Neighborhood Effects and Informal Social Control: Examining the Role of Social Networks in the South Bronx

by

Andres F. Rengifo

A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the requirements for the degree of Doctor in Philosophy, The City University of New York

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ABSTRACT

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This study assesses the role of social networks in neighborhood-level processes of social control. It examines the extent to which properties of personal social ties are associated with structural ecological covariates such as concentrated poverty and residential mobility. It associates indicators of the breadth and scope of personal networks to scales of informal control measuring the ability of residents to monitor public spaces and participate in the socialization of youth. This network-based approach is compared with a more traditional perspective based on proxies of relational processes of social cohesion, neighborliness and other local exchanges. Lastly, self-regulatory practices are studied in connection to tract-level crime rates for specific offenses and individual-level self-reports of criminal victimization. These assessments are based on the multi-level analysis of survey data and administrative records for Community District 1 in the South Bronx.

The overall structure of this inquiry was guided by the postulates of the systemic model of social disorganization (Bursik and Grasmick, 1993). This perspective explains aggregate variations in crime levels using a community-based approach focused on the relationship between processes of social integration and types of social control. Specifically, it concentrates on the measurement of relational processes related to both the nature of personal networks—e.g., reach, homogeneity, locality—as well as the degree of involvement of residents in local organizations. According to the

theory, these primary and secondary domains of association reflect key structural characteristics of neighborhoods in terms of socio-economic conditions and population turnover. More importantly, networks are hypothesized to influence the capacity of communities to self-regulate beyond actual patterns of civic engagement and formal controls. This emerging construct is often labeled as informal social control and encompasses behaviors and expectations ranging from the supervision and socialization of youth to actual safety and crime-related interventions by local residents.

Results indicate partial support for the systemic model: While most indicators of network structure did not vary across tracts, the overall size of these networks was positively and significantly associated with patterns of residential stability when controlling for individual-level and other tract-level variables. Similarly, residents of more disadvantaged tracts were found to have more social ties, although most of these tended to be created locally. Several network properties also predicted variations in informal social control, although their value as independent variables decreased when these measures were operationalized as tract-level covariates. Compared to traditionally-employed network proxies (e.g. perceived social cohesion, perceived social support), network-based ecological measures were less stable and less likely to yield significant associations with ratings of control capacity. This dissertation found very little convergence between the set of empirically-derived network proxies and tract-level or respondent-level network measures. Finally, the majority of the models testing multi-level associations between crime variables and measures of community organization did not support the statistical association between these two constructs.

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CHAPTER I. INTRODUCTION

I.I Problem Statement

The creation and maintenance of order has been a long-standing area of inquiry for social scientists. Anthropologists and Sociologists, for example, have traditionally examined the association between long-term social changes and consequent variations in the organization of communities. Economists have studied institutions and have modeled patterns of cooperation under varying degrees of uncertainty. Drawing upon an array of historical accounts and philosophical frameworks, scholars have linked changes in social structures to processes such as the increasing modernization of governments and the progressive division of labor. As a consequence of these new arrangements, social order has suffered successive transformations via new patterns of interaction among individuals and between individuals and corporate actors.

There are competing perspectives regarding the nature and underlying principles governing these emerging interactions: for some, the notion of "solidarity" bridges macro-level changes to changes in the social structure (Durkheim, 1883); for others, structural changes result from patterns of "mutual affirmation" among individuals (Tönnies, 1887). Despite the significance of these differences and implications for the analysis of aggregate patterns, studies of social order have generally developed an interest for integrating large scale, macro-level processes with more local, micro–level dynamics: Simmel (1918), for example, constructed a theory about group formation linked not only to general changes in the structure of society but also to a particular notion of how individuals navigate choices and affiliations.

In addition, social order studies share a systematic focus on the concept of control as a mechanism to create and preserve social groups and organize their patterns of interactions.

Durkheim (1893) was among the first scholars to develop this approach by describing the emergence of collectivities via the enforcement of collective agreements—contracts which in turn reflected various principles of association. Coleman (1990) has also emphasized the linkage between the nature of interactions among individuals and the capacity of groups to enforce controls—a property he describes as "network closure".

The expansion of these two avenues of inquiry on social order—macro-micro links and covariates of social control—has greatly benefited from the development of studies on the social organization of urban settings. Scholars have relied on cities and neighborhoods to define communities; they have studied structural patterns such as urbanization and poverty as they impact land use and unemployment; they have advanced and tested theories on residential integration, subcultures, and socialization of youth—all narratives related to social control—as they emerge from local interactions between neighbors, friends and relatives. This ecological framework for the study of order has provided the foundation for a vast array of intellectual projects seeking to explain the conditions by which communities develop organizing principles and maintain their collective dimension.

The conceptualization of social and institutional relations has been central to many of these works. Neighborhoods are connected to a broader social structure which influences patterns of residence and the integration of these physical spaces into labor markets and normative systems. Individuals are connected to corporate actors through their role as recipients of social services or as members of local organizations; they are also connected to other individuals via multiple affiliations and norms of reciprocity and exchange. The overall system created by these interactions constitutes the basis of social order and provides the infrastructure for the enforcement of social control.

Studies on the organization of urban communities have described the association between social and institutional relations using a wide array of concepts, theoretical frameworks and units of analysis. For example, a significant number of works have suggested that long-term changes in the economic structure of cities have resulted in a decline in the quality of social interactions, a weakening of social controls, and a breakdown of social order (Park and Burgess, 1925; Wirth, 1938). Other approaches have interpreted similar structural changes to represent opportunities for the revitalization of social relations and the emergence of alternative mechanisms of adaptation to the challenges of city life (Jacobs, 1961; Liebow, 1962). Overall, the local, neighborhood-level consequences of structural changes on the social organization has been the topic of a heated debate that has spanned over several generations of scholars and planners.

The etiology of crime has been a central piece of this debate. Socially "disorganized" communities have been systematically represented as ecological constructs where economic disadvantage converges with more limited and unstable arrangements of social relations (Shaw and McKay, 1942). The resulting environment facilitates the emergence of anti-social behaviors, from gang membership and juvenile delinquency to more serious criminal offenses. Researchers have developed multiple explanations about the processes by which the local order breaks down via changes in social relations and modalities of social control. Specifically, these inquiries have addressed intervening mechanisms such as the nature of interactions between residents, their attachments to particular places, institutional affiliations, and perceptions of community life. In turn, these relations have been consistently associated with the enforcement of controls. Social ties, for example, have been conceptualized as providing a framework for the dissemination of information, acting as facilitators of collective action and mobilization. More significantly, ties between residents have been presented as a main correlate of informal mechanisms of social control through the surveillance of public spaces, the monitoring of youth and the reporting of

suspicious activities to the Police or other institutions. Further, the quality, scope and nature of these interactions represent not only the impact of structural conditions on neighborhoods, but also the ability of these communities to self-regulate (Bursik and Grasmick, 1993).

New theoretical frameworks, datasets and analytical tools have expanded the understanding on how social order in maintained in urban environments and what mechanisms relate crime to conditions of disadvantage. Recent approaches to the study of neighborhood social ties suggest that these interactions are not effective at generating an infrastructure for the development of informal controls (Sampson, 2002). In part, such perspective is based on findings reported by network-based studies indicating that only a small fraction of social relations are local and that even in circumstances of fluid contact, these exchanges tend to be infrequent, uncertain and sometimes not pro-social (see for example, Wellman, 1979; Fischer, 1982). New empirical evidence has also questioned the significance of the association between organizational membership and informal social controls (Morenoff et al., 2001). Current perspectives on the organization of communities have began to privilege the role of expectations, perceptions of cohesion, trust, and the efficacy of formal controls over the role of local interactions in the creation of social order.

I.2 Specific Aims

This dissertation seeks to contribute to the study of the social organization of urban neighborhoods. It aims to empirically assess the mediating role of social ties in the association between structural characteristics of disadvantage, social order, and crime. This inquiry is inspired by the postulates of the systemic model, which highlights the role of social networks in the development of community-level self-regulatory abilities; it also relies on a more general

structural framework on the determinants and correlates of social exchanges. Specifically, it draws upon this perspective for a more robust conceptualization of the linkages between micro-level processes, such as friendship ties, and macro-level dynamics of heterogeneity and inequality in the social structure.

This study examines the social networks of residents in a low-income area of the South Bronx. It combines primary, cross-sectional data in the form of structured interviews with administrative records on the composition of this community and levels of reported crimes. This dissertation focuses on individual-level processes of social exchange. When possible, analyses account for the contextual effects of neighborhood-level characteristics on patterns of interaction among residents and its association with informal social controls.

The present work does not constitute a comprehensive, fully-specified test of the systemic model. Instead, it provides an alternative approach to the measurement and conceptualization of social interactions in an urban setting. It focuses on the examination of these networks' capacity to provide an infrastructure for the self-regulation of social order. Further, it seeks to connect aggregate properties of these interactions with levels of recorded crimes and self-reported victimization.

1.2.1 Explore the relationship between social ties and the structure of neighborhoods

The social organization of communities has been traditionally associated with three main characteristics of the social structure measured at the neighborhood level: economic disadvantage, residential mobility and population heterogeneity. Accounting for significant variations in the operationalization and range of model specifications, these factors have been consistently linked to aggregate differences in reported crimes. Several mediating concepts have

been included in the testing of these associations in accordance to the hypotheses first formulated by the School of Human Ecology.

However, as highlighted by several scholars, the structural properties of communities were not clearly translated as "disorganized" crime-prone areas. In response to these criticisms, the systemic model reformulated the original theory emphasizing the role of social ties and informal mechanisms of control in the regulation of social order. Further expansions to this approach provided a more complete specification of structural effects on individual and aggregate outcomes. Notions such as "collective efficacy" and "social capital" emerged as ways to describe particular arrangements of community organization and relational exchanges which significantly mediated the effect of structural characteristics of neighborhoods on observed levels of crime.

Despite the value of these works, the association between aggregate characteristics of communities and the social networks of its residents remains largely unexplored. For the most part, empirical tests of the systemic model rely on extremely limited operationalizations of social networks, often measured using a single set of survey questions related to the number of family members or friends living in the same neighborhood. Other constructs have employed additional indicators of participation in local voluntary organizations or scales representing the frequency of general interactions with neighbors. Research has seldom incorporated formal descriptions of resident networks into general associations of structural properties of the communities and their social organization. Ethnographic accounts have been more successful at developing such a perspective. Their findings suggest that aggregate characteristics of disadvantaged neighborhoods do influence personal relations: for example, individuals living in low-income, minority areas tend to have smaller, less stable and more isolated social networks. In these communities, some argue, networks reflect the pervasive fragmentation of local groups along ethnic, racial and gendered divides.

This dissertation complements these accounts with a formal, more quantitative approach to the description of residents' social networks associating these constructs with structural characteristics of the neighborhoods included in the study area. This is accomplished by measuring key properties of personal networks such as overall size, density, types of interactions among its members, and spatial distribution of contacts. These variables are linked to traditional structural variables included in most studies of social disorganization (i.e., concentrated disadvantage, residential mobility and ethnic heterogeneity). These associations are implemented combining hierarchical models and descriptive routines of social network analysis.

1.2.2 Examine network-based correlates of informal social control

Informal social control has been defined as a community resource encompassing the collective ability of residents to enforce behaviors consistent with a shared set of norms and beliefs (Carr, 2003). Beyond specific types of informal surveillance, direct interventions, or the monitoring of public spaces, this notion relates more centrally to the socialization of youth and the prevention of deviance (Bursik, 1988). The role of social ties on the development of control capacities was acknowledged by researchers of the Chicago School (Zorbaugh, 1929; Wirth, 1938). However, these works focused on the relationship between interpersonal interactions and social order. As the general notion of control gained theoretical and empirical relevance, its community-based component became progressively associated with particular exchanges between individuals (Reiss, 1951; Hirschi, 1969; Kornahauser, 1978). The systemic model of social disorganization provided a structuring narrative linking informal controls to social networks. More recent approaches expanded this perspective to include concepts such as trust and shared expectations (Sampson et al., 1997).

Informal control has been operationalized by quantitative researchers as an individual-level covariate measuring the residents' willingness to intervene—or the expectation that neighbors would intervene—in a given set of minor disruptions of public order (e.g., children spraying graffiti). While this formulation has been criticized on several theoretical and methodological grounds (Taylor, 2002), it has become the standard for many projects (Sampson et al., 2002; Warner et al., 2003; Reisig and Cancino, 2004). The possibility of a direct relationship between properties of social ties and levels of informal mechanisms of control has also been problematized in terms of the validity of some of its key assumptions: interactions among residents do not necessarily translate into active interventions, or these may favor the mobilization of formal mechanisms of control; social networks could also involve combinations of pro-social and anti-social contacts or may be employed to facilitate the commission of criminal offenses. Overall, the qualitative and quantitative research on this particular topic has produced mixed evidence—perhaps reflecting the lack of more robust measures of both ties and controls and confusion over the mechanisms linking these two concepts (Carr, 2003).

This study expands the current body of literature by providing a comprehensive analysis of the multilevel associations between properties of personal networks and multiple measures of informal social control. Further, it compares the results obtained by the operationalization of these associations using traditional measures of ties (e.g., number of relatives/friends living in the neighborhood) with network-based indicators on the spatial distribution of contacts and the strength of these affiliations (e.g., frequency of contact, types of interaction, duration of acquaintance). Levels of informal control are associated with variations on key properties of personal networks, accounting for contextual effects when permitted by the nature of the sample.

1.2.3 Examine the association between crime and social ties and informal control

The early formulation of the social disorganization theory was inspired by the convergence of high recorded rates of juvenile delinquency in structurally disadvantaged areas of Chicago. The ecological nature of these associations remains a core element of the study of communities and crime. New analytical tools have allowed researchers to test hypotheses about the mechanisms connecting the social organization of communities to aggregate patterns of offending. A small but solid group of research projects has successfully linked varying conceptualizations of informal controls with several types of crimes: neighborhoods with more fluid patterns of interaction between neighbors and a greater sense of cohesion have lower homicide rates and other types of victimization (Sampson and Groves, 1989; Sampson et al., 1997; Bellair, 2000).

However, the significance of these associations appears to be related to non-relational components of informal control, that is, they tend to favor constructs such as "collective efficacy" or "social capital" (Sampson et al., 1997; Rosenfeld et al., 2001). These variables emphasize the role of shared expectations, trust, and participation in voluntary organizations when measuring informal controls. The relationship between social ties and crime has received less empirical support: while some studies show a significant relationship between basic measures of social interactions and rates of offending, this pattern is often inconsistent across different crime types or disappears when controlling for more general measures of cohesion.

This project explores the relationship between reported crimes and aggregate measures of social networks and informal controls in Community District 1 of the South Bronx. Multi-level models focus on the analysis of these patterns using individual-level and tract-level data. However, given the limited number of surveys conducted in some of these areas, this analysis does not constitute a general assessment of the relationship between criminal victimization and

properties of the local organization of communities. However, it provides an structured approach to the mechanisms that link social exchanges between residents in given areas and the nature of the crime problem in their immediate environment.

I.3 Research Questions

I.3.I To what extent are personal networks a reflection of the structural characteristics of communities?

I.3.I.I Is the impact of structural characteristics on communities significant for particular properties of personal networks?

I.3.I.2 How much variation is there in the properties of personal networks *across* neighborhoods?

I.3.I.3 How much variation is there in the properties of personal networks *within* neighborhoods?

I.3.2 Do the data support the relationship between properties of personal networks and individual levels of informal social control?

I.3.2.I Is there a convergence between network-based measures of social ties and traditional proxies employed by prior research?

I.3.2.2 To what degree does a network-based formulation of social ties affect its association with informal social controls?

I.3.2.3 To what extent is the association between personal networks and of informal social controls conditioned by the structural characteristics of communities?

I.3.3 Do the data support neighborhood-level and individual-level associations between crime and social ties or between crime and informal social control?

I.3.3.1 What types of crimes are significantly associated with any of the proposed measures of social organization?

I.3.3.2 Are there significant, independent effects of social ties and informal social control on levels of crime?

I.3.3.3 Is there convergence between self-reported crime levels and reported crime rates? If any, are these differences relevant for the association with social ties and informal control?

CHAPTER 2. BACKGROUND AND SIGNIFICANCE

2.1 Social Ties and Structural Characteristics of Communities

Studies on the social structure of urban neighborhoods have systematically linked notions of community to the existence of primary, face-to-face, stable, and meaningful social interactions between individuals who share a common physical environment. In the same way, these notions have been traditionally embedded in analytical frameworks emphasizing long-term economic and social changes. Too often, these historical processes have been assumed to negatively affect the quality and frequency of inter-personal associations generating different forms of community decay. For some, the traditional formulation of communities as cohesive entities based on primary modes of affiliation has compromised this concept's explanatory ability and has limited the understanding of local social exchanges. Suttles, for example, wrote that scholars of city life have "over-romanticized" the nature of primary social relations (1978:264). Wacquant described this tradition of research as having a "positive semantic halo" (2004a:49) and even Wirth—a prominent advocate of the "decline-of-the-community" thesis—acknowledged that the use of this notion had not been methodologically sound, describing "an abandon reminiscent of poetic license" (1933:165). In 1955 Hillery reported ninety-four definitions of "community"—a figure updated to one hundred and twenty-five (Sutton and Musson, 1976).

The vast array of meanings conferred to the notion of community has posed significant problems for the accumulation of scientific knowledge on urban processes. Despite the theoretical and empirical confusion, the concept of social ties remains central to the description of the social organization of local entities—from neighborhoods to work places, from social

services agencies to public arenas. Works addressing particular entities of community life often rely on administrative boundaries to define the physical and social space associated with the collective dimension of social exchanges among individuals. Studies of urban processes of social order have also struggled with the development of working definitions of community, usually operationalizing this concept using census-defined tracts or larger population aggregates such as cities and metropolitan areas. Overall, the review of these works indicates a series of common themes defining collectivities as ecological constructs providing shared experiences for individuals and a heightened sense of interdependence. Fisher and colleagues, for example, emphasize the relational nature of these collectivities via a common sense of subordination among individuals (1977). Earlier approaches to processes of urban change relied on the notion of subordination attaching the nature of social interactions to the distribution of populations to territorial locations within the city (Park and Burgess, 1927; Shaw, 1929).

2.1.1 Social ties, structure and early approaches

The emphasis on the relational attributes defining communities is directly associated with the concern of urban scholars for determining collective mechanisms of social order. Researchers of the Chicago School of Human Ecology highlighted the importance of social interactions as mechanisms facilitating consensus among neighborhood residents. Specifically, Park and Burgess characterized different types of order—"symbiotic", "cultural" and "moral and political"—all related to particular domains of social exchange defined in terms of "primary" and "secondary" relations (1925:23). The former type of exchange was associated with more effective social controls and it was assumed to encompass mainly interactions within the family, the school and

the church; secondary relations were portrayed as "segmental and usually amoral" (Wirth, 1910:48). Some studies revealed important connections between aggregate patterns of residential instability and the nature of social exchanges. Zorbaugh, for example, defined mobility not only in terms of the physical changes of location but also in terms of the "number of contacts and stimulations which the person experiences" (1929:245). Further, his ethnographic work also noted the effect of segregation on social distances among inhabitants of the same urban space creating an environment where "people do not know anyone else in the neighborhood. There is no group life; people are lonely" (248).

The ecological perspective developed by Park, Burgess and others constituted the basis for a number of empirically-driven projects on patterns of neighborhood life. The Social Disorganization theory emerged from these works. This approach complemented earlier studies of the distribution of populations into "natural areas" (Park and Burgess, 1925:50-51) with a more systematic review of the structural factors associated with the organization of communities. Shaw, McKay, Thrasher, and a number of other scholars further analyzed the characteristics of places associated with multiple correlates of order, with a particular emphasis on the social covariates of delinquency rates. In particular, Shaw and McKay (1942) argued that differentials in rates of delinquency across neighborhoods were produced by structural processes similar to those determining their socio-economic composition. Relying on Park and Burgess' perspective on the determinants of urban growth and urban structure, these authors suggested that poor neighborhoods were more likely to experience high rates of residential mobility and more likely to exhibit greater racial and ethnic heterogeneity. As a result, these communities were less prone to developed patterns of self-regulation—a construct labeled as "social disorganization".

The original formulation of the Social Disorganization theory did not establish a clear account of the actual processes connecting the structural characteristics of poor communities to

their inability to attain collective goals. Further, Shaw and McKay did not explain how neighborhood disorganization as an emergent property was linked to aggregate figures on crime or delinquency. Their models did not reference social ties as a concept that could assist in the representation of either one of these two processes. For example, in *The Jack-Roller* (1930) Shaw employed the notions of residential mobility and ethnic heterogeneity when describing with rapid changes in the population composition produced by new flows of immigrants. However, he did not elaborate on the impact of these aggregate patterns on local social interactions. Rather, he described one of his study areas in terms of the "considerable disorganization and confusion of moral standards" resulting from these changes (1930:35). Thrasher's work on the formation of gangs constituted the only attempt among disorganization theorists to develop a relational argument connecting social exchanges to structural properties of communities (1927). Specifically, he argued that gangs were created as a mechanism to enforce order in socially "disorganized" areas; their internal structure was assumed to reflect properties of their local environments such as the prevalence of relatively unstable, face-to-face contacts among its members.

Many ethnographic works tested and expanded the notion of social disorganization. As a by-product of these studies, researchers began to systematically highlight the role of ties as representations of local social organizations. Findings were not always in accordance with the theory: On his study of "Cornerville", a low-income Italian neighborhood of Boston, Whyte found that both "corner boys" and gang members had strong, fully-connected networks of relations with other residents (1943). While exhibiting the traditional correlates of socio-economic disadvantage, this community was successful at self-regulating behaviors: "Cornerville problem is not lack or organization", Whyte reports, "but failure of its own social organization to mesh with the structure of society around it" (1943:273). Using data from another poor neighborhood of

Boston, Gans portrayed the struggles of residents when fighting against a renewal project (1962). He emphasized the constraints for mobilization created by the fragmented nature of local social ties. These "peer groups" were partially the result of internal processes of differentiation related to income and housing conditions. Like Whyte, Suttles challenged the proposition linking disadvantaged neighborhoods to "disorganized" communities when researching the "Addams" area of Chicago; he contrasted this concept with the existence of a "moral order" which provided the grounds for social interactions in a system of "ordered segmentation" (1968:31-35). Suttles' analysis of social interactions also bridged individual-level networks to the broader social structure via the emergence of associations of solidarity. The study of these affiliations was also developed by Liebow who wrote about the lives of a group of black street-corner men in Washington D.C. (1967). When referring about patterns of friendship formation, Liebow referred to constraints generated by an environment of high population turnover. On his own words, "The overall picture is one of a broad web of interlocking, overlapping networks in which the incumbents are constantly … shifting and changing positions relatively to one another" (1967:203). Merry's ethnography of "Dover Square" also highlights the unstable nature of these associations where neighbors are "temporary associates, here today but gone whenever they move away" (1981:96).

These studies represented neighborhoods and the interpersonal relations of its residents as reflections of the social structure—not merely a "container" of its characteristics as posited by the School of Human Ecology. This is evident in Ladner's description of black families in Saint Louis in terms of having "a dynamic relationship with their physical and cultural environment in that they both influence and are influenced by it" (1972:4). The contributions of the ethnographies following Shaw and McKay enabled the political economy of the city to emerge as a meaningful area of study for understanding the nature of urban relations as a construct representing broader dynamics of wealth accumulation and division of labor (Logan and Molotch, 1987; Becker,

1963)—a pattern clearly enounced by Hannerz, who wrote on how residents of poor communities "support themselves through relationships with outsiders and are dominated by them" (1969:12). These networks are more important in such context because they constitute one of the few fungible resources available to individuals (Bourdieu, 1986; Young, 1999).

Many of these ethnographies addressed the notion of social ties as mechanism of adaptation of individuals and communities to long-term patterns of disadvantage. For example, several anthropologists have argued that poor people over-rely on kinship structures and exhibit small but cohesive personal networks (Hippler, 1974; Stack, 1974; Valentine, 1978). However, by emphasizing individual strategies of adaptation, the community dimension was seldom fully operationalized and narratives such as the role of formal, government-sponsored interventions as well as more general neighborhood-level processes of interaction were relatively dismissed—although there have been some exceptions (Venkatesh, 2000; Orr et al., 2003). Further, the actual analysis of resident social networks was seldom conducted in a systematic fashion and too often relied on limited research strategies. One of the few exceptions was Stack's reconstruction of kinship relations in "The Flats" (1974). Her work drew attention to the significance of "reciprocal obligations" on social exchanges and demonstrated how these interactions changed over time (43-44). She developed an approach to describe the underlying nature of these associations—the "swapping"—determined by the instability of inter-personal contacts and mistrust. Other studies complement this view by underlining the pervasive pressure or framework of competition exerted by poor individuals on their already-thin and depleted social networks (Ladner, 1972; Dominguez and Watkins, 2003). Among these, *Family and Social Network* (Bott, 1957) clearly presented a formal argument linking socio-economic conditions to social ties and neighborhoods. According to the author, highly dense networks are associated with working-class neighborhoods which exhibit a "concentration of people of the same or

similar occupations in the local area; jobs and homes in the same local area; low population turnover and continuity of relationships; at least occasional opportunities for relatives and friends to help one another to get jobs; little demand for physical mobility; little opportunity for social mobility" (112). Bott's approach effectively linked at the ecological level properties of social interactions with properties of the broader social structure.

2.1.2 Social ties, the systemic model and current approaches

Several scholars reformulated the social disorganization theory in order to explicitly introduce the notion of social ties as a key correlate of control. This was first initiated by Janowitz's publication of *Community Press in an Urban Setting* (1951). While this work was primarily concerned with the role of local organizations as facilitators of self-regulatory abilities at the neighborhood level, it employed the concept of networks and attached it to traditional social institutions such as the family. This work re-examined the notion of residential mobility underscoring its effects on local social exchanges; it also made explicit the mechanisms by which aggregate socio-economic factors influenced patterns of association and control creating communities of "limited liability". Empirical tests of the basic tenets of this approach were aligned with the overall narratives developed by qualitative works: for example, Kasarda and Janowitz (1974) found that the length of residence influenced the scope and nature of the residents' relationships and conditioned their participation in community life. Extrapolating from these findings, they concluded that the local organization of neighborhoods was defined by a "complex system of friendship and kinship networks and formal and informal associational ties

rooted in family life and ongoing socialization processes. . . . fashioned by the large scale institution of mass society" (1974:329).

Drawing upon this framework, Bursik and Grasmick (1993) further developed the notion of social ties by including this concept in a general, multilevel model of correlates of disadvantage, forms of control and the ecology of local interactions as determinants of crime. Janowitz' emphasis on local exchanges was operationalized beyond the domain of individual-level interactions to include more general patters of interaction in the form of "primary" and "secondary" relational networks embedded in familial environments or broader constructs such as the street block or the neighborhood. The systemic model formalized the structural correlates of order first advanced by the Social Disorganization theory—that is, the importance of poverty, residential stability and ethnic/racial heterogeneity on defining a collective capacity for self-regulation. Bursik and Grasmick not explicitly test the connection between structural factors and relational networks; instead, they relied on other works to depict the nature of the processes involved. For example, they noted that residential turnover negatively impact the creation and maintenance of primary relationships; the "breadth" of these ties, they argued, is equally constrained by the heterogeneity of the population. Residential instability and differences in the ethnic/racial makeup of neighborhoods also impact secondary relations via the residents' heightened avoidance of potential interactions involving strangers (1993:34-36).

These postulates have been the subject of several subsequent empirical examinations. Simcha-Fagan and Schwartz (1986) found in their study of several New York City neighborhoods that residential stability was significantly associated with higher levels of participation in local organizations. While researchers collected information on personal ties, this variable was not included in the analysis due to its insignificant association with individual-level reports of delinquency. Using data from the British Crime Survey, Sampson and Groves

(1989) found that residents in central-city neighborhoods with greater population turnover had fewer local friendship ties. Communities with lower socio-economic status presented also significantly less resident involvement in local organizations. Relying on a different analytical strategy using the same dataset, Veysey and Messner (1999) confirmed these findings, adding that the lower participation in local organizations was not only a feature of economic disadvantage but also a feature of the territorial location of specific neighborhoods within the city (Veysey and Messner, 1999). These studies did not find a significant effect of ethnic/racial composition on inter-personal or relational networks.

Further testing has involved the analysis of survey data from the Project on Human Development of Chicago Neighborhoods (PHDCN). Relying on the 1995 wave of this project's community survey, Sampson and colleagues (1999) tested the effect of structural correlates of disadvantage on several measures of social organizational processes. Some of these constructs indirectly assessed the nature of local social interactions in terms of adult-child relations and interactions with neighbors. Controlling for neighborhood effects and spatial dependence, authors found that residential stability and concentrated wealth were significant predictors of exchanges among residents. The nature of these exchanges was not influence by concentrated poverty or the heterogeneity of neighborhoods. Similar results have been reported by other studies which have relied on the same sources of data to describe the ecological association between structural factors and the number of local friendship/kinship ties (Morenoff et al., 2001; Browning et al., 2004).

Other quantitative projects have also contributed to this line of research, although in most cases the role of social ties and its association to structural is marginal to the research—often directed to study patterns of enforcement of social control. These studies provide in most cases, measures of neighboring patterns that are conceptualized as representing more general patterns

representative of local networks. For example, Bellair (1997) showed that neighborhood-level measures of ethnic heterogeneity and lower socio-economic status were significantly correlated with less frequent interactions between neighbors. Residential instability also affected these exchanges in the expected direction but this relationship was not significant. Warner and Wilcox (1997) found support for the ecological association of social ties—measured in terms of the presence of multiple exchanges between neighbors—and ethnic heterogeneity and mobility. Their research failed to report the predictive ability for poverty. Lynch et al. (2002) found some support for the association between higher income levels at the neighborhood level and more frequent neighboring activities when studying the ecological effect of arrests in informal social controls. As demonstrated by Taylor (2002) most of the ecological principles derived from recent works have been consistently present in earlier studies, although the proliferation of concepts and measurement strategies has made it more difficult to assess general patterns (see also Portes, 1998 on the notion of social capital).

Other works have attempted to move beyond general measures of social exchanges to the analysis of content-specific networks (Wellman and Wortley, 1990. However, as highlighted by Bursik and Grasmick (1993) this strategy has been difficult to implement using a multi-level design (for reasons related to sampling, costly data collection, among others). By focusing on individual-level processes some scholars have explored this issue. For example, Bursik (1990) developed a scale of private networks with items ranging from interactions with neighbors to the availability of financial support; he also measured parochial and friendship ties using scale-derived proxies. While this study considered only individual-level effects, it showed that the structural correlates of disadvantage had varying effects across types of interactions: length of residence was positively associated with more robust and fluid private networks but negatively

related to parochial ties. The income level of respondents did not significantly impact the scope of the networks included in the models.

Ethnographic accounts have been generally more successful at generating a more in-depth examination of what types of social relations are affected by the structure of neighborhoods. One of the most significant contributions to this line of research was consolidated via the notion of "social isolation" developed by Wilson's *The Truly Disadvantaged* (1987). While relational in nature, this concept aimed to associate the regulatory abilities of communities to dynamics of race and the quality of their collective interactions with the broader society—from employment to participation in political decision-making processes (1987, 1996). In terms of the within-neighborhood effects of the social structure Wilson's work privileged a cultural transmission model based on patterns of socialization of youth, expectations and informal norms, among others. These concepts did not require an explicit formulation of social ties, although some of his observations addressed key issues such as the fragmentation of interpersonal contacts along racial lines (Wilson 1996; see also Merry, 1981).

