SOCIAL INTERACTION AND COMMUNITY CRIME: EXAMINING THE IMPORTANCE OF NEIGHBOR NETWORKS

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The social disorganization perspective assumes that social interaction among neighbors is a central element in the control of community crime. Moreover, social interaction among neighbors that occurs frequently, such as every day, is assumed to be most effective. This analysis tests that assumption by exploring the consequences of frequent and infrequent interaction. I construct 10 alternative measures of social interaction and separately examine the effect of each on the rates of three serious crimes across 60 urban neighborhoods. Findings suggest that type of interaction matters. Getting together once a year or more with neighbors has the most consistent and generally strongest effect on burglary, motor vehicle theft, and robbery. Further this form of interaction mediates a significant proportion of the effect of ecological characteristics on community crime. Implications for community crime research are discussed.

Current social disorganization research is built on the notion that well-developed, local network structures reduce crime. This formulation is grounded in the systemic model of community organization, which views the local community "as a complex system of friendship and kinship networks and formal and informal associational ties rooted in family life and ongoing socialization processes" (Kasarda and Janowitz, 1974:329; see also Bursik, 1988; Bursik and Grasmick, 1993; Sampson and Groves, 1989). However, network structures have remained implicit in most of the research literature. In a common design, researchers link ecological characteristics of communities (e.g., socioeconomic status) to crime rates and argue that other social conditions (e.g., local network structures) mediate the relationship (see Bordua, 1958–59; Bursik, 1986a, 1986b; Bursik and

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Webb, 1982; Chilton, 1964; Heitgard and Bursik, 1987; Lander, 1954; McNulty, 1995; Polk, 1957-58; Shaw and McKay, 1931, 1942; Shaw et al., 1929; Smith and Jarjoura, 1988; Warner and Pierce, 1993). As several community crime scholars (Bursik, 1988; Kornhauser, 1978; Sampson and Groves, 1989) have noted, this type of design does little to extend the research conducted by Shaw and McKay (1942) half a century ago. Indeed, in the absence of mediating variables, the potential intervening role of disorganization in the ecology-crime relationship remains largely theoretical speculation.

Although the literature is not entirely supportive, a small but growing body of research suggests the importance of measuring local networks. Perhaps the first effort to measure networks directly was carried out by Maccoby et al. (1958) in a survey study of two low-income neighborhoods in Cambridge, Massachusetts. One neighborhood had a high and the other a low rate of delinquency. Maccoby et al.'s (1958) findings indicated that the high delinquency neighborhood was less integrated than the low-delinquency neighborhood. In the high-delinquency area, residents were less likely to know their neighbors by name, like their neighborhood, or share similar interests. However, in situations in which they were not the victim, there were only small differences (nonsignificant) in the extent to which residents took action if a child was observed committing a delinquent act.

In the next two decades, three additional studies including measures of social disorganization appeared. Warren (1969) examined riot activity in eight African-American school districts in Detroit. He found that neighborhoods where a larger proportion of the residents interacted on a weekly basis and where residents perceived consensus within the community experienced less riot activity and heightened counterriot activity. Kapsis (1976, 1978) examined three poor, predominantly African-American communities undergoing varying levels of racial change in the San Francisco-Oakland metropolitan area. He found that residents in the low-delinquency neighborhood had extensive contact with a local settlement house, which suggested the importance of local institutions for crime control. Further, they were more likely to know at least 50 neighbors by name, to have friends in the neighborhood, and to agree that most of the families knew each other than were residents in the medium- and high-delinquency neighborhoods. However, comparison of the medium- and high-delinquency neighborhoods indicated that the latter three factors were more common in the high-delinquency neighborhood.

In the past two decades, efforts to measure disorganization directly have continued. Greenberg et al. (1982) examined informal territorial control in three high-crime and three low-crime Atlanta neighborhoods. They concluded that there were no systematic differences between the low- and

high-crime neighborhoods in spatial identity, frequency and variety of neighboring, or informal control. Where differences occurred, neighboring and informal control were more common in the high-crime neighborhood. However, residents in two of the three low-crime neighborhoods belonged to a greater number of local organizations and attended meetings more frequently than residents in adjacent high-crime neighborhoods.

Simcha–Fagan and Schwartz (1986:684) measured community organization using general factors reflecting disorder/criminal subculture and organizational participation. The disorder/criminal subculture scale combined multiple items reflecting (low) community attachment, (low) network size and breadth, anomie, social disorder, conflict subculture, and illegal economy. The organizational-participation scale reflected average parental education and average organizational involvement. Findings indicated that the disorder/criminal subculture factor was positively associated with official and severe self-reported delinquency, and that organizational participation was inversely associated with self-reported delinquency across 12 New York City neighborhoods. Smith and Jarjoura (1988) found that community integration reduced the risk of household-level burglary, and Patterson (1991) found that it was inversely associated with burglary and violent crime. Both studies defined integration as the mean frequency of interaction within each neighborhood. Skogan (1990) reported that disorder, construed as a measure of disorganization, substantially mediated the effects of poverty, residential stability, and percent minority on robbery. Disorder was measured using an index that combined several physical and social disorder items.

Recent research by Sampson and Groves (1989) provided a convincing test of Shaw and McKay's social disorganization thesis. Using data from the British Crime Survey, they constructed community-level measures of social disorganization and linked them to victimization and offending rates in a series of multivariate equations. Further, the analysis utilized self-report and victimization data, thereby controlling for measurement error associated with citizen nonreporting and biases in police arrest procedures. Their findings indicated that the presence of teenage peer groups, greater rates of participation in local clubs and committees, and extensive friendship networks are associated with lower rates of crime. Thus, their results suggest that when the size of a community's network structure increases, informal social controls on behavior are likely to be strong and delinquency and crime relatively less likely.

