THE EFFECTS OF NEIGHBORING, SOCIAL NETWORKS, AND COLLECTIVE EFFICACY ON CRIME VICTIMIZATION: AN ALTERNATIVE SYSTEMIC MODEL OF SOCIAL DISORGANIZATION

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The current study was designed to test a full systemic model of social disorganization and develop better indicators for intervening variables. Data come from the 2002-2003 Seattle Neighborhoods and Crime Survey (n = 2,200). Measures include six exogenous structural variables. Intervening variables are neighboring, social networks, and collective efficacy. Structural equation modeling was used to explore the direct and indirect effects of these measures on crime victimization. Results show neighboring had a direct positive effect and an indirect negative effect via collective efficacy on crime victimization. Two constructs for social networks emerged. Neighborhood networks showed a negative indirect effect on victimization via collective efficacy. Non-neighborhood networks showed a direct positive effect on victimization. Implications of the findings, as well as limitations and directions for future research, are discussed.

Keywords: social disorganization, neighboring, informal social control, victimization

The fundamental tenet of the systemic model of social disorganization is that macro-level structural processes impact neighborhood dynamics and the ability of residents to collectively regulate their neighborhoods and solve common problems (Bursik 1988; Kasarda and Janowitz 1974; Kornhauser 1978). Factors such as poverty, heterogeneity, and rapid population turnover are thought to reflect, at the neighborhood-level, larger processes of urbanization, industrialization, and social change (Shaw and McKay 1942). Specifically, these neighborhood factors are thought to undermine personal ties, voluntary associations, and local institutions, which in turn weaken the infrastructure necessary for socialization and social control (Kubrin and Weitzer 2003; Sampson and Groves 1989). Social control

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is considered an instinctive property that grows out of strong ties between community members, representing the community's ability to compel members to conform to social norms and prioritize communal interests. Neighborhoods less prone to developing patterns of self-regulation are considered socially disorganized.

While empirical testing of the systemic model of social disorganization has increased our understanding of the theory, important analytical issues remain unaddressed. First, social networks have been inconsistently conceptualized and measured. The variation in conceptualization and measurement for social networks may account for inconsistent findings in the literature. Second, there is a lack of research testing the full systemic model. Most studies explore relationships between specific concepts but do not include all of the relevant variables or fail to examine interaction effects.

This study was designed to test an alternative to the systemic model and potentially clarify the issues described above. To address conceptual confusion and measurement inconsistencies, we developed indicators for different latent concepts and analyze the relationships between all concepts to test for empirical distinctions. The latent concepts in our model include neighboring, social networks, and collective efficacy. Neighboring refers to supportive social acts and neighborhood attachment. While neighboring has been included as a constituent measure of larger concepts, predominantly social networks, in past research (Bellair and Browning, 2010; Browning, Feinberg, and Dietz 2004), this is the first study to explore neighboring as a distinct intervening variable. We expect that including neighboring as a separate intervening variable will improve measurement of social networks specifically, as well as social organization generally. Furthermore, we conduct a full test of this alternative systemic model using structural equation modeling.

LITERATURE

The systemic model has been the predominant framework for social disorganization theory and research over the past several decades. The systemic model emphasizes family, friendship, and neighbor networks of affiliation and their capacity for generating informal social control through the process of primary and secondary socialization (see Bursik and Grasmick 1993; Kasarda and Janowitz 1974). The thesis is that large and interconnected social networks increase the likelihood that residents take action for the mutual benefit of the neighborhood. Social networks are the mechanism through which residents get to know each other, establish common values, and carry out informal social control (Bellair 2000). The systemic model better specified the macro-micro mechanisms associated with enforcement of informal social control. Bursik and Grasmick (1993) integrated concepts of social order (Hunter 1985), social control (Kornahuser 1978), and self-regulation (Janowitz 1951) into the systematic model. Previous research has confirmed the systemic model provides a viable explanation for both criminal offending and crime victimization (Kurbin, Stucky, and Krohn 2009; Sampson, Raudenbush, and Earls 1997; Velez 2001).

Social Networks and Crime Victimization

Some studies find a direct relationship between social network indicators and lower crime victimization (Bellair 1997; Kaylen and Pridemore 2013; Sampson and Groves 1989; Simcha-Fagan and Schwartz 1986; Velez 2001; Veysey and Messner 1999). The social network indicators associated with lower crime victimization include size of local family and friendship networks (Kaylen and Pridemore 2013; Sampson and Groves 1989; Simcha-Fagan and Schwartz 1986) organizational participation (Sampson and Groves 1989; Simcha-Fagan and Schwartz 1986), and frequency of interactions among neighbors (Bellair 1997).

However, other findings suggest that dense social networks and relatively strong attachments increase crime and victimization (Browning et al. 2004; Burisk and Grasmick 1993; Patillo 1998). For example, Browning et al. (2004) found that neighboring is positively associated with violent victimization and reduces the regulatory impact of collective efficacy, which is a measure of informal social control. The social network measures that tend to be positively associated with crime victimization include items reflecting the prevalence of helping and sharing, whereas the frequency of interaction with neighbors yields a negative association (Bellair 1997; Warren 1969).

Depending on the context, some social networks may undermine neighborhood efforts to fight crime victimization, especially if the data do not distinguish between law-abiding residents and gang members or drug dealers (Pattillo 1998). Browning et al. (2004) proposed a coexistence model that posits the density of ties and frequency of exchange in neighborhoods can result in more extensive integration of residents who participate in crime into the existing community-based social networks (see also Pattillo-McCoy 1999; Portes, 1998). The resulting accumulation of social capital for offenders may limit the effectiveness of social control efforts directed toward them.

Informal Social Control and Crime Victimization

Compared to social networks, there is more consistent support for the relationship between informal social control and crime victimization. For example, Sampson and Groves (1989) found that that informal social control had direct independent effects on mugging/street crime victimization, stranger violence victimization, and total victimization. Informal social control also mediated the effects of socioeconomic status on all three types of victimization. Elliott et al. (1996) found that informal social control had a direct negative effect on adolescent problem behavior and mediated the effects of neighborhood disadvantage on adolescent problem behavior. Bellair (2000) found that informal social control significantly reduced robbery/stranger assault victimization.