Wilson's description of the structural processes leading to the concentration of disadvantage in neighborhoods has influenced many other qualitative and quantitative projects. Scholars have linked this macro-level narrative with descriptions of individual level processes—For example, through the study of self-efficacy (Wilson, 1996), fatalism (Young, 1999) or victimization (Velez, 2001). This multilevel perspective has been particularly important in order to expand the role of labor market dynamics and employment in poor communities. This line of inquiry has been developed through ethnographies and more network-based accounts on how people get jobs in a context of socio-economic disadvantage (Granovetter, 1974; Newman, 1999; Sullivan, 1989). Some of these contributions have challenged the notion of isolation suggesting that ties mobilized to gather information about jobs while limited in scope, do not necessarily equate

with smaller general social networks (Granovetter, 1973; Smith, 2005). Other arguments have been advanced associating the barriers to pro-social opportunities with those facilitating the commission of illegal acts (Mullins and Wright, 2003; Bourgois, 1995).

Critiques of the traditional notion of social isolation have derived in new debates about the roles of race, concentrated disadvantage, and culture in the social organization of low-income urban neighborhoods (Wacquant, 2004b; Venkatesh, 2003; Sampson and Bean, 2006). Drawing upon new theories and data, recent works have highlighted the importance of socio-economic characteristics when defining communities with high levels of disadvantage (Patillo, 2003; Newman and Massengill, 2006) over more traditional primarily focused on racial dynamics (Sampson and Wilson, 1995; Wacquant, 2004a; Bourgois, 2002).

The concept of social isolation has also been problematized by studies primarily focused on the measurement of social networks. Particularly, scholars in this line of work have raised doubts on traditional views suggesting that poor individuals are more likely to have smaller, more sparse and spatially-concentrated networks. Competing perspectives have indicated that the nature of these exchanges may not be necessarily constrained by local environments, especially if considering not only strong, frequent contacts, but also broader interactions (Smith, 2003; Oliver, 1988; Wellman, 1979; Fisher, 1982; Warren, 1981). Despite the value of these approaches, there is significant evidence suggesting that even when accounting for intermitted social relations, the physical properties of communities exert a great influence on the nature personal networks (Festinger et al., 1950; Merry, 1981; Wellman, 1996; Taylor, 1997; Venkatesh, 2000; Dominguez and Watkins, 2003; Mok et al., 2007).

Lastly, reviews of the literature on the organization of communities indicate that relatively few projects have systematically addressed the role of the state in reinforcing or mitigating patterns of social isolation (Kubrin and Weizer, 2003; Logan and Molotch, 1987; Venkatesh, 2003). This

gap has been recently the subject of scholarly attention, partially due to significant social policy changes such as the welfare reform of the nineties (Newman and Massengill, 2006; Orr et al., 2003). Davila's account of the processes of political representation in "Spanish Harlem" illustrate of new perspectives addressing topics such as migration, identity and local interactions across ethnic and racial lines (2004). In addition to social relations among residents vis-à-vis state agencies, a small but robust set of studies has re-examined the role of community-based organizations and their dynamics of membership and provision of services. While far from reaching a consensus on general patterns, studies suggest a decline of traditional forms of civic participation (Putnam, 2000)—especially in low-income communities (McRoberts, 2003).

In some cases, the attention to the political economy of poor neighborhoods derived on propositions describing local social exchanges as systems of adaptation (Valentine, 1972, Hannerz, 1969; Wilson, 1996). These networks were arguably the result of structural conditions of disadvantage, which allowed for the emergence of particular social interactions. These ranged from illegal activities such as widespread participation in bootlegging (Hannerz, 1969:139-140) to collective reactions to important events—for example, an unexpected inheritance (Stack, 1974:105-107)—or more systematic inter-personal contacts such as those registered by Whyte involving Doc and his fellow "gang members" (1937). There have been several attempts to formulate organizing principles governing these associations and the processes by which these interactions relate to structural conditions—for example, the notion of "swapping" in Stack's ethnography of "The Flats" or the "Street etiquette" described by Anderson (1999). Venkatesh has systematically developed this idea via the description of the "hustling" as a regulating mechanism of legal and illegal exchanges (2000; 2006). Other perspectives emphasizing the role of culture in poor communities are consistent with this framework (Venkatesh, 2003; Bourgois, 2002; Sampson and Bean, 2006).

In sum, a long tradition of studies has described the processes by which key dimensions of the social structure translate into particular types of social networks. Ethnographies, quantitative projects and network-based accounts have shown that residents of poor communities have social relations characterized by intermittent contacts, and a core of strong connections to other residents—often kin or kin-like associates. These networks tend to be bound along racial and ethnic lines and represent significant sources of support and opportunities for pro-social exchanges. The population turnover experienced by disadvantaged communities has been consistently related to more sparse social networks. Overall, there is general support for the association between social ties and structural characteristics of communities, as postulated by the systemic model of social disorganization. However, these empirical tests have been limited by the type of network measures employed by the research and their general analytical strategy. While many ethnographic works are consistent with the results of survey-based studies, they also highlight the complex nature of macro-micro linkages involving inquiries on social networks. This is particularly the case of substantive areas such as the relationship between social ties and social controls (Suttles, 1968; Patillo, 2003) but also in terms of more structural phenomena such as social ties and social mobility (Young, 1999; Briggs, 1998; South and Hayne, 2004).

2.2 Ties, Social Control and Crime

Not long ago Robert Sampson claimed that he was "sick of hearing from Shaw and McKay" and that Robert Park was "long gone" (2002:213). Along with the ironic sense of these comments—given that Sampson's early works relied heavily on the intellectual tradition formulated by these authors—his words highlighted the revival of the neighborhood effects

literature (Lynch et al., 2002; Bursik and Grasmick, 1993; Taylor, 1997). As an outcome of this renewed interest, the original insights developed by the Social Disorganization theory have been the subject of more comprehensive tests (Sampson and Groves, 1989; Veysey and Messner, 1999).

New research has been devoted to the analysis of an array of contextual correlates of offending ranging from the determinants of physical disorders to processes of civic participation, the effectiveness of policing interventions, and mass incarceration, among others. Beyond these substantive topics, current formulations of crime-related neighborhood dynamics have maintained an orientation for the mechanics involved in the creation of social order (Leighton, 1988). Consistent with the postulates by Shaw and McCay (1942), other works expanded the description of the control processes operating at the individual and collective levels (Hirschi, 1969; Reiss Jr., 1951). Studies of urban communities benefited from these developments, and for the most part, focused on the determinants of "disorganized areas" in terms of social control mechanisms (Korhnauser, 1978) and cultural processes (Sutherland et al., 1968). Concepts such as "territorial cognition", "collective efficacy" and "social capital" were partially derived from these frameworks (Sampson et al., 1999; Rosenfeld et al., 2001; Taylor, 1997; Putnam, 2000).

The concept of social ties has played a significant role in many of the emerging conceptual and empirical debates. It was integrated into the systemic model of social disorganization and associated with particular types of social order (Bursik and Grasmick, 1993). Social exchanges have also been the underlying construct of key neighborhood-level processes of social cohesion, neighboring, community attachment and civic participation (Sampson et al., 1997; Janowitz, 1951, Taylor, 2002). These exchanges have been defined as providing the infrastructure for the enactment of varying patterns of social control. In most cases, these linkages have been guided by the control and systemic reformulations of the Social Disorganization theory (Bursik and Grasmick, 1993; Korhauser, 1978).

As this review of the literature will show, there is substantial empirical support for a relational view on the determinants of the regulatory abilities of communities. However, most of the evidence comes from indirect measures of social ties and particular operationalizations of social controls (Taylor, 2002; Bursik, 1999). This is particularly prevalent trend among survey-based quantitative studies. The direct measures of social interactions included in this field of research are generally less robust at predicting controls and levels of crime. As shown by a number of ethnographic works, these inconsistencies arise from multiple challenges associated with the measurement of networks, its analysis as community-level properties and the varying avenues that connect interactions to effective self-regulatory mechanisms (Patillo, 1999; Smith, 2003; Carr, 2003).

The combination of strong results by the proxies of social ties, and the difficulties of conducting large-scale network-based research, has resulted in the dismissal of actual interactions between individuals as a correlate of community organization and control. For example, the notion of collective efficacy underlines the significance of role expectations and shared perceptions of cohesion and exchange but does not include measures of friendship or kinship ties (Sampson et al., 1997). Proponents of this approach argue that the infrastructure of interpersonal contacts represented by social networks is not a sufficient condition for the mobilization of control (Sampson, 2004; Morenoff et al., 2001; Browning et al., 2004; Kubrin and Weizer, 2003).

2.2.1 Early conceptualizations of social order, control and social ties

Shaw and McKay developed the notion of social disorganization as a latent ecological characteristic of poor, unstable, and ethnically diverse neighborhoods (1942). While this concept was meant to represent the failure of communities to create and maintain social order,

the theory lacked clarity on the mechanisms associated with this process (Bursik, 1988). Specifically, Shaw and McKay did not subscribe in a consistent way to cultural or control-based explanations of the structural determinants of collective self-regulatory abilities (Kornhauser, 1978). Further, unlike its predecessors of the School of Human Ecology, they did not develop the notion of social relations or paid little attention to patterns of inter-personal or institutional affiliations. This was a relatively common attribute, even for studies that implemented the concept of social control on the analysis of delinquency (Thrasher, 1927).

The control arguments of the social disorganization theory were reformulated in Kornhauser's *Social Sources of Delinquency* (1978). Relying on an exhaustive review of the hypotheses advanced by Shaw and McKay, she underlined the features of their work connecting particular properties of the social structure of communities to weak collective controls. Relying on earlier works (Hirschi, 1969; Reiss Jr., 1951) Korhauser contextualized her study of controls using a framework by which social order was based in norms, exchanges, or coercion. These controls could be internal (i.e., focused on individual-level processes of conformity) or external (i.e., social, or transmitted through interactions and relationships). Overall, her perspective valued more the role of external controls over the subcultural explanations of the early Social Disorganization theory. These were seen as schemes offering sanctions and rewards for proscribed deviations from normative behaviors. As a result, delinquency was seen as the product of weak patterns of regulation and the dynamics of particular group processes in contexts such as the family and the school. Despite the value of these theoretical contributions, Kornhauser did not expand the few relational processes described by Shaw and McKay as contributors to the disorganization of communities. However, she clearly favored the role of social ties as a framework to disseminate controls. For her, the competing cultural explanation was irrelevant:

"no matter what goals slum dwellers seek, a structure of personal relations and of primary groups added together only upon threat of conflict cannot satisfactorily achieve them" (1978:135).

The integration of these processes to the theory began with the contributions of several empirically-driven studies. This research described specific mechanisms by which the regulation of communities was achieved via interactions between groups of individuals. In one of the first studies focused primarily on the structure of social networks Bott (1957) examined family structures and their members' sets of relationships and roles. She found that networks that were high in closure—more tightly or densely knit—were more effective at producing and enforcing informal group standards. While concerned mostly about marital relationships, Bott considered that her findings also applied to the broader structure of family relationships and the community environment. Festinger et al. (1950) reported similar findings regarding the positive association between high levels of group cohesion and their ability to enforce collective norms.

Suttles developed a similar approach in an urban environment, observing that otherwise "disorganized" areas of Chicago exhibited a "moral order" that provided the grounds for social interaction (1967:7-8). Retaining an ecological perspective, he proposed principles guiding social exchanges between individuals and groups. For example, on his description of patterns of association Suttles highlighted the importance of age, gender, ethnicity and territoriality in the composition of street-corner groups (156). These groups reflected a broader segmentation of the neighborhood which decreased the possibility of widespread conflict and facilitated within-group patterns of control. These patterns were defined by Suttles as dependant on face-to-face interactions and strong personalities (229). In a later writing he generalized the regulation patterns of the "Addams" area suggesting that "primary relations are the mainstay of social control in both the city and the most formal organizations" (1972:30-31).

Additional ethnographic accounts have described other avenues bridging the social networks of neighborhood residents to processes of social control. Merry (1981) for example, found support for Suttles' thesis of "ordered segmentation" (1967:157), expanding on the concept of group cohesion as a determinant of control (see also Lofland, 1973; Hippler, 1974). In his description of "street families" Hannerz suggested that kinship networks were loosely connected, producing an intermitted capacity for control (1969:50). For Stack, conditions of heightened disadvantage increase the sense of interdependence creating incentives and obligations for cooperation, and diminishing the benefits of conflicts—a situation she described as a "precarious balance between trust and profit" (1974:57). Stack also portrayed a dual system with regard to the enforcement of community-wide controls; a "folk", informal system or rules and expectations, and a more mainstream, formal "legal" system (46). Suttles (1978) also describes highlights the importance of individual strategies and the relevance of information and proactive choices in the creation of "defended neighborhoods". Kornahuser summarized some of these insights suggesting that residents of disadvantaged areas had more fragile networks with lower capacity for regulation; according to her, "among black street-corner groups, friendships founded on exigent demands that are beyond the capacity of participants, or else they are terminated by the high mobility of the streetcorner men" (1978:137). According to this perspective the scope and nature of social interactions are impacted by structural factors such as mobility and economic hardship.

At times, Kornhauser seemed to privilege an exchange-based notion of order associated with individual calculations of benefits and sanctions arising from social affiliations. However, the connection between social networks and community-level processes was more clearly developed in an earlier work, *The Community Press in an Urban Setting* by Janowitz (1951). His perspective gave emphasis to the role of friendship and kinship ties in the creation of an infrastructure through which regulation could be achieved. Social control was, therefore, a

mechanism of self-regulation related to a specific type of social order—one based on the notion of social interactions and participation in voluntary associations (Kasarda and Janowitz, 1974). The relational basis of order is also present in other studies of urban organization via personal relationships and adherence to norms (Merry, 1981; Hannerz, 1969; Kornhauser, 1978).

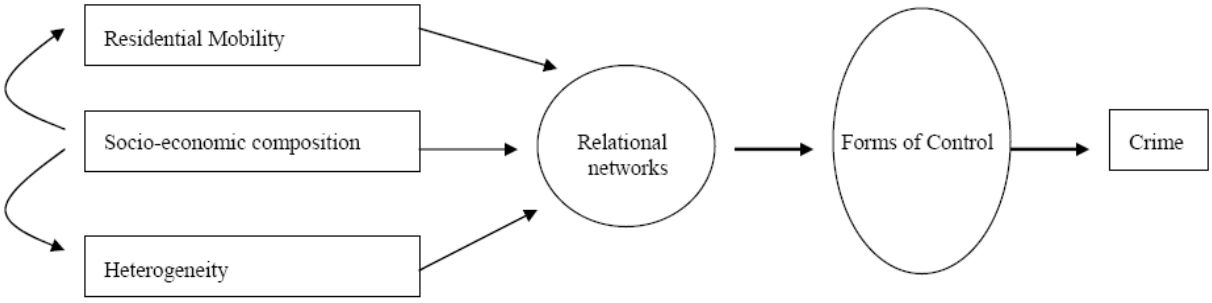
Relying on the approach developed by Janowitz, Hunter (1985) developed a more macro-level approach to the outcomes of personal interactions. He described the connections between three different spheres of order (private, parochial, and public) and particular combinations of social networks, formal institutions, and the ecology of places. Hunter suggested that by studying primarily the parochial sphere of order, scholars could more easily bridge properties of local exchanges with neighborhood-level dynamics. These exchanges were defined not only in terms of personal networks, but also in terms of institutional affiliations—local churches, stores, schools—creating a community of "limited liability" (Janowitz, 1951). Hunter summarized this system of relations at the parochial level when applying his perspective to the works by Gans (1962) and Suttles (1967); he writes that in these two works "the dense networks of personal knowledge and trust, held together in interlocking local institutions, result in spatial and social boundaries that can be used to define insiders who are mutually accountable to one another while outsiders have more limited rights within the community" (1985 [1995:215-216).

2.2.2 The systemic model and the relationship between social ties and social controls

In *Neighborhoods and Crime* (1993), Bursik and Gramisk provided a comprehensive theoretical integration of the notions of social order (Hunter, 1985), social control (Kornahuser, 1978) and community self-regulation (Janowitz, 1951). Their systemic model followed the

structural considerations included in the Social Disorganization theory, that is, the ecological impact of socio-economic conditions, mobility and heterogeneity in the organization of neighborhoods. However, unlike the traditional formulation by Shaw and McKay (1942), these structural conditions did not create a multiform construct of disorganization. Rather, Bursik and Grasmick (1993) suggested that these conditions determined particular patterns of personal and institutional associations which in turn, translated into different types of order. In this view, crime emerged for a breakdown of controls (Exhibit 1, below).

Exhibit 1
The systemic model of social disorganization



Drawing upon Hunter (1985), Bursik and Grasmick (1993) associated types of networks to levels of control: the private level was composed mainly by intimate ties, often kin and close friendships; the parochial was constituted by secondary exchanges such as acquaintances and institutional affiliations; the public order was associated with linkages between resident and non-local institutions. The nature of social exchanges varied across these three levels of control. For example, the parochial level was arguably composed by less frequent and less intimate ties while the private order was understood to have stronger associations.

The systemic model also provided a better specification of the micro-macro mechanisms associated with the enforcement of control. According to its original proponents, this

formulation represents a neighborhood-level account of the dynamics of control advanced by more general exchange theories, such as Coleman's (1990) notion of network closure and its multi-level mechanics (Bursik, 1999). Indeed, the social capital framework developed by Coleman focused on the properties of networks that facilitated control (1988, 1990). Dense and highly connected systems of social exchange were seen as more likely to generate closure given their structural ability for transmission of information and mobilization of sanctions.[1]. Applied at the neighborhood-level, this line of reasoning associated the presence of strong social ties to the regulation of behaviors and the acceptance of pro-social norms (Reiss Jr., 1986:16).

Additional research has found, however, that the relevance of ties for the development of social controls depends largely on the properties of these interactions such as its scope, frequency of contact and type of exchanges. In many cases networks will not produce enforcement patterns. This crucial caveat was acknowledged by proponents of the systemic model—an observation largely ignored by recent critiques of this perspective (Sampson, 2004; Browning et al., 2004). Bursik made this point arguing that "while the existence of structural linkages is a necessary condition for the exercise of systemic control, it is not a sufficient one" (1999:88). Further, building on Coleman's work, he emphasized the need to consider the content of social ties when studying narrative of control; he writes, "the social capital imbedded in relational networks will serve as an effective source of social control only to the extent that group members perceive that these linkages are likely to be used to administer negative sanctions in response to illegal behavior" (87-88).

[1] Other forms of social capital mention structural holes and opportunities for brokerage (Burt, 2000). Coleman, however, has been criticized for given too much agency to individual actors. According to Blau and Schwartz (1968), for example, agent's choices have little or no impact on the outcomes of interaction, given that the universe of these interactions is basically determined by position. The association between the systemic model and structural theories is addressed in the third section of this chapter.

There has been mixed quantitative support for the connection between social ties and controls at the neighborhood level. A small group of studies has provided varying definitions of social ties which have proven to be significantly associated with higher levels of social control—often referred in the literature as "parochial" or "informal" controls. For example, in a study of Atlanta neighborhoods, more dense and cohesive social networks were positively associated with higher levels of informal controls—defined mostly in terms of heightened patterns of surveillance (Greenberg et al., 1982). Sampson and Groves found that neighborhoods with higher levels of local friendship ties had generally lower victimization rates (1989) However, their models did not specify control mechanisms—crime was directly linked to networks, peer-associations and civic participation (see also Veysey and Messner, 1999).

Sampson and colleagues (1997) developed a notion of control—collective efficacy—that incorporated scales of informal interventions and social cohesion. This construct was significantly associated at the neighborhood level with a greater number of friendship and kinship ties and higher participation of residents in local organizations. Using the same collection of datasets (Project of Human Development on Chicago Neighborhoods, PHDCN) Silver and Miller (2004) focused on the determinants of informal control over youth—closely associated with one of the two constructs created by Sampson et al. in their composite notion of community-wide control (1997). Findings were aligned with those reported for collective efficacy with neighborhoods with more local friendship and kinship ties having higher levels of informal social control. Civic participation was not significant in these models.

Warner et al. examined the role of informal social control and culture in neighborhoods with high levels of drug use (2003). Their findings were consistent with earlier reports connecting areas where residents had more local connections to higher levels of control—defined as the likelihood of intervening in specific situations. Using a similar construct for the measurement of informal

control, Lynch and associates (2002) found that more frequent neighboring interactions had a significant, positive effect on patterns of self-regulation. Residents' participation in associations had no predictive value on informal controls. Velez (2001) found that residents of neighborhoods with more local social ties were less likely to be the victims of a crime, although this relationship was fully mediated by the inclusion of public social controls in the models (i.e., interactions with public institutions). Bursik explored individual-level covariates of an alternative measure of control defined as the likelihood of loosing the respect of associates when having committed an illegal act. He found that network effects on control varied by type of tie, with private and parochial relations having the greatest, significant effect on the withdrawal of respect (1999). Using individual and contextual data from the Longitudinal Study of Adolescent Health, De Coster et al. (2006) found that individuals socialized in a more cohesive family environment reported lower levels of violence. Similar findings have been presented on the significant role of private controls and family networks on the supervision of children (South and Hyane, 2004).

Some of these associations have been also explored by qualitative works. At a basic level, these studies provided more comprehensive accounts of how informal controls operated in poor, urban neighborhoods. This process is vividly described by Valentine when referring to the public dimension of life in "Blackston", an inner-city neighborhood in a large northeastern city: "sitting on the windows or on stoops, watching the comings and goings of hundreds of people just on this block, talking about events and neighborhood crises, searching up local examples to illustrate discussions of 'right' and 'wrong' behavior, family arguments that moved out onto porch or stoop and could be heard through open windows on hot days, kin ties that spanned many households" (1978:47-48). Beyond this type of portrayals, ethnographers also have linked networks to control. On his study of the Robert Taylor Homes, Venkatesh found that personal networks provided the infrastructure for the mobilization of tenant patrols and sometimes, facilitated the cooperation

with housing and police authorities (2000). Other works focused on the structural constraints for interactions, through notions such as the role of the strangers and the pervasive sense of anonymity of some disadvantaged communities (Stack, 1974; Hannerz, 1969; Newman, 1999; Anderson, 1999). According to Merry, these narratives had important consequences: "Reluctance prevents the creation of crosscutting ties and impede the flow of information about reputations, about those individuals who are trustworthy and those who are not" (1981:121-122).

Other qualitative works highlighted the fact that localized forms of social control in poor communities were limited by the presence of anti-social contacts in residents' networks. For example, Zatz and Portillos found that the enforcement of parochial and private controls was compromised by the overlap between family and gang attachments (2000). All the Latino juveniles interviewed by the authors reported having at least one family member who was also a gang affiliate. According to one of these subjects, "I got two aunts that were in a gang, my dad was in a gang, my grandpa was in a gang, and I got lots of cousins in gangs. Most of them are in my barrio but some of them aren't" (2000:390). As shown by Young in his ethnographic work with black males in Chicago, gangs are a prevalent mediator of social interactions and avoiding these contacts resulted in reduced general networks of interaction (1999:29). Under such circumstances, the opportunities for control also decreased due to fear of retribution and retaliation (Anderson, 1999; Sullivan 1989).

The nature of these tensions and its impact on regulatory abilities of communities was further developed by Patillo (1999) in widely-cited study of "Groveland", a neighborhood in Chicago's South Side. According to Patillo, neighborhood residents find themselves in the middle of a struggle between the significance of close ties to individuals associated with criminal activity and the enforcement of pro-social values (see also Newman, 1999). This situation is described by Merry when narrating patterns of acquaintanceship in a public housing complex: "When one of

the leaders of the street group was released from jail, for example, Mr. Johnson, a respectable black, said hello to him, but went home and warned his family to take additional precautions against burglary . . . . The street youths, in turn, know half to two-thirds of the respectable adults and almost all of the hustler adults" (1981:114). Similar accounts are provided by Valentine in her study of Blackston: "Everyone on the street was aware of who the addicts were, where they lived, their parents, their spouses, and their children" Everyone on the street was somewhat more careful of his personal possessions when an addict was around . . . . but in general most of the people reacted to and interacted with addicts and their families on the basis of the same personal characteristics and kin ties that operated in other cases" (1978:31). These narratives are more prevalent than ever before given the disproportionate effects of incarceration on poor, minority neighborhoods (Clear, 2007; Clear et al., 2003; Lynch et al., 2004).

Some of these connections offer opportunities for understanding potential mechanisms of anti-social behavior. Merry, for example, described how groups of young individuals would share information about potential victims and would gave each other advice about the logistics of particular crimes, handling of the police, etc. (1981:111). Other examples of more generalized pro-criminal interactions include routines of number-playing (Valentine, 1978:23-24) and bootlegging practices (Hannerz, 1969:139-140). The literature on the organization of criminal networks has provided numerous examples on how there exchanges are embedded in broader social structures (Sullivan, 1989; Waring, 2002; Sarnecki, 2001)

Some of these ideas have been tested using quantitative methods. For example, recent studies have linked fear of crime to the lack of neighborhood attachment (Taylor, 2001). Using data from the PHDCN, Browning et al. (2004), tested the differential effect of social ties on collective efficacy and violent crime with the assumption that networks could be employed for both pro-social and anti-social activities. Results indicated that patterns of heightened interactions at the

neighborhood level did promote collective efficacy—perceptions of cohesion and informal control; in addition, it was found that these exchanges also provided an infrastructure for criminal offending—although results are inconsistent across studies (Bellair, 1997; Warner et al., 2003).

2.2.3 Social ties, participation in associations, social controls, and crime

The basic formulation of the systemic model did not establish an ecological connection between social networks and crime levels. This relationship was fully mediated by socialization strategies and different combinations and types of control (private, public, and parochial) (Bursik and Grasmick, 1993). As mentioned by Lynch et al., (2002) empirical studies have rarely followed this specification, privileging in many occasions a direct link between measures of social exchanges and patterns of offending. In several studies, this association has been significant. For example, Sampson and Groves' (1989) analysis of the British Crime Survey found that having friends who live nearby was associated with lower victimization rates. Using several waves of the same survey, Markowitz et al., found that more fluid exchanges between neighbors were negatively associated with lower neighborhood-level burglary rates (2001). Warner and Wilcox tested a similar hypothesis using cross-sectional data and a three-question scale of neighboring patterns (1997). Their study found that areas with more local interactions had higher burglary rates and lower rates of assaults. Bellair (2000) also tested the relationship between informal control and crime. His analyses showed that, when controlling for simultaneity, patterns of resident-based surveillance were not significantly related to robbery rates, unless models also accounted for burglaries. Another study by Bellair (1997) suggested that more frequent interactions among neighbors were not related to lower levels of crime (burglary, robbery or car theft). Overall, there is mixed support

for the relationship between social ties and general measures of crime-related outcomes—indicators of social interaction do matter, but mostly in terms of specific events.

Other works that have tested alternative measures of community organization such as collective efficacy have yielded mixed results regarding the significance of ties for the prediction of aggregate crime rates: Using data from the PHDCN, Morenoff et al., studied the covariates of homicides in Chicago neighborhoods (2001). Measures of combined social ties (friendship/kinship) and participation in voluntary associations were not significant in any of the models when controlling for collective efficacy. Further analysis of the data suggested these two variables had an indirect effect on homicide via collective efficacy. Lynch et al. (2002) found that several measures of local interactions (feelings of solidarity and neighboring activities) were associated with informal controls and collective efficacy.

The systemic model included in its original formulation the variable of civic participation as a covariate of parochial control (Bursik, 1988; Bursik and Grasmick, 1993; Bursik, 1999). This particular type of social exchange has been linked to some definitions of social capital and has played a significant role in early formulations of collective efficacy (Putnam, 2000; Sampson and Groves, 1989). More recent works have tended to dismiss its value when predicting crime (Morenoff et al., 2001; see Taylor, 2002 for a review). Few empirical studies have followed the systemic model when examining the association between crime and levels of organizational membership. Instead, scholars have usually measured direct linkages between these variables, reproducing the pattern of hypothesis-testing described for the concept of social ties.

Research has generally supported the association between measures of local involvement in community organizations and crime (Sampson and Groves, 1989; Veysey and Messner, 1999; Rosenfeld, et al., 2001; Putnam, 2000). For example, in one of the first quantitative studies of neighborhood effects, Simcha-Fagan and Schwartz (1986) found a significant association

between lower levels of self-reported delinquency and higher levels of involvement in community organizations. Other findings have been less supportive of this argument. Using data from the PHDCN to predict neighborhood-level homicide rates, Morenoff et al. (2001) concluded that the density of organizations in these communities or levels of civic involvement had no predictive power. Similar findings have been reported elsewhere with different crime-related outcomes (Ross and Joon Jang, 2000; Lynch et al., 2002; Hannerz, 1969).

Some qualitative works suggest that local institutions are more likely to be effective if preceded by sustained informal mechanisms of control (Janowitz, 1951; Venkatesh, 2000). Patillo (1999) and Zatz and Portillos (2000) have reported that the involvement of community-level organizations in the regulation of social life is sought by residents only after the relative failure of inter-personal and private networks to generate patterns of self-regulation (see also Dominguez and Watkins, 2003). These works have also highlighted the importance of women in the daily routines of local organizations (Hannerz, 1969; Anderson, 1990, 1999; Zatz and Portillos, 2000). In the same way, ethnographers of neighborhood life have advanced several hypotheses regarding the lack of more positive outcomes for individual and aggregate measures of civic participation. Scholars have emphasized, for example, the disconnection between local institutions and long-standing problems of residents (Mc Roberts, 2003; Venkatesh, 2000). Perhaps more importantly, others have described how racial, class-based and gender-based boundaries have permeated the institutional sphere of local organizations (Merry, 1981; Hippler, 1974). Similar features have been associated with the operation of local businesses (Merry, 1981; Hannerz, 1969) More recent work have brought attention to ongoing challenges over issues of inclusion, political representation and cultural politics (Davila, 2004; Small, 2004; Newman and Massengill, 2006). These new perspectives are aligned with traditional reports on the difficulties associated with political mobilization in low-income and minority neighborhoods (Hippler, 1974:212-213; see

also Hannerz, 1969). Some of these challenges have been less pervasive in more middle-class communities, as reported by Winnick (1990), Carr (2003) and Patillo (1999).

Lastly, a significant body of research has addressed the effects of public controls (e.g., police, incarceration) on aggregate levels of crime and other measures of social order. This subject has been systematically under-researched by urban scholars (Kornhauser, 1978; Kubrin and Weizer, 2003). However, there have been some recent attempts to combine levels of control and expand the scope and nature of the government interventions included in the models—from interactions with officials to incarceration, and the delivery of social services (Rose and Clear, 1998; Lynch et al., 2002; Velez, 2001; Bellair, 2000; Orr et al., 2003). Formal controls can affect crime rates directly through policing activities and indirectly, through a compounding effect on citizens' attitudes toward rule-breaking behavior (Kubrin and Weizer, 2003; Maeres and Kahan, 1998). In minority communities this is an important debate given long-standing concerns about bias and racism within the Police and other agencies (Lander, 1972; Anderson, 1990) or low levels of satisfaction with their interventions (Silver and Miller, 2004). However, evidence suggests that despite the prevalence of these concerns, residents do not tend to engage in uncooperative behaviors with formal authorities (Hannerz, 1969; Venkatesh, 2000; Newman, 1999).

