U.S. cities, this study examines extensions of Sampson and Groves' model suggested by past research findings. The results indicate that Sampson and Groves' model is modestly supported by the data. Social disorganization variables are more effective in transmitting the effects of neighborhood structural characteristics on assault than on robbery. Implications of the study and directions for future research are discussed.

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Since its initial formulation in the early twentieth century by two Chicago sociologists, Clifford Shaw and Henry McKay, social disorganization has become the most important theory in criminology for explaining neighborhood crime and delinquency. Following its inception, a substantial body of research developed examining the relationship between neighborhood structural characteristics and neighborhood rates of crime. Most of these early empirical studies, though, suffered from a number of deficiencies. Some of the deficiencies were directly related to problems of theory, for Shaw and McKay did not clearly differentiate among social disorganization, its causes, and its consequences. Other deficiencies came from problems of measurement. Researchers struggled with how best to define, and capture, neighborhood and social disorganization.

The lack of clear theoretical explication and the difficulties inherent in testing the theory inhibited development in the area of social disorganization for a number of years. However, in 1989 Sampson and Groves proposed and tested a model of social

disorganization that overcame many of the past difficulties. Beginning with a clear definition of social disorganization, the inability of a neighborhood to achieve the common goals of its residents and maintain effective social controls (Kornhauser 1978; Bursik and Grasmick 1993), they drew from the original work of Shaw and McKay (1942) and the more recent research of social-network theorists (Krohn 1986; Kasarda and Janowitz 1974) to develop a two-stage model of social disorganization. The model predicts that neighborhood structural characteristics, such as low socio-economic status, residential mobility, racial heterogeneity, and family disruption, are exogenous sources of social disorganization that lead to the disruption of local social organizations. The disruption of local organizations (i.e., social disorganization), they argued, is characterized by weak local friendship networks, low organizational participation, and unsupervised teenage groups. The model then predicts that social disorganization limits the capacity of neighborhoods to regulate and control behavior, which contributes to higher rates of crime and delinquency. In addition to

their indirect effects through social disorganization variables, neighborhood structural characteristics are also hypothesized to have direct effects on neighborhood crime and delinquency.

The significance of Sampson and Groves' work goes beyond the clarity of their theoretical model. It also centers on the methodological improvements their test of the model makes over past research. First, by including measures of intervening variables, their test represents a more complete test of social disorganization ideas than previous work. While previous research focused primarily on the direct impact of neighborhood structural characteristics on crime (see Kornhauser 1978 for a review), Sampson and Groves were able to examine the importance of neighborhood organizational characteristics (e.g., local friendship networks, organizational participation, teenage peer groups) as intervening factors. Second, Sampson and Groves use self-reports of both criminal offending and criminal victimization to measure crime. Previous studies relied predominately on official crime data, which are likely to be influenced by differences in police activities across neighborhoods.

Although Sampson and Groves' study has been hailed as "the most complete examination of the systemic social disorganization model that has ever been attempted" (Bursik and Grasmick 1993:43), to date their model of social disorganization has rarely been tested. Further, tests of their model have been limited to one data set using data from neighborhoods in Britain (Sampson and Groves 1989; Veysey and Messner 1999). Given the structural differences (e.g., crime rates and racial composition) between Britain and American neighborhoods, whether Sampson and Groves' theoretical framework will be supported using American data sets remains unclear. In addition, findings from recent research suggest that there is a more complex relationship between some of the concepts in the model than was originally captured.

Using data collected from American neighborhoods, this study tests an extended model of social disorganization that includes the theoretical paths proposed by Sampson and Groves and several additional connections among variables suggested by previous research findings. The study of social disorganization using U.S. data has the potential of expanding our knowledge on the direct and indirect influences of neighborhood structural characteristics on crime.

NEIGHBORHOOD ORGANIZATION AS A KEY IINTERVENING FACTOR

In their study, Sampson and Groves proposed a set of relationships among four exogenous sources (SES, residential mobility, racial heterogeneity, and family disruption) and three intervening dimensions (local friendship ties, unsupervised youth groups, and organizational participation) of social disorganization. Specifically, they predicted that unsupervised youths and low organizational participation mediate the effect of SES on crime. Low SES neighborhoods are more likely to have unsupervised teenage peer groups and low organizational participation because of the lack of adequate money and resources to collectively defend their interests. They then predicted that a high rate of residential mobility impedes the development of strong friendship ties among neighborhood residents by reducing familiarity with neighbors. Racial and ethnic heterogeneity and urbanization are predicted to weaken the control of local youths because of the lack of communication and interaction among residents. Finally, family disruption diminishes the ability of adults to supervise and control neighborhood youths. The reduction in the strength of friendship ties, supervision of local youths, and organizational participation then directly affect neighborhood rates of crime.

Sampson and Groves tested their model of social disorganization by analyzing data collected by British Crime Survey (BCS) from 238 neighborhoods in England and Wales. Using multivariate regression and path analysis, they decomposed the direct and indirect effects (through social disorganization variables) of neighborhood structural characteristics on several measures of neighborhood crime rates. They found that crime rates were higher in neighborhoods where friendship ties were weaker, organizational participation was low, and teenage groups were unsupervised. Moreover, these indicators of social disorganization were shown to mediate the effects of neighborhood structural characteristics (low socioeconomic status, residential mobility, ethnic heterogeneity, and family disruption) on crime and victimization rates.

Using the same data analyzed by Sampson and Groves, Veysey and Messner (1999) retested the original hypotheses using structural equation modeling. The comparative results show only moderate support of Sampson and Groves' argument with respect to the mediating effect of social disorganization factors. Veysey and Messner found that social disorganization factors have mediating effects on the relationship between crime and low socioeconomic status, residential mobility, and racial heterogeneity, but have no impact on the association between family disruption and crime.