However, findings from a few studies contradict the hypothesized relationship between informal social control and crime. Greenberg, Rohe, and Williams (1985) found few significant differences between low and high-crime neighborhoods with respect to all three dimensions of informal social control – informal surveillance, movement governing rules, and direct intervention. Wells et al. (2006) found that residents of neighborhoods character-

ized by lower levels of informal social control, conceptualized as collective efficacy, are no more likely to intervene in the face of problems than residents in other neighborhoods. They suggested that informal and subtle behaviors might be more effective at communicating neighborhood norms and the disapproval of violating these norms.

Sampson et al. (1997) reformulated the intervening dimensions of informal social control. As part of their work, they removed social networks from the analysis. Their central premise was that social ties/networks are not needed for informal social control. They argued that purposive action was missing from previous theories. For purposive action to occur, residents must be willing to take action, which depends in large part on conditions of mutual trust and solidarity among residents. Therefore, they measured collective efficacy as neighborhood cohesiveness and the capacity for informal social control. Social cohesion includes trust and the extent to which a neighborhood is "close-knit." The capacity for informal social control focuses on everyday strategies, such as spontaneous playgroups among children, sharing information with neighbors about children's behaviors, and willingness to intervene in preventing minor deviance, such as truancy. Their findings showed that collective efficacy mediated the impact of negative structural conditions on violence, such that the greater the degree of collective efficacy, the lower the rates of violence in the neighborhood. Violence was measured in three ways: perceived neighborhood violence within the preceding six months, personal victimization, and independently recorded incidents of homicide aggregated to the neighborhood cluster level using the census. They also found that collective efficacy was lower in neighborhoods with high crime victimization and higher in those with lower crime victimization. They concluded that collective efficacy mediates the impact of structural conditions on neighborhood crime victimization. Other studies also support the relationship between collective efficacy and crime (e.g., Morenoff, Sampson, and Raudenbush 2001).

Complete Testing of the Systemic Model

Although relatively few studies test the full systemic model, as previously discussed, these findings suggest that the relationships among the concepts in the systemic model are more complex than originally theorized. Consistent with the systemic model, research supports the hypothesis that informal social control directly reduces crime victimization, despite different measures being used across studies. Bellair and Browning (2010) found that informal surveillance of property by neighborhood residents exerted an inverse effect on both property and violent victimization. Other findings suggest that collective efficacy also directly decreases homicide rates (Browning et al. 2004; Morenoff, et al. 2001) and crime victimization (Browning et al. 2004). The presence of problematic teen groups was also found to directly reduce property victimization and total victimization (i.e., property plus violent crime) in rural Britain (Kaylen and Pridemore 2013).

The relationship between informal social control and social networks is more complicated and inconsistent. Some studies show that social network measures have an indirect effect on crime victimization through informal social control and/or facilitate informal social control, as predicted by theory. For instance, Morenoff et al. (2001) found that social networks promoted the capacity for residents to achieve collective efficacy. Veysey and

Messner (1999) found that organizational participation had an indirect relationship with total crime victimization through peer groups.

In addition to indirect effects on crime victimization, studies show that social network measures are also direct predictors of crime victimization. The direction of the effects has varied across studies, however. Veysey and Messner (1999) found that local friendship networks and organizational participation had modest direct negative effects on total victimization. Bellair and Browning (2010) found that social networks exhibited an indirect negative effect through informal social control. However, two social network dimensions also had positive direct effects on crime victimization. Organizational participation exerted a positive effect on property victimization and neighboring was associated with violent victimization.

PROBLEMS WITH EMPIRICAL TESTING OF THE SYSTEMIC MODEL

Although theoretical insights have increased our understanding of the mechanisms from which neighborhoods maintain stability and control, one of the most basic analytical issues that challenge researchers is the empirical testing of the systemic model. Specifically, two issues remain - incomplete testing of the systemic model and inconsistent measurement of intervening variables, principally social networks.

Incomplete or Partial Testing of the Systemic Model

There is a lack of studies that test the full systemic model. Early studies relied primarily on census or crime data, which did not contain indicators for all of the intervening variables. More recent studies include all the intervening constructs but fail to examine interaction effects as predicted by the systemic model (Kubrin and Weitzer 2003). For instance, Sampson and Groves' (1989) often cited study included measures of three intervening variables – collective supervision, informal social networks, and formal social networks – as well as five standard exogenous structural characteristics. They also included three measures of crime victimization – personal, property, and total victimization. Despite the strength of including measures for exogenous, intervening, and dependent variables, their analytical strategy tested each of the intervening dimensions of social disorganization on crime victimization separately, ignoring possible interactions. Specifically, they regressed each of the three intervening variables on five neighborhood social characteristics, and then regressed each crime victimization measure on all eight variables.

Inconsistent Social Networks Measurement

A common limitation with early studies is that they used indirect measures of social networks. These studies measured the social ties from which social networks could emerge, such as friendship. However, it was unclear why measures of friendship were used for social networks. More recent studies use direct measures; however, there are a variety of different measures used across studies. Examples of measures include social interaction, social ties, family and/or friendship, and participation in crime fighting neighborhood associations (see Bellair 1997; Morenoff et al. 2001; Warner and Rountree 1997).