The scope of these relations between residents and extra-local institutions goes beyond law enforcement activities. It involves welfare agencies and other service institutions, which have been criticized for their lack of local contacts or for failing to promote systemic changes (Fox-Piven and Cloward, 1971; Wilson, 1987; Venkatesh, 2000; Ladner, 1972; Hippler, 1974). While some communities have resisted to the emergence of particular interventions (Stack, 1974; Bortherton and Barrios, 2004), others have actively sought more services (Dominguez and Watkins, 2003). Carr's ethnography of "Beltway" describes the trend of informal social control processes (2003). According to his research, patterns of self-regulation in this community were

not derived from the local structure of inter-personal contacts; rather, these patterns were greatly determined by partnerships between community organizations and formal institutions—a type of order he defines as the "new parochialism". Other studies have also addressed the topic of overlapping forms of control and opportunities for more effective formal interventions (Fagan and Maeres, 2007; Silver and Miller, 2004).

According to the systemic model, informal controls are more likely to emerge from strong ties among residents, while a more dynamic set of interactions emerge through local organizations. While there is significant empirical support for these general statements, this support has often involved proxy variables that fail to capture actual interactions between neighbors (e.g., scales of neighborliness, perceptions of cohesion, collective efficacy). If this body of literature is taken into account, research would suggest that communities with denser and larger social networks have higher levels of informal control and lower crime rates. In most cases, these crime-reduction effects are directly associated with levels of control. It is argued in this dissertation that the inconsistent pattern of direct associations between social ties and offending levels does not contradict the tenets of the systemic model. However, the validity of the model has been brought into question by qualitative works, which suggest that many of the local interactions in poor communities may not be necessarily pro-social, may not translate into social controls, and may not be significantly constrained by structural factors. Further, some of these studies also questioned the general relevance of strong ties (i.e., frequent, intimate, and consistent affiliations) for the generation of informal controls.

In sum, the role of social ties in the creation and maintenance of informal control has received mixed empirical support by quantitative and qualitative research. While there is a robust set of survey-based findings linking local interactions to forms of control, these relationships appear to be far more complex than otherwise captured by currently-employed measurement

tools. These difficulties are amplified by the multiple operationalizations of informal controls and the lack of a more comprehensive task of theoretical integration.

2.3 Significance of the Proposed Study

The concept of social ties has been systematically employed to study correlates of social order and crime in urban communities. Its popularity reflects long-standing theoretical associations between patterns of affiliation and the development of individual and social self-regulatory abilities; in addition, patterns of exchange have been employed consistently as a mechanism to bridge macro-level factors of the social structure and micro-level dynamics of control. As posited by Coleman, this connection needs to be incorporated in a new vision of sociology that "takes into account not only system behavior, but also individual actions as proper phenomena for sociological study and sees them as closely intertwined, individual actions that generate system behavior as well as system properties that, in turn, affect individual actions" (1994:34).

Presently there is a debate in the field of Criminology as to whether or not the actual measurement of social networks contributes to the understanding of control mechanisms and levels of crime at the neighborhood level. According to Sampson and others, actual social exchanges are not required to explain aggregate patterns of criminal offending. Instead, these patterns could be described by focusing on the role of shared expectations, trust, and more cultural-based approaches. Other scholars like Bursik and Venkatesh continue to emphasize, in different ways, the significance of social ties in the organization of poor communities.

Thus, the primary research questions of this dissertation will address social networks as a construct that represents structural properties of neighborhoods and contributes to particular mechanisms of social control. Further, this project will assess the significance of social ties to understand levels of individual and collective victimization.

This research will advance the current understanding of community-level processes of control in many ways. First, it will develop measures of inter-personal networks that account for its complex structure and associated narratives (e.g., organizational membership, spatial dependency, etc.). Much of prior research is based on measures of social interaction with limited capacity to describe key group processes such as cohesion, strength of ties, and content of these exchanges. This is important because these instruments have been employed to support new theories about the organizing principles of urban communities and, sometimes, to dismiss the study of actual patterns of interaction among individuals.

Second, this study will explore the correlates of social order and social control in a community with high levels of poverty, crime and other correlates of disadvantage. The current body of literature has relied on more general approaches to the organization of communities. In fact, the leading research has based analyses on a single, albeit comprehensive, data collection effort—the Project of Human Development of Chicago Neighborhoods. By testing some of the conclusions derived from this dataset, the present study engages in an essential task of replication and validation of findings, analytical approaches and measurement instruments.

Finally, above and beyond contributing to an academic debate on more comprehensive ways to capture community processes, this study will also advance the current understanding of structural dynamics of poverty and racial and ethnic segregation. This is a fundamental task of social science in a moment of a significant reconfiguration of government services and policies directed toward the urban poor—from welfare interventions to mass incarceration.

CHAPTER 3. MATERIAL AND METHODS

This dissertation examines the relevance of interpersonal relations and other types of social ties as correlates of crime and informal social controls. This assessment involves a number of theoretical and methodological questions. Both domains of inquiry will be addressed using the systemic model as a guiding theoretical framework for the analysis. This project relies on primary data of associational patterns of residents in a low-income area of the South Bronx. These data will be analyzed following standard statistical methods for the study of individual and contextual effects. These estimations will be complemented with procedures more centrally designed for the exploratory scrutiny of properties of social networks. This chapter describes these techniques and provides an overview of the overall research strategy implemented to collect and analyze the data.

3.1 Analytical Approach

For many years quantitative studies on urban communities have relied on cross-sectional data for the analysis of social controls. Consistent with some of the early theories, traditional examinations have assessed ecological associations. Other works, while still developing place-based narratives, have relied on individuals as the unit of analysis. Overall, many research projects have been based on the measurement of average associations between outcomes and predictors along a single dimension—comparisons across individuals or comparisons across communities.

New theoretical and methodological developments have allowed the bridging of individual and ecological perspectives. The study of the social correlates of crime has been significantly influenced

by these innovations—a phenomenon symbolized by the emergence of studies on "neighborhood effects" (Taylor, 1997; Sampson et al., 2002; Raudenbush and Bryk, 2002).

The particular operationalization of the ecological dimension has varied across studies, ranging from administrative areas such as precincts or political wards to more structurally-defined clusters and metropolitan regions. Census tracts dominate as the most frequently employed unit of analysis. While there are several substantive and methodological reasons to differentiate among these forms of aggregation (e.g., routines of residents, type of events captured), relatively few projects have developed robust specifications of spatial patterns or included this dimension in the discussion of findings. The same is true for the examination of temporal patterns, although in this case, limitations arise from the absence of data. Several works have dealt with this issue using for example instrumental-variables or simultaneous equations (Lynch et al., 2002; Bellair, 2000).

This dissertation is aligned with this general family of studies by developing a series of multi-level models accounting for the impact of community context on individual outcomes. In particular, it relies on hierarchical models to test the relationship between key characteristics of the social structure and properties of the respondents' social networks. The same estimation routine is implemented when analyzing the effects of social ties on informal controls and crime. In accordance with previous studies, contextual effects are operationalized as tract-level covariates.

Despite the benefits derived from the implementation of this perspective, its external validity is limited given the low number of respondents and tracts available for the analysis. Such limitations are described in the analytical chapters and summarized in the concluding section (Chapter 8).

3.2 Research Design

This study is based on a multi-method collection of primary data on correlates of social organization in the South Bronx. The overall research strategy was guided by Dr. Elin Waring (CUNY Graduate Center – Lehman College) and Dr. Todd Clear (CUNY Graduate Center – John Jay College). This effort included a survey of area residents as well as a systematic observation of street blocks, a census of local organizations, and a series of participant-observation engagements in community forums. It also involved the compilation of administrative data using public records from the 2000 U.S. Census and information from several city agencies such as the Department of Planning and the Department of Health and Mental Hygiene. Crime statistics were facilitated by the New York Police Department. Research activities involving human subjects were approved by the Institutional Review Boards of John Jay College and Lehman College.

This study is primarily based on the analysis of survey data resulting from this effort. Responses are systematically linked with information obtained from secondary sources—particularly as it pertain to crime rates and the structural characteristics of census tracts. Other data elements gathered by the project are employed to assist the interpretation of findings.

The collection of the primary data for this research spanned over three years, starting in the fall of 2003. The survey instrument was piloted in May 2005 and the collection of survey data began three months later and finalized in October 2006. Over two-thirds of these interviews were conducted by the author of this dissertation. Trained research assistants conducted the remaining interviews and participated in the other components of the fieldwork.

The overall initiative was funded through several sources. Its main financial support came from a CUNY collaborative grant to Drs. Waring and Clear, and a CUNY-Graduate Center

dissertation fellowship for the author; a number of additional contributions from other sources sponsored this research, including the National Consortium on Violence Research (pre-doctoral fellowship) and the CUNY Graduate Research Grant.

3.2.1 Logic of the general research project

The overall initiative was to study patterns of social organization in a poor minority neighborhood of New York City with high levels of reported crimes. Specifically, the investigation sought to expand the current understanding of the relationship between social networks, crime, and incarceration. Theories on the social organization of communities have posited that high levels of mobility in an area are associated with many social problems. Drawing upon this general framework, some scholars have suggested that high rates of imprisonment in specific neighborhoods can be analyzed as a form of "coercive mobility" that endangers the ability of already-disadvantaged communities to auto-regulate (Rose and Clear, 1998; Vishner and Travis, 2003). Specifically, it has been suggested that mass incarceration may lead to a breakdown of community-based social ties and, therefore, to a higher individual and collective vulnerability to chronic social problems such as unemployment and weakened social supports (Clear et al., 2003; Clear, 2007; Lynch et al., 2004). From a similar perspective, several scholars argue that incarceration negatively affects the stability of families beyond the positive effects of removal that are traditionally associated with imprisonment (Parke and Clarke-Stewart, 2002; Johnson and Waldfogel, 2002; Loppo and Western, 2005).

There is growing ecological evidence for such unintended consequences of large-scale incarceration. Studies in several areas (e.g. Baltimore, Tallahassee and rural North Carolina) indicate that above a certain level, higher incarceration is associated with negative outcomes such as

increased subsequent crime, increased rates of sexually transmitted diseases, and decreased property values (Clear et al., 2003; Thomas and Sampson, 2005). The majority of these studies, however, have primarily focused on the analysis of macro-level covariates using census tracts or similar ecological constructs as units of analysis. The operationalization of multi-level associations has been limited by the availability of empirical data and the choice of analytical strategies. More significantly, the significance of these studies has been challenged due to potential simultaneity bias in the operationalization of the relationship between incarceration and observed outcomes (Lynch and Sabol, 2004). Further, scholars have had difficulties separating the effects of imprisonment in families and communities from those related to the commission of criminal events (Loppo and Western, 2005). Perhaps more importantly, the current literature has failed to empirically address the specific network-based impacts of coercive mobility for both families and communities in high-incarceration areas. This is a particularly critical area of inquiry given the central role of social ties for the conceptualization of the pre-existing neighborhood structure, the maintenance of social order and the suggested processes by which incarceration may contribute to the further destabilization of disadvantaged communities.

The project in the South Bronx was developed to address this gap in the research by explicitly measuring the social networks of residents in a high-crime, high-incarceration area. Using a simulation approach derived from the data collected in the South Bronx, preliminary findings indicate that the removal of individuals due to incarceration had very localized effects in the structure of social relations of the community at large (Rengifo and Waring, 2005).

3.2.2 The study area

The study is centered in the administrative area known as Community District 1 in the Bronx (Exhibit 2, below)[2]. This is a geographically compact area located in the southern section of the Bronx, between 132nd and 161st streets. According to the U.S Bureau of the Census, the district had about 82,000 residents in 2000, distributed in 27 census tracts (although only 19 of these are predominantly residential units). Most of District 1 residents are members of minority groups—about 26% African-American and 71% Latino (mostly Puerto Rican, Dominican and increasingly Mexican)[3]. These figures are routinely employed by city officials. However, some evidence suggests that key variables reported by the Census may be inconsistent and provide undercounts for specific ethnic groups (Salvo and Lobo, 2003).

Community District 1 is composed of a built environment, ranging from high-rise public housing, tenements, single-family homes, as well as industrial, commercial, and institutional facilities (Exhibit 2, below). Community Board 1 has a number of residential areas that are physically isolated from other residential communities in part because there of its high levels of mixed land use and the significance of natural barriers.

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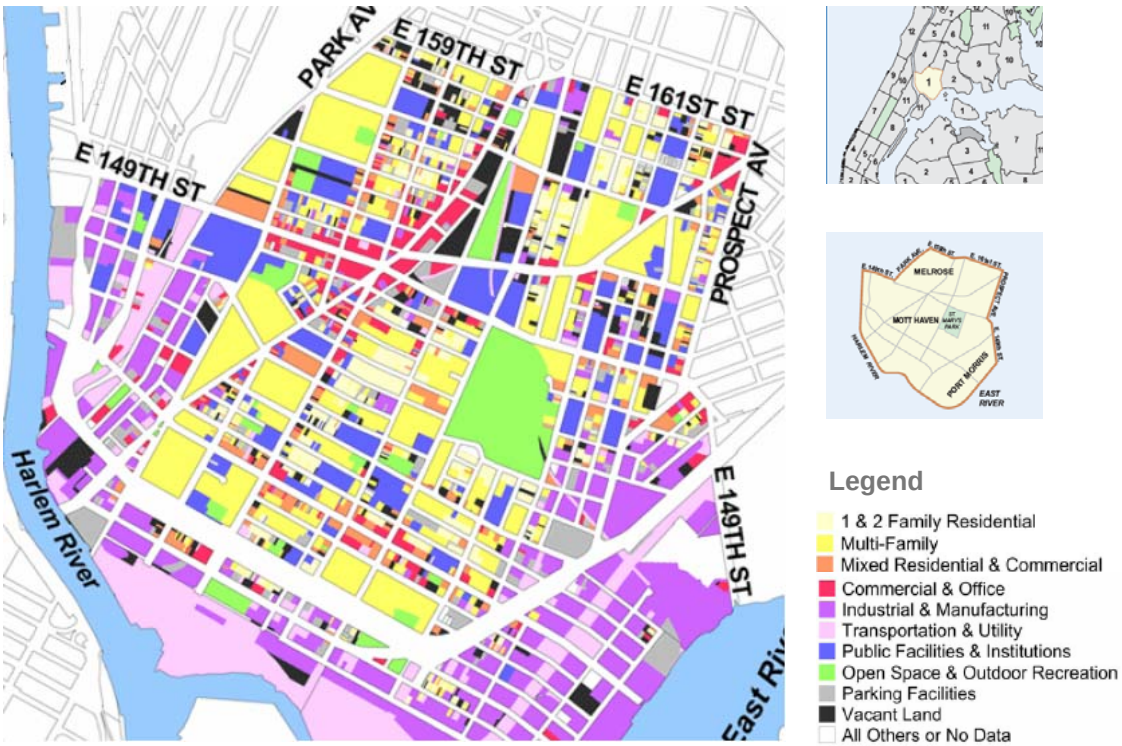
[2] There are 59 districts in New York City. These were created by local laws in 1975 in order to address a broad range of local issues such as land development, planning, and partnerships with community organizations. Districts are intended to represent relatively homogenous areas, although administrative boundaries are not generally consistent across city agencies (i.e., police precincts, school districts, or neighborhoods defined by the Department of Health and Mental Hygiene). However, the boundaries of District 1 and the 40th precinct are consistent.

[3] About 25.5% of the Latino respondents were classified as Hispanic-Black.

Exhibit 2
Land use in Community District 1, Bronx



Source: Community District Profiles (Bronx CD 1), NYC Department of City Planning (2003)

The Bronx has been systematically portrayed as a national symbol of urban decay and concentrated disadvantage. The neighborhoods located south of the Cross-Bronx Highway (including the study area) represent the poorest Congressional District in the country with 40.2% of its residents living below the threshold set by the 2000 Census. This area has also the highest number of children living in poverty (50.1%). Recently-released micro-area estimates (PUMA) of the 2005 wave of the American Community Survey suggest that District 1 has even higher levels of disadvantage than its surrounding neighborhoods: the poverty rate was estimated at 52.2%, while the rate of extreme poverty (incomes half the poverty rate or lower) was estimated at 34.5%, the

highest in the nation. In 2002, 47.3% of the residents in District 1 received income support in the form of public assistance (AFDC, Home Relief), Supplemental Security Insurance or Medicaid[4].

Traditional media accounts have linked the Bronx to high levels of violence and substance abuse. While these phenomena were a pervasive feature of the community for many years, they paralleled the citywide crime decline beginning in the mid-nineties. For example, during 2006, 408 assaults and 242 burglaries were reported in District 1—down from 874 and 1,118 in 1994[5]. Substance abuse problems have also been a pervasive narrative of some neighborhoods in the Bronx. In the South Bronx, drug-related hospitalization rates increased 20% throughout the nineties, reaching a rate of 2,344 events per 100,000 residents in 2004—nearly four times the city average (NYC Department of Health and Mental Hygiene, 2006). The Bronx has also been consistently targeted by intense law-enforcement activities. In 2006 District 1 alone registered 11,147 arrests, up 4.2% from 2005 (10,706). During the same period, citywide arrests increased 3.4% (Mayor's Management Report, 2006). The influence of the justice system is more evident when considering the high rates of incarceration of many communities throughout the borough.

There is substantial variation across Bronx communities both in terms of their socio-economic composition and in the nature of their crime-related problems. Neighborhood-level differences can also be observed when examining patterns of crime or admission to jail or prison. These forms of structural differentiation are reflected in the internal organization of Community District 1 and its 27 census tracts. For example, the foreign-born population ranged from to 8% to 40% according

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[4] Estimates are based on publicly available data from the American Community Survey (U.S. Bureau of the Census). Available at: www.census.gov/acs/www (accessed on 02/27/2007). Public assistance estimates were derived from the Community District Profiles by the NY Department of City Planning. Available at: www.nyc.gov/html/dcp/html/lucds/cdstart.shtml

[5] Despite the significance of these reductions, recent figures suggest the potential configuration of a new upward trend. For example, between 2005 and 2006, murders in New York rose by 5%, from 537 to 564. In District 1, they increased from 9 to 15 (Mayor's Management Report, 2006). These statistics correspond to fiscal year counts. Precinct-level data was retrieved from the New York City "My Neighborhood" website (crime figures provided by the NYPD). Available at: www.nyc.gov/myneighborhoodstats (accessed on 02/27/2007).

to the 2000 Census; the median household income also varied substantially, from about $11,000 to over $36,000. According to NYPD figures, tract-level assault-rates for 2005 went from a low of 99 incidents per 100,000 residents to 1431. The magnitude of these differences stimulated the development of a research strategy that would concentrate its data collection effort in a relatively homogenous low-income area while accounting for micro-level correlates.

3.3 Empirical approach

3.3.1 The survey instrument

This dissertation analyzes survey data collected by the author and a group of trained fieldworkers between August 2005 and October 2006. The survey instrument was divided into two sections, both directly involved in measuring social networks. The first section relied on the use of traditionally-employed survey-based proxies for social exchanges through constructs such as "social cohesion", "neighborliness", "social ties" or "reciprocated exchange". These constructs were included in the instrument employed in the South Bronx via the replication of scales and individual questions from the community survey of the Project of Human Development in Chicago Neighborhoods (Sampson et al., 1997), as well as similar measurement tools developed by other studies (Coulton et al., 1996; Ellen et al., 2004). Despite the importance of these methodological approaches to the description of relational processes, their value as measures of actual interactions is limited: the questions included in these instruments do not measure actual social relations but rather the respondents' perceptions about the frequency and general structure of their local social relations.

To provide a more comprehensive perspective on the social networks of District 1 residents, the second section of the South Bronx survey explicitly sought to generate patterns of interaction using a battery of name-generators related to specific exchanges such as social and financial support, sociability, living arrangements, information about job opportunities, and relations of avoidance. For each one of these social ties we collected information on the actual individuals participating in the emergent social exchanges. These individuals (alters) could be related to the survey respondent (ego) in multiple domains. No limits were placed for the nomination of individuals. We also collected alters' demographic information and their general ties of acquaintanceship (reported by the main survey respondent). Alter attributes were not cross-validated. The use of name-generators and the collection of ego-based information on alters are traditional features of social network research; we relied on this research to develop the instrument employed in the present study.

This approach employed the provision of in-person interviews. The instrument was conducted by trained fieldworkers during the interview process. On average, the administration of the survey lasted between 50 and 90 minutes, depending greatly on the number of alters nominated by the name-generators of the second section of the survey. The instrument was piloted in May 2005 with a group of District 1 residents who were also members of local tenant associations (n=17). Fieldworkers were debriefed about the interviewing process and the use of the questionnaire. The two sections of the survey were analyzed separately using a number of exploratory techniques such as analysis of reliability, patterns of missing data, non-response, correlations, and factor loadings for scales. The network data were also examined in terms of the average number of nominated alters and the reporting of their demographic characteristics. The analysis of the data collected by the pilot survey led to several modifications of the instrument—from its actual format to the

wording of specific questions and the addition or deletion of items. It also informed the design of the sampling strategy. Final versions of the survey were made available in English and Spanish.

The survey component of the general South Bronx project was designed to generate quantitative data on the social networks of District 1 residents. However, beyond the study of the networks of particular individuals, the survey was intended to provide a general estimate community-wide social interaction patterns. Therefore, the measurement of these networks required a particular sampling approach that would address not only the need for a representative sample of residents and their personal ties but also the need for data on linkages between these relational structures.

We operationalize these objectives by combining a random sample of District 1 residents with a snowball sample seeking to track broader systems of affiliation. This method accounts for the embedded structure of personal networks within a larger structure of associations.

Between August 2005 and October 2006, this project surveyed a total of 103 adults. Eighty-three respondents resided in District 1 (80.5%). The remaining subjects (20) were recruited as part of the snowball approach implemented in this research. Given the fact that this sampling technique was directed to gather data on relational patterns, it was inherently independent of the administrative boundaries of the study area. Therefore, local and extra-local social ties were given the same value in terms of its inclusion in the study. In other words, while this study focuses on the networks of South Bronx residents, it does assume that these networks are entirely local. In fact, social connections to individuals in other neighborhoods are relatively frequent, both in terms of actual ties elicited by the survey and in terms of the snowball sample generated through the nomination of additional subjects.

Participants received a monetary compensation for completing the survey ($20 gift card) as well as for the successful recruitment of potential new respondents ($10 gift card per successfully-

recruited contact). This procedure was replicated for subsequent waves of data collection (i.e., new referrals were also compensated after the effective nomination of additional subjects). This strategy is consistent with relatively new research on the sampling of networks and the use of chain-referral methods (Heckathorn, 2002; Salganick and Heckathorn, 2004).

3.3.2 Sampling strategy

The sampling strategy for the survey was divided in two stages.

In the first stage, a sample of buildings was drawn from a list of residential structures located within the boundaries of Community District 1. This information was compiled from public city records. Units were categorized in four different strata according to the type of building (e.g., one- and two-family buildings, multi-family walk-up structures, mixed commercial-residential buildings, and multi-family buildings with an elevator). The stratum size was defined by the relative participation of each building type in the total number of housing units in the district. This procedure accounted for the fact that buildings exhibit a wide range of variation in the number of housing units. Therefore, buildings were sampled with replacement, with a probability proportionate to size (i.e., total number of housing units).

Following the selection of an initial sample of 50 buildings, the research team verified on-site their suitability for the study and determined that five were ineligible because they were vacant or the building was not devoted to residential use. When applicable, a subsequent random sample was implemented in order to generate the final set of housing units. Table 1, below, describes the number of residential housing units for both the universe and the sample.

Table I
Residential housing units by type of building in District 1
Universe and Sample counts

	Universe		Sample	
	Count	%	Count	%
Multi-family elevator	15,892	52	31	62
Multi-family walk up	6,787	22	7	14
Mixed commercial-residential	6,373	21	7	14
One/two family	1,657	5	5	10
Total	30,709	100	50	100

Several strategies were employed to contact respondents. Initially, we mailed an official letter on university stationary describing the study and asking potential subjects to contact members of the research team. Two successful contacts were elicited by this procedure and subjects agreed to participate in the project. The group of remaining housing units was visited in person by fieldworkers at different times/days, including weekends. After reaching a minimum of three unsuccessful visits (e.g., no contact) we progressively substituted the initial sample with other housing units that were physically contiguous and within the same building as the ones in the original draw. We enforced this new approach until a successful contact was made. However, in 10 cases we were not able to establish any form of contact, with neither the original unit nor its nearest neighbors. In fifteen additional cases a contact was made but potential subjects declined to participate in the study. In total, we were able to interview at least one subject in 20 housing units, out of our sample of 45 eligible cases. Therefore, our response rate was 45%. Out of the 20 respondents we interviewed, 5 lived in multi-family elevator buildings, 11 lived in multi-family walk-up buildings, 3 resided in mixed commercial/residential buildings, and 1 lived in a one/two family building. Overall, these 20 first-wave respondents were distributed across eleven census tracts—all within Community District 1.

The second stage of the sampling design involved a chain-referral snowball procedure by which additional subjects were directly recruited by wave I respondents. This process is known as "Respondent-driven Sampling" (RDS) and it has been employed in social network research involving hard-to-count or hidden populations (Heckathorn, 1997; Trotter II, 1999). In particular, it has been argued that RDS generates estimates of population parameters that are "asymptotically unbiased" and not significantly different from those obtained by a larger, more difficult random sample approach (Heckathorn, 2002; Salganick and Heckathorn, 2004). Following the guidelines of this methodology, respondents in wave I were free to nominate any adult they "knew", regardless of these individuals' place of residence or their relationship with the referral source. Potential new subjects contacted members of the research team via the phone or through the respondents engaged in the recruiting process. Therefore the pool of potential participants for the second wave of the survey was composed by an indeterminate number of individuals "known" by wave I respondents and it could include subjects not living in District I.

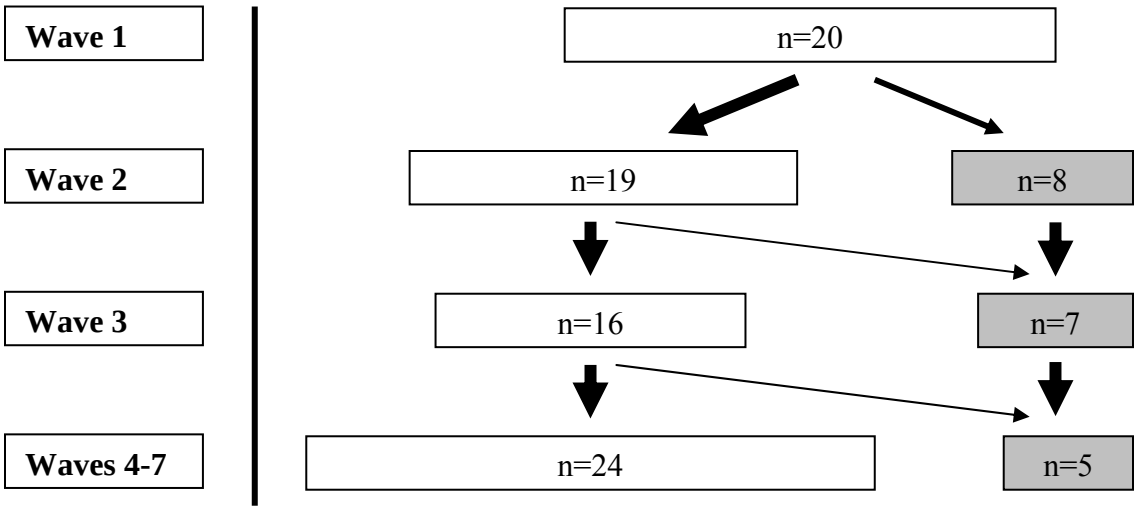
In order to maximize the number of referrals, members of the research team contacted the initial set of respondents between three and eight times after their initial interview. Out of the 20 first-wave respondents, 12 successfully recruited additional participants for the study (60%). In total, the second wave of the survey enlisted 31 new subjects—23 who were residents of District I (74.1%). In a couple of occasions a referral was made but we were not able to conduct an interview due to scheduling difficulties.

We conducted several waves of recruitment following the methodology described above. Overall, from the initial set of 20 randomly-selected individuals we were able to recruit 83 additional subjects. Thus, the total sample size for the survey was 103. There was no limit on the number of waves that would be necessary to generate a representative sample of social networks

operating in the South Bronx. The literature on this topic is still in development and relatively few applied approaches have been tested (Salganick and Heckathorn, 2004)

Exhibit 3, below, shows the general structure of subjects enrolled in the research across snowball waves. Grey boxes indicate the number of non-District I respondents recruited at each stage of the process. Arrows indicate general patterns of recruitment. Its width seeks to represent the most frequent path for the recruitment of subjects. South Bronx respondents consistently succeed at enlisting extra-local subjects. However, these subjects were not likely to refer other District I residents. In other words, once the snowball "left" the study area, it did not "come back to it".

Exhibit 3
Surveys by wave of data collections and residency in District I



The general structure of the sample is presented in an alternative format in Table 2 below, including the raw counts of respondents across waves of recruitment. Figures for waves 4 though 7 were collapsed given the relatively low number of new subjects interviewed after the third wave[6].

Table 2
Completed surveys and referrals by wave of data collection

	Survey counts	% interviews District I residents	% interviews with referral
Wave 1	20	100	60
Wave 2	31	74	36
Wave 3	23	70	43
Waves 4 -7	29	83	NA
Total	103	80.6	32

The estimates in Table 2 suggest that as the snowball procedure progressed, the research team was less effective at enrolling new subjects. This trend is partially linked to the progressive accumulation of referral sources—as the number of completed interviews increased, it became increasingly difficult to provide an effective follow-up on the referral of additional subjects. It is also likely that the effectiveness of the snowball was negatively impacted by the selection bias created by the logistics of subject recruitment (i.e., the fact that potential participants were required to contact members of the research team) .Overall, nearly one-third of those interviewed successfully recruited additional individuals. In many cases, these referrals involved a single additional contact (15 respondents conformed to this pattern). The upper bound of the flow of referrals was represented by 2 subjects who each successfully recruited 7 additional individuals.

[6] There were 10 subjects interviewed at wave 4, 14 at wave 5, 3 at wave 6 and 2 at wave 7.

3.4 Study variables

The survey instrument was designed to capture information on social control and social networks. Variables related to social control were included in the first section of the questionnaire and were aimed to collect information on a variety of subjects associated with the respondent's perceptions of the local social organization and more general patterns of sociability. This section also included self-reported victimization variables as well as general subjective assessments on the prevalence of crime[7]. Network-based measures of social interactions were addressed on the second section of the survey via a number of name-generators designed to elicit the properties of each respondent's social network. Table 3, below, gives an overview of the main survey-related items and scales employed in this study. Appendix A includes a full version of the survey instrument.

Table 3
Survey scales by substantive domain

Social Ties (network proxies)	Social Ties (network-based)	Social Controls	Crime
General exchanges	Network size	Informal social control	Perceptions of crime
Kinship/friendship ties	Network density	Collective efficacy	Self-reported victimization
Social cohesion	Strength of ties	Child-centered social control	
Participation in local organizations	Local ties	Control capacity	

The first domain—"Social Ties (network proxies)"—addresses survey items and scales traditionally employed in the survey-based literature to measure pattern of social interaction. These are labeled as "proxies" because they correspond to general perceptions of overall exchanges and do

[7] Other general domains included in the survey but not developed in this dissertation include health and mental health problems, perceptions of physical and social disorders, domestic arrangements and number of children. See Appendix A for the English version of the survey instrument employed in this study.

not provide information on the specific nature and scope of personal networks. The second domain—"Social Ties (network-based)"—corresponds to structural properties derived from patterns of affiliation constructed via the use of name-generators. The third domain—"Social Controls"—represents a battery of scales intended to measure the respondent's willingness to intervene in particular situation given concrete disruptions of the social order. The fourth domain—"Crime"—includes information on self-reported victimization and perceptions on the general level of crime in the neighborhood. Variables included in Table 3 were operationalized in multiple ways, following specifications developed in the literature (Chapters 5-7).