Much of the research reviewed above is supportive of the systemic disorganization model. The network indicators most consistently associated with crime reflect the size of local family and friendship networks (Kapsis, 1976, 1978; Sampson and Groves, 1989; Simcha-Fagan and Schwartz, 1986), organizational participation (Greenberg et al., 1982; Kapsis, 1976,

1978; Sampson and Groves, 1989; Simcha-Fagan and Schwartz, 1986), disorder (Simcha-Fagan and Schwartz, 1986; Skogan, 1990), and the extent of local consensus and cohesion (Kapsis, 1978; Maccoby et al., 1958; Warren, 1969). It therefore seems logical to assume that social networks centered around family, close friendship ties, and community organizations are effective agents of social control. These, however, do not represent the only forms of interaction or potential control. Although studies that include neighboring measures are less consistent with the systemic model, neighbors getting together and socializing with one another may play an important role in establishing effective social controls. The supportive studies (Patterson, 1991; Smith and Jarjoura, 1988; Warren, 1969) each used a single-item indicator that reflected interaction (visiting) with neighbors. The nonsupportive study (Greenberg et al., 1982) used a multi-item index of neighboring that included visiting with neighbors and a host of additional items reflecting other dimensions of neighboring, such as helping with repairs around the house, sharing meals, and borrowing or exchanging tools. Therefore, the effect of visiting with neighbors on crime in the latter study may have been masked by the inclusion of other neighboring items that are potentially less important for crime control.

Measurement of neighboring or social interaction in community crime research is limited in other respects as well. All of the studies (Greenberg et al., 1982; Patterson, 1991; Smith and Jarjoura, 1988; Warren, 1969) used measures that are weighted or scaled toward interaction that takes place most frequently. This methodology reflects a long standing assumption of the disorganization perspective that frequent forms of interaction are most important. Yet, residents who maintain social ties with neighbors may be willing to engage in guardianship and supervision of public space within a neighborhood even if they do not have frequent contact with neighbors or really consider them to be close friends. Occasional interaction may increase the ability of neighborhood residents to engage in informal surveillance of public places, to develop movement-governing rules such as avoiding high-risk areas, and to engage in direct intervention by questioning residents and strangers about any unusual activity and admonishing children for unacceptable behavior (Bursik, 1988; Greenberg et al., 1985). The assumption that frequent interaction is most important or solely responsible for generating community control may be invalid in contemporary urban settings.

Several additional limitations constrain understanding of the relationship between local networks and crime. First, approximately half of the studies (Greenberg et al., 1982; Kapsis, 1976, 1978; Maccoby et al., 1958; Simcha–Fagan and Schwartz, 1986; Warren, 1969) are limited by reliance on small samples. It is difficult to generalize confidently from these findings because sampling error is potentially substantial. Second, only two

studies (Sampson and Groves, 1989; Skogan, 1990) employ analytic designs that treat disorganization indicators as intervening variables, and no study examines the intervening role of social interaction among neighbors in the ecology-crime relationship. Third, the most convincing recent test of the systemic social disorganization model (Sampson and Groves, 1989) is based on data collected in Great Britain. Thus, Shaw and McKay's (1942) social disorganization thesis has yet to be fully tested in urban areas of the United States. Finally, and most important, no study empirically evaluates the assumption that frequent interaction is more important than infrequent interaction for creating community controls and ultimately reducing crime. This research fills these important gaps by examining the effect of *frequency* of interaction among neighbors on crime across U.S. neighborhoods.

SOCIAL INTERACTION AMONG NEIGHBORS

The hypothesis that interaction among neighbors promotes development of informal control is consistent with current perspectives on community. Freudenburg (1986), for instance, points to the importance and consequences of neighboring for the development of informal social controls. He notes that, "People who know one another often work out interpersonal agreements for achieving desired goals. . . . They are made possible by the fact that the people involved are personally acquainted. . . . Persons who remain strangers will be systematically less likely to be willing or able to participate in such mutual agreements" (p. 31). Thus, Fruedenburg's work draws a direct link between social interaction among neighborhood residents, local networks, and informal social controls.

An unexplored issue with neighbor networks, however, is whether or not *frequency of interaction* among neighbors affects community social controls and cohesion. The social disorganization perspective traditionally assumes that social interaction among neighbors that occurs frequently, such as every day, is most effective. However, infrequent social interaction among residents may be as important as frequent interaction in building the network structure of a community for two reasons. First, infrequent interaction may signal the existence of a broader web of affiliations among neighborhood residents if a significant proportion of interaction takes place relatively infrequently. In terms of the supervisory capacity of local networks, it may matter very little whether neighbors are close friends as long as they interact with one another occasionally. Thus, the *size* of local networks may be inaccurately assessed by a narrow focus on frequent interaction.

To the extent that frequent (e.g., daily) interaction among neighbors

reflects the existence of intimate or strong ties, recent urban research suggests that frequent interaction may not be the norm among a majority of urban dwellers. Wellman (1979:1209), for instance, surveyed respondents in the Toronto borough of East York and reported that while 98% had at least one intimate social tie, only 13% of the individuals named as intimates resided in the same East York neighborhood (p. 1212). Similarly, in a study of 50 northern California communities, Fischer (1982:95) reports that neighbors comprise only a small proportion (18% on average) of respondents' nonkin social networks across four levels of urbanism. Based on Wellman's (1979) and Fischer's (1982) data, there is little evidence that intimate ties among neighborhood residents are the norm.

It would appear, then, that conceptualizing neighbor networks solely in terms of frequent social interaction may provide an incomplete or erroneous picture of the supervisory capacity of local social networks. This is not to suggest that frequent interaction is less important or less effective than infrequent interaction in generating controls. Informal controls on the behavior of individuals involved in networks based on frequent interaction are likely to be strong and vibrant where they exist. Yet, informal controls on the behavior of neighborhood residents outside the span of these ties may not be well developed. If residents who engage in frequent interaction are not a majority of the overall neighborhood population, frequent interaction, considered alone, may not accurately reflect the constraints imposed by community-wide networks. Given the findings of the urban research reviewed above, there is no reason to assume that frequent interaction is more important than infrequent interaction. Infrequent interaction among neighbors may be casual or sporadic. However, it may also be relatively common and thus potentially as important for the development of informal control as frequent interaction.