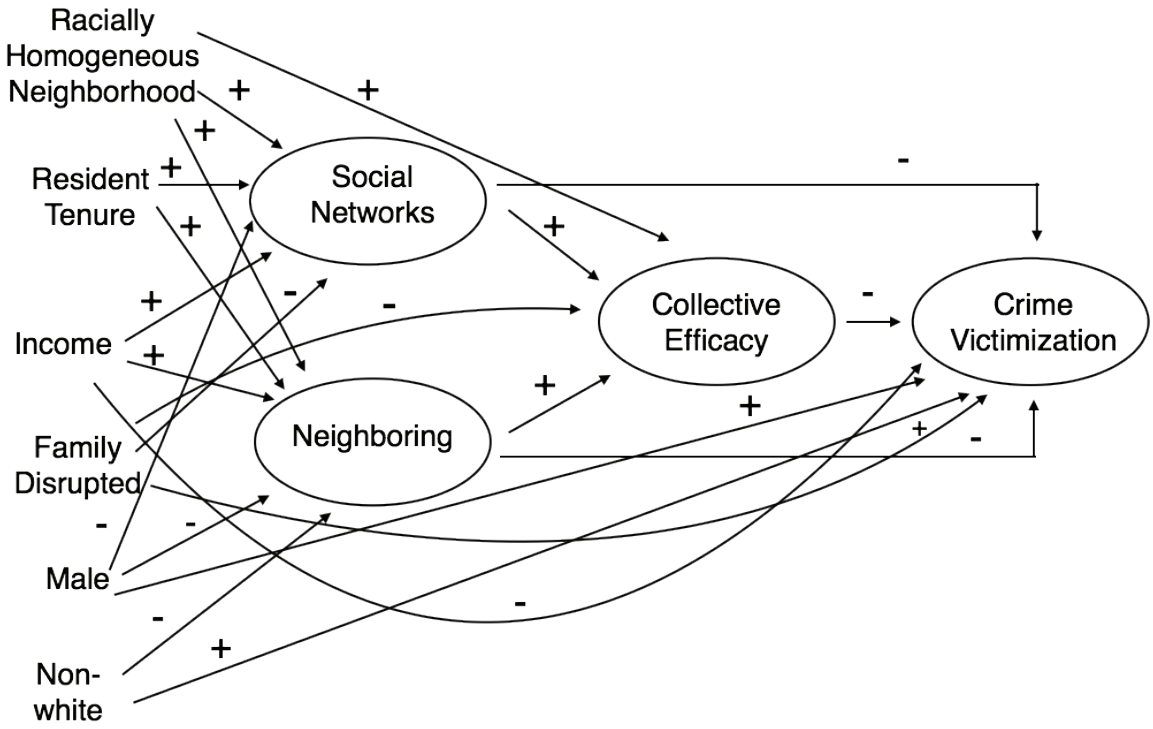
There has also been overreliance on behavioral indicators to measure social networks (see Cantillon, Davidson, and Schweitzer 2003). Although important, these measures do not capture the trust or reciprocity which is part of the social network processes. The social processes that precede behavioral intervention should include more subtle social interactions among neighbors such as support, attachment, and sentiments (Greenberg, Rohe, and Williams 1985; Hunter 1985).

The Present Study

This study was designed to address these two limitations in the empirical record. First, we posit that including neighboring as a separate intervening variable improves the current measures of social networks specifically, as well as social organization generally. Second, we provide a full test of a systemic model of social disorganization using structural equation modeling. Thus, the main goal of this research is not only to develop better indicators for social networks, but also to test an alternative systemic model that includes neighboring, social networks, and informal social control (i.e., collective efficacy).

Although some scholars narrowly define neighboring as social interaction between neighbors, such as borrowing tools, neighboring is a complex construct for which behavior represents only one of the indicators (Skjaeveland, Garling, and Maeland 1996; Unger and Wandersman 1985). Unger and Wandersman (1985:141) broadly defined neighboring as "social interaction (supportive social acts), symbolic interaction, and the attachment of individuals with people living around them and the place in which they live." The emotional and behavioral quality of this concept captures complex and subtle social processes, which lead to social cohesion and supportive neighborhoods (i.e., the processes that precede intervention). They also posited that neighboring is a key intervening variable that "binds the macro physical and social aspects of neighborhoods with neighborhood organization and development" (162). These tenets have not been tested in a full systemic model of social disorganization. The full model and hypothesized relationships between variables are shown in figure 1.

Figure 1: Hypothetical model.



DATA AND METHODS

Sample

Data for this study derive from the Seattle Neighborhoods and Crime Survey (SNCS). The SNCS was a National Science Foundation (SES-0004324) and National Consortium on Violence (SBR-9513040) funded study designed to test multilevel theories of neighborhood social organization and criminal violence. Data were collected via a telephone survey of households within all 123 census tracts in Seattle, Washington. Two block groups were randomly selected from each census tract; approximately nine households were then randomly selected from each block group. This resulted in a sample of 2,220 households. Social and Behavioral Research Institute at California State University, San Marcos conducted the telephone interviews and used a modified version of the 15-attempt protocol designed by the Centers for Disease Control for the Behavioral Risk Factor Surveillance System Survey. For households that could not be reached, calls were re-attempted at a variety of different times of the day and during different days of the week. The number of attempts did not exceed 15. All interviews were conducted in late 2002 and early 2003. The telephone interviews lasted an average of 37 minutes.

Exogenous Variables

The exogenous variables included in the present study reflect neighborhood structural conditions essential to the systemic model of social disorganization. Racial het-

erogeneity of neighborhood was measured using a dummy variable with heterogeneous neighborhoods (0) as the reference group. Respondents who indicated "nearly all" of their neighbors belonged to the same racial group were coded as residing in a homogeneous neighborhood (1). Respondents who indicated they live among a combination of different racial groups were coded as residing in a heterogenous neighborhood. Resident tenure was measured in the number of years respondents had lived in their homes. Household income was measured using fifteen categories for annual income. Family disruption was dummy coded for currently single parents with a child under the age of 18 living in the home (1) and all others (0). Gender (women = 0, men = 1) and race (whites = 0, nonwhites = 1) were also dummy coded.

Intervening Variables

Three latent constructs were included as intervening variables. First, social network variables derive from eight items designed to measure respondents' participation in formal and voluntary organizations, reflecting Sampson and Grove's (1989) original conceptualization. These eight items measured how frequently respondents participated in block activity sponsored by the Seattle Police Department, any other organized block activity, religious organizations, recreational groups, service or charitable organizations, racial/ethnic organizations (e.g., Urban League), neighborhood associations, and any other organization. Response options included "often" (3), "sometimes" (2), and "never" (1).

Second, neighboring was conceptualized here as supportive acts and attachments. Ten items measured different aspects of this general construct. Five of these items asked respondents how frequently (often = 3, sometimes = 2, never = 1) they borrowed tools or small food items from a neighbor, had dinner or lunch with a neighbor, helped a neighbor with a problem, asked neighbors about personal issues, and said "hello" to or stopped to talk with a neighbor. Two items asked respondents whether (yes = 1, no = 0) they have neighbors watch their home when they are away and if they could easily tell if a person is a resident or stranger on their block. One item asked respondents how often (frequently = 4, sometimes = 3, rarely = 2, never = 1) they talk informally with neighbors about nearby crime problems. One item asked respondents how likely (very likely = 4, likely = 3, unlikely = 2, very unlikely = 1) they would miss their neighborhood if they ever had to move. One item asked respondents how many people on their block (all of them = 4, most of them = 3, some of them = 2, none of them = 1) they know on a first-name basis.