In addition to the survey-based data, this study will also rely on secondary sources for the operationalization of structural properties of both the overall district and its census tracts. These properties will be derived from the analysis of the 2000 Census data regarding conditions of disadvantage, heterogeneity and residential mobility. This procedure is consistent with approached implemented in other studies (see for example, Warner and Wilcox, 1997; Lynch et al, 2002). This project also relies on information on reported crimes for 2004 and 2005 provided by the New York Police Department.

3.4.I Dependent variables

This project assesses the relevance of social ties for the study of the social organization of communities. It addresses this subject by disaggregating the study of social networks into three different areas of inquiry. First, it explores the relationship between social ties and the structure of neighborhoods within District I (e.g., census tracts). Second, it examines the determinants of social controls focusing on the role of social ties both in terms of proxies for interactions and network-based measures. Third, it studies the association between levels of crime, social ties and social

controls. These questions will be addressed using statistical models which account for the influence of community-level processes on respondent-level outcomes.

The general areas of inquiry summarized above are centered on the properties of personal networks both in terms of its role as dependent variables (question 1) or as predictors of social controls and levels of crime (questions 2 and 3). This dissertation relies on a battery of network-based variables intended to capture the overall nature and scope of inter-personal relations of survey respondents. A brief description of each indicator is presented below. More comprehensive analyses are presented in subsequent chapters of this dissertation.

- *Network size*: The general specification of this variable measures the total number of unique individuals (alters) associated with the main respondent (ego) across name-generators (this property is called "out-degree" in the network literature—see for example, Wasserman and Faust (1994). Additional specifications distinguish between active contacts (i.e., involving a recent interaction between ego and alter) and nominal contacts (i.e., named by ego but without recent contact). Variations will also account for tie-specific networks such as those involving social support interactions, financial assistance, or job-seeking activities.
- *Network density*: This variable describes the internal cohesion of personal networks by dividing the number of actual ties by the number of potential connections between ego and alters and between alters. An additional specification will consider an ego-centered measure of density, which does not take into consideration the actual ties between ego and alters (it focuses on ties between alters only).
- *Strength of ties*: This concept is operationalized by separate measures of the frequency, length of acquaintanceship and overlapping nature of social ties between the ego and alters –a property labeled "multiplexity" by network analysts, see for example Wasserman and

Faust (1994). These three properties aim to capture the degree to which ties are redundant and effectively present in the respondents' networks.

- *Local ties*: This construct measure the fraction of all social ties involving alters who live in the same census tract as the ego, or, alternatively, the fraction living in the same community district. Additional specifications will account for actual measures of physical distance between alters and ego.

These constructs have been systematically employed in network research with specific application to the study of urban communities (Wellman, 1979; Fisher, 1982). However, there is relative disagreement regarding the ability of some indicators to capture overall properties of personal networks and its substantive implications for the study of the social organization of communities. For example, the concept of tie-strength has been operationalized in many ways including type of relationship between the ego and alters, frequency of interaction, reciprocity patterns, and multiplexity of ties (Granovetter, 1973; Petroczi et al., 2007). Each of these indicators makes specific assumptions about the underlying pattern of social exchanges and the nature of group-level processes such as closure and relative position (Coleman, 1990; Burt, 2000). Some of these specifications can be tested with the survey data collected by the South Bronx survey. Specifically, the use of multiple measures of social networks in this dissertation seeks to explore the alignment across constructs and it is based on empirical evidence associating these constructs to one another (e.g., larger networks tend to be less dense). Also the selection of this particular set of measures is based on some evidence suggesting that they can provide more reliable estimates when working with sample data (Scott, 1991).

As mentioned above, the network measures employed in this study will be operationalized as individual-level outcome variables when examining the determinants of general properties of

personal networks (Chapter 5). These constructs will also be used as predictors when studying social controls (Chapter 6) and crime-related patterns (Chapter 7).

A similar strategy is used for the analysis of indicators aimed to capture processes of social control: Multiple measures of this concept are operationalized as dependent variables in Chapter 6 and are also specified as predictors of crime and victimization in Chapter 7. Four different survey-based scales are employed throughout this dissertation:

- *Informal social control*: This construct measures the respondent's perception of the willingness of neighbors to intervene when confronted with specific disruptions of local social order (e.g., "children spraying graffiti", "children showing disrespect to adults") (Sampson et al., 1997). Previous studies have measured this construct in relatively similar ways, although some variations in the metrics and type of items included in the scales reflect substantive theoretical differences (Taylor, 2002). Some of these differences in the actual structure of the scale will be tested in this dissertation.
- *Collective efficacy*: This concept combines the previous scale of informal control with a construct of social cohesion based on the respondent's perception of overall integration of the community and patterns of shared expectations (see below "Independent variables" below) (Sampson et al, 1997; Browning et al., 2004; Morenoff et al., 2001).
- *Child-centered informal social control*: This construct measures perceptions of a neighbor's willingness to intervene in specific disruptions of the local social order. This particular specification focuses on the regulation of behaviors of children and involves relatively serious events (e.g., "a six-year old is playing with a knife"). This scale was tested in environments of concentrated disadvantage (Coulton et al., 1996).
- *Control capacity*: This indicator addresses the notion of social control over public spaces by capturing the respondent's perception of the level of regulation of their immediate

environment (e.g., "how much control do you think people in your block/building have over the people that hang out in the building/block") (Ellen et al., 2004).

Models explored in Chapter 7 will seek to examine associations of a variety of crime related outcomes with several measures of social control and social networks. These outcomes will be specified in the following terms using both survey-based data and administrative records from the police department:

Survey based measures:

- *Perceptions of crime*: This measure captures the respondent's perception of the frequency of crime events in the neighborhood (e.g., "during the past month how often was there a fight in your building or block in which a weapon was used?"). The scale as developed by Sampson et al., (1997) was modified in order to account for more micro level environments (i.e., buildings or blocks rather than the overall neighborhood); its temporal dimension was also shortened given the high prevalence of crime in the area (from a six-month to one-month frame). These changes were informed by the results of the pilot.
- *Self-reported victimization*: Household victimization was assessed via three questions asking respondents about lifetime/six-month victimization in the neighborhood across three dimensions (violence, burglary, theft).

Administrative records:

- *Reported crimes*: Relying on police records for 2004-2005, we calculated track-level crime rates for assault, burglary and robbery. These offenses are serious, relatively well-reported, and exhibit significant variation across tracts in District 1. This particular set of dependent variables is operationalized as an ecological, tract-level outcome.

3.4.2 Independent variables: Predictors of social network properties, informal controls and tract-level crime-related outcomes

3.4.2.1 Individual-level demographic and socioeconomic predictors

- This project employs a number of person-level *demographic* characteristics, including gender, race/ethnicity, age, and marital status.
- Key *socio-economic* variables are also explored such as employment, education, length of residential tenure, having children, and immigration status (i.e., first or second generation).

3.4.2.2 Individual-level proxies for local social interactions

- *General exchanges*: This construct measures the respondent's perception on the frequency of general social exchanges with neighbors on a variety of domains (e.g., "How often do you and your neighbors have parties or get-togethers?"). Scales of neighborliness have been extensively employed by research and have received labels such as "reciprocated exchange" (Browning et al., 2004) or as general measures of social ties (Velez, 2001).
- *Kinship/Friendship local ties*: Respondents are asked about the number of relatives and friends living both "in the neighborhood" and "outside the neighborhood". There is some variation on the actual operationalization of these variables—sometimes researchers have employed the average response for the two within-neighborhood items as a measure of local social ties (Silver and Miller, 2004) or focused exclusively on the relative number of neighborhood-based friends (Browning et al., 2004).
- *Social cohesion*: Scales of social cohesion measure the degree of agreement by respondents to a series of statements about the overall integration of the community and general

patterns of trust and cooperation between neighbors (e.g., "most people who live in this neighborhood can be trusted") (Sampson et al., 1997). Accounting for the multiple scale configurations employed in the literature, this monograph will develop a number of different scale structures (Taylor, 2002).

- *Participation in local organizations*: Consistent with prior studies, respondents of the South Bronx survey were asked whether or not they "happen to participate in any of the following neighborhood organizations (…)" (Sampson and Groves, 1987; Morenoff et al., 2001). Ten different options were listed and some were modified in order to respond to the characteristics of the study area. For example, pilot data suggested the need to include a type of informal association related to leisure activities such as dominoes, basketball or bingo. These community forums have been highlighted by ethnographers as key elements of public life in low-income neighborhoods (Venkatesh, 2000).

3.4.2.3 Tract-level structural covariates

Consistent with previous studies and the basic formulation of the systemic model (Bursik and Grasmick, 1993) this study implements, when appropriate, a multilevel approach to study patterns of social relations and determinants of social control and crime. Three structural properties of District I are measured at the tract level using Census data (2000). These variables were empirically derived using a principal components factor analysis (see Chapter 5).

- *Concentrated disadvantage*: This latent construct represents the combination of several factors including percentage of the population below the poverty line, percent of the households receiving public assistance, unemployment rate, percent owner-occupied households, median family income, and female-headed families with children under 18.

- *Population heterogeneity*: This latent construct combines the proportion of African-American residents, percentage foreign born, percent divorced, and the fraction of the population ages 18-24.
- *Residential Stability*: This indicator is composed of two measures: the fraction of residents who resided in the same house in 1995 and the percent of the population who lived outside the U.S. in 1995.

3.5 Analytic Plan

This analytical plan is guided by the description of this monograph's specific aims as presented in the introductory chapter. This format allows for a clearer depiction of the dependent variables and estimation routines involved at each stage of the analysis.

This study systematically addresses covariates of social networks at the individual and tract levels. Under specific circumstances it also operationalizes contextual effects via a series of multilevel hierarchical models. This approach implies the utilization of a spatial criterion for the aggregation of the data (i.e., respondents clustered in census tracts). The logic behind this procedure is to conceptualize individual-level variables as "nested" in broader structures (Raudenbush and Brick, 1992). Tract-level covariates provide the context for the operationalization of these structures.

3.5.1 Individual-level and tract-level determinants of personal networks

3.5.1.1 Measurement of network properties

The South Bronx survey captured information on the respondent's personal network via a series of name-generators aimed to elicit general patterns of interpersonal relations. These relations are represented by a number of individuals (alters) connected to the main respondent (ego) via a series of overlapping relations (edges). This information is traditionally consolidated in a sociomatrix, which represents the structure of ties between members of a given network. This analytical tool can be employed to capture directed and non-directed relationships (i.e., ties can be reciprocated or not) as well as its intensity (for example, in terms of frequency of contact). Exhibit 4, below, provides a graphic example of a simple, non-directed sociomatrix describing friendships among males in a third-grade classroom (fragment).

Exhibit 4
Example of a simple sociomatrix (Anderson et al., 1999)

Child		Boys				
		1	2	3	4	5
Boys	1		1			1
	2	1		1		1
	3		1			1
	4					
	5	1	1	1	1	

Sociomatrices were created for each respondent in accordance to the number of name-generators included in the survey instrument. This information was entered in an electronic spreadsheet and analyzed in UCINET (Borgatti et al., 2002). UCINET is a software package designed for the study of social networks which provides descriptive statistics for the overall structure and relational properties of connected and ego-centered networks. The network properties of research participants were calculated using this software.

The relative presence of interpersonal relations within census tracts ("local ties") was measured by mapping the addresses of egos and alters (cross-streets) using ArcGIS (Environmental Systems Research Institute, 2003)—a software package that allows the geo-coding and calculation of distances between points in a given space.

3.5.1.2 Exploring individual-level covariates

A set of individual-level predictors was employed to associate characteristics of respondents with characteristics of their social networks. As described in the previous section of this chapter, these predictors included demographic and socio-economic characteristics. This procedure was accomplished via a series of simple OLS regressions on the network properties of each respondent.

3.5.1.3 Exploring a multi-level model

In order to explore the significance of contextual effects on social networks it was necessary to compile tract-level census data on social and economic variables. This information was used to construct the key correlates the systemic perspective on the social organization of communities—concentrated disadvantage, instability, and heterogeneity. The specified model predicted various properties of individual networks using both individual and tract-level covariates. However, its operationalization was limited due to the relatively low number of completed surveys across tracts: while the average number of interviews completed in District 1 yielded 4.4 interviews per tract, these were not evenly distributed. Out of the 19 residential tracts in District 1, only 8 had 4 completed surveys or more. These results are likely associated with the implementation of the chain-referral sampling approach. As a reference, the Community Survey of the Project of Human

Development of Chicago Neighborhoods generated between 4 and 15 interviews per tract (Sampson et al., 1997). Using these figures as a reference, the multilevel models explored in this monograph are only based on the analysis of individual and aggregate covariates for eight tracts.

3.5.2 Social networks and the correlates of informal social control

3.5.2.1 Measurement of informal social controls

The South Bronx survey implemented four different approaches from prior studies to measure community-level social controls (informal social control, collective efficacy, child-centered informal social control and control capacity). This research replicated the procedures described in the literature to recreate these latent constructs (see, for example, Silver and Miller, 2004; Lynch et al., 2002; Bellair, 1999; Sampson et al., 1997). In particular, factor loadings were explored as well as measures of reliability and internal consistency across scale items. The resulting indicators of informal control were specified as dependent variables in a series of multilevel models.

3.5.2.2 Measurement of proxies for social networks

Several individual-level variables were introduced as predictors of informal control. Specifically, this research project began by re-examining the contribution of proxies for social networks (e.g., neighborliness, social cohesion) to OLS regression models. As described in the previous section of this chapter, despite frequent use in the literature, these measures do not reflect actual interactions between residents. The creation of these constructs was guided by procedures employed in other studies (Sampson et al., 1997; Morenoff et al., 2001; Browning et al., 2004).

3.5.2.3 Convergence between network-based measures and proxies

This dissertation subsequently compared simple bivariate correlations between individual-level proxy measures of networks and actual network-based estimates of relational processes (in particular, the prevalence of local social ties and the strength of these associations). Tract-level correlations were also explored although its analytical value was limited due to the low number of tracts suitable for the analysis (7 tracts with 4 or more completed surveys)

3.5.2.4 Predicting levels of informal social control

Finally, this research compared the role of network proxies to the role of network-based measures when predicting different modalities of social control. This procedure was implemented using hierarchical models. Some of these specifications included simultaneous measures of networks (proxies and network-based).

3.5.3 Social networks and crime

In the final set of models, this study explored tract-level associations between properties of social networks, informal controls, and measures of crime (burglaries, robberies and assaults). This approach specified only direct effects of networks and controls on crime rates. These associations were limited by the low number of tracts with a meaningful number of completed surveys. Therefore, additional models were tested using the respondents' perception of overall crime trends as well as their victimization experience and contact with law enforcement.

CHAPTER 4. DATA EXPLORATION

Survey data from South Bronx residents was used for all the analyses. This study also examined data from police records of reported crimes to address specific questions on the relationship between social networks, social controls, and crime. The structural properties of the ecological units (tracts) employed in the multi-level models were derived from sample and universe data collected by the 2000 Census (Summary Files 1 and 4). By combining these sources of information, this work examined the relevance of social networks for the study of social controls and crime in a low-income area of New York City (known administratively as District 1 of the South Bronx). This inquiry was guided by the basic postulates of the systemic model (Bursik and Gramisk, 1993) and additional theoretical and empirical expansions to the social disorganization theory (Sampson et al., 1997; Sampson and Groves, 1989; Taylor, 2002).

This chapter provides basic descriptive statistics about the survey sample, with an emphasis on the patterns of association of respondents, the characteristics of the individuals they associated with, and their overall experiences of criminal victimization and contacts with law enforcement. Along with the exploration of survey data, this chapter also provides an overview of the socio-economic characteristics of District 1 and its census tracts. In addition, it presents summary tract-level statistics on selected reported crimes—murder, robbery, burglary, and aggravated assault.

4.1 Sample Demographic and Socio-Economic Profile

The resident survey was implemented via a combination of two sampling techniques. First, it involved a random sample of housing units within District 1. The response rate was 45%, equivalent to 20 successfully completed surveys. Second, additional respondents were recruited using a chain-referral approach by which initial research subjects were encouraged to nominate additional participants. This general strategy for the collection of survey data on social networks is known as "respondent-driven sampling" (Heckathorn, 1997, 2002). The research designed employed in this research was aimed to generate representative samples of both personal networks and general patterns of association. As a result of its implementation, a relatively high number of surveys (19%) were administered to individuals who were not District 1 residents but were referred by study subjects as a by-product of the snowball sample. Therefore, the design of this research explicitly accounted for the fact that social networks are not entirely constrained by physical or social barriers.

4.1.1 Characteristics of survey respondents

The primary collection of survey data in the South Bronx yielded a final sample of 103 completed surveys distributed across District 1 residents (83, or 80.6%) and additional subjects, the majority of whom lived in other Bronx neighborhoods (20, or 19.4%)[8]. Table 4, below, provides details on demographic characteristics of the subjects by place of residence (District 1 and elsewhere).

[8] Specifically, these 20 surveys were administered to other Bronx residents (13), residents of Manhattan (3), Queens (1), Brooklyn (1) and Long Island (1). One survey was administered to a resident of the Dominican Republic who was visiting New York and was referred by a District 1 survey participant.

Table 4
Demographic profile of survey respondents

	Total	CD I	Other
N	103	83	20
Gender			
Male	41.7%	43.4%	35.0%
Female	58.3%	56.6%	65.0%
Race			
African American non-Latino	7.0%	7.2%	0.0%
Latino	91.0%	91.6%	95.0%
White/Other non-Latino	2.0%	1.2%	5.0%
Age			
Min-Max	18-74	18-74	19-58
Mean (SD)	37.9 (15)	38.0 (16)	37.3 (13)
Marital Status			
Married/Domestic partnership	51.4%	46.4%	60.0%
Single/Never married	32.0%	33.7%	25.0%
Divorced/Separated	15.6%	15.6%	15.0%
Widowed	1.0%	1.2%	0.0%
Children			
No children	21.4%	20.5%	25.0%
Children, living with them	54.3%	54.2%	55.0%
Children, not living with them	24.3%	25.3%	20.0%
Immigration			
First-generation*	61.0%	56.6%	80.0%
Second-generation**	31.0%	33.7%	20.0%

* Defined as those who are foreign-born with at least one parent also being foreign-born
** Defined as those born in the U.S. with one or both parents being foreign-born

The gender composition of the sample is relatively even, with a slight majority of female respondents (female = 58.7%, male = 41.7%). The majority of the sample subjects are Latino (91%). The average age of the subject at the time of the interview is 40 years old (M=37.9, SD=1.5) with the minimum age of 18 and the maximum age of 74. Approximately half of the sample is were married or actively involved in a domestic partnership (51.4%), although a significant number reported being single—never married—or separated/divorced (32% and 15.6% respectively). About four in five subjects have children (78.6%), although only half indicated living with at least one of them (54.3%). The sample includes a disproportionate number of first-generation (31%) and second generation immigrants (61%).

Given the structure of the sample, general demographic patterns of survey respondents are significantly determined by the characteristics of District 1 subjects. However, there are important differences between the subjects residing in the study area and those living elsewhere—primarily in terms of the over-representation of female (65%) and Latino (95%) respondents in the non-District 1 sample. This pattern is likely associated with the small sample size and the chain-referral sampling approach—i.e. female respondents referring other potential female participants.

The sample of respondents within District 1 reasonably resembles the overall composition of the residential tracts in the study area[9]. According to the 2000 Census, women represent about 54% of the general population—the District 1 sample has 56.5% female subjects. However, Latinos tend to be overrepresented in this study with 91.6% of the participants, compared to 71% in the general population of the same area.

Table 5, below, complements the demographic profile by providing a series of descriptive statistics on the patterns of residential tenure, level of education, occupation, and household income for respondents within—as well as outside of—District 1. The majority of subjects report having lived in New York for 20 years or more (59.2%). The average tenure at their current place of residence is 11 years, although there is substantial variation across individuals (M=10.98, SD=10.9). These numbers are particularly high given that 92% of the sample is composed of first or second generation immigrants. A significant number of respondents have not obtained a high school diploma or GED (42.2%), less than one-half report being employed or working independently (47.6%) and belong to households with annual incomes of less than $30,000 (49.6%)—although this figure is likely biased due to the prevalence of incomplete information (17.5% of responses were not valid). Overall, these figures suggest that District 1 residents who

[9] District 1 has a total of 27 census tracts. However, only 20 can be categorized as residential tracts based on patterns of land use and total tract-level population a cut-off of at least 1,000 residents).

participated in the study have longer residential tenures than other respondents but also appear to be more economically disadvantaged as measured by their education level and household income. This is consistent with the analysis of census data which highlighted the relatively higher levels of poverty observed in the South Bronx, even when compared to its neighboring communities.

Table 5
Socio-economic profile of survey respondents

	Total	CD 1	Other
N – Number of Survey Respondents	103	83	20
Living in New York			
Less than 12 months	1.0%	0.0%	5.0%
1-2 years	3.9%	4.8%	0.0%
3-5 years	5.8%	6.0%	5.0%
6-10 years	7.8%	6.0%	15.0%
11-20 years	22.3%	22.9%	20.0%
More than 20 years	59.2%	60.2%	55.0%
Length at current home (years)			
Min-Max	0-49	0-49	1-41
Mean (SD)	11 (10.9)	11.8 (11)	7.4 (9.9)
Education			
Less than High School	42.2%	45.1%	30.0%
High School or GED	34.3%	32.9%	40.0%
Some College or Associate's	17.6%	18.3%	15.0%
Bachelors or more	5.9%	3.6%	15.0%
Occupation			
Employed/Independent	47.6%	43.4%	65.0%
Homemaker	20.8%	22.9%	10.0%
Student	6.8%	7.2%	5.0%
Retired	8.7%	10.8%	0.0%
Unemployed	16.5%	15.6%	20.0%
Household income			
Less than $15,000	35.0%	36.1%	30.0%
$15,001-$30,000	14.6%	15.7%	10.0%
$30,001-$45,000	20.4%	19.3%	25.0%
More than $45,001	12.6%	12.0%	15.0%
Don't Know/Refused/Missing	17.5%	16.9%	20.0%

4.1.2 Characteristics of the respondents' social networks

The survey included a battery of name-generators aimed to elicit a structure of social relations conceptualized as the respondent's social networks. Subjects were asked to associate the names or initials of individuals (alters) they would associate with a series of specific events. For example, the instrument included the following question regarding emotional support: "If you wanted to talk to someone about things that are very personal and private, who would you talk to?". The research employed a free-recall approach meaning that participants were free to nominate an unlimited number of alters. They were also allowed to list the same individuals across name-generators.

Overall, six name-generators were employed: current living arrangements, emotional support, financial support, social activities, job-seeking interactions, and patterns of avoidance. This last construct was intended to measure negative interactions that arise in public or private settings due to a variety of circumstances (possibly including domestic violence or criminal activity). The name generators were constructed following its operationalization in other survey-based studies of social networks (see for example, Wellman, 1979). Also relying on previous research, name-generators made a distinction between latent interactions (i.e., general relations of association) and active interactions (i.e., ties that were activated in "the previous month").

Table 6, below, describes the relational structures that emerged from the administration of the survey instrument, counting the number of ties produced by each name-generator. Specifically, it presents the general number of associations that can be potentially mobilized by the main respondent (latent interactions). Results suggest that on average, respondents live with 2.7 individuals (M=2.71, SD=2.1) and their highest number exchanges is related to social activities (M=3.60, SD=2.2). The smallest personal networks correspond to "negative ties" or ties of avoidance (M=0.52, SD=1.0), followed by job-seeking ties (M=1.46, SD=1.6). Compared to non-District 1 subjects, participants residing in the study area have generally a greater number of

interactions, such as social activities (3.6 ties vs. 3.4 ties) and avoidance patterns (0.6 ties vs. 0.1 ties). However, fewer ties connect District 1 residents to employment-related opportunities (1.3 ties vs. 1.9 ties). The magnitude of the standard deviations for each name-generator suggests significant variation in the size of these networks.

Table 6
Average number of reported ties by name-generator

	Total	CD 1	Other
Living			
Min-Max	0-13	0-8	0-13
Mean (SD)	2.71 (2.1)	2.75 (1.9)	2.55 (2.9)
Emotional Support			
Min-Max	0-6	0-6	0-5
Mean (SD)	1.85 (1.3)	1.87 (1.3)	1.75 (1.2)
Financial Support			
Min-Max	0-7	0-7	0-6
Mean (SD)	2.92 (1.8)	3.01 (1.8)	2.60 (1.7)
Social Activities			
Min-Max	0-11	0-11	1-9
Mean (SD)	3.60 (2.2)	3.64 (2.1)	3.45 (2.4)
Job-seeking Interactions			
Min-Max	0-8	0-8	0-7
Mean (SD)	1.46 (1.6)	1.34 (1.4)	1.95 (2.2)
Avoidance			
Min-Max	0-5	0-5	0-2
Mean (SD)	0.52 (1.0)	0.63 (1.1)	0.10 (0.4)

Table 7, below, shows the average number of ties when aggregating responses across name-generators (such as living and emotional support) and type of interaction (potential or active). On average, survey respondents report about 22 ties to other individuals (M=22.40, SD=10.2). The relative number of explicitly pro-social (not counting ties of avoidance) is nearly identical (M=21.70, SD=9.9). Latent connections involving the transmission of some form of social support (e.g., emotional, financial, or job-related) have a mean of 6.2 (SD=3.4). There are important differences in the nature of this support: egos appear to be more involved in the active provision of support than in terms of being the recipients of such exchanges. This pattern can be

observed when examining the number and direction of active support ties (provider: M=3.40, SD=2.9 vs. recipient M=2.70, SD=2.1). Compared to non-District 1 subjects, those living in the study area have a slightly higher number of ties, except for those involving their role as providers of support (M=3.5 in District 1 vs. M=2.8 elsewhere).

Table 7
Average number of reported ties by type of interaction

	Total	CD 1	Other
All Ties			
Min-Max	3-56	3-56	5-46
Mean (SD)	22.4 (10.2)	22.8 (10.1)	21.0 (10.6)
Valid N	101	81	20
*Pro-social ties**			
Min-Max	3-54	3-54	5-46
Mean (SD)	21.7 (9.9)	21.9 (9.8)	20.8 (10.7)
*Potential support***			
Min-Max	0-16	0-16	1-16
Mean (SD)	6.2 (3.4)	6.2 (3.3)	6.2 (4.1)
*Receiving support****			
Min-Max	0-11	0-10	0-11
Mean (SD)	2.7 (2.1)	2.7 (2.1)	2.7 (2.3)
*Providing support*****			
Min-Max	0-15	0-15	0-9
Mean (SD)	3.4 (2.9)	3.5 (3.0)	2.8 (2.5)

* All name-generators but ties of avoidance
** Latent support ties (ties: emotional, financial, jobs)
*** Active ties involving Ego as recipient of support (ties: emotional, financial, jobs)
**** Active ties involving Ego as provider of support (ties: emotional, financial, jobs)

It is important to highlight the overlap between the number of ties and the number of alters, meaning that a relatively low number of individuals fulfill multiple roles in the personal networks of survey respondents. More specifically, the 1,007 alters reported by these subjects were associated with a total of 2,275 ties yielding an average of 2.26 ties per alter (a small fraction of alters appear in several personal networks). There are no significant differences between District 1 and non-District 1 study participants regarding the number of reported ties by type of interaction.

Tables 6 and 7, above, also indicate important variations in terms of the configuration of ties across name-generators and types of interaction. To better illustrate this patterns, Exhibits 5-A through 5-D (below) provide a graphic representation of the personal network of a research subject residing on District I (Ego # 2, a Latina interviewed in the first wave of the survey). Exhibit 5-A shows her overall pattern of latent social relations when aggregating ties across name-generators. The size of her personal network is 14 (she nominated a total of 14 different alters). Exhibits 5-B and 5-C show the variation on the size of her network by type of social relation—"social activities" includes four alters while "job-seeking" involves two. There is also overlap between these different types of exchanges with two individuals participating in both domains of interaction. Alters connected to Ego in multiple ways may reflect stronger, more intimate ties. Lastly, Exhibit 5-D provides a description of patterns of acquaintanceship between alters as reported by the main respondent[10]. For this particular figure the survey respondent has been removed from the graph for purposes of parsimony (all alters are naturally linked to her).

Exhibit 5-A
Total personal network - Ego 2

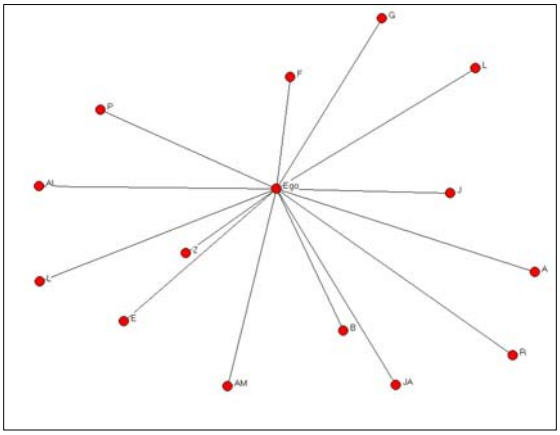
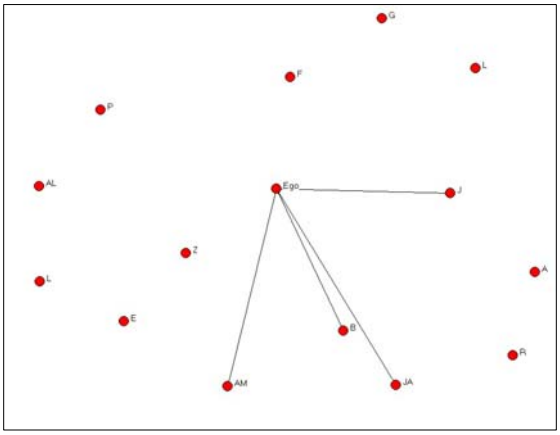


Exhibit 5-B
"Social activities" ties - Ego 2



[10] In order to elicit these ties, respondents were given the following instruction: "Would you please tell me whether these individuals know each other (as far as you know). The definition of knowing someone is that they know each other by sight or by name, and that you are aware of contact between them (either in person, by telephone or mail) in the past two years". See complete survey instrument on Appendix A.