Second, Granovetter (1973) argues that "weak ties" are crucial for community organization because they provide communication linkages across local cliques. The term *weak ties* is intended to characterize relations that are less time consuming, less emotionally intense, and that involve fewer reciprocal exchanges. Infrequent social interaction among neighbors may reflect the existence of weak ties in a community. In the absence of weak ties, communities with abundant friendship ties may remain partitioned and perhaps disorganized. Unfortunately, systemic community research has not carefully considered the importance of Granovetter's (1973) insights. Thus, for both reasons described above, it is plausible to hypothesize that frequent *and* infrequent ties among residents are important features of local networks. However, an important issue is whether extremely sporadic social interaction makes a positive contribution to the development or maintenance of local networks. For instance, can interaction that takes place among neighbors as infrequently as less than once a

year be characterized as a viable network tie? It is not clear that it can. Extremely infrequent interaction among neighbors may signal the absence of neighbor ties in a community. Alternatively, does interaction that takes place as frequently as every day signal the existence of a viable and visible network structure? The analysis presented below addresses these questions.

In sum, current social disorganization research asserts that community organization is reflected in local social networks. Drawing from the systemic model (Kasarda and Janowitz, 1974), the community is seen as an interwoven system of family, friendship, and formal and informal associational ties, which can be conceptualized as social networks. Communities with extensive networks are assumed to be more integrated and cohesive, and the residents more likely to engage in informal surveillance, to develop movement-governing rules, and to intervene in disturbances. The framework assumes that residents of communities with large, interconnected, and active social networks have a greater capacity to supervise social activity within the neighborhood and to socialize children and other residents toward conventional values. Moreover, the social disorganization perspective traditionally assumes that social interaction among neighbors that occurs frequently, such as every day, is most effective. This study challenges that assumption.

The analysis extends the literature in the following ways. First, to test the hypotheses developed above, I examine the effects on crime of 10 alternative measures of social interaction among neighbors. The measures vary in their inclusion of infrequent forms of interaction that have been overlooked in prior research. If frequent and infrequent interaction are both important for community control, combining them should produce a stronger negative effect on crime. Second, after demonstrating the salience of combining frequent and infrequent interaction, I examine the hypothesis that social interaction among neighbors mediates the relationship between ecological characteristics and community crime. As I noted above, such mediating relations are crucial to testing disorganization theory.

DATA AND METHODS

The data used were gathered as part of a victimization survey in the Police Services Study. This study examined citizen attitudes and satisfaction with the delivery of local police services in 60 urban neighborhoods in 1977. The neighborhoods were selected from the Rochester (New York), St. Petersburg/Tampa (Florida), and St. Louis (Missouri), Standard Metropolitan Statistical Areas (SMSAs). As such, the data are reasonably representative of neighborhoods in medium-sized U.S. cities. Eleven

neighborhoods were selected from Rochester, 24 from Tampa/St. Petersburg, and 25 from St. Louis. The unequal selection of neighborhoods across SMSAs is controlled by using dummy variables in all of the analyses. I include two dummy variables in each equation. The first, South, is coded 1 for neighborhoods in the Tampa/St. Petersburg SMSA and 0 for all others. The second, Midwest, is coded 1 for neighborhoods located in the St. Louis SMSA and 0 for all others. Thus, neighborhoods in the Rochester SMSA are the reference category. The original sampling units were households identified and randomly selected from listings in the telephone directory. The interviewers asked respondents a series of questions about the victimization experiences of each household member that occurred within the neighborhood. In total, 12,019 households were sampled. The average number of households sampled per neighborhood was approximately 200.

The units of analysis are neighborhoods. Measures for each neighborhood characteristic are constructed by aggregating the responses to relevant questions for all sampled households in each neighborhood. In the Police Services Study, neighborhoods are defined to correspond with police beats. Although imperfect, police beats provide a reasonable approximation to the concept of *neighborhood*. In particular, they overlap with the provision of police services in the community, and residents of these neighborhoods share the common experience of being serviced by an important urban agency. The average population of the police beats is about 9,500, and the average land area is about 2 square miles.

CRIME RATE VARIABLES

Based on availability, three index crimes are analyzed in this study: burglary, motor vehicle theft, and robbery. Data from the victimization survey are utilized to construct the measures. An advantage of victimization data is that potential biases of police activity are bypassed by directly contacting neighborhood residents themselves. However, this approach is limited by problems inherent in all social surveys such as lying, telescoping, and social desirability bias. Fortunately, research reported by Gove et al., (1985) shows that estimates of these specific crime rates based on victim and Uniform Crime Report data correlate substantially across 26 cities. Given these findings, it appears that victimization data for burglary, motor vehicle theft, and robbery are reasonably valid. Burglary is measured as a victimization rate per 1,000 households: motor vehicle theft and robbery reflect rates per 1,000 population.

Variable descriptions and descriptive statistics for crime rates, ecological characteristics, and social interaction measures are presented in Table 1. They indicate that crime varies considerably across the neighborhoods. Examination of skewness and kurtosis coefficients (not shown) suggests

that all of the variables are approximately normally distributed. Of the crime rate variables, motor vehicle theft and robbery appear to have the largest kurtotic departures from normality and to be the most skewed. Yet, the departures from normality are relatively modest, and the most often used transformations (e.g., natural or base 10 logarithms) do not improve normality in the distribution of these variables. As a result, I analyze crime rates in their original metrics.

To examine the robustness of findings, all of the analyses reported below were replicated in two ways. First I logged (lg10) motor vehicle theft and robbery rates and reestimated the models. The pattern of findings is virtually identical to those reported below. Second, I combined motor vehicle theft and burglary rates into a property crime index, and motor vehicle theft, burglary, and robbery rates into a total crime index and reestimated the models. Again, the pattern of findings is virtually identical.

EXOGENOUS VARIABLES

Community crime research motivated by social disorganization theory typically begins with four exogenous variables thought to affect community organization: community socioeconomic status (SES), racial and ethnic heterogeneity, residential stability, and family disruption (Miethe and Meier, 1994; Sampson and Groves, 1989). Thus, each exogenous variable is hypothesized to affect crime through its effect on the network structure of a community.