Veysey and Messner then go beyond Sampson and Groves' original framework to add causal relationships among the indicators of social disorganization that are

not explicitly specified and tested in Sampson and Groves' research. Veysey and Messner posit that local friendships and organizational participation have both direct and indirect (through unsupervised youth groups) effects on crime, while unsupervised teens have only a direct effect on crime. They found that unsupervised peer groups mediate 29 percent and 7 percent of the total effect of organizational participation and local friendships on crime, respectively.

Thus far tests of Sampson and Groves' model of social disorganization have been limited to two studies, both using the same data derived from the BCS (Sampson and Groves 1989; Veysey and Messner 1999). Though tests of Sampson and Groves' model remain relatively rare, there is evidence available from other research in the area of social disorganization on several of the predictions they make. First, in terms of the effects of neighborhood structural characteristics on crime, early research found fairly consistent evidence that neighborhoods characterized by poverty, racial heterogeneity, and residential mobility have higher rates of crime (see Kornhauser 1978 for a review; Bursik and Grasmick 1993). Later research by Sampson (1986, 1987) argued for and found the importance of family disruption on neighborhood crime rates. In particular he argued that family disruption is important, as it disrupts both formal (such as participation in local voluntary organizations) and informal (including such as supervision of other children) sources of social control. Recent work by Bellair (2000) also finds that concentrated disadvantage and residential stability have significant effects on burglary and stranger assault rates.

Second, evidence also exists regarding the effects of several of the intervening mechanisms on neighborhood rates of crime. Warner and Rountree (1997) provide us with the most recent test of the effect of local friendship networks on neighborhood crime rates. They find that local friendship networks do have significant negative effects on neighborhood rates of assault, but they have significant positive effects on burglary. They also find that the effect of local friendship ties varies by type of neighborhood. Their findings suggest that, among poorer neighborhoods, some racially diverse and others racially homogeneous, local friendship ties lower assault rates more in predominantly white neighborhoods. Researchers are beginning to show that these varying effects may be related to the differential inclusion of criminal others in social networks (see, for example, Pattillo 1998 and Venkatesh 1997). Research suggests, then, that the relationship between local friendship networks and neighborhood crime rates is more complicated than is often assumed in tests of social disorganization.

Similarly, the effect of local voluntary participation

is not nearly as straightforward as social disorganization theorists originally predicted. While it makes sense that high levels of organizational participation indicate neighborhood organization and thus less crime, the research indicates a more complicated picture. Research supports the prediction that the existence of, and participation in, local voluntary organizations is low in the most disadvantaged areas but also shows that the most stable neighborhoods have low levels of participation (see Skogan 1989 and 1990 for reviews of this literature). Thus local voluntary organizations are least likely to exist in the neighborhoods most and least likely to need them. Further, there is research that finds that neighborhood organizations can help in social control (see Kapsis 1976, 1978). However, there is little evidence that community crime prevention efforts in disadvantaged neighborhoods actually work to reduce neighborhood problems. For example, Skogan (1990) discusses attempts to combat disorder and fear of crime through community crime prevention programs in neighborhoods in Chicago and Minneapolis. In both experiments, however, the findings indicated little improvement in reducing neighborhood problems. More recently, Elliott et al., (1996) found that their measure of social integration of a neighborhood (which measured perceptions of the availability of organizations and activities) had no significant effect on neighborhood rates of problem behavior.

Finally, key to Sampson and Groves' model is the prediction that local friendship networks, local voluntary participation and unsupervised youth mediate the effects of neighborhood structural characteristics on crime rates. Once again research findings paint a picture that is more complicated than that which was predicted early in social disorganization theory. For example, in terms of local friendship ties, Warner and Rountree's (1997) analysis found that ethnic heterogeneity and residential instability lower local social ties but that the effect of these neighborhood structural characteristics on burglary is not mediated by local social ties. The difficulty with interpreting the findings of this research for Sampson and Groves' theory is they do not result from a complete test of their model of social disorganization.

When we examine the findings from research testing Sampson and Groves' model and from other social disorganization research, we find clear evidence that the relationships among neighborhood structural characteristics, neighborhood crime rates, and those factors predicted to mediate the relationships are more complex than they predicted. Two types of relationships within the model appear to be particularly in need of further exploration. The first is the relationship among the mediating variables themselves. Following the work

Figure1. Path Model of Social Disorganization
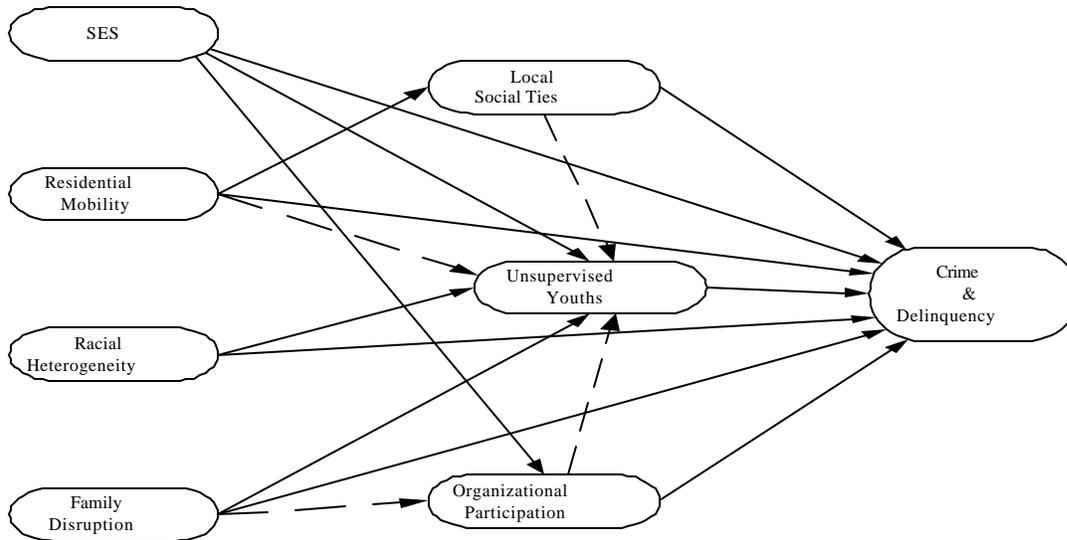
of Veysey and Messner (1999) we predict that local social ties and organizational participation affect neighborhood crime rates indirectly through unsupervised youths as well as directly. The theoretical reason for estimating the effects of friendship ties and organizational participation on unsupervised youths rests on the systemic model of social control which emphasizes the role of social networks in laying the groundwork for neighborhood levels of social control and how these networks mediate the effect of neighborhood structural characteristics on neighborhood rates of crime (Bursik and Grasmick 1993; Simcha-Fagan and Schwartz 1986). Local social ties and organizational participation are viewed as key indicators of the strength of neighborhood networks at the private and parochial levels, while unsupervised youths are perceived as results of weak or diminished neighborhood networks. That is, neighborhoods with a weak organizational base, as reflected in sparse social ties and low organizational participation, have a diminished capacity for supervising and controlling youths.[1]