Third, collective efficacy was conceptualized here as social cohesion and shared expectation of control in keeping with Sampson, Raudenbush, and Earls' (1997) original conceptualization. Social cohesion was measured using three variables that asked respondents their level of agreement, along a four-point scale (strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1), with the following statements: people in this neighborhood can be trusted, people are willing to help neighbors, and adults in this neighborhood know who the local children are. Shared expectation of control was measured using four items that asked respondents to rate the likelihood (very likely = 4, likely = 3, unlikely = 2, very unlikely = 1) neighbors would do something if children were spray-painting graffiti on a local building, do something if a group of neighborhood children were skipping school and

hanging out on a street corner, scold a child if the child was showing disrespect to an adult, and stop a fight if children were fighting out in the street.

Endogenous Variable

Crime victimization was measured using seven items that represent property and personal crime victimization. These items include: destruction of property or damage to home, home or building on property broken into, something stolen from yard or porch, car stolen or broken into, verbal threats, physical attacks, and something taken by force. Respondents reported the total number of times they experienced each in adulthood.

Data Screening and Model Construction

Prior to modeling the data, we conducted a single imputation to recover missing data. We then conducted several diagnostic tests to ensure that the variables would be properly and parsimoniously structured. The items that comprised the latent intervening variables as well as the exogenous and endogenous variables were correlated to test for multicollinearity. Confirmatory factor analyses (CFA) were used to test the scales for construct validity (Harrington 2009; Streiner 2006) and generate parsimonious sets of factors based on common characteristics (Gorsuch 1983). We followed a three-step process for conducting CFAs. First, generic models based on extant theory and research were imposed on the variables. Nonsiginificant parameters were removed from the models (Byrne 2016). Items with factor loadings less than .30 were also removed. Second, goodness-of-fit tests were conducted. These tests included the comparative fit index (CFI), chi-square (χ^2), standardized root mean square residual (SRMR), and root mean square error of approximation with 90% confidence interval (RMSEA). Third, the error terms of poorly fit items, as determined by modification indices, in the model were correlated to improve the overall fit of the model. Once the fit was established, we tested for discriminant validity by ensuring that the highest shared variance (HSV) was lower than the average variance explained (AVE) for each construct (Fornell and Larcker 1981).

Once the goodness-of-fit was established for each of the three latent variables and crime victimization, a generic structural equation model based on extant theory and research was imposed on the data. We then followed the diagnostic procedures described above for the model.

RESULTS

Social Networks

Parameter estimates of the generic measurement model showed that all relationships were statistically significant. The CFA did show, however, that two measures – church and racial organizations – had factor loadings under .30. Goodness-of-fit statistics further showed that the generic model did not fit the data well. The revised measurement model for social networks shows two separate constructs – neighborhood social networks and non-neighborhood social networks – improved factor loadings and overall fit of the model ($\chi^2 = 67.05$; df = 19; $p < .001$; RMSEA = .034). Table 1 shows the parameter estimates for the social network variables.

Table 1. Parameter Estimates for Social Network

Generic Model					Revised Model				
Indicator	Std. Path	Std. Error	Z-value	P-value	Indicator	Std. Path	Std. Error	Z-value	P-value
					Neighborhood Social Network				
Block party	.505	.015	20.46	0.00	Block party	.545	.016	21.85	0.00
Other block party	.620	.016	25.18	0.00	Other block party	.687	.017	26.46	0.00
Neighborhood associations	.615	.016	24.95	0.00	Neighborhood associations	.612	.016	24.17	0.00
					Non-Neighborhood Social Networks				
Church orgs	.277	.021	10.92	0.00	Church orgs	.365	.023	13.05	0.00
Recreational	.312	.020	12.34	0.00	Recreational	.402	.022	14.34	0.00
Service orgs	.344	.017	13.66	0.00	Service orgs	.511	.020	17.92	0.00
Race/ethnic orgs	.245	.011	9.62	0.00	Race /ethnic orgs	.341	.012	12.19	0.00
Other orgs	.353	.020	14.04	0.00	Other orgs	.457	.022	16.22	0.00
					Neighborhood Social Networks <--> Non-Neighborhood Social Networks	.530	.032	16.68	0.00

Neighboring

Neighboring was measured using ten indicators. In the generic model, supportive acts and neighborhood attachment correlated, suggesting they are related constructs. Parameter estimates showed that all relationships were statistically significant. Factor loadings ranged from .38 to .67. Although the initial fit statistics were within an acceptable range, there were concerns with discriminant validity for the two neighboring constructs – supportive acts and neighborhood attachment. To establish sufficient discriminant validity, the squared correlation ($corr^2$) estimate for both constructs was compared to the variance extracted (VE) estimates for each construct. Given that $corr^2$ (.6) was greater than VE (supportive acts = .38; attachment = .31), we concluded that each construct captures similar phenomena.

We subsequently compared the parameter estimates and fit statistics from a one and two factors neighboring construct. One indicator – would miss the neighborhood if you moved – was dropped due to a low factor loading. The parameter estimates and fit statistics were acceptable for the remaining nine indicators in one factor. However, the modification

indices suggested that the error terms for "first name" and "stranger on block" be correlated. In a subsequent CFA, the parameter estimates and fit statistics show that the revised measurement model for neighboring better fit the data (χ^2 = 231.59; df = 26; $p < .001$; RMSEA = .060). Table 2 shows the parameter estimates for the neighboring variables.