Exhibit 5-C
"Job-seeking" ties - Ego 2

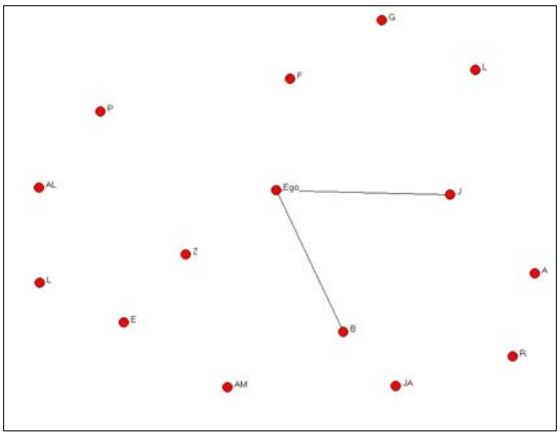


Exhibit 5-D
Ties between alters - Ego 2

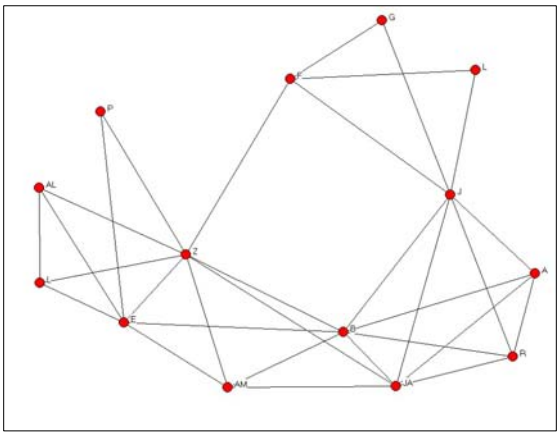


Exhibit 5-D represents the survey's ability to measure patterns of cohesion and connectedness in personal networks. These patterns show great variation across respondents. For example, the density of network of Ego #2 (above) is 34.1% (M=0.34, SD=.5), indicating that about a third of the potential ties between alters are actually reported by Ego. Exhibits 6 and 7, below, illustrate other respondents networks in terms of the associations between alters. Exhibit 6 corresponds to a young African-American male (Ego 16) and Exhibit 7 to a middle-aged Latina (Ego 90). The size of their personal networks is 9 and 13 alters respectively (Ego has been removed from the graphs for clarity). The density of relations of acquaintanceship for Ego 16 is 67% (M=0.67, SD=0.5) whereas for ego 90 is 72% (M=0.72, SD=0.4).

Exhibit 6
Ties between alters - Ego 16

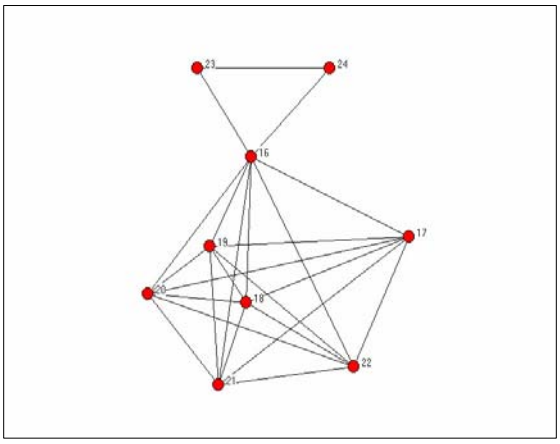
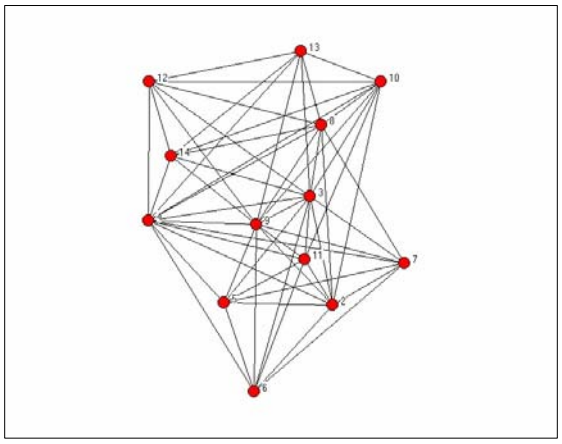


Exhibit 7
Ties between alters - Ego 90



The patterns of interaction registered by the survey instrument associated a number of individuals (alters) to survey respondents (egos) in a variety of domains (name-generators) and nature of exchanges (latent connections and active ties). Alters could be associated to Ego via single or multiple affiliations. For example, in Exhibits 5-B and 5-C (on the previous page), two individuals are reported to interact with Ego both in terms of social activities and job-seeking ties.

Table 8 (below) presents an overview of these affiliations in terms of the attributes of alters. A total of 1,003 unique contacts were captured (831 were reported by District 1 respondents)[11]. Table 8 shows that interactions among kin members are prevalent; representing slightly over half of the total alters reported (52.1%). This general framework for associations appears to be more relevant for District 1 subjects (52.8% of their ties are kin vs. 49.1% among non-District 1 respondents). Interactions between respondents and their children are the most significant domain of kinship relations (12.5% of the total number of alters), followed by non-nuclear affiliations involving "other kin" (e.g., aunts, uncles, in-laws). Friends account for 35% of the reported alters. This research found that a relatively important number of ties (7.4%) involve "other" categories of individuals usually related to the provision of formal social supports—for example, nurses and case workers. Consistent with the fact that most social exchanges involve kin members, Table 8 shows that in general, interactions correspond to long-term patterns of exchange—57.6% represent contacts with a duration of acquaintance of 10 years or more—as well as ties formed within the context of the family (44.2%) and the neighborhood (27.9%). The role of the family and neighborhood context for the creation of ties, as well as the long-term properties of these interactions, is particularly high for District 1 respondents relative to responses by subjects residing

[11] Patterns of interaction can be based on alter counts or on tie counts. In order to provide a clearer overview of the social relations of survey participants, this chapter focuses on the measurement of covariates of social ties in terms of the properties of alters. Subsequent chapters will analyze the role of these individual-level attributes using its weighted, relative presence in one or multiple name-generators.

elsewhere. Overall exchanges are not only relatively stable but also relatively frequent with the majority of ties (62.1%) involving daily or almost daily contact.

Table 8
Attributes of social ties (alter-based)

	Total	CD 1	Other
N Alters	1,003	831	172
Type of Alter			
Kin	52.1%	52.8%	49.1%
Partner	6.0%	5.7%	7.6%
Mother/Father	5.4%	5.4%	5.2%
Sister/Brother	10.6%	11.4%	7.1%
Child	12.5%	12.2%	14.1%
Grandmother/Grandfather	1.0%	1.2%	0.0%
Grandchild	1.2%	1.4%	0.0%
Cousin	4.6%	4.5%	5.2%
Other Kin	10.8%	11.0%	9.9%
Friend	35.0%	35.4%	33.1%
Organization member	1.8%	1.3%	4.1%
Co-worker	2.7%	1.9%	6.4%
Other	7.4%	7.6%	6.4%
Don't Know/Missing	1.2%	0.7%	1.2%
Length of Acquaintanceship			
Less than a year	7.7%	7.5%	8.7%
1-3 years	10.4%	9.9%	12.8%
3-5 years	11.2%	11.4%	10.5%
5-10 years	12.4%	11.9%	15.1%
More than 10 years	57.6%	58.8%	51.7%
Don't Know/Missing	0.8%	0.7%	1.2%
Context for Creation of Tie			
Family	44.2%	45.1%	39.5%
Local neighborhood	27.9%	29.4%	20.9%
Other neighborhood	9.5%	9.1%	11.0%
Work/School	10.9%	8.9%	20.4%
Community organization	2.2%	1.8%	4.1%
Other	4.2%	4.5%	2.9%
Don't Know/Missing	1.2%	0.7%	1.2%
Frequency of Interaction			
Daily or almost every day	62.1%	62.7%	59.3%
At least once a week	18.1%	16.2%	27.3%
Once or twice a month	9.4%	10.1%	5.8%
Less than once a month	2.4%	2.3%	2.9%
Less often	6.5%	7.1%	3.5%
Don't Know/Missing	1.5%	0.7%	1.2%

Table 9, below, complements the description of alter-related characteristics via the description of their general self-reported demographics and patterns of residence[12].

Table 9
Attributes of alters

	Total	CD I	Other
N	1,003	831	172
Gender			
Male	43.7%	44.4%	40.1%
Female	56.2%	55.5%	59.9%
Race			
African American	10.3%	11.7%	4.0%
Latino	85.8%	85.4%	87.8%
White/Other	3.9%	3.2%	7.4%
Age			
Min-Max	0-94	0-94	0-80
Mean (SD)	33.6 (16.4)	33.3 (16.6)	35.5 (15.2)
Education			
Less than High School	25.5%	25.9%	23.2%
High School or GED	23.5%	23.0%	26.2%
Some College or Associate's	8.9%	8.9%	8.7%
Bachelors and Above	14.2%	11.9%	25.0%
Not applicable*	12.6%	12.8%	11.6%
Don't Know/Missing	15.4%	17.4%	5.3%
Occupation			
Employed/Independent	57.3%	56.4%	61.6%
Homemaker	8.0%	7.7%	9.3%
Student	7.7%	7.3%	8.1%
Retired	4.3%	4.7%	2.3%
Unemployed	8.4%	8.8%	6.4%
Not applicable*	11.4%	11.7%	9.9%
Don't Know/Missing	2.9%	3.5%	2.4%
Residence			
Bronx, District I	54.9%	62.3%	16.3%
Bronx, Elsewhere	17.3%	15.0%	28.5%
New York City	14.5%	11.1%	30.8%
Other states	4.5%	4.1%	5.8%
Other countries	3.1%	1.6%	10.5%
Don't Know/Missing	3.4%	3.7%	1.8%

* Alters between 0-14 years were reclassified as "not applicable"

[12] There are many reasons to question the reliability of these reports, especially in terms of socio-economic characteristics. Fieldworkers were encouraged to use the "Don't know" option when confronted with significant hesitation by the main respondents. The topic of informant accuracy has been systematically addressed in the literature on social networks (see for example Bernard et al., 1982; Marin, 2004).

Out of the 1,003 alters identified in the personal networks of survey respondents, approximately 56.2% are female and 85.8% are Latino (as shown in Table 9, above). The average age of alters is approximately 34 years old (M=33.6, SD=16.6). Figures on socio-economic status, measured by educational attainment and current occupation, suggest that alters are usually better-off than the survey respondents—for example, 57.3% are reportedly working compared to 47.6% of the actual participants in the study.

Table 9 also identifies the general geographic location of the alters' residence. About 62% of the alters referred by District 1 subjects also live in this area while the remaining 38% live elsewhere in the Bronx or in other boroughs of New York City. Overall, respondents reported a relatively few connections to individuals residing in extra-local communities.

4.1.3 Predicting general patterns of individual-level interactions

A significant body of sociological literature on social networks has been devoted to correlates of tie-creation and tie-maintenance. In many of these works the unit of analysis is the dyadic relation uniquely relating an ego to its set of alters. Models of estimation have ranged from the use of logistic regression to capture the likelihood of a tie given attributes of both actors involved to more complex models accounting for the overall structure of relationships in complete networks.

While some of these routines are examined in subsequent chapters of this manuscript, it is important to first provide a general overview of the ego-level covariates of overall network associations. This approach is explored below (Table 10) via the estimation of overall network size (measured by the total number of ties reported by survey respondents). The dependent variables employed in these analyses correspond to four different specifications of network size (total size,

number potential support, number receiving support and number giving support). These models were fitted using OLS regressions (coefficients on Table 10 correspond to standardized estimates).

Table 10
OLS regressions estimating the effects of ego covariates on network size
Standardized coefficients

	(1) Social Ties	(2) Potential support	(3) Receiving support	(4) Giving support
Race/Ethnicity (Latino)	-.375***	-.349**	-.298**	-.346**
	(3.263)	(1.217)	(0.725)	(0.970)
Gender (female)	.264**	.245*	.223*	.083
	(1.986)	(0.742)	(0.442)	(0.591)
Age (years)	-.318**	-.215*	-.273*	-.243*
	(0.067)	(0.025)	(0.015)	(0.020)
Occupation (employed)	.184*	.129	.164	.202*
	(1.834)	(0.684)	(0.407)	(0.545)
Having Children	.042	.033	-.114	-.010
	(2.400)	(0.724)	(0.533)	(0.713)
Second Generation	.044	-.036	-.130	.136
	(1.941)	(0.724)	(0.431)	(0.577)
Religious Participation	.208*	.141	-.118	.261*
	(2.067)	(0.773)	(0.460)	(0.616)
District 1 Resident	.112	.056	.006	.151
	(2.269)	(0.847)	(0.504)	(0.675)
Constant	31.71***	9.606***	6.024***	5.776
	(4.655)	(1.747)	(1.034)	(1.384)
Valid N	101	101	101	101
F	5.52***	2.95**	3.86**	S4.67***
R^2	.32	.20	.25	.29

* p<.05 **: p<.01 *** p<.001 (two tailed tests) – Standard errors for unstandardized coefficients
(1) Potential and active ties for social interactions (emotional, financial, social activities, jobs)
(2) Potential ties for support-related name-generators (emotional, financial, jobs)
(3) Active ties involving ego as recipient of support (emotional, financial, jobs)
(4) Active ties involving ego as provider of support (emotional, financial, jobs)

The overall fit of the models ranged from an R^2 of .20 to .32 with significant F-tests ($p<.01$). Some predictors of network size were consistently associated with smaller networks, such as age (in years) and Latino/a ethnicity. Other ego-level characteristics were not related to network size in any of the models tested (e.g., having children, being a second-generation immigrant or being a District 1 resident). Being female is significantly associated with larger networks ($p<.05$), although not in terms of ties involving the delivery of social support (see Model 4, Table 10, above). Respondents who are employed have also more general interactions with others and are important sources of support ($p<.05$). A similar trend is observed for subjects who belong to a religious organization ($p<.05$). Other analyses (not shown) tested the significance of other predictors such as marital status, length of residence in New York, residential tenure, educational attainment, and participation in community-level organizations. None of these proved to be significant predictors.

Models presented in Table 10 represent a very general overview of the covariates of relational patterns in the sample. It focuses exclusively on ego-level attributes and does not account for the general structure of the personal networks of survey respondents (such as prevalence of kinship and local interactions). Despite these important caveats, the exploration of the ego-level attributes suggests a number of significant trends: first, the social networks of Latinos and older respondents are smaller than those observed for other subjects[13]. The effect size of these two covariates was the largest among the predictors tested in the models. Second, models reveal that it is important to distinguish between ties associated with the provision of support and those related to the delivery of support. Some evidence suggests that connections to the broader society (e.g., employment and church membership) do translate in greater personal networks specifically in terms of providing

[13] Additional analyses (not shown) indicate that while this trend is significant across groups of Latinos, its magnitude was greater for Puerto Ricans than for Dominicans. These groups represent respectively 53.4% and 27.2% of the total number of survey respondents.

support to others. Additional explorations should clarify the inconsistent pattern detected for the covariate of gender—strongly correlated with most measures of social ties (as females report larger networks) but not with those involving the provision of social support.

4.2 Exploring Tract-level Measures of Socio-Economic Disadvantage

The systemic model links structural properties of communities to characteristics of their social organization and patterns of self-regulation. Recent expansions of the social disorganization theory have focused on the description of social control processes relating individual-level attributes such as the willingness to intervene in specific situations to neighborhood-level covariates of economic disadvantage, residential instability and heterogeneity. This section examines these covariates for District 1 relying on tract-level indicators by the 2000 Census.

4.2.1 Description of Census variables

This study is centered in a low-income minority area located in the southern section of the Bronx. Its population is predominantly Latino (71%) and African American (26%). Census data indicate that Latinos are progressively moving in while Whites and African-Americans continue to leave. Between 1990 and 2000, this area lost 17% of its White population and 10% of its African American residents. These trends are confirmed by the American Community Survey.

District 1 has 20 census tracts with more than 1,000 residents and a predominant use of land for single and multi-family dwellings. This study focuses on these tracts for the analysis. Such a subgroup of ecological units represents 99% of the population of the district and 75% of all tracts in the area. Table 11, below, provides a summary of demographic variables by residential tract. While District 1 is a relatively homogenous community, there is significant variation across tracts

for a particular group of variables. For example, the African American population ranges between 18% and 38% and the fraction of foreign-born residents ranges from a low of 8% and a high of 37%. More importantly, indicators of residential mobility vary greatly among these ecological units: this is illustrated by measures of owner-occupancy (M=8.4, SD=11.6), and percent of the population living outside of the U.S. in 1995 (including Puerto Rico) (M=6.4, SD=3.2).

Table 11
Demographic profile of residential tracts in District 1

Tract	Population	% Latino	% Black	% Same residence	% Living outside U.S.	% Owner-occupied	Vacancy rate	% Foreign-Born
17	1,024	65.9	27.4	46.2	12.9	13.6	17.3	8.0
23	4,305	62.5	35.0	73.4	2.1	0.8	10.3	13.8
25	5,109	79.0	18.8	60.5	9.6	2.0	10.0	27.1
27.01	3,033	64.9	33.5	74.7	4.0	1.0	4.6	14.1
27.02	4,736	74.9	23.0	60.4	8.7	3.4	11.8	19.4
31	1,504	76.7	19.9	68.8	8.4	2.3	9.0	37.1
33	3,090	76.5	20.3	61.4	2.6	7.3	11.0	24.0
35	3,448	73.5	24.3	69.3	5.2	5.4	5.3	24.0
39	6,022	78.8	18.3	58.4	7.8	6.3	8.6	28.3
41	5,240	72.8	24.7	71.7	4.2	4.0	7.0	18.5
43	4,780	77.5	20.2	70.5	6.6	13.2	13.9	19.9
47	5,387	60.1	37.9	68.3	2.4	1.0	3.0	8.8
65	4,789	64.7	27.7	62.0	9.8	2.3	4.7	32.3
67	6,491	67.3	29.2	61.7	7.5	4.2	7.4	22.7
69	4,400	63.8	32.2	64.7	6.5	3.6	9.3	17.1
71	1,961	67.4	28.7	68.3	5.3	47.3	4.2	16.4
73	3,248	75.2	20.9	65.3	6.6	0.8	3.9	28.3
75	4,688	66.7	29.9	68.4	2.8	22.2	4.1	21.0
77	1,547	72.0	23.7	74.4	4.0	26.2	10.7	26.1
79	6,598	76.1	20.4	56.4	12.1	2.1	5.0	25.6
Total*	81,400	71.0	25.8	65.0	6.5	6.2	7.6	21.8

* Averages weighted by population

While the South Bronx was categorized by the Census as the poorest Congressional District in the nation with 40.2% of its population below the poverty line, about 52% of the residents in District 1 are below this threshold. According to the 2005 American Community Survey (ACS), the rate of extreme poverty is this area is 34.5%, also the highest in the U.S. ACS estimates also suggest that this community is the top micro-level unit for children being born in poverty (71%),

Table 12 below presents tract-level figures on a number of socio-economic characteristics traditionally related to conditions of structural disadvantage. These indicators suggest that poverty and hardship are unevenly distributed by tract within District 1: for example, the fraction of the population below the poverty line varies from 23.4% to 62.5% (M=44.8, SD=10.8) and the rate of unemployment fluctuates between 9.8% and 36.2% (M=23.4, SD=7.1). Similar patters are observed for the proportion of households receiving public assistance (M=23.9, SD=6.7) and the percentage of female-headed household with children below 18 years of age (M=25.9, SD=5.3).

Table 12
Socio-economic profile of residential tracts in District 1

Tract	% Below poverty	Median household income	% Households on public assistance	% Female-headed households with children	Unemployment rate	Divorce rate
17	43.6	21,650	13.2	20.6	34.6	3.9
23	40	20,217	26.4	26.4	30.1	7.8
25	49	15,662	31.9	22.6	21.3	9.3
27.01	53.1	13,077	35.3	26.4	26.6	7.4
27.02	62.5	12,042	30.7	35.0	36.2	7.9
31	23.4	28,365	17.6	25.8	9.8	10.4
33	59.7	11,420	27.6	29.6	24.9	6.5
35	43.4	20,122	19.3	23.0	19.5	6.9
39	42.3	23,006	17.2	20.5	19.2	9.2
41	50.7	15,000	23.7	20.8	20.7	11.4
43	30.9	21,956	20.9	20.1	19.3	4.9
47	58	13,151	31.5	31.1	33.8	8.8
65	37.3	19,961	18.5	22.4	18.9	6.5
67	38.2	22,256	23.5	27.2	24.8	8.9
69	62.3	10,868	30.4	38.3	29.1	6.9
71	32.8	37,891	14.6	30.4	18.7	6.8
73	41	20,087	24.4	30.6	14.8	8.8
75	33.9	23,321	15.1	21.8	14.3	6.6
77	44.3	20,521	31.9	26.0	28.1	10.1
79	49.8	17,988	23.7	18.9	24.9	10.3
Total*	45.8	18,592	24.2	25.4	23.1	8.2

* Averages weighted by population

4.2.2 Deriving the structural covariates of disadvantage

Studies on the social organization of communities have traditionally relied on the use of Census data to operationalize structural constraints in terms of socioeconomic disadvantage, residential instability and population heterogeneity. These constructs have been consistently associated to weaker social controls and higher rates of specific crimes (Sampson et al., 1997).

Guided by the empirical literature, this manuscript derived structural factors using Census variables for the 20 residential tracts of District I. This information was use to implement a principal components factor analysis (varimax rotation.) The three constructs identified by this procedure account for 73% of the variation in the indicators (Table 13, below).

Table 13
Factor loadings for structural covariates of social disorganization

Variable	Concentrated Disadvantage	Heterogeneity	Residential Stability
% Public assistance	**.811**	-.30	.350
% Below poverty line	**.860**	.264	-.069
% Unemployed	**.643**	.591	-.193
% Owner-occupied	**-.696**	.376	.155
Median household income	**-.919**	-.044	.026
Female-headed households with children	**.635**	-.073	.107
% African American	.223	**.646**	.422
% Foreign-born	-.252	**-.884**	-.089
% Divorced	.264	**-.704**	.308
% Population 18-24	-.222	**.650**	.165
% Living in the same residence 1995	-.069	-.072	**.952**
% Living outside the U.S.	-.078	-.072	**-.891**

Concentrated disadvantage is composed of percent of households receiving public assistance (factor loading .811), poverty rate (.860), unemployment rate (.643), percent owner-occupied housing (-.696), median household income (-.919), and female-headed households with children (.635). Heterogeneity is composed of the percent African American, percent of the population foreign-born (-.884), divorce rate (-.704), and fraction of the population ages 18-24 (.650).

Residential stability is composed of the percentage of the population living in the same residence in 1995 (.952) and the fraction of individuals living outside of the United States in 1995 (-.891).

Factor loadings presented on Table 13 (above) replicate the composition of similar constructs developed in prior studies. However, previous research has relied on the measurement of covariates of disadvantage across relatively large, heterogeneous groups of ecological units. The framework for the present study differs from this tradition because of the relatively low number of units (20) and the overall structure of the study area—a low income, mostly Latino community.

Factor scores representing aggregate indicators of concentrated disadvantage, population heterogeneity and residential instability were linked to each census tract as additional ecological attributes. Exhibits 8-10, below, plot these covariates using a baseline map of census tracts in District I (only residential tracts are included). The classification of tracts into low, average, or high levels of a given construct is based on the overall distribution of scores (low = < -1 SD; high= >1 SD). The approach highlights tracts with extreme value at both ends of the distribution.

Exhibit 8
Concentrated disadvantage in District I

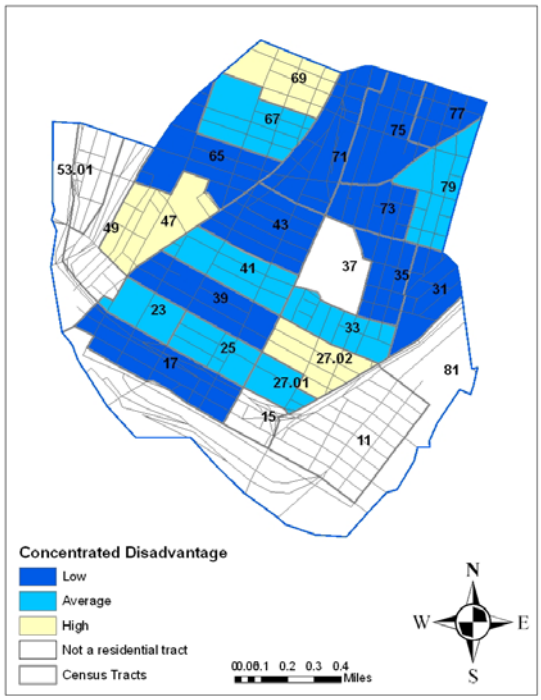


Exhibit 9
Residential Instability in District I

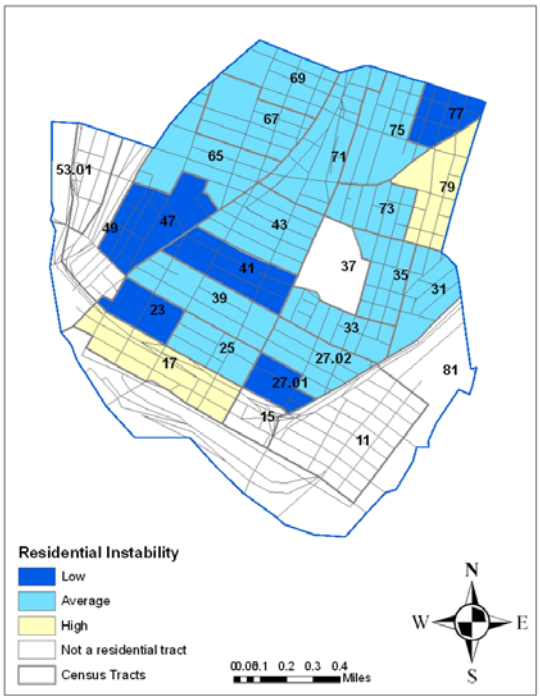
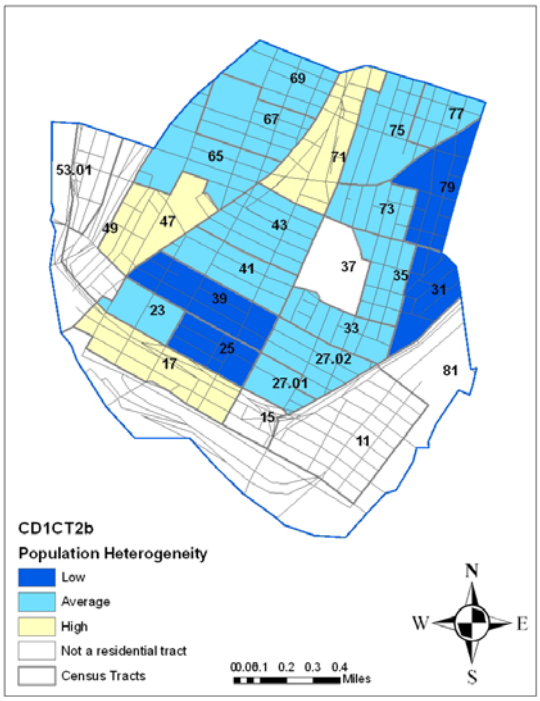


Exhibit 10
Population heterogeneity in District I



An overview of these maps provides information about the nature of the between-tract variation across structural covariates: contrary to previous studies, it appears that there is a low correlation between ecological indicators of concentrated disadvantage and residential instability. This is likely caused by characteristics of the study area, in particular the fact that public housing developments—prevalent in District I when compared to other areas of the city—are associated with poverty but not with population turnover.

4.3 Crime Problems in District I

Crime and crime-related narratives have been consistently employed by journalists, politicians, and some scholars when describing the social organization of the Bronx. In recent years, the attention to local patterns of criminal offending has expanded to other subjects associated with the maintenance of order such as the quality of police-community relations, the use of illegal

substances, gang activity, and the impact of mass incarceration (Rosenfeld et al., 2007; Zimring, 2006; Brotherton and Barrios, 2004; Rengifo and Waring, 2005; Freudenberg et al., 1999).

The systemic model of social disorganization hypothesizes that local levels of control—private, parochial, and public—have an impact on levels of crime (Bursik and Gramsick, 1993). As reviewed in Chapter 2 of this monograph, there is substantial empirical evidence supporting this argument (Sampson et al., 1997; Morenoff et al., 2001; Lynch et al., 2002) although some studies have provided mixed results (Bellair, 2000). Research projects directly connecting crime to patterns of social interaction have also yielded inconsistent results (Warner and Wilcox, 1997; Sampson and Groves, 1989; Markowitz et al., 2001). The lack of agreement on the processes by which controls and social networks may interact with crime is tied to the absence of an overarching theoretical framework to understand neighborhood effects, as well as the relative confusion over the operationalization and measurement of local social ties (Sampson, 2002; Patillo, 1999; Taylor, 1995, 2002).

This dissertation contributes to this ongoing debate by associating measures of actual social exchanges to a number of crime-related outcomes both at the individual and at the neighborhood levels. At the individual level, this study explores the relationship between properties of personal networks and indicators of criminal victimization, contacts with law enforcement, and perceptions of local crime rates. This inquiry relies solely on the use of survey data collected by the South Bronx project in District 1. At the neighborhood-level, this research examines the ecological relationship between structural characteristics of census tracts within the study area and reported crimes to the police (specifically in terms of robbery, burglary, and aggravated assaults). When appropriate given the size of the survey sample, this project also implements multi-level models connecting properties of individual respondents to their community context.

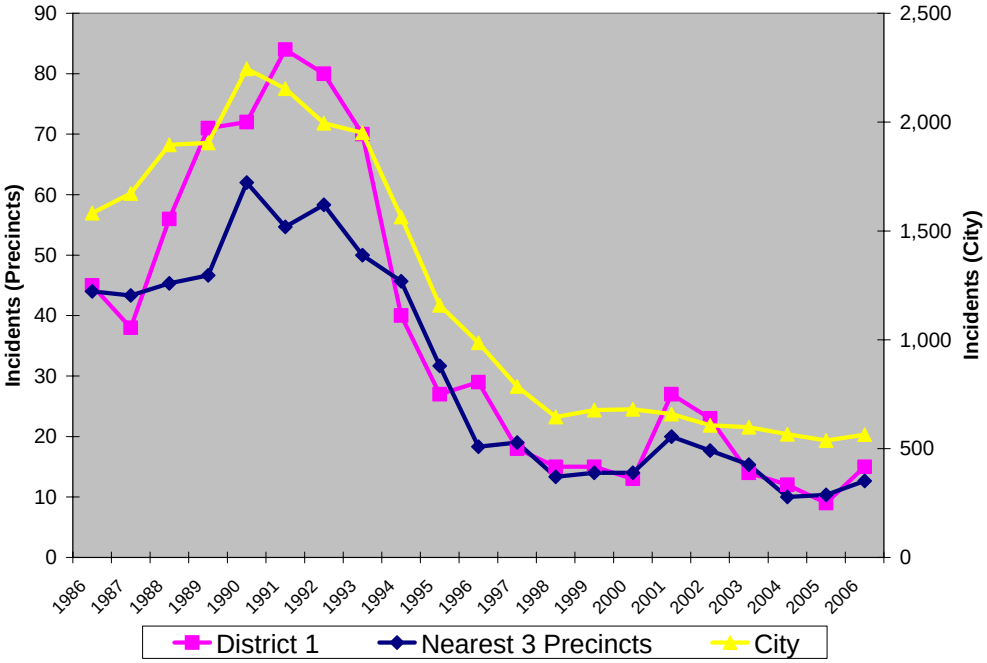
4.3.1 General patterns in reported crimes

Reported crimes in New York City declined consistently during the 1990s reflecting a nationwide phenomenon. Its determinants have been analyzed nationally and locally. Research has emphasized the role played by structural demographic changes, drug market dynamics, and changes in policing strategies in the configuration of this trend (Zimring, 2006; Rosenfeld et al., 2007).