The second relationship that needs further explication is between neighborhood structural characteristics and the social disorganization variables. Based on past research findings we examine two specific relationships, the relationship between residential mobility and supervision of youth, and between family disruption and organizational participation. We predict that increases in residential mobility decrease the ability to supervise youth activity

in the neighborhood. High mobility diminishes the supervision by adults outside the immediate family. This prediction is, in fact, supported by the regression results of Sampson and Groves' study that show that residential mobility leads to higher levels of unsupervised peer groups. We also predict that family disruption significantly decreases participation in local voluntary organizations. One would expect that neighborhoods with high rates of family disruption (such as single-parent families and divorce rates) have low voluntary organizational participation, because residents lack the time and resources needed for participation.

Figure 1 shows the path diagram displaying these causal connections. The solid lines represent connections predicted as well as tested by Sampson and Groves, while the dotted lines indicate either paths that were not estimated by Sampson and Groves (i.e., paths from friendship ties and organizational participation to unsupervised youths) or paths that were estimated but not predicted (i.e., the path from family disruption to organizational participation). This study tests, then, an extended model that includes both Sampson and Groves' basic model and several additional theoretical paths.

METHODOLOGY
Data Sources and Samples

The data used in this study were taken from interviews with random samples of 8155 individuals residing in 36 neighborhoods in seven U.S. cities[2]

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(Houston, TX; Newark, NJ; Baltimore, MD; Madison, WI; Birmingham, AL; Oakland, CA; and Denver, CO). These data were originally collected between 1983 and 1990 by several research projects and then were merged to allow a more thorough analysis of the impact of alternative policing programs (e.g., home visit, foot patrol, storefront office, and intensive enforcement) on social disorder (Skogan 1994). Neighborhoods were defined on the basis of census tracks in Houston and Newark, census blocks in Madison, police beats in Oakland and Birmingham, and matched ethnographic areas in Baltimore and Denver.[3] With the exception of Madison, WI,[4] sample households were selected at random from lists of all residential addresses in each selected area. Residents aged 19 and over were randomly selected from the adults living at sample households and were interviewed in person and by telephone (for a detailed description of the methodology used by the original projects, see Skogan 1994). Individual survey responses from original data were aggregated to the neighborhood level to provide measures of neighborhood structural and organizational characteristics and victimization rates.

Exogenous, Intervening, and Endogenous Variables

Neighborhood structural characteristics are exogenous variables which include socioeconomic status, residential mobility, racial heterogeneity, and family disruption.[5] They are operationalized as follow. Socioeconomic status was a scale composed of the percentage of households with mid and high income (i.e., above $20,000), the percentage of people employed, and the percentage of college graduates. The validity and reliability of the SES scale were examined. The results indicated that SES is a reliable and valid measure.[6] Residential mobility was defined as the percentage of residents who lived in the neighborhood for less than 5 years. Racial heterogeneity was measured using Blau's (1977) index of intergroup relations, $(1- \Sigma P_i^2)$, where P_i is the proportion of the population in a given group. Four racial/ethnic categories, White, Black, Hispanic, and other, were used to construct this index.[7] Finally, family disruption was measured by the percentage of divorced and separated. These variables are either similar to Sampson and Groves' measurements (SES, racial heterogeneity, and family disruption) or have a good content validity (residential mobility).

The three intervening variables are local social ties, organizational participation, and unsupervised teenage groups. Local social ties was constructed based on a single item that measured the percentage of people who reported that neighbors would do things together and help each other. This measure was not a strict replication of Sampson and Groves' variable of friendships ties which measured the number of friends within a 15-minute walking distance. Specifically, our measure indicated relationships among neighbors, while Sampson and Groves' measure indicated relationships among friends. Although both measures may reflect local networks at different levels (i.e., parochial-neighbors and private-friends) (Hunter 1985; Bursik and Grasmick 1993), both are consistent with the emphasis of social disorganization on social ties and both have a similar predicted effect on social control and subsequently on crime and delinquency.

Organizational participation was measured by the percentage of respondents who were able to attend any resident meetings held in the past 6 or 12 months to try to deal with drug and crime problems. This measure of organizational participation is also different from the one used by Sampson and Groves. Sampson and Groves' measure indicates participation in meetings of committees and clubs in the week before the interview. Their measure of organizational participation thus captures participation in any organization. Whether these meetings were held by locally based organizations in the community is unclear, and the time frame for participation is short. Our measure reflects participation in locally organized activities (over past 6 or 12 months) that were geared toward crime problems only. These crime-related meetings, which were likely to be held by local voluntary organizations, served as bases from which residents could act collectively to deal with neighborhood concerns. The attendance of resident meetings thus reflects the extent of neighborhood organizational base and mobilization capacity (Sampson and Groves 1989). Since our measure focuses on locally organized activities, they do reflect neighborhood processes. Since the time period is 6-12 months, it is more likely to capture important meetings that may occur only once a month or even less. In these two ways it is an improvement over Sampson and Groves' measure of participation.