Table 2. Parameter Estimates for Neighboring

Generic Model					Revised Model				
Indicator	Std. Path	Std. Error	Z-value	p-value	Indicator	Std. Path	Std. Error	Z-value	p-value
Supportive Acts Asked personal question	.611	.015	28.44	0.00	Asked personal question	.588	.015	27.47	0.00
Borrow tools	.668	.015	31.72	0.00	Borrow tools	.652	.015	31.16	0.00
Lunch or dinner	.652	.014	30.88	0.00	Lunch or dinner	.634	.014	30.06	0.00
Help with problem	.662	.013	31.37	0.00	Help with problem	.660	.013	31.62	0.00
Talk crime	.442	.020	19.57	0.00	Talk crime	.451	.020	20.19	0.00
Neighborhood attachment Said hello	.572	.010	25.56	0.00	Said hello	.532	.010	24.36	0.00
Stranger on block	.525	.011	23.14	0.00	Stranger on block	.378	.011	16.47	0.00
First name	.686	.016	31.54	0.00	First name	.577	.015	26.79	0.00
Neighbor watch my home	.555	.010	24.69	0.00	Neighbor watch my home	.503	.010	22.85	0.00
Likely miss neighborhood	.380	.020	16.24	0.00	First name <--> Stranger on block	.292	.006	11.94	0.00

Collective Efficacy

Collective efficacy was measured using seven indicators. Parameter estimates of the generic measurement model showed all relationships were statistically significant and factor loadings (.55 - .67) were all above threshold. Most of the fit statistics were within an acceptable range; however, modification indices suggested we correlate the error terms between "people trust" and "people help." The revised measurement model showed factor loadings between .49 and .71, and all regression coefficients were statistically significant. The fit statistics for the revised model were all within an acceptable range and improved

over the generic model ($\chi^2 = 229.78$; df = 13; $p < .001$; RMSEA = .087). Table 3 shows the parameter estimates for the collective efficacy variables.

Table 3. Parameter Estimates for Collective Efficacy

Generic Model					Revised Model				
Indicator	Std. Path	Std. Error	Z-value	p-value	Indicator	Std. Path	Std. Error	Z-value	p-value
Intervene if skipping school	.670	.019	32.12	0.00	Intervene if skipping school	.712	.019	34.24	0.00
Intervene if disrespect adult	.551	.018	25.34	0.00	Intervene if disrespect adult	.580	.018	26.70	0.00
Intervene if kids fighting	.594	.017	27.73	0.00	Intervene if kids fighting	.618	.017	28.81	0.00
Intervene if spraying graffiti	.590	.016	27.51	0.00	Intervene if spraying graffiti	.603	.016	27.95	0.00
People trustworthy	.574	.014	26.59	0.00	People trustworthy	.491	.014	21.84	0.00
People help neighbors	.630	.012	29.80	0.00	People help neighbors	.557	.013	25.331	0.00
Adults know kids	.636	.017	30.15	0.00	Adults know kids	.608	.017	28.23	0.00
					People trustworthy <--> People help neighbors	.359	.007	13.91	0.00

Crime Victimization

Crime victimization was measured using seven indicators. Parameter estimates of the generic measurement model show that all the relationships are statistically significant. Factor loadings for four of the seven indicators were below .40; however, only one factor loading was below .30, the minimum accepted value. Fit statistics showed that the model fit was not satisfactory. Modification indices suggested we correlate terms between two sets of variables – damage to property and home broken into, and verbal threat and physical threat. Modifying the generic model based on low factor loadings and goodness-of-fit statistics did not produce a single best-revised model. We revised the model over nine times (analyses not shown here) but could not estimate an overall better fit. Options included picking two-factor models. The overall best fit, we determined, was to keep the one-factor model for victimization. Based on modification indices, we correlated the error terms for three sets of indicators. Regression coefficients were at or below the .05 level, and param-

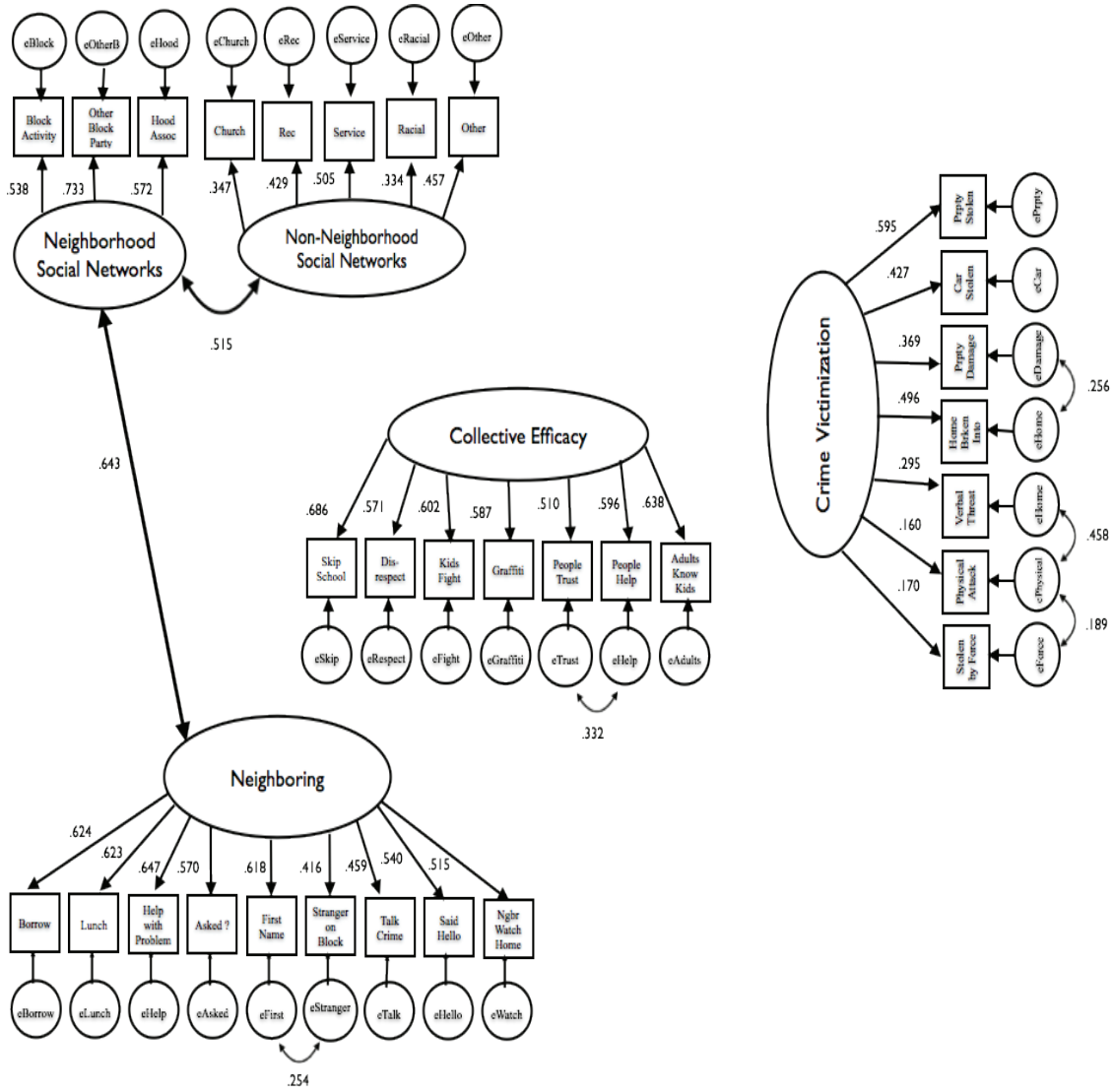
eter estimates and fit statistics show that the model fit the data. The fit statistics improved with the revised model and the chi-square decreased over 666 ($\chi^2 = 28.16$; df = 11; $p < .01$; RMSEA = .027). Table 4 shows parameter estimates for the crime victimization variables.