From a systemic perspective, neighborhood SES is likely to be important for the development of local networks because it reflects the aggregate life-style of a locality. Research examining the role of community SES in the development of local friendship networks is conflicting. Some research suggests that social class is inversely related to community friendship networks (Sampson, 1991), while other studies suggest that SES is unrelated (Sampson, 1988; Sampson and Groves, 1989). Community socioeconomic status is measured as the percentage of neighborhood residents whose household income is below $5,000 per year (which is the lowest income category in the response set for the family income question), the percentage of college-educated residents, and the median family income—all combined into a factor scale (principal components) with each variable weighted by its factor loading. High positive scores on this factor reflect higher SES.

The second ecological characteristic, racial and ethnic heterogeneity, is thought to disrupt local networks because racial and ethnic groups often embrace different traditions, ways of life, and stereotypes about out-group

Table 1. Variable Names, Variable Descriptions, and Descriptive Statistics for 60 Urban Neighborhoods

Variables	Variable Descriptions	Mean	S.D.
Exogenous Variables			
Socioeconomic Status	Principal components factor scale combining % earning below $5,000 ($\bar{X}$ = 19.98, s.d. = 14.5), % college educated ($\bar{X}$ = 35.81, s.d. = 17.1), and median family income ($\bar{X}$ = 11650.5, s.d. = 4717.68). Cronbach's alpha = .94.	0.00	1.00
Heterogeneity	One minus the sum of the squared proportion of neighborhood residents in each racial/ ethnic group.	.19	.18
Residential Stability	Mean number of years respondents have resided in the neighborhood.	12.13	3.82
% Single Parents	% of households with one adult and children between ages 12 and 20.	4.94	2.93
Youth	Percentage of residents aged 15-24.	18.69	3.54
South	Dummy variable coded 1 if neighborhood is located in Tampa/St. Petersburg SMSA; 0 otherwise.	.40	.49
Midwest	Dummy variable coded 1 if neighborhood is located in St. Louis SMSA; 0 otherwise.	.42	.50
Crime Rate			
Burglary	Burglary victimization rate per 1,000 households.	104.03	55.59
Motor Vehicle Theft	Motor vehicle theft victimization rate per 1,000 population.	4.65	5.32
Robbery	Robbery victimization rate per 1,000 population.	4.06	5.29
Interaction Measures			
Simple Percentages	% that get together every day.	15.26	4.86
	% that get together once a week.	20.54	4.57
	% that get together several times a month.	10.93	3.21
	% that get together once a month.	11.01	3.86
	% that get together once a year.	4.71	2.48
Cumulative Percentages	% that get together once a week or more.	35.80	6.73
	% that get together several times a month or more.	46.73	7.30
	% that get together once a month or more.	57.74	7.71
	% that get together once a year or more.	62.45	7.80
Other Alternatives	Mean level of social interaction.	3.14	.30

members. Within a social context characterized by heterogeneity, communication among residents is thought to be tenuous and the ability of residents to recognize and solve common problems impeded (Kornhauser,

1978). Prior research, however, indicates that racial and ethnic heterogeneity is unrelated to local friendship networks (Sampson and Groves, 1989). Respondent's racial/ethnic status was recorded in one of five categories: white, black, Latino, Native American, and other. Racial and ethnic heterogeneity is measured as the quantity one minus the sum of the squared proportion of residents in each racial or ethnic group (Blau, 1977:78). The heterogeneity index is high when the population is evenly distributed across racial and ethnic groups and low when a neighborhood is completely homogeneous.

The systemic model posits that residential stability is the key variable for development of networks because a community is "an ongoing system of social networks into which new generations and new residents are assimilated" (Kasarda and Janowitz, 1974:330). This hypothesis is strongly supported in the literature (Sampson, 1988, 1991). Residential stability is measured as the mean number of years that respondents have resided in their neighborhoods.

Recent work by Sampson (1986, 1987; Sampson and Groves, 1989 has extended Shaw and McKay's (1942) original list of ecological sources of disorganization to include family structure. Sampson argues, following the logic of a control model, that various family structures, such as divorced or single-parent families, attenuate informal social controls within a community. His premise is that parents or adults regulate the behavior of other neighborhood youth in addition to that of their own. As a result, communities with higher levels of divorced or single-parent families are less able to exert collective supervision over neighborhood youth. Prior research using these data (Smith and Jarjoura, 1988) indicates that the percentage of single-parent families with adolescents between ages 12 and 20 is related to several crime rates in multivariate models, whereas the percentage of single-parent families with children under age 20 is not. My research confirms this finding. Thus, to be conservative, I use the percentage of single-parent households with adolescents between ages 12 and 20 in further analyses. In addition, I include the percentage of neighborhood residents between the ages of 15 and 24 as a control for community age structure in the analysis (see Hirschi and Gottfredson, 1983) because offending for many index crimes peaks in the late teenaged years.

SOCIAL INTERACTION VARIABLES

Ten measures of social interaction among neighbors are constructed from a question that asks respondents how often they, or members of their household, get together with their neighbors either in their neighbor's or their own home. Possible responses to the survey item are daily, several times a week, several times a month, once a month, once a year, and very

infrequently. The first five measures are simple percentages: the percentage of residents who get together with their neighbors every day, the percentage of residents who get together with their neighbors once a week, the percentage of residents who get together with their neighbors several times a month, the percentage of residents who get together with their neighbors once a month, and the percentage of residents who get together with their neighbors once a year. I do not construct a measure that reflects the percentage of neighborhood residents who get together very infrequently because it is empirically redundant. In the regression analysis presented below, the measure yields effects on crime rates that are identical in magnitude but opposite in direction to the cumulative percentage measure that reflects the percentage of neighborhood residents who get together with their neighbors once a year or more.