The variable unsupervised teens was difficult to measure due to the limitations in the secondary data set. There were two youth-related items in the survey questionnaire that could be used to construct a variable measuring unsupervised teens. Respondents were asked whether "disruption around schools" (i.e., youth hanging around, making noise, vandalizing, and starting fights) or "truancy" (kids not being in school when they should be) was a problem in the neighborhood on a three-point scale ranging from *no*, *some,* to *big*.

Table 1 .Descriptive Statistics for Variables (N = 36)

Variable	Mean	Std.	Minimum	Maximum
Exogenous				
Socioeconomic Status*	.00	2.44	-6.03	4.69
Residential Mobility	52.70	13.69	18.02	81.05
Racial Heterogeneity	.17	.19	.00	.67
Family Disruption*	.00	.96	-2.40	4.87
Intervening				
Local Social Ties	54.12	11.05	33.20	81.80
Unsupervised Youth Groups**	2.41	.89	.00	3.93
Organizational Participation	9.37	5.08	.51	24.74
Dependent				
Robbery**	1.05	.62	.00	2.01
Assault**	2.04	.88	.00	3.33

* scores based on z-scores
** natural log transformation

However, these two items were not asked in all 36 neighborhoods. The former was asked in 18 neighborhoods and the latter in 16 different ones. Neither question was asked in two neighborhoods. The dependent variables were regressed on unsupervised youths separately for 18 and 16 neighborhoods and regression coefficients across the two sub-samples were compared. The *t* test of coefficient differences was not statistically significant, suggesting that the two unsupervised-youth items associated with two groups of neighborhoods have similar effects on the dependent variables (see Cohen 1983, for a detail discussion of the small sample *t* test procedures). Therefore, the two items were combined into one construct. Missing values then were replaced with the mean to maintain an already small sample of neighborhoods. Two different methods of replacing missing values (i.e., linear trend at point and the mean of the city) were tried with the results remaining unchanged. The resulting measure of unsupervised teens was the percentage of residents who reported that disruption around schools or truancy was a "big" problem in the neighborhood. Since the distribution was skewed and a few neighborhoods had zero values, a constant (1) was added to the measure and then the natural-logarithm transformation was performed to stabilize variances.

The endogenous variables include two victimization rates that measure two types of violent crime. The robbery victimization rate was the percentage of residents who reported that someone had stolen or tried to steal something directly from them by force or after threatening them with harm.[8] Following a similar method used by Sampson and Groves to measure the mugging/robbery variable in their study, the assault rate was constructed based on the respondent's perception of assault as a "big problem" in the neighborhood. It should be noted that the respondent's perception of the problem could be affected by his/her own or others' experiences of victimization or something else (e.g., media coverage) that is not directly related to actual victimization. Natural-logarithm transformations were performed on the victimization variables, for they were highly skewed.

Table 1 reports the descriptive statistics for all variables. Although the size of the sample neighborhood is not large (N=36), substantial variation exists in these data on variables of central theoretical interest[9]. For example, the percentage of residential mobility (residents who lived in the neighborhood for less than 5 years) ranges from 18 percent to 81 percent and the racial composition ranges from all-black to all-white neighborhoods. Also, the variable measuring local social ties varies from 33 percent to 82 percent, while organizational participation, even with a relatively narrow range, varies from nearly zero (.5 percent) to 25 percent. Table 2 displays the inter-correlations among

Table 2. Inter-correlations Among Explanatory Variables

Variables	1	2	3	4	5	6	7
1. Socioeconomic Status	1.00						
2. Residential Mobility	-.20	1.00					
3. Racial Heterogeneity	-.22	-.50**	1.00				
4. Family Disruption	-.76**	-.01	.03	1.00			
5. Local Social Ties	.35*	.33*	-.26	-.41*	1.00		
6. Unsupervised Youths	-.68**	.12	.07	.78**	-.56**	1.00	
7. Organizational Participation	-.48**	.09	.03	.47**	-.15	.30	1.00

* p < .05; **p < .01

explanatory variables. About half of the correlations are significant, but none of the coefficients exceed .80.

Analysis

The analysis focuses on the test of two models of social disorganization. Since the main purpose of this research is to test the social disorganization model proposed by Sampson and Groves, structural equation modeling (SEM) is appropriate because it employs a confirmatory (i.e., hypothesis-testing), rather than an exploratory, method to the multivariate analysis of a structural theory (Byrne 1998). We used LISREL 8.3 to test the extent to which the models are consistent with the data. LISREL generates a wide array of goodness-of-fit statistics. The choice of appropriate indices of model fit to report is not an easy one, since they are somewhat differently affected by sample size, model complexity, estimation methods, and violation of assumptions underlying the estimation methods (Hu and Bentler 1995; Byrne 1998). Based on the guiding principles proposed by Bollen and Long (1993) and Mueller (1996), we decided to 1) report multiple, rather than a single, indices from different clusters of measures, and 2) give preference to indices that take the degrees of freedom into consideration and rely as little as possible on sample size.

Several indices representing three different classes were selected, including the root mean square error of approximation (RMSEA) and its associated test (a *p* value) of close fit, the comparative fit index (CFI), and the goodness-of-fit Index (GFI). We present some rule-of-thumb guidelines associated with these indices for declaring good model fit. RMSEA ranges from 0 to 1.00, with a value less than .08 indicating adequate fit and a value less than .05 indicating good fit[10] (Browne and Cudeck 1993). An associated *p* value of greater

than 0.5 (i.e., a nonsignificant value) implies good model fit (Jöreskog and Sörbom 1996). CFI varies from 0 to 1.00, with a value greater than .90 indicating acceptable fit of data (Bentler 1992). Finally, though it is possible for GFI to be negative, it normally ranges from 0 to 1.00, with values close to 1.00 being indicative of good fit (Jöreskog and Sörbom 1996).

After reporting the overall model fit indices, a graphic portrayal of the path model, with path coefficients and associated significance levels, is provided. Path coefficients are examined to see if they are consistent with our expectations. Based on these path coefficients, the indirect effects of neighborhood structural variables on crime are then computed and displayed along with the direct and total effects. The relative strength of all predictors and the indirect effect of neighborhood structural characteristics on crime are discussed.