Homicides are a key indicator for policy makers and researchers studying long-term patterns of serious offending. Exhibit 11 below, tracks the number of murders and non-negligent manslaughters for New York City, District 1 (40th Precinct) and its three nearest neighbors (41st Precinct, 42nd Precinct and 44th Precinct). The data was compiled from published reports by the New York Police Department (Office of Management and Planning). As portrayed by the graph, the citywide drop in reported homicides (yellow line, right axis) was also experienced in the Bronx (pink and blue lines, left axis). After peaking in 1990-1991 incidents in the city declined by 71% through 2001. During the same period, homicides in District 1 were reduced by 68%. After 2001, murder and non-negligent manslaughter counts stabilized and even began to rise: between 2005 and 2006, the number of homicides in New York rose by 5% whereas in District 1 it increased by 67% (from 9 to 15 incidents).

There are no major differences between the long-term trend on homicides in District 1 and the figures reported by its three nearest neighbors (Exhibit 11, below). However, between 1987-1994 and 2000-2003 District 1 experienced more significant increases in the number of murders.

Exhibit 11
Murder and non-negligent manslaughter
1986-2006



The citywide decline in the murder rate during the nineties was accompanied by similar trends for both property and person offenses. Exhibits 12 and 13 below focus on observed variations for two serious offenses between 2000 and 2006: Overall, the trend for robberies is relatively less stable than the trend of burglaries. However, incidents for both crimes show a slight decrease over the observed period. Also, District 1 appears to have a greater number of violent crimes than its nearest neighbors, not only in terms of robberies, but also murders and aggravated assaults (not shown).

Exhibit 12
Robbery counts
2000-2006

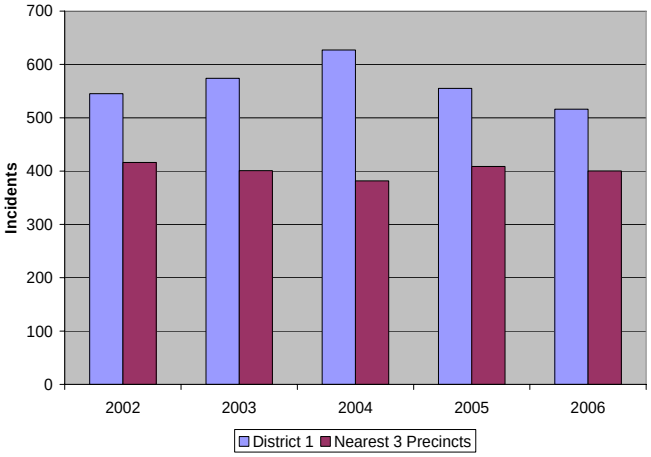
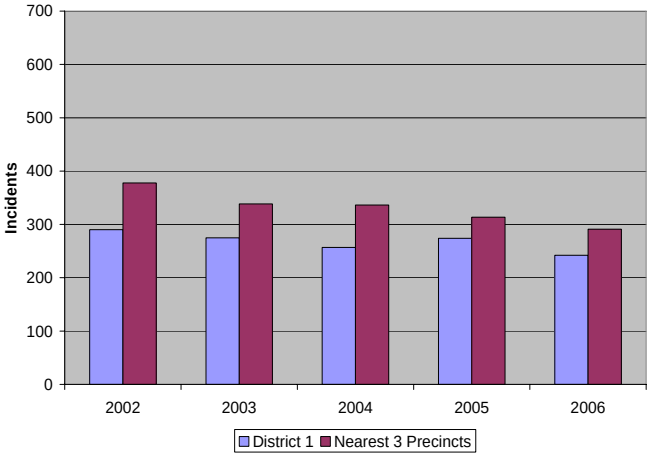


Exhibit 13
Burglary counts
2000-2006



Data on reported crimes in District 1 was provided by the New York Police Department for calendar years 2005 and 2006[14]. This dataset contains incident records for criminal complaints registered by the different law enforcement agencies associated with NYPD (Police Service Areas, Transit, and Traffic). The information was geo-coded and aggregated at the tract-level. Table 14 below provides these counts for the residential tracts in District 1. Burglaries appear to be more concentrated in specific tracts (M=21.3, SD-13.4) when compared to robberies (M=42.8, SD=19.6) or serious assaults (M=38.4, SD=16.9). Between 2005 and 2006, robberies and burglaries declined by 19% and 7%, while assaults experienced a slight increase (4%).

[14] There are some inconsistencies between district-level counts and figures generated by the aggregation of individual incidents. In both cases NYPD reports data from multiple departments (housing, transit, etc.). However, overall precinct counts are reported by fiscal year, while point-level data was compiled for using calendar years. Some of these differences are relatively important (e.g., 478 robberies CY 06 vs. 516 FY 06). On average the discrepancy for burglary, robberies and assaults averages 5.5% and it is likely related to increases in reported crimes during the second half of 2006.

Table 14
Crimes known by the Police
Counts for 2005-2006

Tract	Murder	Robbery	Burglary	Aggravated Assault
17	1	15	16	3
23	0	38	2	41
25	0	36	18	41
27.01	1	49	5	34
27.02	1	27	15	33
31	1	14	20	11
33	1	22	14	23
35	0	36	12	35
39	2	79	32	65
41	1	50	19	54
43	0	73	36	59
47	3	34	11	38
65	2	63	61	53
67	3	80	38	62
69	0	40	12	34
71	0	42	13	43
73	1	57	29	40
75	0	35	25	31
77	1	22	22	13
79	1	45	27	55
Total	19	857	427	768

This brief overview of reported crimes indicates that while serious criminal offending has decreased in District 1, this area remains a high-crime community::for example, the robbery rate in District 1 more than doubles the rate for the overall city (628 incidents per 100,000 residents vs. 300) and its rate of aggravated assaults is 131% higher (496 vs. 214).

4.3.2 Victimization and contacts with law enforcement among survey respondents

The survey instrument fielded in the South Bronx included several questions on local criminal victimization for violent offenses, residential burglary and personal theft. The formulation of these

questions was guided by the structure of screening tools employed in large-scale victimization surveys and studies of neighborhood processes[15].

General descriptive statistics are presented in Table 15, below. About a third of all respondents report having been themselves—or someone else in their households—the victim of a violent incident (32%). Slightly less than half of these individuals indicate that the incident occurred in within six months of the interview. The incidence of residential burglary and personal theft is significantly lower. Compared to non-District I respondents, those who reside in the study area have relatively higher violent and property victimizations (with the exception of burglary).

Table 15
Self-reported estimates of criminal victimization

	Total	CD I	Other
Violent			
Lifetime	32.0%	36.1%	15.0%
Past six months	12.6%	14.1%	5.0%
Residential burglary			
Lifetime	12.6%	10.8%	20.0%
Past six months	1.0%	1.2%	0.0%
Personal theft			
Lifetime	15.5%	16.9%	10.0%
Past six months	5.8%	6.0%	5.0%

The descriptive statistics reported in Table 15 are not intended to provide an estimate of the incidence of criminal victimization in District I. The calculation of such statistic requires a larger sample and a different sampling strategy. However, sample data can be used to inform the general profile on the nature of the crime problems in the study area. Respondents who reported a household-level violent victimization were slightly more likely to be female (51.5%) and were less

[15] However questions were modified in order to specifically account for neighborhood victimization. In additions the screening question for violence eliminated a traditional reference to sexual assaults as an illustration of violent interactions. The reformatted question was worded in the following terms "While you have lived in this neighborhood, has anyone ever used violence, such as in a mugging or fight, against you or any other member of your household?". Details on the use of these variables are provided in Chapter 7.

likely to be married or living in a domestic partnership (42.4%). The survey instrument did not link specific victimization incidents police reports. However, the instrument did ask respondents whether or not they had submitted a complaint during a five-year window prior to the interview—about 27.2% reported having done so, with lower reporting patterns observed for District I respondents (22.9%).

The interactions between law enforcement and survey respondents go well beyond the report of criminal events. In the South Bronx new strategies have emerged aimed to increase the intensity and scope of the police work. Some of these initiatives have targeted specific areas within District I (Operation Weed and Seed, NYPD's "impact zones") or specific crimes ("graffiti" or "gun-crime" task forces). As a result, residents of District I experience voluntary and non-voluntary contacts with the police on a regular basis.

During 2006, a total of 11,147 arrests were reported in District I, about 4.1% more than in 2005. The arrest rate for this section of the city was 1.35 per 10 residents or 1.97 if using only the population 15 years and older. Citywide, 377,406 arrests were reported in 2006, 5.6% more than in 2005. The overall arrest rate was .47 per 10 residents or .59 for those in 15 years or age or older. Put together, these figures indicate that the incidence of arrests in District I was in 2006 more than three times the average for the entire city[16] constituting the precinct with the highest number of arrests in the Bronx. This distinct trend in the enforcement of order cannot be explained by the relatively higher number of crimes in the area.

The examination of arrest statistics is important because it provides an empirical basis for the study of the linkages between formal (public) and informal (parochial) controls—a substantive area that has received considerable attention in recent years (Lynch et al., 2002; Velez, 2001). The

[16] Population figures are based on Census 2000 counts, while arrest figures are provided by the NYPD. Arrests incidents involve a substantial number of individuals who are arrested multiple times during a given year. The calculation of rates does not take into consideration this event and, therefore, calculations may slightly overestimate the incident of arrest patterns.

survey instrument employed in the South Bronx was designed to explore this topic by measuring a number of interactions between residents and public mechanisms of control. General descriptive information on the nature of these contacts is provided in Table 16 below.

Table 16
Reported interactions with law enforcement

	Total	CD 1	Other
Type of interaction			
Reported crime	27.2%	22.9%	45.0%
Given a ticket	29.1%	31.3%	20.0%
Stopped and searched	26.2%	28.9%	15.0%
Given a summons	16.5%	18.1%	10.0%
Arrested	16.5%	20.5%	0.0%
Convicted	5.8%	7.2%	0.0%
Jail	10.7%	13.3%	0.0%
Prison	4.9%	6.0%	0.0%
Prevalence of imprisonment			
Close relative in prison	40.8%	43.4%	30.0%
Someone attached to	39.8%	44.6%	20.0%
Missing social tie	10.7%	12.0%	5.0%

During the five-year period prior to the interview, over 29% of the study participants were given a ticket and 26% were stopped and searched. About 16.5% were arrested during this time and about one in ten had spent some time in jail. Across all domains, interactions with law enforcement were higher for District 1 respondents. Perhaps more significant than personal contacts between subjects and law-enforcement is the high prevalence of incarceration among their close associates: close to half of those residing in the study area reported having a close relative or intimate associate who was sentenced to prison (43.4% and 44.6% respectively). About one in ten of those interviewed explicitly linked these individuals to the composition of their personal networks.

CHAPTER 5. INDIVIDUAL-LEVEL AND TRACT-LEVEL DETERMINANTS OF PERSONAL NETWORKS

Studies on the social organization of communities have systematically highlighted the impact of neighborhood-level characteristics on the structure of local social relations: in areas of heightened residential instability individuals are less likely to develop strong attachments and have fewer friendship and kinship associations (Kasarda and Janowitz, 1974; Sampson and Groves, 1987; Sampson et al., 1997). In communities with high levels of population heterogeneity residents are more likely to exhibit fragmented social networks (i.e., with a low number of cross-cutting ties along domains such as race, and class) (Suttles, 1967; Bellair, 1997).

Despite the value of these general findings, survey-based studies of urban communities provide a limited insight on the structure of social relations and its association to social order. For the most part, studies are constrained by the lack of a more robust specification and operationalization of social ties. Measures of exchange are generally based on items describing the respondents' perceptions on the frequency of interactions with neighbors or the extent to which they have local affiliations. Works subscribing to this tradition of research rely on instruments that do not elicit personal networks or fail to provide structural measures of cohesion, connectivity, strength of ties, or actual content of interactions.

This dissertation develops an alternative approach to the study of social relations in urban settings based on the measurement of personal networks. This is not a new idea. Structural studies on the social organization of cities, neighborhoods, workplaces, and other communities, have been a permanent feature of the sociological research (Simmel, 1918; Blau and Schwartz, 1968; Laumman, 1973). The quantitative examination of personal networks has paralleled the development of this line of inquiry via the emergence of new frameworks and tools encompassed

under a tradition known as social network analysis (Wasserman and Faust, 1994). This chapter provides a brief overview of the contributions made by this approach, with an emphasis on findings associating attributes of individuals and their immediate social context to properties of personal networks. Drawing upon this literature, this chapter assesses one of the key elements of the systemic model of social disorganization, that is, the linkage between structural characteristics of neighborhoods and overall attributes of their residents' networks. Specifically, it relies on the analysis of survey data on pro-social exchanges of District I study participants and connects properties of their personal networks (e.g., size, density, composition) to individual-level demographic and socio-economic attributes. Further, these relational structures are aggregated at the tract level and related to structural narratives of disadvantage, heterogeneity and instability.

Findings support the association between measures of network size and the main community-level variables of the systemic model—e.g., population turnover, economic disadvantage, and population heterogeneity. Specifically, results indicate that the number of alters known by survey respondents is significantly higher in tracts with more residential stability and heightened concentrated disadvantage. A less robust, non-significant effect was also detected for the variable of population heterogeneity suggesting that personal networks are greater in more homogenous tracts. At the respondent-level, it was found that civic participation was positively associated with larger networks. A similar effect was observed for variables capturing employment status and level of education. The respondents' race, gender or length of residential tenure did not have an effect on counts of network size. Overall, the ecological variations in this outcome remained significant after introducing the tract-level predictors and the individual-level variables.

5.1 Measuring Properties of Personal Networks

The social networks literature has operationalized key concepts present on the more general sociological research on the organization of urban communities. Some of its long-standing substantive areas of inquiry have been translated into specific relational properties often examined via the measurement of ego-centered or personal networks. For example, the idea of communities of "limited liability" (Janowitz, 1951) and related concepts such as the ordered segmentation of residential patterns (Suttles, 1971) can be linked to the notion of "homophily" in personal interactions (McPherson et al, 2001). Social network analysts have produced robust findings on the significant role of race in the creation and maintenance of affiliations: using data from the General Social Survey (GSS), Marsden found that only 8% of respondents mentioned someone from another race when reporting ties related to the "discussion of important events" (1987)—although new estimates place this figure at 15% (McPherson et al., 2006). Race has also been central to macro-level studies of structural differentiation (Blau and Schwartz, 1968; Laumann, 1973) and micro-level studies focused on neighboring patterns (Lee et al., 1991). Another substantive area connecting network analysis to more general studies on urban relations has to do with the role of local associations and the relevance of geographic distance on patterns of social ties. Individuals are more likely to associate and develop frequent contacts with others who are "close" (Mok et al., 2007; Festinger, et al., 1950; Venkatesh, 2000).

The collection of network data has been a permanent challenge for the development of network analysis as an academic field. General patterns of affiliation tend to depend greatly on the type of name-generators and sampling strategy employed by the researchers. These problems difficult the accumulation of evidence across studies and pose a number of significant threats to

the validity of their empirical observations. For example, name generators emphasizing specific roles (e.g., provision of social or emotional support) have been criticized because they tend to undercount weak ties (Bernard et al, 1990; Marin, 2004). Role-related mechanisms to elicit personal networks are also more likely to yield larger networks than those emphasizing emotional attachments or intimate contacts (Campbell and Lee, 1991). Overall, scholars have underlined problems of informant accuracy when respondents are asked to report on their connections to others (Bernard et al., 1982; McCarthy et al., 1997) and some studies have shown low convergence across measurement approaches to social ties (Laumann, 1969; Killworth and Bernard, 1976).

The aggregate, statistical analysis of network data has also been the subject of multiple challenges. Often, researchers have relied on OLS regressions to measure the association between properties of respondents and characteristics of their personal networks (see for example Marsden, 1987 or Campbell and Lee, 1992). New studies have employed negative binomial regressions accounting for the fact that in many cases the dependent variable represents a count estimate of the number of alters in a given network (McPherson, 2006). These approaches, when employed for the analysis of ego-centered networks, can result in the violation of standard assumptions about the need for independent observations, resulting in misspecified models (Van Duijn et al., 1999). Some of these problems have been addressed via the recent utilization of multi-level models (Snijders et al., 1995; Wellman and Frank, 2001).

5.1.1 Research and findings based on the tradition of social network analysis

Network-based studies of urban relations have consistently underlined the importance of individual-level covariates on the overall structure of social relations. Generally, it has been found

that younger, individuals have larger personal networks as well as those more socially integrated and those exhibiting higher socio-economic status (e.g., education, employment, income). There is mixed evidence of the relationship between network size and gender mostly due to variations across types of exchanges (Campbell and Lee, 1991; McCarty et al., 1997 for an overview). Individuals tend to relate to others who share some of their main attributes—a pattern known as "homophily" (McPherson et al., 2001). Studies on network dynamics suggest that changes in network size and composition are also related to life events and mobility (Degenne and Lebeaux, 2005; Van Duijn, 1999; McPherson et al., 2006)

The network literature provides a limited account on the connections between relational patterns and characteristics of the respondent's physical context, in particular in terms of neighborhood or community effects. Wellman's study of personal networks in East York found that in this middle-class community, intimate ties extended well beyond interactions with local residents—only 13% of the alters lived in the same area as the main respondents (1979). Wellman's research revealed that overall social exchanges of individuals in the sample were strong and highly diverse, involving kin and non-kin members. However, his analysis offered a limited insight on variations on networks across neighborhoods as East York was conceptualized as a single study area. A slightly different approach was developed in Fischer's Northern California Communities Study (1982), which involved interviews in fifty different communities with varying degrees of urbanization. He found that respondents with smaller networks were older, poorer and less educated. Context played a significant role in the composition of these relational patterns, although not in terms of overall network size—instead, he found that respondents in more urban areas had a higher ratio of non-kin associations. Using data from the GSS, Marsden examined networks of individuals connected by the "discussion of important matters" (1987). His results indicate that varying definitions of network size are substantially explained by attributes of the

main respondents—larger networks were observed for those living in larger communities, the more educated, and those of relatively younger age. Compared to whites, African-Americans reported smaller overall networks but also a lower ratio of kin to non-kin alters. Like Fischer, Marsden studied the influence of context using a general indicator of overall size of the urban area and associated it with properties of the respondents' personal networks. He found that residents in more urban locations have greater, more heterogeneous networks, although less dense and with a higher ratio of non-kin members. The reanalysis of the GSS data using data from its 2004 wave suggests that discussion networks have become more heterogeneous with regards to race and kin, although non-whites continue to exhibit smaller networks (McPherson et al., 2006)

One of the first survey-based network projects that analyzed attributes of both individuals and communities is Warren's study of helping networks in the metropolitan area of Detroit (1981). He found that between-neighborhood differences in social support ties were significant for only one type of support interaction ("life crises") with higher aggregate scores linked to "integral" neighborhoods—areas with more fluid contacts among residents and between residents and local institutions (67-83). In a more recent study, Campbell and Lee (1992) found that neighborhood-level socio-economic status predicted overall network size with respondents in more disadvantaged communities reporting smaller networks. Their analyses also show that respondents with longer residential tenure had larger networks across multiple dimensions.

5.1.2 Defining a relational structure for the personal networks of South Bronx residents

This study examines the personal networks of residents of District 1 in the Bronx. Social ties were elicited via the use of six name-generators—living arrangements, emotional support, financial

support, social activities, job-seeking interactions and avoidance patterns. This section describes the process by which these emerging structures are consolidated in a single measurement construct encompassing interactions developed in public, community-wide domains of interaction (rather than ties in private settings) as well as ties that are pro-social and voluntary in nature (i.e., discounting ties of avoidance). This section provides empirical and theoretical grounding for the implementation of this approach (see for example, Granovetter, 1973; Wellman, 1979). It argues that these specifications are necessary in order to provide a more accurate operationalization of the concept of social ties as presented in the systemic model (Bursik and Grasmick, 1993).

Chapter 4 offered an overview of the attributes of the survey participants as well as a general perspective on association patterns: in total, subjects report affiliations to 1,003 individuals (M=9.9, SD=4.6). These alters are often associated with ego through multiple exchanges. Overall, 2,264 ties are registered (M=22.4, SD=10.2). Alter and tie counts are highly correlated across generators (r=.76, p<.01). Table 17 presents a summary of these measures of network size.

Table 17
Measures of network size

	Total	CD 1	Other
Network size (alters)			
Min-Max	2-26	2-26	2-22
Mean (SD)	9.9 (4.6)	10.2 (4.5)	9.05 (5.3)
Network size (ties)			
Min-Max	3-56	3-56	5-46
Mean (SD)	22.4 (10.2)	22.8 (10.1)	21.0 (10.6)

Figures show that District 1 respondents have slightly larger networks than study participants living elsewhere; however, they have a lower ratio of ties per alter (2.23 vs. 2.32) implying that there are fewer overlapping roles connecting these individuals to the main respondent.

Network size is one of the most frequently employed indicators of overall structure of personal networks. Often, researchers focus on the counting of alters rather than ties due to the absence of multiple name generators or the assumption that alters fulfill multiple roles. Regardless of the actual operationalization of network size, this construct provides a baseline for the analysis and comparison of personal networks along domains such density and heterogeneity of exchanges—larger networks tend to be less dense and more heterogeneous. This general postulate was consistent with results from a basic examination of the personal networks of South Bronx respondents: For example, in a simple OLS regression the relative number of kin alters was negatively associated with larger networks ($B=-.014$, $p<.01$, $R2=.074$). A similar effect was observed when restricting the analysis to exchanges associated with social activities, job seeking, and emotional and financial support ($B=.013$, $p<.05$, $R2=.036$).

The survey instrument employed in this research implemented multiple approaches to the measurement of network size. It accounted for the fact that network size depends greatly on the type of name generators employed (Campbell and Lee, 1991). Measures of network size are also associated with the study of latent/active connections between ego and alters. This is an important distinction because it introduces the notion of mobilization of resources and actual exchanges between individuals. Also, by focusing on specific, concrete interactions studies can reduce the impact of informant accuracy problems (Bernard et al., 1982). In this study the distinction between latent and active ties is based on the reporting of actual exchanges during the month prior to the interview instead of nominations of potential contacts or interactions occurring beyond the established threshold. Chapter 4 examined the number of latent ties per name generator finding that social activities provided the greatest opportunities for interaction ($M=3.6$ ties, $SD=2.2$) (Table 6). More importantly, it was found that District 1 respondents had significantly fewer latent job-seeking ties when compared to other survey participants ($M=1.34$ vs. $M=1.95$).

Also in Chapter 4 the construct of "social support" was introduced as a strategy to aggregate assistance-related interactions—name generators for emotional support, financial support, and job-seeking. The use of these variables was consistent with the operationalization of other network-based instruments to measure social support (see Campbell and Lee, 1991 for a review). The average latent support network in the sample correspond to 6.23 ties per respondent (Table 18, below). There are significantly fewer ties when considering only active interactions: those involving the *delivery* of support exchanges average 2.7 ties per respondent (only 43% of the latent ties) whereas those capturing the *provision* of exchanges average 3.4 ties (45% of the total latent ties).

Table 18
Latent vs. Active Social Support*

	Ties	Alters
Latent network size		
Min-Max	0-16	0-11
Mean (SD)	6.23 (3.4)	4.55 (2.5)
Active network size (Receiving support)		
Min-Max	0-11	0-8
Mean (SD)	2.70 (2.10)	2.35 (1.65)
Active network size (Providing support)		
Min-Max	0-15	0-9
Mean	3.36 (2.88)	2.81 (2.2)

Differences in sources of social support are also captured by the number of alters involved in these exchanges: according to figures in Table 18, only 51% of the individuals listed for potential help are actively engaged in providing such assistance (2.35 active alters vs. 4.55 potential alters); active "providing" networks are bigger than those related to the "delivery" of support.

Patterns described in Table 18 can be alternatively presented using the network data for particular study participants. Exhibits 14-A through 14-C provide a representation of the latent social support ties for ego #51, a 37-year old Latina residing in District 1. Out of the 19 alters

elicited by the survey, two are associated with the name generator for emotional support (14-A), five relate to financial support (14-B) and two correspond to job-seeking support (14-C). There is some overlap between these types of exchange: for example one alter is reportedly present in all three name-generators and another is reported in terms of emotional and financial support.

Exhibit 14-A
Emotional Support
Ego 51

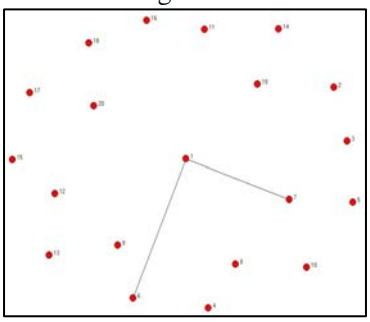


Exhibit 14-B
Financial Support
Ego 51

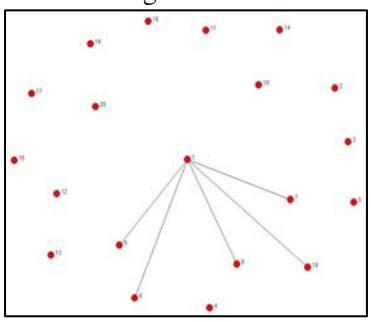
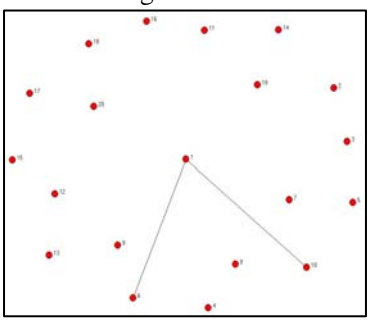


Exhibit 14-C
Job-seeking Support
Ego 51



Drawing upon the information presented by the exhibits above one can measure the latent social support network of ego #51, which is composed of 5 alters and 9 ties (Exhibit 14-D, below). When compared to actual exchanges, the latent network changes in shape and number of interactions: only two active ties involve ego as the recipient of support (Exhibit 14-E) and three involve ego as the provider (Exhibit 14-F). Further, there is little overlap between alters employed by ego as sources of support and those receiving such support from ego (Exhibits 14-E and 14-F). In other words, there is little reciprocity with regards to active support networks.

Exhibit 14-D
Latent Social Support
Ego 51

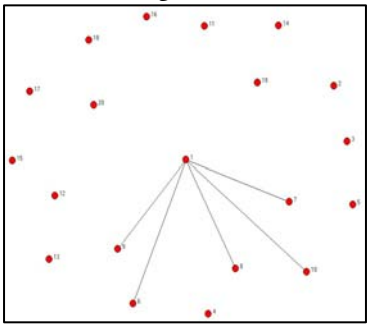


Exhibit 14-E
Active Recipient Support
Ego 51

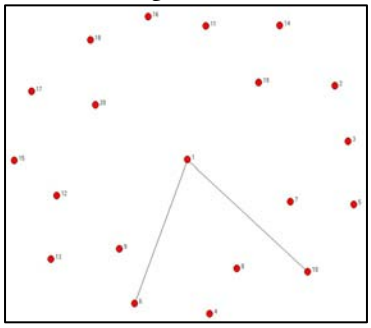
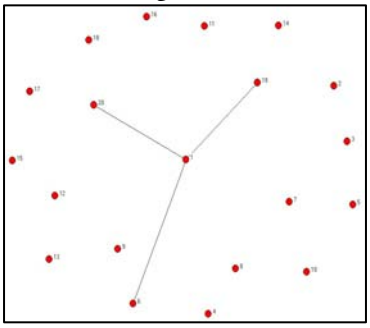


Exhibit 14-F
Active Provider Support
Ego 51



More important than the representation of active and latent ties, Exhibits 14-A through 14-F illustrate the challenges associated with the measurement of relational structures in personal networks: in the case of ego #51 only 5 out of her 19 alters have support-related roles (26%). The remaining three-fourths of ego's contacts are associated with the name generators for social activities (9 alters, 16 ties) and living arrangements (4 alters, 4 ties). As inferred from Exhibits 14-G and 14-H, these associations have little overlap with the support exchanges presented above.

Exhibit 14-G
Social Activities
Ego 51

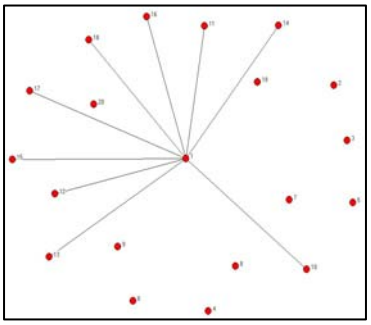
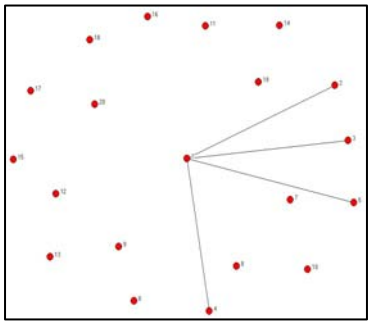


Exhibit 14-H
Living arrangements
Ego 51



Taking into consideration both latent and active ties, nearly half of the ties linking ego #51 to her alters correspond to interactions related to social activities (43.2%) followed by social support (40.5%), living arrangements (10.8%), and avoidance (5.4). The distribution of alters by name generator is relatively similar, although some of these domains are more likely to exhibit role-specific interactions (i.e., alters connected to ego via a single tie). Out of the 19 alters in the personal network of Ego #51, 14 are effectively associated with the main respondent in a social, public environment through social activities or social support. This network is labeled "parochial" because it does not include alters who are only related to ego via a tie of avoidance (i.e., a non-tie or the absence of voluntary contact) and it does not include alters whose only exchanges operate in a private context such as one marked by "living arrangements".

The measurement of social and public exchanges is a central consideration of the theoretical framework guiding this dissertation. At the core of the systemic model there is the notion that parochial controls are determined to a great extent by social ties developed in a public arena—beyond connections exclusively formed in private settings. Of course, the systemic model incorporates additional variables associated with the emergence of community controls—ties to local, formal organizations, for example. This research operationalizes these covariates as individual-level properties that can be studied separately from the analysis of personal social ties.

Consistent with the systemic model, this study measures social ties using a subset of network-related interactions included in the South Bronx survey. As described for Ego #51, exchanges solely based on ties of avoidance or living arrangements will be disregarded from the main analysis—which is centered on the relationship between social, public exchanges and social controls. The choice of this analytical strategy is based in the following tie-specific considerations:

First, avoidance ties do not constitute social exchanges. Few relations in the overall sample were elicited via the use of this name generator (74 potential/active ties out of 2,264, or 3.2%). More importantly, 50 out of the 53 alters involved in these associations were not associated with the main respondents in any other dimension (94%). Clearly, ties of avoidance are few, isolated, and are not designed to elicit social interactions. Ties with inherent value (negative or positive, graded, etc.) are central for the study of structural balance (Lauman and Pappi, 1973) but offer limited insight for the calculation of general patterns of exchange.

Second, the use of a name generator for living arrangements substantively addresses the private dimension of the respondents' social exchanges. These exchanges are important for a wide array of processes; however, they can contribute to community-level controls to the extent they are mobilized in a public setting with role-specific properties beyond the sharing of a physical space. In other words, "living with" alters are relevant for the operationalization of community social ties

only if these alters engage in substantive interactions (e.g., emotional support). Out of the 1,003 alters reported by study participants, 274 are individuals with whom ego shares a living space (27.3%). Almost half of these alters are not associated with ego in any other way (47.4%).

By disregarding ties and alters exclusively associated with avoidance patterns or living arrangements, this study limits its analysis to approximately 84.6% of the ties reported and 81.2% of the alters. Consistent with the systemic model, these structures are labeled "parochial networks".