The next four measures are cumulative percentages: the percentage of residents who get together with their neighbors once a week or more, the percentage of residents who get together with their neighbors several times a month or more, the percentage of residents who get together with their neighbors once a month or more, and the percentage of residents who get together with their neighbors once a year or more. Note that each cumulative percentage measure progressively includes less frequent interaction. The final measure examined reflects the mean level of social interaction among neighbors within each neighborhood. In the Police Services data, the response set to the question "How often do you or members of your household get together with neighbors either in the neighbor's or your own home?" is coded as follows: 1 = daily, 2 = several times a week, 3 = several times a month, 4 = once a month, 5 = once a year, and 6 = very infrequently. In constructing the mean level of the interaction variable, I reverse coded the responses to the social interaction questionnaire item before aggregating the data. Thus, a higher score on the mean-level variable indicates that social interaction takes place more frequently, on average, in that community.

Descriptive statistics for the interaction measures are located in Table 1, and a correlation matrix is included as an appendix. They indicate that 15% of the residents in the typical neighborhood get together with neighbors every day, 21% get together several times per week, 11% get together several times a month, 11% get together once a month, and 5% get together once a year. The remaining 38% of the residents in the average neighborhood report that they get together with neighbors very infrequently (less than once a year).

Setting very infrequent interaction with neighbors aside, the descriptive statistics indicate that a greater percentage of respondents get together frequently in the average neighborhood than get together infrequently—36%, combining residents who get together daily and once a week, versus

27%, combining respondents who get together several times per month (but less than once a week), once a month, or once a year. However, the 36% who do get together relatively frequently in this crude category do not constitute a majority of the neighborhood population. Thus, a social interaction measure that includes only these residents would not take into consideration the behavior of approximately 27% of the respondents in the typical neighborhood who get together less frequently.

This is a potentially important omission because these residents still interact with their neighbors. While these residents may get together with their neighbors only once a month or once a year, infrequent interactions may create relationships that are crucial for the diffusion of information among residents and thus for the development of community-wide controls. The cumulative percentage measures address this shortcoming by successively including less frequent interaction. Thus, the mean for the percentage of neighborhood residents who get together with their neighbors once a month or more is 58%, and the mean for the percentage who get together once a year or more is 62%. Both measures reflect the behavior of a majority of neighborhood residents, on average. The analysis presented below highlights the importance of including these infrequent interactions in the measurement of social interaction.

ANALYSIS OF SOCIAL INTERACTION AND CRIME

The effects of alternative social interaction measures are shown in Table 2. Presented are the unstandardized (*b*) and standardized (beta) coefficients from equations in which burglary, motor vehicle theft, and robbery rates are regressed on each alternative social interaction measure with the effects of SES, heterogeneity, residential stability, percent single parents, South, and Midwest controlled. I also present the adjusted R^2 from these equations to assist in the assessment of model fit. In presenting the results of regression analysis, I consider the potential effects of multicollinearity. The variance inflation factors do not exceed four in any equation presented here, which indicates that multicollinearity does not exceed typical levels of concern. I also examined the data for influential observations. Such analysis revealed no observations with a Cook's *D* value substantially larger than others, and all values were well below one.

Traditionally the social disorganization perspective assumes that social interaction among residents that takes place frequently, such as every day, is most effective for establishing informal community controls. Based on this traditional reasoning, one may expect the percentage of neighborhood residents who get together every day to have the strongest effect on crime. The results from crime rate equations that include simple percentages are shown in panel A of Table 2. Taken as a whole, there appears to be no

Table 2. OLS Regression of Burglary, Motor Vehicle Theft, and Robbery Rates on Alternative Social Interaction Measures (60 Neighborhoods)

Social Interaction Measures	Burglary			Motor Vehicle Theft			Robbery		
	b	*Beta*	*Adj. R^2*	*b*	*Beta*	*Adj. R^2*	*b*	*Beta*	*Adj. R^2*
Panel A: Simple Percentages									
% That Get Together Every Day	1.15	.10	.579	−.15	−.13	.494	−.26	−.24	.519
% That Get Together Once a Week	−4.44*	−.36	.662	−.11	−.09	.489	−.24	−.20	.514
% That Get Together Several Times a Month	.39	.02	.574	.08	.05	.485	.19	.12	.496
% That Get Together Once a Month	−1.67	−.12	.580	−.45*	−.32	.537	−.22	−.16	.499
% That Get Together Once a Year	.80	.04	.574	−.28	−.13	.493	.07	.03	.487
Panel B: Cumulative Percentages									
% That Get Together Once a Week or More	−1.68	−.20	.598	−.13	−.16	.499	−.24*	−.32	.547
% That Get Together Several Times a Month or More	−1.64	−.21	.596	−.11	−.15	.495	−.20*	−.28	.526
% That Get Together Once a Month or More	−2.04*	−.28	.610	−.23*	−.33	.535	−.26*	−.38	.552
% That Get Together Once a Year or More	−2.21*	−.31	.611	−.30*	−.44	.561	−.29*	−.42	.556
Panel C: Other Alternatives									
Mean Level of Social Interaction (High Values Indicate More Frequent Interaction)	−43.59	−.23	.602	−4.19	−.23	.514	−7.24*	−.41	.577

NOTE: The coefficients (*b* and beta) reflect the effect of each alternative social interaction measure on burglary, motor vehicle theft, and robbery when the effects of SES, heterogeneity, residential stability, % single parents, youth, South, and Midwest are controlled. Only one measure of social interaction is included in crime rate equations at a time.

*$p < .05$, two-tailed test.

consistent pattern. The percentage of residents who get together every day has no effect on burglary, motor vehicle theft, or robbery. The percentage of neighborhood residents who get together once a week is inversely related to burglary, which suggests that relatively less frequent interaction has a stronger deterrent effect on crime. However, the results based on inclusion of the remaining simple percentage measures in the crime rate equations show no effects, with the exception of the percentage of residents who get together once a month on motor vehicle theft. In sum, measurement of social interaction using simple percentages yields no clear pattern of effects on crime rates.