RESULTS

An extended model social disorganization that included the basic model proposed by Sampson and Groves and added paths suggested by the authors of this study and Veysey and Messner (1999) was first estimated. The model fit statistics for the extended models of robbery and assault are identical. The indices suggest that both models fit the data fairly well. The RMSEA was .09 and the *p*-value for the test of closeness of fit was .30. The CFI was .98 and the GFI was .95. Therefore, the extended models of robbery and assault have a high degree of congruence between the model and data.

Figure 2 shows the path diagram with path coefficients for the extended models of robbery and assault. Starting with the robbery model, among sixteen paths, nine are significant at the .10 level. All four

Figure 2. Path Diagram with Standardized Coefficients for Extended Model of Robbery and Assault
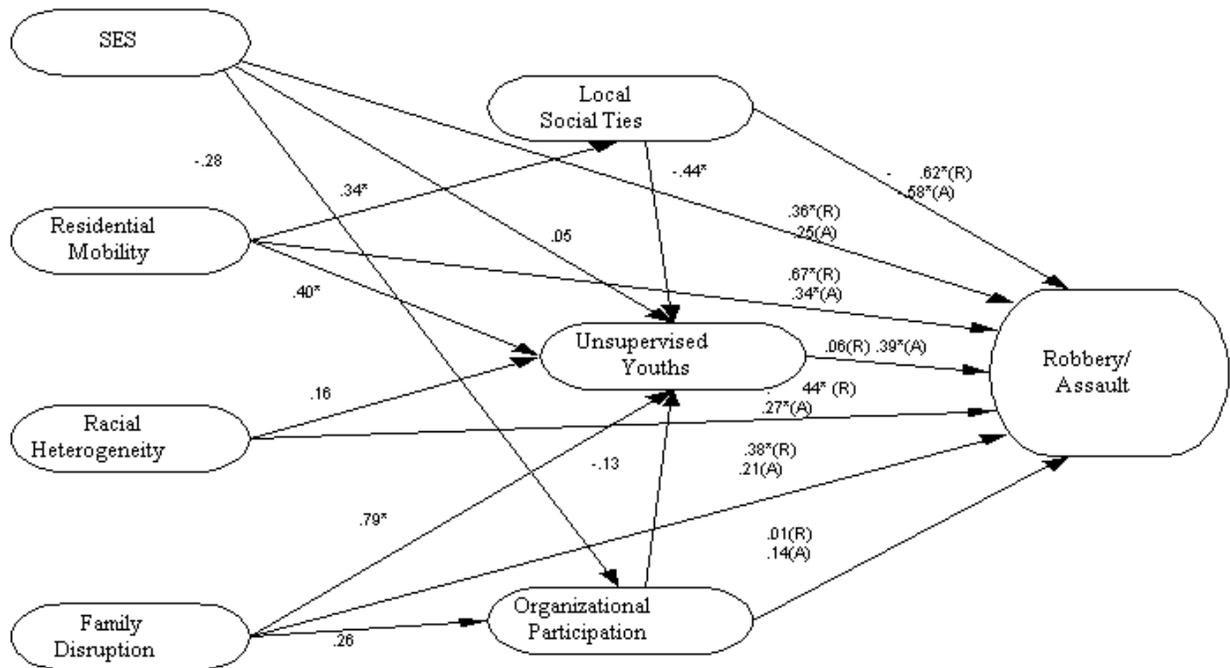
*p<.10; (R) Robbery; (A) Assault

neighborhood structural variables: SES, residential mobility, racial heterogeneity, and family disruption exert significant direct effects on robbery. Consistent with our expectations, neighborhoods with high levels of mobility, heterogeneity, and family disruption are more likely to have high robbery rates. But high SES neighborhoods are also associated with high robbery rates. In Sampson and Groves' study (1989), SES is found to have a positive relationship with burglary. Similarly, Rountree and Land (1996) found that having expensive portable goods (possibly an indicator of SES) is positively related to fear of burglary. The result is thus not totally at odds with the findings of previous studies.

Three out of seven paths from structural characteristics to intervening variables are also significant. Residential mobility has a significant positive influence on local social ties. Contrary to the expectation, neighborhoods with high population turnover have stronger social ties. Since our measure of social ties indicates the willingness to help one another out, one possible explanation of the result is that residents in high mobility neighborhoods, all other things being equal, actually have more opportunities to help their neighbors. Consistent with the prediction of the extended model, residential mobility exerts a significant positive effect on unsupervised youths. Neighborhoods with high residential mobility tend to have a high level of unsupervised youths. The effect of

family disruption on unsupervised youths also achieves statistical significance. High levels of family disruption lead to more unsupervised youths in neighborhoods. The added path from family disruption to organizational participation in the extended model fails to reach significance.

Among the three intervening variables, only local social ties have a significant direct influence on robbery. Neighborhoods with strong social networks tend to have lower robbery rates. The direct effects of unsupervised youths and organizational participation on robbery are not significant. Given that unsupervised youth activities are central indicators of social disorganization, the nonsignificant effect of unsupervised youths on robbery is unexpected.

The added path from local social ties to unsupervised youths achieves statistical significance. As we predicted, neighborhoods with weak social ties tend to have a high level of unsupervised youths. However, the added path from organizational participation to unsupervised youths is not significant.

Turning now to the assault model in Figure 2, two structural variables have a positive significant impact on assault directly. High residential mobility and racially diverse neighborhoods are more likely to have higher assault rates. SES and family disruption also have positive direct effects on assault, but the influences are not statistically significant.