Table 4. Parameter Estimates for Crime Victimization

Generic Model					Revised Model				
Indicator	Std. Path	Std. Error	Z-value	p-value	Indicator	Std. Path	Std. Error	Z-value	p-value
Property damaged	.503	.046	18.90	0.00	Property damaged	.358	.052	11.76	0.00
Property stolen (e.g., bicycle)	.485	.063	18.26	0.00	Property stolen (e.g., bicycle)	.614	.077	18.87	0.00
Car stolen or broken into	.361	.059	13.58	0.00	Car stolen or broken into	.422	.063	14.75	0.00
Home broken into	.577	.046	21.41	0.00	Home broken into	.489	.052	16.10	0.00
Verbally threatened	.369	.329	13.88	0.00	Verbally threatened	.290	.348	10.29	0.00
Physically attacked	.306	.156	11.45	0.00	Physically attacked	.151	.166	5.29	0.00
Something stolen by force (e.g., mugging)	.223	.034	8.29	0.00	Something stolen by force (e.g., mugging)	.161	.036	5.71	0.00
					Physically attacked <--> Verbally threatened	.459	1.64	19.05	0.00
					Home broken into <--> Property damaged	.264	0.07	8.91	0.00
					Physically attacked <--> Something stolen by force	.190	0.14	9.73	0.00

Figure 2 shows the revised measurement models for intervening variables and crime victimization.

Figure 2: Revised measurement models.



Structural Equation Model

The three-stage CFA method was also applied to the generic structural equation model. According to the parameter estimates in Table 2, seven hypothesized pathways were nonsignificant. Two of the seven nonsignificant pathways were between latent variables. These nonsignificant paths were non-neighborhood social networks and collective efficacy, and neighborhood social networks and crime victimization. The remaining nonsignificant pathways were between social structural variables and latent variables. These include: (1) family disrupted and collective efficacy; (2) family disrupted and neighborhood social networks; (3) family disrupted and non-neighborhood social networks was insignificant; (4) racially homogeneous neighborhood and neighborhood social networks; and (5) non-white ethnicity and crime victimization. These regression paths were eliminated from the model.

Based on the results from the modification indices, we also correlated neighboring and non-neighborhood social networks. The structural equation model analysis was run again. All of the pathways were statistically significant. Therefore, all of the items of the measurement models and regression paths remained in the structural equation model. An assessment of overall fit followed.

The goodness-of-fit statistics were fair to the data. The chi-square was reduced by 173.57 ($\chi^2 = 2607.21$) The likelihood ratio (.227), adjusted goodness of fit index (.922), root mean square error of approximation (.039), and standardized root mean square residual (.041) were within acceptable ranges. Some of the statistics were not within acceptable ranges. For example, the normed fit index value (0.832), comparative fit index (.865) and the Tucker Lewis Index (.852) are just below the critical value of .90. All critical ratios were significant at the .05 level for the revised model. Figure 3 shows the results of the final structural equation model.

Causal Pathways

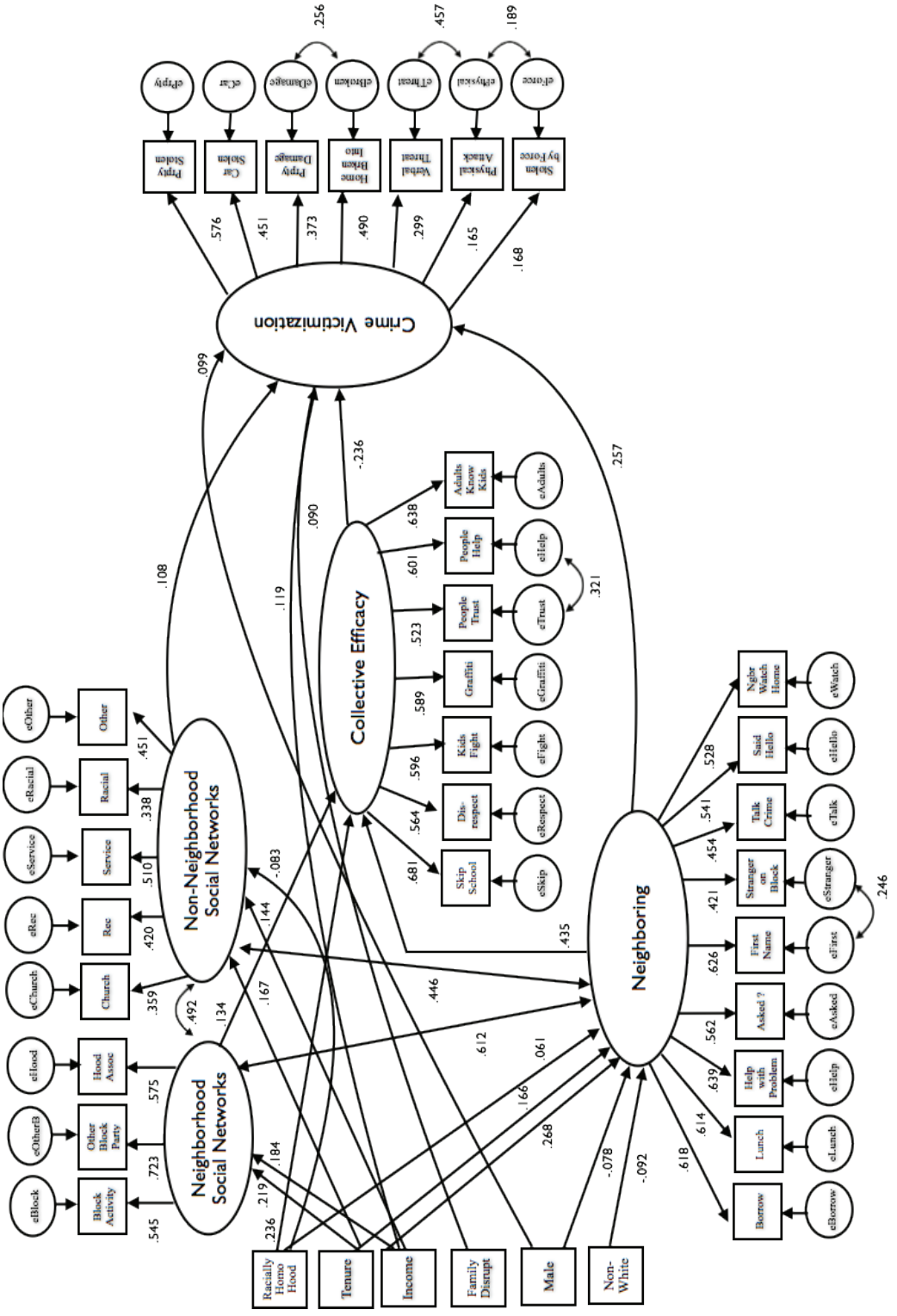
Neighboring had a directly, albeit weak, effect on crime victimization. However, the effect was directionally opposite of what we expected. The direct effect of neighboring increased rather than decreased crime victimization ($\beta = .257$, $p < .01$). The indirect effect of neighboring on victimization via collective efficacy was consistent with our hypothesis. Neighboring had an indirect negative effect on crime victimization through increasing collective efficacy ($\beta = .435$, $p < .01$).