Results from crime rate equations that include cumulative percentage measures of social interaction are shown in panel B. The community literature suggests that intimate ties among urban dwellers are less common. The descriptive statistics presented above suggest that less than a majority of the respondents in the average neighborhood interact with their neighbors on a frequent basis. Thus, I hypothesize that, excluding very infrequent interaction, social interaction measures that reflect both frequent and infrequent social interaction will have the strongest effect on crime. The pattern of findings suggests that inclusion of progressively less frequent interaction in the social interaction measure generally yield stronger inverse effects on all three measures of crime. In the burglary rate equation, inclusion of less frequent interaction produces unstandardized, standardized, and adjusted R^2 coefficients that are successively larger in magnitude, with one exception. With few exceptions, the pattern is repeated in the motor vehicle theft and robbery equations. Although increases in the magnitude of coefficients are small when progressively weaker ties are included in the social interaction measure, the pattern is very consistent. Further, the cumulative interaction measures are not significant in the burglary and motor vehicle theft equations until the percentage who get together once a month or once a year are included in the measure. Including progressively less frequent interactions in the social interaction measures produces a consistently inverse effect on each of the three crime rate measures and generally explains the most variance.

In panel C the effect of the mean level of social interaction among residents is examined. From the traditional assumptions of social disorganization theory, one may hypothesize that higher mean levels of social interaction among neighbors would produce a stronger negative effect on crime rates than the cumulative frequencies because frequent interaction is assumed to be more effective in creating community controls on behavior. The results indicate that the mean level of social interaction has consistently negative effects on robbery only, and its inclusion explains more variance in robbery than the percentage of residents who get together once a year or more.

Another approach to adjudicating among the simple percentage, cumulative percentage, and mean-level social interaction measures is to include them all in the same crime rate equation and examine which has the strongest effect. Unfortunately, including more than one social interaction measure along with the exogenous variables in crime rate equations produces high multicollinearity. The variance inflation factors for the social interaction variables in these equations are well above four. However, when the exogenous variables are excluded from the equations and only two social interaction variables are examined at one time, multicollinearity is reduced below typical levels of concern, with one exception. As would be expected, the percentage of residents who get together with neighbors once a month or more is highly correlated with the percentage of residents who get together with neighbors once a year or more (r = .949). Thus, including both measures in the same equation yields extremely high collinearity (VIF = 10.07). Because the results from Table 2 indicate that the percentage of respondents who get together with their neighbors once a year or more has the most consistent and generally the strongest relationship with each crime rate, I include it in each equation. Selection of the second variable to include in the equations is based on findings from Table 2. Specifically, I include in successive equations the alternative measures that had significant effects on crime.

The findings are presented in Table 3. Consider first the burglary rate equation. The percentage of neighborhood residents who get together once a year or more (cumulative percentage) has a strong negative effect, and the effect of the percentage of residents who get together once a week (simple percentage) on burglary is nonsignificant. I repeat the same procedures for motor vehicle theft and robbery. The results parallel those for burglary. The percentage of neighborhood residents who get together once a year or more has strong inverse effects on motor vehicle theft and robbery, and the alternative measures of social interaction are not significant. Taken with the results in Table 2, the findings in Table 3 suggest that the percentage of neighborhood residents who get together once a year or more is the most powerful predictor of local crime rates of the social interaction measures.

I also test whether the coefficients reflecting the effect of each cumulative interaction measure are statistically different from the others. Because the social interaction measures are cumulative percentages, the standard assumption of independently sampled groups required for the use of t tests is violated. For instance, the percentage of residents who get together once a year or more includes entirely the variance of the preceding measure in Table 2, panel B. As such, they share a common variance component. Thus, the cumulative percentage measures are not independently sampled groups. I employ a strategy carried out in a LISREL

Table 3. OLS Regression of Burglary, Motor Vehicle Theft, and Robbery on Two Alternative Social Interaction Measures (60 neighborhoods)

	Burglary		Motor Vehicle Theft			
Panel A: Variables	*b*	*Beta*	*b*	*Beta*		
% That Get Together Once a Week	-.58	-.05				
% That Get Together Once a Month			.02	.02		
% That Get Together Once a Year or More	-4.31*	-.60	-.41*	-.61		
Adjusted R^2	.39		.34			
			Robbery			
Panel B: Variables	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*
% That Get Together Once a Week or More	.03	.04				
% That Get Together Several Times a Month or More			.02	.02		
Mean Level of Social Interaction					-3.55	-.20
% That Get Together Once a Year or More	-.46*	-.68	-.46*	-.67	-.33*	-.49
Adjusted R^2	.41		.41		.42	

NOTE: The equations presented here do not control for SES, heterogeneity, residential stability, % single parents, youth, South, or Midwest.

*$p < .05$, two-tailed test.

(maximum likelihood) framework. I specify an equation for, say, burglary rates that includes all the independent variables (SES, heterogeneity, residential stability, percent single parents, youth, South, and Midwest), the percentage of neighborhood residents who get together with their neighbors once a month or more (cumulative percentage), and the percentage of residents who get together with their neighbors once a year (simple percentage). In this strategy the simple percentage measure and the cumulative percentage measure are independent groups. In this equation, I constrain the parameters for the cumulative and simple percentage interaction measures to be equal. The test for whether these parameters are different is assessed by the statistical significance of chi-square for the equation. Each such equation tested has one degree of freedom; thus a chi-square value of 3.841 is necessary to reject the null hypothesis that the parameters are equal at the .05 level. If the null hypothesis is rejected, it is inferred that the coefficient for the percentage of neighborhood residents who get together once a month or more is different from the percentage of residents who get together once a year or more. For the burglary and robbery rate equations, there are no significant differences in the coefficients for the cumulative percentage measures reported in panel B of Table 2. For motor vehicle theft, the coefficient for the percentage of residents who get together once a month or more is significantly different from the coefficient for the percentage of residents who get together several times a month or more (chi-square = 3.89; p = .049).

INTERACTION AS A MEDIATING INFLUENCE BETWEEN COMMUNITY AND CRIME

This section evaluates the extent to which social interaction among neighbors mediates the effects of ecological characteristics on crime rates. Based on the results to this point, I use the percentage of residents who get together once a year or more as the principal measure of social interaction. Support for the mediation hypothesis is indicated if SES, heterogeneity, residential stability, and percent single parents are significant predictors of social interaction, and if their direct effects on burglary, motor vehicle theft, and robbery are reduced when social interaction is introduced into the equations. Further, social interaction must have a significant inverse effect on crime rates. These results are presented in Table 4.