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Table 3. Direct, Indirect, and Total Effects of Basic and Extended Models of Robbery and Assault

Variable	Robbery			Assault		
	Direct	Indirect	Total	Direct	Indirect	Total
Exogenous						
Socioeconomic Status	.36*	.00	.36	.25	-.01	.24
Residential Mobility	.67*	-.20	.47	.34*	-.10	.24
Racial Heterogeneity	.44*	.01	.45	.27*	.06	.33
Family Disruption	.38*	.05	.43	.21	.33	.54
Intervening						
Local Social Ties	-.62*	-.03	-.65	-.58*	-.17	-.75
Unsupervised Youths	.06	&	.06	.39*	&	.39
Organizational Participation	.01	-.01	.00	.14	-.05	.09

* $p < .10$

The direct effects of structural characteristics on intervening variables for assault as well as the relationships among intervening variables are identical to those for robbery. Unlike the robbery model, two intervening variables exert significant direct effects on assault. Local social ties are negatively related to assault. Neighborhoods with strong social networks tend to have low assault rates. Unsupervised youth is positively related to assault. High level of unsupervised youths increases assaults in the neighborhoods. It's not surprising that unsupervised youth is more strongly associated with assaults in the neighborhood than robberies, because the measure includes "starting fights" around schools.

Table 3 summarizes the direct, indirect, and total effects of all explanatory variables for the extended models of robbery and assault. In the robbery model, residential mobility has the strongest direct effect (.67) on robbery among all predictors, followed closely by local friendship ties (-.62), racial heterogeneity (.44), family disruption (.38), and socioeconomic status (.36). The direct effects of unsupervised youths and organizational participation are negligible (.06 and .01, respectively), indicating that their mediating effects of structural factors on crime are weak. It is clear that neighborhood structural characteristics, on average, have a greater direct influence on robbery than do the intervening variables.

Among the indirect effects, residential mobility has a -.20 effect on robbery due to local friendship networks. Residential mobility thus has a total effect of .47 on robbery, of which .68 is due to direct effect and -

.21 is due to indirect effect through local friendship ties. This means that about one-third of the direct effect of residential mobility on robbery is offset by a negative indirect effect through local friendship ties. Family disruption has a .05 indirect effect on robbery due to unsupervised youths and organizational participation. Together unsupervised youth and organizational participation mediates 11 percent of the total effect (.43) of family disruption on robbery. Unsupervised youths alone also mediate less than 5 percent of total effect of local social ties (-.65) on robbery. The indirect effects of SES (through unsupervised youths and organizational participation), racial heterogeneity (through unsupervised youths), and organizational participation (through unsupervised youths) on robbery are fairly weak, ranging from .01 to none. These numbers clearly suggest that while local friendship ties largely mediates the total effect of residential mobility on robbery, the variables of unsupervised youths and organizational participation do not transmit much of the effects of structural characteristics on robbery. Therefore, the critical mediating effect of social disorganization variables on crime proposed by Sampson and Groves' model receives only weak support from the analysis of robbery rates in American neighborhoods.

Adding the direct and indirect effects together, local social ties has the strongest total effect (-.65) on robbery, followed by residential mobility (.47), racial heterogeneity (.45), family disruption (.43), and socioeconomic status (.36). The total effects of unsupervised youths and organizational participation are negligible (06 and .00, respectively). Therefore, while

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all neighborhood structural characteristics exert a fairly strong total effect on robbery, only one mediating variable (local social ties) has noticeable impact on robbery.

The second panel in Table 3 shows the direct, indirect, and total effects of all variables on assault. The relative strengths of the variables on assault are mostly consistent and two intervening variables, local friendships (-.58) and unsupervised youths (.39), have the strongest direct effects on assault, followed by two structural variables: residential mobility (.34) and racial heterogeneity (.27).

Among the indirect effects, family disruption has the greatest indirect effect (.33) on assault. Although the reanalysis by Veysey and Messner (1999) of Sampson and Groves' data found that social disorganization variables do not have any mediating effects on the relationships between family disruption and crimes, the results of this study show a different picture. Indeed, 61 percent of the total effect (.54) of family disruption on assault is due to an indirect effect through unsupervised youths and organizational participation. Compared to the robbery model, unsupervised youths play a more important role in mediating the effect of neighborhood structural characteristics, local friendship ties, and organizational participation on assault. For example, unsupervised youth mediates 22 percent and 18 percent of the total effects of local friendships and racial heterogeneity, respectively. The variable also offsets a large portion of the total effects of residential mobility and organizational participation on assault. As a result, with the exception of SES, the effects of residential mobility, racial heterogeneity, and family disruption are either moderately or greatly mediated by indicators of social disorganization, especially local friendships and unsupervised youths. Sampson and Groves' argument of the intervening effects of social disorganization variables on crime is thus supported by the analyses of assault data collected from these American neighborhoods.

Local social ties appear to have strongest total effect (-.75) on assault, followed by family disruption (.54) and racial heterogeneity (.33). Both SES and residential mobility have a same amount of total effect (.24) on assault, while organization participation has the weakest total effect (.09). These results do not differ much from those in the robbery model except that unsupervised youths show a much greater total effect on assault than on robbery.

DISCUSSION

Recognizing the interconnections among indicators of social disorganization and relationships between neighborhood structural and social disorganization variables that were not specified by Sampson and Groves, a modified model of social disorganization was proposed and tested. Several important implications can be derived from the findings of these analyses of victimization rates.

First, and perhaps most importantly, the mediating effect of social disorganization on crime, which represents a critical component of Sampson and Groves' argument, receives only partial support from the analysis of American data. The results show that not all social disorganization variables effectively mediate the impact of neighborhood structural characteristics on crime. Among the three indicators of social disorganization, local social ties is the most effective mediator overall; it transmits a large portion of the effect of residential mobility on both robbery and assault. This finding is consistent with the central argument of the systemic model of community organization (Kasarda and Janowitz 1974) and the empirical work of previous research (Sampson and Groves 1989; Warner and Rountree 1997). However, another important aspect derived from the systemic model, organizational participation, does not mediate the effects of SES and family disruption on robbery or assault.