The data screening procedures revealed two distinct constructs for social networks – non-neighborhood and neighborhood social networks. This finding suggests social networks exert a complex set of effects on crime victimization. Non-neighborhood networks had a direct, albeit weak, positive effect on victimization ($\beta = .108$, $p < .01$). Non-neighborhood networks did not however have an indirect effect on victimization. Neighborhood social networks influence crime victimization quite differently. Neighborhood networks showed no significant direct effects on victimization. Neighborhood networks did have a negative indirect effect on victimization by increasing collective efficacy ($\beta = .134$, $p < .00$). Thus, non-neighborhood networks directly increased victimization whereas neighborhood networks indirectly decreased victimization.

Several exogenous variables showed significant effects in the model. Racial/ethnic homogeneity showed indirect negative effects on victimization via three causal pathways. First, homogeneity had a positive effect on neighboring ($\beta = .061$, $p < .01$). Second, homogeneity had a positive effect on collective efficacy ($\beta = .236$, $p < .00$). Third, homogeneity had a negative effect on engagement in non-neighborhood social networks ($\beta = .083$, $p < .01$). Homogeneity had no significant effect on neighborhood social networks.

Resident tenure had an indirect negative effect on crime victimization by increasing participation in neighborhood social networks ($\beta = .219$, $p < .01$) and then by increasing collective efficacy. Resident tenure also exhibited an indirect negative effect on victimization by increasing neighboring ($\beta = .166$, $p < .01$) and then by increasing collective efficacy.

Figure 3: Structural equation model.



Household income showed an indirect negative effect on victimization by increasing neighborhood social networks (β = .184, $p < .01$) and then increasing collective efficacy. Income also had a negative effect on victimization by increasing neighboring (β = .268, β < .01) and then by increasing collective efficacy. However, household income had a direct positive effect on victimization.

DISCUSSION

There is a long-standing debate about the sources of neighborhood influence on crime victimization. To address this debate, the systemic model, which is grounded in social disorganization theory, argues that social ties are a prerequisite for effective informal social control, which in turn reduces crime victimization. However, many studies do not test the full systemic model due to problems with conceptualization and measurement.

Although the alternative model presented here is similar to the extant systemic model, it incorporates neighboring, which clarifies conceptual and measurement confusion in the literature. This alternative model provides distinctions between neighboring and social networks. Neighboring represents social support and attachment whereas social networks represent organizational participation, which reflects linkages or pathways between a community and its institutions. While neighboring and social networks generate social capital, collective efficacy is an action component. Unlike the systemic model, our alternative model does not assume that friendship is required for neighboring and social networks. The purpose of this study has been to develop and test this alternative model.

The Alternative Model

Overall, we found partial support for our hypothesized alternative model. However, not all relationships among the variables were as expected. Three effects among the latent variables were in the expected direction. Collective efficacy directly reduced crime victimization. Neighborhood social networks and neighboring both had an indirect negative effect on crime victimization through collective efficacy.

The remaining relationships were not expected. Neighborhood social networks did not have a statistically significant direct relationship with crime victimization. Additionally, we found that both non-neighborhood social networks and neighboring directly increase crime victimization. The findings also showed that neighborhood social networks and neighboring positively affect collective efficacy, which in turn reduces crime victimization.

Among the hypothesized effects between the social structural variables and the latent variables, most of the effects were consistent with extant theory and research. Disrupted families and males both had a direct positive effect on crime victimization. Non-whites were less likely to neighbor compared to whites. Finally, racial/ethnic homogeneous neighborhoods were associated with higher collective efficacy, neighboring, and non-neighborhood social networks compared to racial/ethnic heterogeneous neighborhoods. However, there were no statistically significant relationships between racially/ethnically homogene-

ous neighborhoods and neighborhood social networks or between non-whites and crime victimization. Higher household income had a direct positive effect on crime victimization.

The study presented here was also designed to clarify measurement inconsistencies. We found neighboring and social networks to be empirically distinct concepts. Theoretically, neighboring measures supportive acts and neighborhood attachment. This finding, along with the emergence of two separate constructs of social networks, should help researchers decide which indicators to use in future research.