The reduction in the number of relations considered has important consequences for the calculation of structural properties of networks. Some of the interactions measured indirectly by the living arrangements name-generator are significantly reduced—for example in terms of parenting relationships. Table 19 below, shows the extent of the differences between general and parochial networks. The average number of alters drops 18.8%, followed by the reduction in the mean number of ties (-15.3%). More significant trends are observed for changes in the fraction of kin (-24.6%) and local (-26.7%) alters.

Table 19
Properties of total and parochial networks

	General Networks	Parochial Networks
Network size (alters)		
Min-Max	2-26	1-22
Mean (SD)	9.9 (4.6)	8.07 (4.17)
Network size (ties)		
Min-Max	3-56	1-50
Mean (SD)	22.4 (10.2)	18.97 (9.33)
Kin Alters		
Min-Max	1-14	0-11
Mean (SD)	5.15 (2.99)	3.88 (2.53)
Local Alters		
Min-Max	0-14	0-13
Mean (SD)	5.28 (3.46)	3.87 (2.84)

5.1.3 Individual-level covariates

Chapter 4 provided a basic exploration of individual or ego-level covariates of overall network size. Using OLS estimates, it was found that younger, non-Latino respondents had significantly larger relational structures. Employment and participation in religious organizations were also associated with larger networks, especially in terms of the provision of support to others. Females were more likely to be the recipients of such support[17]. Similar models using the number of alters as dependent variable exhibited similar results, although occupation was no longer a valid predictor of network size and the dummy for District I became significant—being a resident in the study area was associated with larger networks. The fit of these model was somewhat lower compared to the specification of the dependent variable using social ties ($R2=.27$, $F=4.28$, $p<.001$). Alter-center models also show a smaller effect size for the significant predictors.

Table 20 below presents results using the same estimation approach but limiting the network data to parochial networks and its main subset of social support exchanges. As described in the previous section, parochial networks disregard ties and alters related to ego by a unique exchange marked by the name generators of living arrangements or avoidance patterns. The dependent variables included in the models below are tie and alter counts for latent interactions. Results tend to be aligned with those presented in chapter 4: younger, non-Latinos and females tend to have significantly larger networks. There is no effect of having children or being a District I resident in the size of parochial networks or networks of support.

[17] These models were replicated using a negative binomial for the total number of social ties with similar results.

Table 20

OLS regressions estimating the effect of ego covariates on latent network size
Standardized Coefficients

	(1) Parochial Networks		(2) Social Support	
	Ties	**Alters**	**Ties**	**Alters**
Race/Ethnicity (Latino)	-.353*** (1.620)	-.245* (1.128)	-.349** (1.217)	-.243* (.913)
Gender (female)	.255* (.988)	.210 (.688)	.245* (.742)	.264* (.557)
Age (years)	-.220* (.033)	-.130 (.023)	-.215* (.025)	-.132 (.019)
Occupation (employed)	.093 (.910)	.129 (.634)	.129 (.684)	.147 (.513)
Having Children	.026 (1.192)	-.020 (.830)	.033 (.895)	-.034 (.672)
Second generation	.045 (.964)	-.028 (.671)	-.036 (.724)	-.069 (.543)
Religious participation	.181 (1.028)	.213 (.716)	.141 (.773)	.177 (.579)
District 1 resident	.065 (1.126)	.049 (.784)	.056 (.847)	.037 (.635)
Constant	14.212*** (2.311)	9.460*** (2.166)	9.606*** (1.737)	5.96*** (1.303)
Valid N	101	101	101	101
F	3.623**	2.005*	2.94**	2.22*
R2	.24	.15	.20	.16

* p<.05 **: p<.01 *** p<.001 (two tailed tests) – Standard errors for unstandardized coefficients
(1) Latent alters/ties for social activities and social support (emotional, financial, jobs)
(2) Latent alters/ties for social support (emotional, financial, jobs)

Results presented above are based on the analysis of latent interactions. As described in the previous section, active interactions tend to involve fewer alter and fewer ties (Table 18). They also reveal important differences regarding the associations of ego as provider or recipient of social support. These differences are highlighted by the significance of some predictors as covariates of the generation of support (e.g., employment and religious participation) and the existence of few reciprocal support ties between ego and alters (see for example Exhibits 14-E and 14-F).

These results are replicated below (Table 21) when restricting the analysis to the examination of active parochial networks and its main component of social support for both provision and delivery of support. Consistent with previous estimations, tie effects are larger than alter effects, reflecting the fact that alters are associated with a multiple set of social/public roles.

Table 21
OLS regressions estimating the effect of ego covariates on a network size
Standardized Coefficients

	(1) Parochial Networks		(2) Receiving Social Support		(3) Providing Social Support	
	Ties	Alters	Ties	Alters	Ties	Alters
Race/Ethnicity (Latino)	-.340*** (1.497)	-.245* (1.128)	-.298** (.725)	-.247* (.566)	-.346** (.970)	-.250* (.766)
Gender (female)	.238* (.920)	.210 (.688)	.223* (.442)	.287** (.348)	.083 (.591)	.107 (.467)
Age (years)	-.285* (.031)	-.130 (.023)	-.273* (.015)	-.279** (.012)	-.243* (.020)	-.283** (.016)
Occupation (employed)	.160 (.840)	.129 (.634)	.164 (.407)	.113 (.319)	.202* (.545)	.156 (.431)
Having Children	-.038 (1.101)	-.020 (.830)	-.114 (.533)	-.173 (.417)	-.010 (.713)	-.025 (.564)
Second generation	.041 (.891)	-.028 (.671)	-.130 (.431)	-.178 (.337)	.136 (.577)	.132 (.456)
Religious participation	.166 (.961)	.213 (.716)	-.118 (.460)	-.137 (.364)	.261* (.616)	.261* (.486)
District 1 resident	.095 (1.046)	.049 (.784)	.006 (.504)	.003 (.396)	.151 (.675)	.147 (.533)
Constant	12.96*** (2.147)	9.46*** (2.166)	6.02*** (1.034)	4.96*** (.812)	5.77*** (1.384)	4.33*** (1.093)
Valid N	101	101	101	101	101	101
F	4.407***	2.005*	3.86**	4.072***	4.67***	3.81**
R2	.28	.15	.25	.26	.29	.25

* p<.05 **: p<.01 *** p<.001 (two tailed tests) – Standard errors for unstandardized coefficients
(1) Active alters/ties for social activities and social support (emotional, financial, jobs)
(2) Active alters/ties associated with receiving social support (emotional, financial, jobs)
(3) Active alters/ties associated with providing social support (emotional, financial, jobs)

While OLS estimations have been consistently employed by researchers when studying individual-level covariates of network size (Marsden, 1987; Campbell and Lee, 1992), these models may be missespecified given the fact that the dependent variable often represents counts of alters or social ties. More recent approaches have relied on the utilization of alternative regression models consistent with the non-normal distribution of these counts via Poisson or negative binomial models (McPherson et al., 2006). This framework is suitable for the present study given the distribution of the size of parochial networks across respondents: for both alter and tie counts, there is strong indication of overdispersion (M=8.07, Var=17.4 and M=18.97, Var=87.2, respectively). General results using a negative binomial routine are consistent with the OLS estimates presented above. Further, this alternative framework yields significant results for the predictive value of occupation (B=.201, $p<.05$) as well as religious participation (B=.289, $p<.01$).

Table 22 below presents expanded negative binomial models using alter counts for four different specifications of latent network size. The first two dependent variables represent role-based exchanges (total parochial network, social support) and the last two are based on particular alter attributes (kinship and local contacts). Kinship alters are defined by ego in an alter matrix (M=3.88, SD=2.52). They correspond to the nuclear and extended family ties described in chapter 4 (e.g., partner, child). Local alters represent individuals related to ego who live within a third of mile from the main respondents' residence (M=3.87, SD=2.84). Both kinship and local networks include only alters associated with parochial networks. The list of predictors was expanded to include other ego-level covariates potentially related to patterns of social interaction. These are: whether the respondent is married or living in a domestic partnership; level of education (measured using a 7-category scale, from "no formal education"=1 to "completed graduate school"=7); and length of residential tenure in current house (in years). With the exception of model 2, all the dependent variables show significant overdispersion.

Table 22
Negative binomial regression estimating the effect of ego covariates on alter-based measures of network size

	(1) Parochial	(2) Social Support	(3) Kinship	(4) Local
Race/Ethnicity (Latino)	-.339*	-.337*	-.194	-299
	(.169)	(.176)	(.238)	(.253)
Gender (female)	.165	.316**	.450**	.072
	(.107)	(.115)	(.144)	(.159)
Age (years)	-.010**	-.008*	-.011*	-.014*
	(.004)	(.004)	(.005)	(.005)
Occupation (employed)	.144	.099	.046	-.096
	(.101)	(.106)	(.133)	(.152)
Having Children	.039	-.067	-.079	.138
	(.142)	(.150)	(.188)	(.213)
Second generation	-.006	-.114	-.049	-.216
	(.107)	(.116)	(.146)	(.161)
Religious participation	.295**	.196	.035	.518**
	(.108)	(.115)	(.144)	(.161)
District 1 resident	.205	.083	.148	.629**
	(.124)	(.109)	(.168)	(.199)
Married	-.003	.085	.172	.142
	(.102)	(.109)	(.135)	(.149)
Education	..088*	.096*	-.021	-.039
	(.044)	(.047)	(.062)	(.069)
Tenure current home	.009*	.010*	.012*	.024***
	(.004)	(.005)	(.006)	(.006)
Constant	1.93***	1.44***	1.44***	1.15**
	(.292)	(.315)	(.398)	(.430)
Valid N	101	101	101	101
LR Chi2	27.59**	26.89**	20.73*	22.45*
Alpha	.072***	.006	.089*	.014

* p<.05 **: p<.01 *** p<.001 (two tailed tests)
(1) Alters for latent social activities and social support (emotional, financial, jobs)
(2) Alters for latent social support (emotional, financial, jobs)
(3) Kin Alters associated with parochial networks
(4) Local alters (living <.33 miles from ego) associated with parochial networks

The first two models in Table 22 measure network size in terms of the breadth of role-based interactions. Consistent with earlier findings, greater parochial networks are more likely found

among younger respondents, as well as those non-Latino and those who participate in religious organizations. Two of the three new predictors are significant, indicating that higher levels of education and longer residential tenure are positively related to greater parochial and support networks. There is little association between these results and those obtained when specifying attribute-based counts of kin and local alters (models 3 and 4). While there is substantial alignment between role-based and attribute-based measures of network size (Table 23, below), the models explored suggest that attributes of ego have varying degrees of influence on the breadth of these associations. For example, residents in the study area have larger local networks but this ecological approach is not relevant when predicting support ties. These networks are larger for women, perhaps reflecting their reliance on alters who are also kin.

Table 23
Correlations for role-based and attribute-based measures of network size

	Parochial	Kin	Local
Parochial	1		
Kin	.597**	1	
Local	.539**	.364***	1

The analysis of the associations between structural network properties requires the study of additional constructs beyond network size. These measures, while important for the configuration of a baseline model, provide little insight about network-level patterns of associations—e.g., interactions between alters, heterogeneity, etc. For example, research on personal exchanges has emphasized the role of structural measures of density, brokerage and density as covariates of closure and control (Coleman, 1990, Wellman, 1996; Burt, 1992). These indicators reflect general levels of connectivity, communication, and patterns of interaction beyond ego-alter affiliations. As

it was indicated in the previous section, these structural measures are strongly related to measures of network size—larger networks are more diverse and less dense (Scott, 1991).

The survey employed in the South Bronx asked respondents to report ties of acquaintanceship between the alters elicited by the name generators. This procedure enabled the calculation of *density* measures for each personal network captured by the instrument. In the context of social network analysis, density is defined as the number of observed ties between alters divided by the number of potential ties. Density ranges from 0 (no ties) to 1 (all ties present) (Wasserman and Faust, 1994). Studies of personal networks rarely include ties to and from ego in these calculations due to their direct influence on the structural properties of networks (Scott, 1991). Density is a structural measure because it seeks to understand patterns of relations beyond the scope of ego. In previous studies these assessments have involved only a subset of respondents (Wellman, 1979) or were developed from a fixed mechanism to elicit alters (Marsden, 1987). As pointed out by McCarthy et al. (2001), this context determines very low rates of variation in network density.

The density of the parochial networks of the South Bronx study is approximately 72% (M=71.65, SD=24.65). This indicates survey respondents reported 7 out of 10 potential ties between alters. As presented in Table 24, the density of District 1 networks is remarkably higher than those observed elsewhere (M=74.59 vs. M=59.30). The magnitude of this difference cannot be explained by differences in overall network size (see Table 19).

Table 24
Average density of parochial networks

	Total	District 1	Other
Density			
Valid N	99	80	19
Min-Max	0-100	0-100	32.63-100
Mean (SD)	71.65 (24.65)	74.59 (24.60)	59.30 (21.31)

Comparisons across studies are challenging given variations in the design of the studies (name-generators, , recall procedure, etc.). Marsden (1987) and McPherson et al. (2006) reported density measures ranging from .60 to .66 for the 1985 and 2004 waves of the General Social Survey. Wellman (1979) found a density of .33 in his study of intimate contacts in a middle-class neighborhood. Using data from Nashville residents, Campbell and Lee (1991) reported an average density of .52 for neighbor networks.

Brokerage is a concept related to density although it focuses on the potential power of ego to transmit information between otherwise isolated alters (Burt, 1992). It measures the number of pairs of alters (dyads) not directly connected to one another. Thus, while brokerage captures a structural property, it also measures the ego-level potential to integrate disconnected sections of a personal network. Table 25 below shows the average estimate of brokerage (disconnected pairs), normalized by the number of dyads[18].

Table 25
Average brokerage of parochial networks

	Total	District I	Other
Brokerage			
Valid N	98	80	19
Min-Max	0-..50	0-.50	0-.34
Mean (SD)	.142 (.123)	.126 (.122)	.207 (.108)

Consistent with the indicators of density, District I study participants have fewer opportunities to broker connections than other subject given that their networks are already highly dense (M=.126 vs. M=.207). Brokerage is important because of its association with structural holes and weak ties—more unconnected pairs of alters suggest discontinuities in the structure that

[18] This operationalization of brokerage is equivalent to the inverse of the measure of density described in Table 24. However, it is included here because of its substantial meaning for ego-level strategies.

can be positive for proactive egos (Burt, 1992; Granovetter, 1973). These discontinuities can indicate also heightened fragmentation and obstacles for control (Coleman, 1990).

A third structural property of personal networks is the average (geodesic) *distance* between alters. This indicator is measured in terms of the shortest path length among connected sections of each network. In ego-centered network research is often the case that distance measures are very close to 1 given the structure of the data collection (i.e., the main respondent reports on presence/absence of ties between alters). This represents the central role of ego in his/her pattern of relationships (by definition). Table 26 below presents distance measures for the South Bronx respondents. On average, the distance between two connected alters in the study was 1.2 steps (M=1.194, SD=.284) with alters reported by District 1 participants being slightly further away than those mentioned by participants living elsewhere. In addition to provide some information about the centrality of ego, distance can be employed to capture the importance of subgroups (cliques) with personal networks (Wasserman and Faust, 1994).

Table 26
Average distance of parochial networks

	Total	District 1	Other
Distance			
Valid N	99	79	20
Min-Max	0-2.33	1-2.33	0-1.78
Mean (SD)	1.194 (.284)	1.201 (.263)	1.168 (.361)

Density, brokerage, and distance are structural properties of networks that complement the exploration of baseline models via covariates of network size. Larger networks are less dense and therefore generate more opportunities for brokerage. They also are likely to facilitate the emergence of cohesive subgroups—a characteristic that can be observed when studying the geodesic distances between alters. These structural properties are also significantly related to ego-level attributes (Marsden, 1987; MacPherson, 2006).

Table 27 displays the OLS estimates of regressions predicting observed the density, brokerage and distance of parochial networks. The specification of these models closely resembles routines described above. However, estimations below include three general network-level properties: the percentage of kin alters, the fraction of local alters and the overall count of contacts (network size).

Table 27
OLS regressions estimating the effect of ego covariates on
density, brokerage and distance
Standardized Coefficients

	(1) Density	(2) Brokerage	(3) Distance
Race/Ethnicity (Latino)	-.017 (8.533)	.021 (.043)	.153 (.180)
Gender (female)	-.027 (5.132)	.019 (.026)	-.104 (.090)
Age (years)	-.059 (.174)	.062 (.001)	-.079 (.002)
Occupation (employed)	-.020 (5.004)	.013 (.025)	-.163 (.052)
Second generation	-.051 (5.406)	.052 (.027)	-.013 (.055)
District 1 resident	.193* (6.083)	-.205* (.030)	.057 (.062)
Married	-.293* (4.715)	.244* (.024)	.201* (.050)
Education	.125 (2.302)	-.126 (.012)	-.085 (.024)
Tenure current home	.028 (.252)	-.028 (.001)	-.004 (.003)
Proportion kin alters	.374*** (8.769)	-.375*** (.044)	-.284** (.096)
Proportion local alters	.223* (9.065)	-.244* (.045)	-.233* (.093)
Network size (alters)	-.096 (.616)	.093 (.003)	.443*** (.180)
Constant	44.78** (16.917)	.279** (.085)	1.18*** (.180)
Valid N	98	98	98
F	3.13***	3.24***	5.27****
R2	.30	.31	.42

* p<.05 **: p<.01 *** p<.001 (two tailed tests) – Standard errors for unstandardized coefficients

The overall fit of the models in Table 27 ranges from .30 (model 1, density) to .42 (model 3, distance). These multivariate results confirm that residents of the study area have more dense networks with heightened opportunities for brokerage. The composition of these networks affects substantially its structural properties: more local networks as well as those with a greater fraction of kin members tend to be more cohesive (i.e. closer and denser interactions). With the exception of the marriage variable, none of the ego-level attributes is significantly associated with variations in the dependent variables. In fact, the sign of the coefficient for marriage is negative—those reporting a permanent partner have less dense and more distant connections between alters. This may represent the fragmentation between private and parochial networks—a subject to be addressed in the final section of the present chapter.

5.2 Multi-level Models of Personal Networks

New works have incorporated a multi-level dimension to the analysis of relational patterns by conceptualizing social ties as constructs nested within individuals (Van Duijn, et al., 1999). This framework allows for the assessment of general network properties in terms of tie-related attributes (level 1) and ego-related related attributes (level 2). For example, Snijders et al. (1995) assessed the degree to which cocaine users have cocaine-related social interactions and found that this pattern was particularly significant for those who use cocaine at work and those who use other drugs in addition to cocaine. Using also a multi-level framework Van Duijn, et al., (1999) examined personal networks of Dutch respondents over time and tied their evolution to specific life events. They found that the frequency of contacts between ego and alters was mostly explained by specific

tie-related properties although contacts also varied across ego-level attributes: individuals who "recently retired" and those who "recently moved" reported less interactions with others, when controlling for tie effects and respondent-level variables. Other works have also relied on a multi-level framework to explain the structure of personal networks as they related to social support (Wellman and Allen, 2001) or the influence of physical distance on the frequency of contacts (Mok et al., 2007). Few studies have included ecological covariates—neighborhood effects—in the analysis of relational properties. One of these works is Thomese and Van Tilburg's examination of neighboring networks in the Netherlands (2000). They found that, controlling for characteristics of respondents, community-level population density and residential mobility had a negative, significant impact on the size of overall structures of local ties—a process they labeled as "environmental dependency".

A multi-level framework can better specify some of the processes highlighted in the previous section of this chapter. Particularly, models of network structure such as those presented in Table 27 conceptualize network properties as inherently dependant on properties of ego. This is a strong assumption given that structural patterns of exchange (i.e. brokerage, density) are relational in nature and are closely linked to characteristics of actual inter-personal interactions (Snijders et al., 1995). Multi-level models focusing on social ties as the unit of analysis allow for a combination of ego-level and tie-level dimensions, while still addressing structural properties such as the intensity or frequency of contacts or the effects of physical or social contexts. The implementation of such perspective is the focus of the first part of this section. Consistent with the development of a narrative on the covariates of social interactions, the next set of models examine the determinants of local exchanges in the South Bronx, as well as tie and ego-level predictors of its intensity.

5.2.1 Tie and ego-level determinants of exchanges

The two models implemented in this section test whether individual or ego-level properties of survey respondents affect structural characteristics of the interpersonal exchanges even when controlling for tie-specific covariates.

The first model estimates the odds of reporting a tie created in a neighborhood context rather than developed from kinship-based exchanges or others arising from work/study settings or other non-placed based environments. In the previous section it was found that the size of local parochial networks was significantly associated with the presence of kin members, and was particularly sensitive to the age of respondents and their place of residence (Table 22). However, little insight was offered on the determinants of neighborhood-level interactions versus more general exchanges.

The second model explores the tie and ego-level covariates of the frequency of contact between the main survey respondents and their alters. Previous analyses have shown that personal networks in the South Bronx are highly dense (Table 27) with larger relational structures associated with non-Latino respondents as well as those with higher levels of education and longer residential tenures (Table 22). Despite the value of these general assessments, the examination of general relational properties lacks a micro-level approach on the tie-specific determinants of the intensity of such interactions.

These two models are important because they inform key processes of the systemic model of social disorganization. On the one hand, this approach emphasizes the role of local inter-personal connections and the micro-ecology of social organization (Bursik and Grasmick, 1993; Taylor,). On the other hand, the frequency of overall exchanges reveals dynamics of association that are relevant for the enforcement of control and inform the processes by which individuals can gain

access to new resources—a concept often referred in terms of the strength of ties (Granovetter, 1974; Burt, 1992).

The statistical manipulation of the data was completed using HLM 6.04 (Raudenbush and Bryk, 2002) and STATA 8.0, with the updated GLLAMM program for the random, multi-level models (Rabe-Hesketh et al., 2001; StataCorp, 2003).

The first model estimates the probability of a tie being created in the context of the neighborhood (1=yes, 0=no) controlling for tie and ego-level attributes[19]. This procedure involves the examination of 1,992 ties (level 1) nested in 91 individuals (level 2). Survey respondents with few ties were not included in the estimation—i.e., subjects reporting less than ten parochial exchanges (< 1 S.D. of the mean number of ties). Given that the sampling of the dependent variable at level-1 follows a binomial distribution, the estimation uses a logit link function rather than an identity function commonly employed for general hierarchical linear models. The outcome examined by this procedure is the log of the odds of the tie being local (i.e. a tie generated in the immediate neighborhood context of the respondents). The empty model has no predictors and it is relatively similar to the one-way ANOVA recreated in a linear estimation. However, for Bernoulli-type outcomes there is no within ego variation given that this estimate varies across level-1 units (Raudenbush et al., 2004).

The following is the general structural form of a multi-level model with social ties nested within individuals:

$$Y_{ij} = \beta_{0j} + \beta_{1j} X_{ij} + R_{ij}$$

Where Y_{ij} is the value of the dependent variable, β_{0j} is the individual-level intercept, β_{1j} is the individual-level regression slope, X_{ij} denotes the independent variables and R_{ij} is the residual. In

[19] This is different than local because it focuses on non-kin associations. In addition to "family", the other contexts measured in the survey are "other neighborhood" , "localc organization", "work/school", "other"

this equation the relationship between X and Y varies across respondents, which is reflected by the fact that β_{0j} and β_{1j} are specified as variables including both a fixed and a random component:

$$\beta_{0j} = \gamma_{00} + U_{0j}$$
$$\beta_{1j} = \gamma_{10} + U_{1j}$$

Where γ_{00} is the mean population of intercepts, γ_{10} is the population mean of the regression coefficients, U_{0j} is the individual-level component of the intercept and U_{1j} is the individual level component of the regression coefficient. There are three types of variances in these models. The variation between ties within respondents, $Var(R_{ij})$; the variation between respondents, $Var(U_{0j})$; and $Var(U_{ij})$, which indicates the interaction between individuals and the set of predictors X. Individual-level variables (W) can contribute to reduce the variation between respondents in terms of both intercepts and slopes:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j + U_{0j}$$
$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_j + U_{1j}$$

The overall equation combining fixed/random effects and a cross-level interaction is:

$$Y_{ij} = \gamma_{00} + \gamma_{01}W_j + \gamma_{10}X_{ij} + \gamma_{11}W_jX_{ij} + U_{0j} + U_{1j}X_{ij} + R_{ij}$$

This model can be adapted for binomial outcome, as follows:

Level-I Model:

$$Prob(Y_{ij}=I \mid B_j) = P$$

$$\log[P/(1-P)] = B_0$$

Level-2 Model:

$$B_0 = G_{00} + U_0$$

Where Y_{ij} represents the log of the odds of having the tie being local and B_0 is the mean population of intercepts representing the variation in the outcome across level-2 units (egos). U_0 is the individual-level random component of the intercept.

The reliability estimate for this model is substantial (.820) indicating a robust level of alignment in the proportion of local ties among respondents. Estimation results with no predictors (unit-specific model) are presented below (Table 28). The intercept measures the expected log-odds of each tie being created in a neighborhood context. This conditional estimate of the expected log-odds is -1.37 corresponding to a probability of 1 / [1 + exp(1.37)]=.202. This indicates that a tie is expected to have a probability of 20% of being neighborhood-based in the case of "typical" egos (i.e. egos with a random effect of zero). The variation of the log-odds of having neighborhood ties among egos (level-2) is estimated to be 2.3 with standard deviation 1.52. The chi square statistic of 637.97 ($p<.001$) indicates that this variability is significant.

Table 28
Baseline hierarchical regression predicting a local tie
Unit-specific estimates

	Coefficient	S.E.
Fixed Effect		
Constant	-1.37***	.177
	Variance Comp.	**S.D.**
Random Effect		
Between Var (U_{0j})	2.340***	1.529

Table 29, below, includes a series of tie-level and ego-level predictors hypothesized to determine whether social exchanges are developed in a neighborhood context. The tie-level attributes included in the model (group-centered) correspond to the four-name generators included in the construct of parochial exchanges (emotional and financial support, job-seeking interactions and social activities). These predictors are operationalized as dummy variables capturing the presence of a tie mediating specific inter-personal contacts. Given that parochial networks are not necessarily local, these name-generators can be conceptualized as exogenous. Several ego-level

attributes (gran-mean centered) were also included in the specification of the model—among these, gender (1=female, 0=male), occupation (1=employed, 0=not employed), and education (7-point ordinal scale, from 0=no formal education to 7=completed graduate school). These predictors have been consistently employed throughout this dissertation in the estimations of structural network properties.

Table 29

Hierarchical regressions estimating tie-level and ego-level covariates of local ties
Unit specific models

	Coefficient (SD)	Odds Ratio
Tie-level covariates		
Latent Emotional	-.466** (.147)	.627
Latent Financial	-.157 (.137)	.854
Latent Job-seeking	-.086 (.161)	.916
Latent Social Activities	.363** (.139)	1.438
Ego-level covariates		
Gender (female)	-.209 (.411)	.810
Occupation (employed)	-.786* (.405)	.457
Participation local organizations	-.336 (.421)	.714
Second generation	-.251 (.407)	.777
Education	.082 (.176)	1.086
Tenure current home	.015 (.019)	1.015
Network size (alters)	.074 (.050)	1.076
Constant	-1.425*** (.184)	.240
Between Var (U_{0j})	2.536 (1.592)***	
Chi2 for Var (U_{0j})	602.32	

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results presented in Table 29 indicate that, at the tie-level, exchanges related to emotional support are associated with a smaller probability of such exchanges emerging from neighborhood-based interactions. That is, holding constant the other predictors in the model, a latent emotional tie is expected to have -.466 log-odds, or .627 times the odds of having a neighborhood-based context. The 95% confidence interval for the odds-ratio is (.470, .837). This result is consistent with the fact that emotional supports operate in a kinship context rather than in a place-based environment (Stack, 1974). On the other hand, exchanges related to social activities tend to form in a local, immediate context. These exchanges increase the odds of having a neighborhood tie by 1.43 times (95% CI: 1.093, 1.892). With the exception of the dummy for employment, none of the ego-level attributes is significant. Individuals who report being employed at the time of the interview are less likely to develop parochial ties based in the local neighborhood. Their integration into the labor market likely grants these participants access to other types of non-local interactions; having a job makes these subjects less dependant on place-based exchanges. Similar patterns have been observed for other low-income populations (Wilson, 1987; Smith, 2003).

Findings presented in Table 21 also suggest that the majority of the individual characteristics of egos do not predict the emergence of local ties. These results contrast with more general models such as those presented in Table 22 which fail to account for tie-specific covariates when characterizing the determinants of the size of the local parochial network. Additional models failed to show a significant association other ego attributes and the probability of having more local ties.

A second multi-level model was implemented to assess the tie-level and ego-level determinants of the density of interactions between main respondents and their alters. Frequency of contact was captured in the survey instrument using a 5-point ordinal measure ranging from 1= "less often than once a month" to 5="daily or almost daily". As shown in Chapter 4, the majority of contacts elicited in the survey correspond to instances of daily contact (62.1% of all interactions, Table 8).

The subset of parochial ties exhibits an even more concentrated pattern of exchanges with 67.5% of the contacts between ego and alters occurring daily or almost every day. This pattern granted the transformation of the dependent variable into a dichotomous outcome measuring the presence of very frequent (daily) interactions (1=daily; 0=less often).

Two separate multi-level routines were developed for the estimation. The first model uses the original 5-point measure of frequency of contact treating the outcome variable as continuous. This linear approach allows for the computation of level-1 and level-2 variances. Given the threat of misspecification a second model relies on a dichotomous version of the dependent variable using a logit link function. Table 30 below shows the basic parameters of the empty models for the continuous approach (model 1) and the logit approach (model 2). In both cases there is substantial consistency in the reports of frequency of contact across ties (reliability estimates). The intraclass correlation for model 1 is .223 indicated that nearly a fourth of the total variance of frequency of contact corresponds to ego-level processes (22.3%). The between-ego variance component is highly significant in both models ($p<.001$). Both models show significant, positive intercepts, indicating that egos have a tendency toward more frequent interactions ($p<.001$).

Table 30
Baseline regressions estimating frequency of contact
Unit-specific estimates

	Model 1: Continuous		Model 2: Logit	
	Coefficient	S.E.	Coefficient	S.E.
Reliability	.848	N.A.	.835	N.A.
Fixed Effect				
Constant	4.514***	.045	1.013***	.161
	Variance Comp.	S.D.	Variance Comp.	S.D.
Random Effect				
Within Var (R_{ij})	.559	.747	N.A.	
Between Var (U_{0j})	.161***	.161	1.976***	1.406

* $p<.05$ **: $p<.01$ *** $p<.001$ (two tailed tests)

Given the fact that the empty models showed high reliability for the outcome and significant level-2 variations, the next iteration of model specification included a series of tie-level and ego-level covariates. These are consistent with those reported in previous models (see for example, Table 29). Results are presented below (Table 31). At the tie-level, both models indicate a strong, significant association ($p<.001$) between local ties (i.e. alters living within a third of a mile from ego) and frequency of contact. This pattern has been observed in similar estimations using a multi-level framework (Mok et al., 2007). Perhaps more importantly, it was found that function associated with the exchanges is relevant to understand the intensity of interactions. For example, latent ties of social activities have the greatest, positive, effect size, indicating that these inter-personal associations are inherently more frequent than others. Emotional ties are significant in the more robust specification (model 2). Ties that are associated with job-seeking exchanges are less likely to be frequent ($p<.001$, model 2) which is consistent the weak-ties argument regarding the procurement of information about job opportunities (Granovetter, 1973, 1974). The only ego-level attribute significantly associated with more frequent contacts was the respondent's length of residential tenure ($p<.05$, model 2).