The third social disorganization variable, unsupervised youths, occupies a critical spot in the theoretical framework since it is hypothesized to mediate the relationship among all four structural characteristics and the two other social disorganization variables and crime. The mediating effect of unsupervised youths, however, showed mixed results, varying across different types of crime and different neighborhood structural characteristics. The results show that unsupervised youths are generally more effective in transmitting the effects of neighborhood structural characteristics on assault than on robbery. Recall that both crimes were measured differently, with robbery indicating the respondents' own victimization and assault perceptions of assault. The result might be attributed to the difference in terms of measurement. To test this interpretation, two other types of crime were further analyzed: one (burglary) based on actual victimization and the other (rape) perception of the problem (results not presented). The results are similar. That is, the unsupervised youths variable is generally more effective in transmitting the effects of structural characteristics (particularly family disruption) as well as social ties and organizational participation on rape than on burglary. It is thus possible that differences in patterns between assault and robbery are results of distinctions in measurement.

Another possible explanation is that although both robberies and assaults are conventionally viewed as

violent crimes against persons, there is an important difference between robberies and assaults regarding the relationship between offenders and victims. Previous studies have shown that about half of aggravated assaults involve family members, friends, acquaintances, or neighbors, while more than three-quarters of all robbers are strangers to their victims (Curtis 1974; Hindelang 1976; Timrots and Rand 1987). The greater mediating effect of social disorganization variables in general and unsupervised youths in particular on assault than on robbery suggest that well-organized neighborhoods, particularly those with close supervision of youth peer groups and strong local kinship and friendship networks, may be effective in reducing crimes, such as assaults, that likely involve citizens residing within the same neighborhood, but that such regulatory capacity does not necessarily curb crimes, such as robberies, that often involve offenders or victims from outside the community. While recent research efforts have mainly focused on the elaboration of the mediating effects of social disorganization on crime and the incorporation of other social control and cultural variables into the model, future work should pay attention to the varying effects of social disorganization on different types of crime.

The mediating effect of unsupervised youths also varies for different structural and organizational variables. Using the assault models as examples, we find that while the level of unsupervised peer groups mediates a modest to large part of the total effect of residential mobility, family disruption, and local friendships, it transmits very little of the effect of racial heterogeneity, SES, and organizational participation. This finding contradicts the strong mediating effect of unsupervised youths for SES and racial heterogeneity reported in Sampson and Groves' study, but is consistent with the results of Warner and Rountree (1997). Given that unsupervised youths is the only social disorganization mediator for racial heterogeneity, the lack of a significant influence of heterogeneity on unsupervised youths is somewhat surprising. The implication is that if racial heterogeneity is hypothesized to have an effect on crime mainly through social disorganization variables, then the indicators of social disorganization other than unsupervised youths must account for the indirect effect of heterogeneity on crime. Future research should continue to explore other indicators of social disorganization in transmitting the effect between racial heterogeneity and crime.

Second, the direct effect of neighborhood structural characteristics on crime is largely confirmed by our findings. All structural variables exert significant and relatively strong influences on robbery. Residential mobility and racial heterogeneity also significantly

affect assault rates. This finding is not unexpected since community structural characteristics are common elements among major theories of crime (including social disorganization) and their effects on crime have long been confirmed by research studies. Further research on social disorganization, however, should move beyond the systemic theory of social control that assumes a constant effect of social disorganization on crime across different kinds of neighborhoods by examining how structural and social disorganization variables interact to create varying effects on crime. This has been the focal concern of a recent study and the results are encouraging (Warner and Rountree 1997). Likewise, more efforts should be directed to examine the role of culture in creating disorganization as well as assessing how cultural and structural elements interact to create effective social control (Bursik and Grasmick 1993; Sampson and Wilson 1995; Warner 1999).

Finally, the results suggest that the indicator of unsupervised youths mediates not only the effects between residential mobility and family disruption and assault but the relationship between local friendships and assault. This implies that if unsupervised youth groups can mediate the relationship between social disorganization and crime and if the direct result of social disorganization is a weak or ineffective social control, then unsupervised teens may be conceptualized and operationalized as the outcome of weak social control. In this sense, Sampson and Groves' model can be expanded to include one more stage. First, neighborhoods characterized by high levels of poverty, residential mobility, racial heterogeneity, and family disruption are more likely to have high levels of social disorganization as indicated by weak local friendship and kinship bonds and low organizational participation. Second, neighborhoods with weak friendship and kinship ties are apt to lack effective social control, which can be characterized by high level of unsupervised teenage groups and activities. Finally, a weak or ineffective social control contributes directly to crime and delinquency in the neighborhood.

Of course, there are other ways to measure social control in the neighborhood. By arguing that weak social control is a direct result of weak or ineffective social organizational networks, this modified model provides researchers an opportunity to improve the "greatest shortcoming of the basic social disorganization model" (Bursik and Grasmick 1993: 37) by taking into consideration the social control at public and parochial levels. Specifically, at the social disorganization stage, sources of ineffective parochial and public control, such as the lack of stable local businesses, schools, civic leagues, churches, and police services, can be

incorporated into the model. For example, a recent study (Venkatesh 1997) shows that the ineffectiveness of parochial (e.g., community council) and public (e.g., the housing authority and police) institutions in providing basic services (i.e., maintenance and security) and employment opportunity diminishes the importance and legitimacy of these institutions in social control and social support and ironically increases the role of a local street gang in rendering such social functions in an urban ghetto. Venkatesh argues that street gang activity must be understood by examining the interactions and relationships between street gangs and other community actors (e.g., families, schools, and police) under a broader social and institutional context.

At the social control stage, measures such as low surveillance (of suspicious persons, for example), crime reporting, and perceived legitimacy or impotence of local institutions can be employed to indicate ineffective or low social control. Likewise, unsupervised youths can find a place in this group of variables. The resulting model represents a more complex but complete framework of social disorganization. This approach is aligned with a few recent efforts that move beyond the private control model of social disorganization to incorporate sources of parochial and public controls into the model (Bursik and Grasmick 1993; Taylor 1997; Bursik 1999; Peterson et al. 2000) and to consider the impact of public control on other local social controls (Rose and Clear 1998). Further research should continue to assess the effect of neighborhood structural characteristics on social networks and social controls (at private, parochial, and public levels) and crime rates.