Social Disorganization Theory

The results from this study show modest support for the systemic model. The only relationship consistent with the systemic model was between collective efficacy and crime victimization. However, other findings provide an important advancement for the systemic model. Results show that non-neighborhood social networks and neighboring had direct effects on crime victimization. Both neighboring and non-neighborhood social networks increased crime victimization. Neighboring also positively effects collective efficacy, which in turn reduces crime victimization. Although inconsistent with social disorganization theory, some previous research shows a dual nature for neighboring, to the extent that neighboring has been included as a measure of social networks in past research (Bellair and Browning 2010; Browning et al. 2004).

There are several interpretations for why neighboring, however operationalized, has a dual nature. One interpretation is that while neighboring promotes cohesion and acts as an orientation for collective efficacy, neighboring also generates social capital for offenders who may embed themselves in local networks or communities, referred to as the negotiated coexistence model by Browning et al. (2004). Another interpretation is that weak neighboring exerts minimal regulatory effects on crime victimization. Specifically, weak social contact may facilitate trust and share values without also fostering mutual obligations for collective action.

Inconsistent with the systemic model, we also found that family disruption did not have an indirect relationship with crime victimization. Instead, there is only a direct relationship between family disruption and crime victimization. Among the relationships that supported the theory, resident tenure and (higher) household income were both associated with higher rates of neighboring, neighborhood social networks, and non-neighborhood social networks. Furthermore, racial/ethnic homogeneous neighborhoods were associated with higher collective efficacy compared to racial/ethnic heterogeneous neighborhoods. The theory posits that collective efficacy should be higher in racial/ethnic homogeneous neighborhoods.

Furthermore, our findings indicate that social networks contain two separate empirical dimensions – neighborhood social networks and non-neighborhood social networks – not one dimension as previously predicted. These two social network constructs impact crime victimization differently. Neighboring and social networks are also distinct, albeit related, empirical phenomena. These findings should help clarify the relationships between neighboring, social networks, and collective efficacy on crime victimization.

Implications

The findings from this study have important implications for advancing theory and research on social disorganization theory. This study shows that the systemic model is more complex than previously predicted and it offers insight into the complex relationships among neighboring, neighborhood and non-neighborhood social networks, collective efficacy, and crime victimization. For example, neighboring and social networks are not only different constructs, but they effect crime victimization in very different ways. As previously discussed, neighboring directly and indirectly effected crime victimization; it also had a dual nature with crime victimization. Non-neighborhood social networks directly increased crime victimization, whereas neighborhood social networks indirectly decreased crime victimization.

Of interest here are the relationships between neighboring and both types of social networks on crime victimization. It is unclear why they affected crime victimization differently as they are closely related constructs. Perhaps these relationships are task dependent. For example, Wickes et al. (2013) found collective efficacy for violence, child centered control and political/civic matters were distinct constructs. Additionally, these authors also found that neighborhood level cohesion only increases collective efficacy regarding controlling children, and at the same time, social ties were positively related to cohesion as well as all types of collective efficacy. Wickes et al. (2013) point out that an overlooked component of the theory is the task-specific nature of collective efficacy, which serves a more useful purpose than simply refining measurement. Their research may have implications for the model introduced here considering that the task-specific nature of not just collective efficacy, but also neighboring and social networks, are unknown. Future scholarship should consider specific tasks and the degree to which these tasks require collective action versus individual action.

This study also includes social structural characteristics that are often missing from the literature. Two exogenous variables were included that have implications for social disorganization theory. First, gender is not traditionally included in social disorganization research. However, research shows that crime victimization is generally higher for males than females (Lauritsen and Heimer 2008). Furthermore, males are consistently found to be less active in neighboring than women (Campbell and Lee 1990; Kusenbach 2006). This study found that men were less likely to neighbor and more likely to experience crime victimization than women. To help clarify the relationship between gender and neighboring, and given the strong relationship between gender and crime victimization generally, we argue that gender should be included as a variable in future research.

Second, the model presented here included race/ethnicity as an exogenous variable. Although previous research indicates inconsistent racial differences in neighboring, some studies demonstrate that blacks are less likely to engage in social neighboring compared to non-blacks (Ignatow et al. 2013; Nation, Fortney, and Wandersman 2010). The results presented here show that whites were less likely to neighbor compared with non-whites.

Limitations and Directions for Future Research

Several limitations exist with our study. First, our alternative model may have a temporal order problem. Consistent with social disorganization theory, our model assumes crime victimization is the outcome of neighboring, social networks, and/or collective efficacy. However, it is possible that crime victimization occurs first and that neighboring, social networks and/or collective efficacy are the result of crime victimization. Second, our alternative model is limited to a stereotypical concept of crime victimization (i.e., street crime victimization) within neighborhoods. Our alternative model does not address many other important types of crime victimization, such corporate crime or white-collar crime. This limitation is common in all social disorganization research. Third, conceptualization and operationalization of all concepts is limited to the data available in the dataset. Not all variables were measured exactly as they were in other studies. For instance, household income was used in lieu of socioeconomic status.

The findings suggest that we need a theoretical elaboration of the processes between neighboring, neighborhood and non-neighborhood social networks, collective efficacy, and crime victimization. Future research would greatly benefit from a more detailed and subtle understanding of the joint influence of social networks and neighboring on the control and facilitation of crime victimization. Qualitative studies may play a key part in advancing our understanding of the joint influence of social networks and neighboring. For example, Desmond's (2012) qualitative work could serve as an analytical tool for future research. The binary between weak and strong social contact (e.g., neighboring or social networks) may not be very useful in examining neighborhoods in 21st century America. In his qualitative study, Desmond shows that the function, not the strength, of the social network is more important. Unfortunately, the data analyzed here did not allow us to test this hypothesis. However, future research could test whether Desmond's conceptualization of social networks sheds light into the dual nature of neighboring and social networks on crime victimization.

Continued efforts to collect data at the neighborhood and block level will allow future research to test the negotiated coexistence model by Browning et al. (2004). Another possibility for future research is to specify the relationship between neighboring, neighborhood social networks and collective efficacy to specific types of crime victimization. Lastly, future research should test the systemic theory in different neighborhood contexts, such as neighborhoods in the urban core, neighborhoods with gentrification, neighborhoods in the inner ring suburbs, neighborhoods in new urban areas within cities, and pedestrian neighborhoods.

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