The findings from the social interaction equation indicate that SES and heterogeneity are strong predictors. These relationships are important because they suggest an explanation for the link between affluent and homogeneous communities and the lower crime rates evident in such urban places. The systemic theory of community organization argues that

Table 4. OLS Regression of Burglary, Motor Vehicle Theft, and Robbery on Ecological Characteristics and Social Interaction (60 Neighborhoods)

	Social Interaction (1)		Burglary (2)		Burglary (3)		Motor Vehicle Theft (4)		Motor Vehicle Theft (5)		Robbery (6)		Robbery (7)	
Variables	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*	*b*	*Beta*
SES	4.14*	.53	-6.94	-.12	2.24	.04	-2.17*	-.41	-.92	-.17	-2.55*	-.48	-1.37	-.26
Heterogeneity	-17.19*	-.39	96.73*	.31	58.64	.19	-2.31	-.08	-7.50*	-.25	.42	.01	-4.49	-.15
Residential Stability	.38	.19	-2.20	-.15	-1.36	-.09	-.57*	-.41	-.45*	-.32	-.37*	-.27	-.27	-.19
% Single Parents	.22	.08	4.69	.25	5.17*	.27	.19	.10	.26	.14	.39	.21	.45	.25
Youth	-.37	-.17	6.43*	.41	5.60*	.36	.38	.25	.27	.18	.12	.08	.02	.01
Social Interaction					-2.21*	-.31			-.30*	-.44			-.29*	-.42
South	.38	.02	-21.30	-.19	-20.46	-.18	-4.18*	-.39	-4.07*	-.38	-4.79*	-.45	-4.68*	-.44
Midwest	-4.12*	-.26	-14.46	-.13	-23.60	-.21	1.33	.12	.09	.01	-.16	-.02	-1.34	-.13
Adjusted R^2	.614		.582		.611		.493		.561		.496		.556	

NOTE: Social Interaction reflects the percentage of community residents who get together once a year or more.
*p < .05, two-tailed test.

ecological characteristics reflect different life-style or focal concerns among neighborhood residents (Kasarda and Janowitz, 1974; Sampson, 1988, 1991). Residents of communities with greater social and economic resources may be more likely to interact with their neighbors because attractive recreational facilities and community activities are more likely to be built and sponsored there. Further, higher status communities are more likely to be populated by residents with daytime work routines, which increases the proportion with leisure hours in common. Both factors may increase the likelihood of developing informal ties with neighbors. Racial heterogeneity has a moderately strong negative effect on social interaction, indicating that social interaction among neighbors is impeded by racial diversity. Surprisingly, the effect of residential stability is nonsignificant. An alternative measure of residential stability, calculated as the percentage of residents who have lived in the neighborhood for five or more years, also has no effect.

I turn now to the crime rate equations. Two equations are estimated for each crime rate. In the first equation the crime rate is regressed on the exogenous variables only, and in the second, social interaction is included. Consider the burglary rate equations. Support for the mediation hypothesis is indicated by the reduction in the effect of heterogeneity on burglary from Equation 2 (96.73) to Equation 3(58.64), where the effect of heterogeneity is no longer significant. Social interaction mediates about 39% of this effect. With respect to motor vehicle theft (Equations 4 and 5), the effect of SES decreases and is not significant when social interaction is controlled. Approximately 58% of the effect of SES on motor vehicle theft is mediated by interaction. The effect of residential stability is also reduced (21%). Finally, 46% of the effect of SES and 27% of the effect of residential stability on robbery are transmitted through social interaction (Equations 6 and 7). Again, the effect of SES is not significant when interaction is controlled. In sum, social interaction mediates a portion of the effects of SES, heterogeneity, and residential stability on at least one of the crime rates, thus supporting social disorganization theory.

DISCUSSION

The relationship between community organization and crime has been of interest to sociologists at least since Shaw and McKay's study of neighborhood crime in Chicago. Over the past 20 years, social disorganization theory has been substantially clarified. Drawing on the systemic model, community disorganization is now more clearly conceptualized in social network terms. Systemic social disorganization research is based on the notion that well-developed local network structures reduce crime by increasing informal control. A small number of studies have examined the

relationship between neighboring and community crime, but they are generally based on small samples. Sampson and Groves's (1989) literature-defining study uses a large sample of British communities and links local friendship networks to crime, but the generalizability of the systemic social disorganization thesis to urban communities in the United States has not been demonstrated. Further, Sampson and Groves's (1989) study does not examine the effects of social interaction among neighbors on crime rates.

The social disorganization perspective traditionally assumes that frequent interaction among neighbors is the most effective mechanism for generating community controls. Drawing from recent research in the community literature (Fischer, 1982; Wellman, 1979), this study questions that assumption. The research presented examined the effect on crime rates of 10 alternative measures of social interaction, ranging from simple and cumulative percentage measures to the mean level of social interaction within a community.

The data indicate that a cumulative percentage measure that combines frequent and infrequent interaction has the most consistent and generally the strongest effect on burglary, motor vehicle theft, and robbery. Alternative social interaction measures in some cases were related to the burglary, motor vehicle theft, and robbery rates, but the data indicate that their effects are generally smaller in comparison to the effect of the percentage of residents who get together once a year or more. In further analysis, I place two measures of social interaction into a series of crime rate equations to assess which measure has the strongest effect. This analysis indicates that the percentage of residents who get together once a year or more has the strongest effect on each crime rate.

The data, therefore, suggest that both frequent and infrequent social interaction among neighbors is important for establishing community controls. Why are community controls strengthened even if a considerable proportion of the interaction among neighborhood residents occurs infrequently? Neighbors may be willing to engage in supervision and guardianship regardless of whether they consider themselves to be close friends with their neighbors. As noted by Freudenburg (1986), people who know each other are more likely to work together to solve common problems. Residents of communities where a large proportion of residents know and interact with neighbors appear to be more likely to engage in surveillance, develop movement-governing rules, and intervene in local disturbances regardless of how frequently they interact (excluding extremely infrequent interaction). The findings suggest that the *size* of neighbor networks may be inaccurately assessed by an exclusive focus on frequent interaction.