Three limitations of the study should be noted. First, though consistent with conceptualization in Sampson and Groves' model, our intervening variables are clearly measured differently than those used by Sampson and Groves, and they are less than perfect. For example, our measure of local social ties indicate relationships among neighbors, whereas Sampson and Groves' relationships are among friends. Both measures are inadequate in terms of measuring complex neighborhood social networks. Moreover, these measures fail to capture or reflect possible simultaneous linages to law-abiders *and* law-violators. In other words, in addition to considering the strength of social network ties, we need to take into account what happens when social networks include criminal others as work of previous research suggests (Valentine 1978; Miller 1986; Venkatech 1997; Pattillo 1998; Anderson 1999). Similarly, although our measure of organizational participation reflects involvement in locally organized activities over a 6-12 month period, it is problematic that the measure only deals with crime-related neighborhood meetings. The limitation accounts for a

positive link between organizational participation and assault. To have a better measure that is close to the theoretical definition of organizational participation, future research may want to examine the involvement in different kinds of organizations as well as have separate measures of crime- and non-crime-related activities. Because of the differences in measurement, our study should be viewed as a partial replication of Sampson and Groves' study. Furthermore, we cannot rule out the possibility that the differences in findings between our study and Sampson and Groves' are due to measurement differences. Though our results are generally supported by other studies, caution should thus be exercised in interpreting our findings.

Second, the small sample size is a potential threat to the model stability. We used four structural characteristics and three mediating variables proposed by Sampson and Groves and estimated up to 16 different paths on the basis of 36 neighborhoods. To examine the possibility, we tried to reduce the number of explanatory variables by running a full model and then dropping the variables that have weak or no effects. For example, we dropped the scale of organizational participation from the extended model of robbery and reran the data. With fewer variables and paths, the overall model fit statistics of the reduced model remained largely unchanged. In addition, there are at least 5 cases per coefficient and this is consistent with other aggregate level research, such as Liska et al., (1982), who used 26 cities with 5 independent and intervening variables. Although the overall model fit indices suggest that both extended models of robbery and assault fit the data fairly well, a large sample size or the utilization of bootstrapping techniques is preferred to enhance the model stability.

A final and related concern is that the 36 neighborhoods were drawn from 7 different cities and possible political, social, and economic variations across cities were not controlled. Recent research (see, for example, Rabrenovic 1996) also confirms the importance of city context. To test the possible city effect, we created a set of dummy variables representing 6 of the 7 cities. We regressed robbery and assault on structural, intervening, and city variables. The results remain largely unchanged and none of the city variables were significant in either the robbery or assault models. Still, future research may want to address this concern if cross-city observations are used.

Sampson and Groves' work represents a major breakthrough of social disorganization with respect to theoretical specification and empirical testing. Their work has laid a solid foundation for further elaboration of the theory of social disorganization, even though the results from our study only provide modest support for

Sampson and Groves' argument. The construction of adequate indicators of social disorganization and the inclusion of parochial and public levels of social control remains the biggest challenge for scholars in future research. More studies that build up sound theory and improved measurement are needed in order to provide sufficient evidence to support the central role of social disorganization as a popular and enduring theory of crime and delinquency. Research of this kind hopefully would bear critical implications for communities as well as criminal justice and other social service agencies in developing/improving neighborhood friendship networks and supervision of teenage groups, crime prevention strategies, community policing programs, and community planning.

NOTES

[1] It is also possible that reciprocal effects exist among these variables. For example, unsupervised youths exert an influence on organizational participation by creating a threatening social environment. However, the possible reciprocal effects were not estimated, partly because we need to minimize the number of paths estimated due to a small sample size.

[2] The number of residents in each neighborhood ranges from 54 to 543. Twenty neighborhoods have under 200 residents, 8 neighborhoods have between 200 and 400 residents, and 6 neighborhoods have more than 400 residents.

[3] The different ways of measuring neighborhood by city might initially seem problematic. However the different measures correspond to what the researchers collecting the data agreed was the best measure of neighborhood for each city. It makes sense that construction of neighborhoods varies across city and thus there would be variation in how they are best captured.

[4] In Madison, a sample of addresses was drawn by the Survey Research Laboratory of the University of Wisconsin. Half the addresses represented the project's (i.e., Quality Policing in Madison: An Evaluation of Its Implementation and Impact, see Wycoff and Skogan 1993) target area and the other half was drawn from the remainder of the city.

[5] Sampson and Groves' model includes a fifth exogenous variable, urbanization. They hypothesize that urbanization affects the establishment of local friendships and participation of voluntary organizations, which lead to higher rates of crime and delinquency. Urbanization is held constant in this study since our sample included only urban neighborhoods.

Accordingly, our findings can only generalize to urban neighborhoods.

[6] We used confirmatory factor analysis (CFA) to assess the content validity of SES. Only one component was extracted that has an eigenvalue greater than one. The component explains a large amount of the variation (66 percent) and the loadings for all three items are higher than .75. These findings support the content validity of the SES scale. Also, the coefficient of internal consistency (standardized item alpha) for SES is .75, indicating that SES is a reliable measure.

[7] The "White" category includes only non-Hispanic whites, but the "Black" category does not exclude black Hispanics. Therefore, Hispanics could be counted in both Black and Hispanic category.

[8] The time frame for victimization (robbery) and perception of problem (assault) was 6 months in Denver, Oakland, and Birmingham and 12 months in Madison, Baltimore, Houston, and Newark. All respondents were asked if the incident happened in the neighborhood.

[9] Though the robbery measure only varies from 0 to 2.01, for a small sample of 36 neighborhoods, it shows a reasonable amount of variance consistent with the literature. Fo example, Sampson and Groves' (1989) measure of robbery with data from over 200 neighborhoods only varied from 0 to 4.48.

[10] MacCallum and his colleagues (1996) recently elaborate these cutoff values by positing that RMSEA values ranging from .08 to .10 imply mediocre fit and those greater than .10 imply poor fit.

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