Further, Granovetter (1973) suggests that weak ties strengthen community organization by creating important linkages across networks. Infrequent interaction among neighbors may signal the existence of weak ties.

Thus, frequent interaction supplemented by infrequent interaction may signify a more loosely connected network structure. Both processes may increase the ability of neighborhood residents to engage in social control.

The data also provide support for the mediation hypothesis. Social interaction among neighbors that occurs once a year or more is more common in relatively affluent and homogeneous communities, and it transmits a moderate proportion of the effects of these variables on at least one of the crime rates. Thus, the analysis suggests an explanation for the link between affluent and homogeneous communities and the lower crime rates in such urban places. The systemic theory of community organization argues that ecological characteristics reflect different life-style or focal concerns among neighborhood residents. The positive relationship between SES and interaction may occur because communities with greater social and economic resources are more likely to build and maintain recreational facilities and sponsor various community activities. In addition, residents of higher SES communities may be more likely to have work routines that increase the proportion of residents with leisure hours in common. The inverse relationship between heterogeneity and interaction suggests that racial diversity impedes the formation of networks. In homogeneous communities, residents are apparently more likely to perceive commonalities with neighbors, which increases the likelihood of interaction. These factors, and undoubtedly others such as racial animosity, increase or impede the potential for development of informal neighboring.

Much remains to be done in the study of the network-crime relationship. This analysis scratches only the surface of future possibilities. For instance, although I argue that infrequent interaction among neighbors in part approximates Granovetter's (1973) notion of weak ties, it is a weak measure of the strength of a social tie. A more appropriate measure might ascertain the number of different neighbors residents get together with and the frequency, intimacy, and extent of reciprocal exchange associated with each tie. Assessing the strength of network ties may also inform measurement of rates of participation in local institutions or ties between local residents and social, political, and economic institutions outside the community. The latter network characteristic may inform understanding of the capacity of neighborhood residents to acquire resources from external actors (see Bursik and Grasmick, 1993:37-38).

In sum, social disorganization research may benefit by continuing to probe carefully the dynamics of local network structures. Interaction among neighbors has rarely been studied in relation to crime. Indeed, the findings suggest that measurement of such networks may be extremely subtle. Moreover, this strategy holds promise for uncovering the basic social fabric of communities because infrequent interaction appears to be common in contemporary urban settings. Clearly, weak ties help stitch

neighborhoods together and these weak ties matter when it comes to explaining levels of neighborhood crime.

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Appendix. Correlation Matrix (60 Neighborhoods)

Variable		1	2	3	4	5	6	7	8	9	10
1.	SES	1.000									
2.	Heterogeneity	−.373	1.000								
3.	Residential Stability	−.448	.046	1.000							
4.	% Single Parents	−.576	.431	.130	1.000						
5.	Youth	−.277	.119	.161	.535	1.000					
6.	South	.023	−.116	−.351	−.110	−.434	1.000				
7.	Midwest	−.008	.150	.152	.169	.449	−.690	1.000			
8.	% That Get Together Every Day	−.462	.063	.240	.166	−.209	.350	−.495	1.000		
9.	% That Get Together Once a Week	.424	−.419	−.168	−.261	−.214	.224	−.415	.017	1.000	
10.	% That Get Together Several Times a Month	.419	−.325	−.429	−.417	−.268	.343	−.261	−.206	.143	1.000
11.	% That Get Together Once a Month	.630	−.407	−.063	−.427	−.090	−.194	.277	−.503	.206	.115
12.	% That Get Together Once a Year	.474	−.199	.070	−.228	−.020	−.417	.460	−.558	.003	−.114
13.	% That Get Together Once a Week or More	−.046	−.239	.059	−.058	−.296	.405	−.640	.734	.692	−.052
14.	% That Get Together Several Times a Month or More	.142	−.364	−.134	−.236	−.391	.523	−.704	.586	.700	.392
15.	% That Get Together Once a Month or More	.450	−.548	−.158	−.438	−.415	.399	−.528	.302	.766	.429
16.	% That Get Together Once a Year or More	.595	−.605	−.134	−.505	−.416	.261	−.376	.122	.758	.388
17.	Mean Level of Social Interaction	.271	−.473	−.147	−.324	−.405	.512	−.559	.509	.721	.311
18.	Burglary	−.430	.503	.063	.650	.612	−.290	.251	.044	−.506	−.316
19.	Motor Vehicle Theft	−.337	.196	−.018	.453	.572	−.453	.454	−.214	−.346	−.219
20.	Robbery	−.522	.334	.142	.553	.476	−.414	.332	−.091	−.450	−.279

Correlation Matrix (60 Neighborhoods) (con't)

Variable		11	12	13	14	15	16	17	18	19	20
1.	SES										
2.	Heterogeneity										
3.	Residential Stability										
4.	% Single Parents										
5.	Youth										
6.	South										
7.	Midwest										
8.	% That Get Together Every Day										
9.	% That Get Together Once a Week										
10.	% That Get Together Several Times a Month										
11.	% That Get Together Once a Month	1.000									
12.	% That Get Together Once a Year	.546	1.000								
13.	% That Get Together Once a Week or More	-.223	-.401	1.000							
14.	% That Get Together Several Times a Month or More	-.155	-.419	.898	1.000						
15.	% That Get Together Once a Month or More	.354	-.124	.739	.869	1.000					
16.	% That Get Together Once a Year or More	.523	.196	.603	.726	.949	1.000				
17.	Mean level of social interaction	.116	-.221	.857	.927	.935	.854	1.000			
18.	Burglary	-.386	-.159	-.312	-.427	-.597	-.641	-.536	1.000		
19.	Motor Vehicle Theft	-.300	-.077	-.389	-.455	-.581	-.598	-.530	.544	1.000	
20.	Robbery	-.379	-.106	-.371	-.465	-.630	-.656	-.614	.650	.706	1.000