It is important to mention that the two structural properties of networks included in these models (i.e. network size and network density) were not statistically associated with frequency of interaction. In the previous model, network size was not a significant predictor of whether a tie was formed in a neighborhood context—other models (not shown) also tested for density, distance and brokerage with similar results. Given that there are few concerns about the endogeneity of general network properties as predictors of tie-level processes, it is likely that the influence of these variables is better observed using individuals as the unit of analysis. For example, in Table 27, network size was strongly correlated with the average distance between alters ($p<.001$).

Table 31
Hierarchical regressions estimating tie-level and ego-level covariates of frequency of contact
Unit specific models

	Model 1 Continuous Coefficient (SD)	Model 2 Log-odds Coefficient (SD)
Tie-level covariates		
Latent Emotional	.068 (.037)	.348* (.162)
Latent Financial	.190*** (.036)	.148 (.148)
Latent Job-seeking	-.035 (.043)	-.592*** (.173)
Latent Social Activities	.361*** (.035)	.993*** (.149)
Local tie	.597*** (.037)	2.451*** (.172)
Ego-level covariates		
Gender (female)	-.033 (.102)	-.236 (.449)
Occupation (employed)	.068 (.099)	.328 (.436)
Participation local organizations	.104 (.103)	-.037 (.455)
Second generation	.012 (.099)	.261 (.434)
Education	-.080 (.044)	-.347 (.192)
Tenure current home	.008 (.004)	.043* (.021)
Network size (alters)	-.017 (.012)	-.035 (.055)
Density	.002 (.002)	.010 .008
Constant	4.515*** (.045)	1.090*** (.170)
Within Var (R_{ij})	.458 (.676)	N.A.
Between Var (U_{0j})	.162 (.403)***	3.058 (1.748)***
Chi2 for Var (U_{0j})	725.52	609.48

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

The examination of multi-level models focused on tie-level processes revealed important differences in patterns of association by type of exchange: for example, job-related interactions are

infrequent and often extra-local, whereas associations for social activities reflect the opposite trend. From a more general perspective, models also showed substantial variation across respondents in terms of the structural properties of their personal networks. However, the set of predictors included in the models failed to explain most of this variation—with the exception of employment (Table 29) and residential tenure (Table 31). General measures of network properties such as size, density or average distance did not inform any of the tie-level processes specified in this subsection. This can be related to the fact that specific exchanges are micro-processes concerning exclusively a dyadic interaction (in this case, ego and alter). At this regard, studies of personal networks have systematically highlighted the prevalence of patterns of homophily (McPherson et al., 2001).

The multi-level approach implemented above suggests that the ties developed by South Bronx residents are highly sensitive to the function of the exchanges involved. Local ties are prevalent but mostly in connection with exchanges related to social activities. Respondents who are employed rely less on neighborhood based interactions whereas those who have lived for longer periods of time in the same residence have more frequent contacts with their alters. Larger or denser networks do not affect the likelihood of developing more local or more frequent ties. However, local ties are also more frequently mobilized than others.

5.2.2 Tract-level covariates of personal networks

Hierarchical models have become a frequently-employed methodology for the study of patterns of social organization and neighborhood effects. Research has combined the use of survey data for capturing attributes of individuals (level 1) and a combination of administrative sources and survey data to represent a variety of ecological constructs such as census tracts (level 2).

Relying on this methodology, a series of quantitative studies have suggested that the structure of the individuals' inter-personal relations is partially determined by a series of ecological properties often operationalized following the postulates of the social disorganization theory and the systemic model (Shaw and McKay, 1942; Bursik and Grasmick, 1993). Using data from the Project of Human Development of Chicago Neighborhoods (PHDCN), Sampson and colleagues found that residential stability and concentrated wealth were significant predictors of a higher volume of exchanges among residents. Similar results have been reported by other studies describing the ecological association between structural factors and the number of local friendship/kinship ties (Morenoff et al., 2001; Browning et al., 2004). Bellair (1997) showed that neighborhood-level measures of ethnic heterogeneity and lower socio-economic status were significantly correlated with less frequent interactions between neighbors. Residential instability also affected these exchanges in the expected direction but this relationship was not significant. Warner and Wilcox (1997) found support for the ecological association of social ties—measured in terms of the presence of multiple exchanges between neighbors—and ethnic heterogeneity and mobility. Qualitative studies have also addressed the connection between structural attributes of places and social networks via concepts such as "social isolation" (Wilson, 1987) or "ordered segmentation" (Suttles, 1967). These works are reviewed in Chapter 2.

Very few studies quantitative studies have examined the association between structural properties of personal networks and characteristics of their immediate physical and social context. Several of the most important studies on personal affiliations maintained for many years that associations among individuals were not local in nature and that the idea of community was not necessarily bounded to a particular environment (Wellman, 1978; Fischer, 1982). More recent works have problematized this early set of findings. For example, in a re-examination of the East York data, Wellman found that intimate interactions—rather than intimate alters—are

predominantly local (1996) and conditioned by physical barriers such as physical distance (Mok et al., 2007). A recent study by Thomese and Van Tilburg (2000) collected network data and aggregated properties of these structures at the neighborhood level. They found a negative effect of population density and residential mobility on the size of overall structures of local ties.

This dissertation contributes to this literature by assessing the degree to which the personal networks of study participants show significant ecological variations. It builds on the tradition of the systemic model to assess whether this variation, if any, can be explained by the structural constructs defined by the approach—disadvantage, mobility and heterogeneity (Bursik and Grasmick, 1993). These constructs were generated via an analysis of principal components of tract-level social variables measured by the 2000 Census (see Chapter 4).

The examination of sample size across levels of data is crucial for the development of multi-level models. The reliability of model estimates is highly dependant on the number of units—especially at the lower level of aggregation (Raudenbush et al., 2002). In the context of this monograph, the multi-level approach for the measurement of neighborhood effects is limited by the sample size obtained during the collection of the survey data. While most of the surveys generated by the chain-referral sampling corresponded to residents of the study area (83 out of 103, or 80.5%), these interviews were not equally distributed within census tracts of District 1. In fact, out of the 20 residential tracts in this area, five did not include any survey respondents whereas three concentrated about half of the interviews (44).

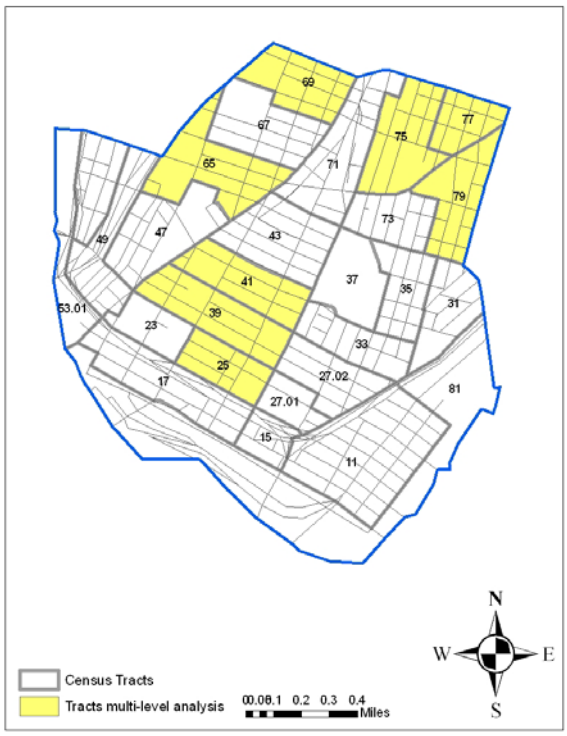
Consistent with previous studies, this study will examine models of neighborhood effects limited to those tracts containing at least four survey respondents. This threshold corresponds to the lower-bound sample employed in similar research projects with individuals nested in tracts or similar ecological constructs (see for example, Sampson et al., 1999). The distribution of District 1 respondents by tract is presented in Table 32 . Eight tracts register four or more respondents

(highlighted in grey). This subset of ecological units contains about half of the residents in the study area (47.3%) and are clustered in three main sectors of the District (Exhibit 15, below).

Table 32
Completed surveys in District 1 by tract

Tracts	Population	Survey sample
17	1,024	0
23	4,305	1
25	5,109	11
27.01	3,033	0
27.02	4,736	2
31	1,504	0
33	3,090	2
35	3,448	0
39	6,022	4
41	5,240	7
43	4,780	3
47	5,387	1
65	4,789	11
67	6,491	3
69	4,400	4
71	1,961	0
73	3,248	1
75	4,688	8
77	1,547	5
79	6,598	22
Total	81,400	83

Exhibit 15
Completed surveys in District 1 by tract



The multi-level models developed below focus on individual study participants as the unit of analysis. Several properties of their personal networks are associated with individual-level attributes—e.g., race/ethnicity, age, and level of education—and tract-level structural characteristics—e.g., concentrated disadvantage, residential mobility, and population heterogeneity. Consistent with the systemic model, it is hypothesized that these ecological characteristics impact a range of measures representing the personal networks of survey respondents. While a cross-sectional research design provides limited control and explanatory capabilities, the following hypothesis are tested: Controlling for individual effects, smaller and more locally-bounded personal

networks are associated with tracts with greater levels of concentrated disadvantage, heightened residential mobility and higher indicators of population heterogeneity. At the respondent-level, it is hypothesized that variables measuring the integration of individuals into broader social contexts (e.g., employment, participation in local associations) are significant predictors of larger networks.

Consistent with these general hypotheses, the models below specify a set of dependent variables that go beyond general measures of network size (e.g., total, local, kin-only), to include more structural indicators such as network density, frequency of interactions, and distance between alters. The specification of these constructs does not correspond in all cases to continuous outcomes—often studied via hierarchical linear models. In some cases non-linear approximations are also explored (e.g., logit, poisson), accounting for binary or count distributions arising from the level-1 sampling. This perspective is advisable for when studying distributions that deviate from normality (see for example Rankin and Quane, 2000). The models tested below are based on the analysis of 72 surveys (level-1) nested in 8 census tracts (level-2).

Baseline models are employed to assess the magnitude and significance of the variation in the outcome variables. Table 33, below, presents the variance components for five different structural properties of networks measures at the individual level: total number of parochial ties (M=18.85, SD=9.43), total number of alters (M=7.75, SD=3.85), network density (M=74.8, SD=25.51), average multiplexity of ties (M=2.57, SD=1.23) and distance between alters (M=1.17, SD=.22).

Table 33
Baseline hierarchical regressions for selected network properties
Continuous outcomes

	Total Ties	Total Alters	Density	Multiplexity	Distance
Reliability	.248	.500	.003	.001	.001
Fixed Effect					
Constant	18.84*** (.134)	7.744*** (.624)	74.801*** (3.099)	.2568*** (.150)	4.501*** (.057)
	Variance Components				
Random Effects					
Within Var (R_{ij})	86.15 (9.28)	13.352 (3.65)	650.61 (25.50)	1.53 (1.23)	.226 (.475)
Between Var (U_{0j})	3.610 (1.90)	1.788* (1.33)	.022 (.471)	.000 (.014)	.000 (.004)
Chi2 for Var (U_{0j})	9.273	13.92	5.055	3.028	5.265

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

Reliability estimates shown above suggest that most network properties are not consistently reported within tracts—i.e., respondents tend to "disagree" in terms of the structure of their personal networks. Connected to this pattern of instability, only the variable measuring the total number of alters exhibits significant level-2 variation (Var U_0=1.788, p<.05). Further specification of this construct in terms of local alters also revealed a relatively high reliability (.56) and significant between-tract variation (p<.05)[20].

The lack of empirical support for the ecological determinants of personal networks may be an artificial pattern generated by the small sample size or the few number of level-2 units. More likely, it can be a byproduct of the misspecification of several of the dependent variables—some represent actual counts rather than a set of continuous observations. In order to explore the validity of this argument, models presented in Table 34, below, operationalize tie-based and alter-based indicators

[20] In addition to the size of the local network, other outcome variables were tested via ANOVA procedures (e.g., proportion of kin members, proportion of local alters). None of these dependent variables had reliability estimates greater than .3 and fail to exhibit a significant variation between tracts.

of network size using a Poisson non-linear approach with constant exposure. The majority of these models show significant level 2 variation ($p<.01$) and generally higher reliability estimates.

Table 34
Baseline hierarchical Poisson regressions of tie and alter counts

	Total Ties	Total Alters	Local Alters	Kin Alters
Reliability	.814	.678	.713	.237
Fixed Effect				
Constant	2.928*** (.072)	2.034*** (.085)	1.478*** (.119)	1.330*** (.074)
	Variance Components			
Random Effects				
Between Var (U_{0j})	.034*** (.185)	.039** (.198)	.080*** (.284)	.010 (.102)
Chi2 for Var (U_{0j})	42.16	23.77	25.33	10.05

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

The following step in the specification of multi-level models corresponds to the addition of variables measured at level-1 (individuals). This procedure is implemented for the subset of outcome variables shown to exhibit significant ecological variations. According to the results presented in Tables 33 and 34, these dependent variables are those providing multiple measures of network size (e.g., total number of ties/alters and size of the local network). Consistent previous models tested in this chapter, the following are the level-1 predictors included in the models: respondents' age (in years), ethnicity (1=Latino, 0= other), gender (1=female, 0=male), education (6-point scale ranging from 1=no formal education to 6=completed graduate school), participation in local, religious organizations (1=yes, 0=no), and length of residential tenure (in years). The inclusion of additional predictors was limited by the available degrees of freedom.

An ANCOVA model for linear models is implemented in order to evaluate the impact of these individual-level predictors on measures of network size. However, the estimation below assumes a Poisson distribution for the outcome variables (Table 35).

The regression coefficients are the log difference in outcome rates for each additional unit of the independent variable. For example, the gender coefficient in the first model refers to the difference in the total number of ties between female and male respondents. Specifically, female respondents are predicted to have exp(.309)=1.36 times more ties than their male counterparts, controlling for other individual predictors and the nested nature of the data. Gender effects are not significant in models of network size based in alter counts. Employment and education are associated with having generally more ties and more alters but not so in a local context. Subjects who participate in religious organizations have exp(.439)=1.55 times the number of local alters of those who do not participate in such activities.

Table 35

Hierarchical Poisson regressions estimating the effect of individual-level covariates on measures of network size

Unit-specific models (group-centered predictors, fixed slopes)

	(1) Total Ties	(2) Total Alters	(3) Local Alters
Individual-level covariates			
Gender	.309***	.003	-.041
	(.073)	(.111)	(.150)
Race/Ethnicity (Latino)	-.611***	-.212	-.253
	(.088)	(.149)	(.201)
Employment	.271***	.211*	-.004
	(.070)	(.108)	(.145)
Education	.089**	.109*	-.027
	(.031)	(.047)	(.065)
Participation Religious organization	.067	.211*	.439**
	(.076)	(.107)	(.159)
Residential tenure	-.014***	-.004	.005
	(.003)	(.005)	(.006)
Tract-level covariates			
Constant	2.896***	2.018***	1.462***
	(.075)	(.087)	(.119)
Var (U_{0j})	.037***	.041**	.081**
	(.194)	(.203)	(.287)
Chi2 for Var (U_{0j})	46.82	24.71	25.31

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results presented above are relatively consistent with findings previously discussed in this chapter: controlling for tract-level differences, individuals connected to broader social circles (i.e. via more education or employment) have larger networks and tend to rely less in local affiliations. While demographic attributes predict the overall number of ties reported, these variables do not show a significant association with alter-based counts of network size. In other words, individual-level characteristics such as gender and race are not related to the number of people included in the personal networks of the participants in the study; rather, these variables explain the overall magnitude of their inter-personal interactions: females and non-Latinos appear more socially integrated not because of the range of their personal networks but because of the number of ties they develop with the people they already know. In fact, the only variables associated with the addition of new alters are those reflecting a broader set of socialization environments (e.g., education, employment). Locally, larger alter-based counts are only associated with the respondent's participation in religious organizations.

The overall estimation of variance components in Table 35 indicates that the random variation from tract to tract remains significant after the inclusion of the individual-level predictors (chi2 ranging from 24.71 for model 2 to 46.82 for model 1). The fact that the level 2 variance remains significant reflects the potential for the introduction of ecological covariates[21].

Table 36, below, represent fully-specified models including the three main structural variables of the systemic model—disadvantage, mobility and heterogeneity—measured at the tract level (grand-mean centered, fixed slopes).

[21] Additional analyses failed to show significant level-2 variation when using other properties of personal networks as dependent variables (e.g., density, average distance, brokerage). None of these outcomes revealed significant predictors.

Table 36

Hierarchical Poisson regressions estimating the effect of individual-level and tract level covariates on measures of network size
Unit-specific models (group-centered/grand-centered predictors, fixed slopes)

	(1) Total ties	(2) Total alters	(3) Local Alters
Individual-level covariates			
Gender	.321***	.005	-.051
	(.073)	(.111)	(.150)
Race/Ethnicity (Latino)	-.616***	-220	-.241
	(.088)	(.150)	(.201)
Employment	.275***	.218*	-.013
	(.070)	(.108)	(.146)
Education	.089**	.107*	-.021
	(.031)	(.046)	(.064)
Participation Religious organization	.066	.250*	.435**
	(.076)	(.120)	(.158)
Residential tenure	-.014***	-.004	.005
	(.003)	(.005)	(.006)
Tract-level covariates			
Residential stability	.136	.191#	.271#
	(.097)	(.083)	(.116)
Concentrated disadvantage	.203	.260*	.350*
	(.102)	(.093)	(.131)
Population heterogeneity	-.062	-.183	-268
	(.124)	(.117)	(.161)
Constant	2.896***	2.023***	1.451***
	(.067)	(.058)	(.082)
Var U_0	.028**	.009	.021**
	(.167)	(.097)	(.145)
Chi2 for Var U_0	18.34	6.583	7.51

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

The significance and direction of the coefficients for individual-level predictors remains relatively unchanged after the introduction of the tract-level predictors. The indicator of concentrated disadvantage is significant for alter-based outcomes of network size. However, the direction of its effect is positive, indicating that respondents residing in less affluent communities have a greater number of contacts than those living in more well-off areas within District 1. This result partially contradicts one of the main hypotheses of this chapter, which indicated that more

disadvantaged environments should constraint the breadth and scope of the associations of their residents. The magnitude of the coefficient for concentrated disadvantage is greater for local networks (model 3) than the one exhibited for the general measure of network size (model 2). This suggest that while general conditions of disadvantage trigger the expansion of personal networks, their larger configuration may be driven by local affiliations, rather than connections to individuals in broader settings. Individuals lacking access to economic and human capital are forced to rely more on the social capital available to them (Bourdieu, 1986). In poor neighborhoods, researchers have shown that patterns of exchange are fluid, although seldom they involve inter-personal associations outside their communities (Venkatesh, 2000; Wilson, 1987). A different process may operate in the case of residential mobility. Survey participants living in areas of high turnover exhibit significantly larger local networks. These results are aligned with findings from previous research (Thomese and Van Tilburg, 2000).

Overall, this chapter found partial support for the postulates of the systemic model associating structural properties of communities with particular properties of personal networks. On the one hand, some of the key properties of these networks show significant ecological variations. Further, the inclusion of tract-level covariates of disadvantage, mobility and heterogeneity succeed to reduce the level-2 variance in the selected outcomes rendering insignificant (Table 36). In some cases, disadvantage and mobility impacted the nature of personal associations. On the other hand, the direction of these effects was not consistent with the basic formulation of the theory and recent empirical expansions. Study participants living in more unstable, disadvantage areas had larger networks that their more affluent neighbors—although they also appeared to rely more on local associations. Further, few of the network properties captured by the survey instrument exhibited significant variation across tracts.

Patterns detected in this chapter potentially reflect the small sample size obtained by the survey, as well as the specific characteristics of the study area, and the methods employed for the collection and analysis of data. Beyond these important observations, results obtained highlight the need for more specific measures of social exchanges aimed to capture the narratives surrounding the creation and maintenance of social interactions. Additional specifications addressing these concerns are the focus of the next three chapters.

CHAPTER 6. MODELS OF INFORMAL SOCIAL CONTROL

This chapter examines the individual and ecological determinants of informal social control. It reviews the methodology and findings of previous studies, emphasizing the connection between measures of social organization and constructs representing perceptions of neighborhood self-regulation. It applies this framework to the analysis of survey data collected in the South Bronx and compares results with models including network-based measures of social exchanges. Consistent with the overall approach developed in this monograph, the assessment and interpretation of findings is based on the postulates of the systemic model of social disorganization.

As described in Chapter 2, the concept of social control has been central to the research on the social organization of urban communities. Early works by the Chicago School of Human Ecology suggested important linkages between properties of places and general processes of social order (Park and Burgess, 1925). Shaw and McKay (1942) further specified these connections when studying the correlates of crime rates in urban areas. They concluded that socio-economic characteristics of communities such as the rate of residential turnover and their ethnic heterogeneity were associated with varying levels of delinquency and disorder. A second generation of works developed the notion of community self-regulation by examining patterns of civic engagement (Janowitz, 1951) and more general mechanisms bridging community characteristics and types of social controls (Reiss, 1951; Janowitz, 1975; Kornhauser, 1978; Hunter, 1985). The systemic model provided a comprehensive account of these processes not only in neighborhood-level dynamics but also in individual-level patterns of association and their effect on crime and social order (Bursik, 1988; Bursik and Grasmick, 1993).

The accumulation of research on crime and communities has been accompanied by a proliferation of theoretical and empirical approaches to define community-based processes of

social control. For some, this concept encompasses the notion of surveillance of public and private spaces (Greenberg, et al., 1982; Bellair, 2000; Ellen et al., 2004). For others, it involves measures of direct intervention and/or willingness to intervene on the socialization of youth or when confronted with minor breakdowns of social order (Miller and Silver, 2004; Warner, 2007; Coulton et al., 1996). In recent years the concept of social cohesion—measured by perceived trust and shared values—has been integrated to indicators of social control, emphasizing the importance of shared expectations in the enforcement of order (Elliott et al., 1996; Sampson et al., 1997; Forrest and Kearns, 2001). Other projects integrate variables of civic engagement and participation in local associations when examining the control capacity of neighborhoods (Simcha-Fagan and Schwartz, 1986; Sampson and Groves, 1989). While few works rely on multiple approaches to the measurement of controls (Elliot et al., 1996; Warner et al., 2003; Brown et al., 2004 are exceptions) several ecological theories aim to explain the emergence of regulation patterns (Taylor, 1997; Stark, 1987).

In the systemic model, community-based controls are articulated primarily through the role of relational networks on the exercise of parochial controls (Bursik and Grasmick, 1993). Levels of self-regulation vary across communities due to variations in the strength, breadth and ability of these networks to act in combination with other types of exchanges and external resources. Parochial controls reflect the residents' willingness to enforce pro-social behaviors and attitudes. These also reflect levels of civic engagement through participation of individuals in local organizations. Such controls are often labeled as "informal" in contrast with formal/external interventions to preserve order (Sampson et al., 1997). While this perspective is frequently-employed by researchers, it lacks a robust operationalization across studies and has progressively dismissed the role of civic participation as a measure of local controls (Taylor, 2002).

This chapter conceptualizes informal social control when characterizing community-based processes of social order. This construct is assessed via multiple survey-based indicators including the willingness of residents to intervene in a pre-established set of situations and their general perceptions of control over immediate physical environments. This chapter also examines the individual and contextual variables associated with the emergence of informal controls; it contrasts findings based on the specification of models using traditional measures of social organization with results associated with the operationalization of network-based indicators.

6.1 Informal Control and Traditional Measures of Local Exchanges

Researchers have relied on a variety of constructs for the operationalization of community-based social control. Taylor (2002) has noted that even within the tradition of analyzing indicators of collective efficacy, studies have not used consistently constructed key scales including, for example, informal control and social cohesion. Similar criticism has emerged regarding the conceptualization of social capital and its relevance for the study of neighborhood-level processes (Portes and Landolt, 1996; Portes, 1998). The lack of a more consistent measures explains some of the contradictory empirical results of the systemic model (Warner and Wilcox, 1997; Charis and Wietzer, 2003), although these problems are also associated with the lack of a clearer formulation of the model's parochial-level processes (Taylor, 1997).

Traditionally, qualitative studies have been better positioned to confront these theoretical and empirical challenges. For example, Venkatesh (2000) describes how informal control became a commodity in a larger exchange structure among residents of the Robert Taylor homes in Chicago. As he writes, "safety, much like clothes, drugs, car repairs, and favors, was becoming

an object of this economy that could be bartered and/or purchased" (2000:98). Works by Merry (1981) and Patillo (1999) have highlighted the complex association between local social networks and patterns of enforcement of pro-social values. Other works belonging to the same tradition of research have shown the need to consider the influence of cultural practices on normative definitions and the enforcement of controls (Wilson, 1987; Anderson, 1990; Castells, 1997). Some quantitative studies have drawn upon this tradition of research, suggesting that the development of control capacity is conditioned by overall structures of social interaction (Morenoff et al., 2002; Browning et al., 2004).

Despite the value of these new contributions to the assessment of community-based controls, the study of the social organization of communities still lacks a systematic theoretical integration between macro and micro level variables (Fischer, 1977; Leighton, 1988; Small and Newman, 2001, Taylor, 2001). As a consequence, little is known about the mechanisms by which neighborhood-level processes shape social controls (Ellen and Turner, 1997; Sampson, 2002; Carr, 2003). Even at the micro-level, the connection between social ties and perceptions of control is still subject to normativism and ecological fallacies (Watts, 2004; Wacquant, 2002; Fischer, 1977) often yielding "tautological propositions" when applied to the study of control and deviance (Liska, 1992:28). The absence of comprehensive studies with robust measures of social exchanges and multiple indicators of control exacerbate this problem (Bellair, 2000; Rose and Clear, 1998; Bursik, 1988). Such measures, however, do not necessarily indicate that role-expectations provide the basis for control (Sampson, 2002, 2004). This contrasts with some of the original postulates of the systemic model, which highlighted the need for measures of local engagement as well as actual interactions (Taylor, 2002). According to Bursik, "Until richer network data becomes available, any conclusions that are drawn concerning the relative effect of individual and neighborhood processes are at best premature" (1999:96).

6.1.1 The measurement of informal control

Greenberg et al., (1982, 1984) developed one the earliest operationalizations of informal social control in neighborhood contexts. Their work defined this concept using an explicit normative framework by which informal controls represent the development, observance and enforcement of pro-social, collective norms. This approach privileged the measurement of actual surveillance activities and related forms of social interactions among neighbors, including for example, "recognizing and paying attention to strangers in the neighborhood and keeping an eye on neighbor's homes and property" (1984:9). This definition is highly dependent on local exchanges focused on the prevention of certain crimes. More recent works have expanded this perspective in several ways. Bellair (2000) created a scale of informal surveillance combining the proportion of residents who reported watching over their neighbors' property and those reporting that their neighbors watch over their property. A similar approach was implemented by Lynch and colleagues (2002) when studying the association between coercion mechanisms, crime and self-regulatory abilities at the neighborhood level. Their scale of informal control employed items directly measuring interventions vis-à-vis criminal events (e.g., breaking and entering) as well as the residents' ability to disrupt the activities of unruly youth. Warner et al., (2003) also operationalized informal control using survey items with an explicit crime-related content (e.g., burglary and drug sales). In addition, they added to this construct other measures such as the respondents' opinion about the likelihood of their neighbors intervening in the socialization of youth. Other works encompassed equivalent constructs under the concept of "social control" but also measured additional dimensions of community involvement and interactions with neighbors (Elliott et al., 1996).

An alternative approach to the measurement of community-based controls has focused on actual assessments of regulatory abilities of neighborhoods as perceived by research participants. In these instruments the connection between control and crime-related events is less explicit, favoring a more comprehensive view of the relationship between supervision routines and physical characteristics of places. Taylor et al. (1984), for example, employed to two measures of informal controls. This concept was linked to the notion of local civic engagement and also measured the respondents' perceived responsibility regarding events occurring in their immediate surroundings (e.g., in front and in the back of their residence)—a construct labeled as "territorial cognition" (Taylor et al., 1984; Taylor, 1997). Ellen et al. (2004) further developed this perspective by expanding the scope of scale items to include neighborhood-level assessments. In particular, their work asked subjects to rate the degree of resident-based controls over a range of situations (e.g., people hanging out, safety, business relocating locally). Additional studies linked direct measures of control to perceptions about social cohesion (Brown et al., 2004), formal controls (Gibson et al., 2002) and more general patterns of supervision (Wells et al., 2006).

Another avenue for the measurement of informal controls has been the use of scales capturing the respondents' perception about their neighbors' willingness to intervene in specific situations. Often, these instruments have been directed to capture forms of adult supervision over non-kin children—an area relatively under-researched when compared to studies of parental monitoring (Sampson, 1986). Generally, such assessments describe situations where children are disrespectful or engage in minor acts of delinquency such as painting graffiti or skipping school (Sampson, 1997; Sampson et al., 1997; DeCoster et al., 2006; Reisig and Cancino, 2004; Renauer, 2006). In some cases, studies have included the description of more serious events such as the possession of a knife or a firearm (Coulton et al., 1996). While most instruments rely on the use of five-item Likert scales ranging from "very unlikely" to "very likely", other works

employ dichotomous formulations (see for example the scale of "collective socialization" by Brody et al., 2001).

The difficulties in the measurement of informal control are related to the lack of consistent measures across studies. For example, some use the same survey items employed in other projects to capture crime-related control interventions as measures of social ties and social cohesion (Ross and Joon Jang, 2000). Other studies have employed single-item formulations of control and analyses have dismissed the multi-level nature of its determinants (Bursik, 1999; Renauer, 2006). The scales employed by some studies fail to exhibit acceptable levels of neighborhood-level reliability (Coulton et al., 1996). From a more substantive point of view, there is confusion about the association between the concept of informal control and other community-based processes. A predominant approach in the field has combined indicators of willingness to intervene and ratings of social cohesion in a construct known as collective efficacy (Sampson et al., 1997). While the empirical evidence suggests that control and cohesion are, in fact, statistically associated at the neighborhood level, these two concepts measure different attributes of the social organization (Taylor, 2002). Further, even within the collective efficacy tradition, measures of informal control are markedly different across studies, intermittently addressing key notions of the systemic model such as the residents' formal involvement in local organizations, the socialization of youth and the role of social ties. Another important area of theoretical and empirical confusion is the role of the police and other formal agents of control in the development of community-based regulation patterns. Some works have included such dimensions when operationalizing informal social control. Specifically, this research has considered variables capturing the likelihood that residents would report a crime (Goudrian et al., 2006) or would call the police when confronted with various situations (Gibson et al., 2002). Other reports have developed distinct analytical categories when examining types of

control (Velez, 2001) or have effectively integrated these types into a community-based context (Warner, 2007). The need for more studies and a clearer conceptualization has been acknowledged by several researchers (Bellair, 2000; Silver and Miller, 2004).

The survey instrument implemented in the South Bronx included multiple scales and individual items aimed to capture community-based social controls. These were developed on the basis of the contributions made by earlier studies. For example, indicators of the residents' perception of their neighbors' willingness to intervene replicated on its entirety the scale developed by the Project of Human Development on Chicago Neighborhoods (PHDCN) (Sampson et al., 1997). A similar construct was adapted from Coulton et al., (1996), corresponding to a 10-point instrument focused exclusively on the socialization of children and relatively serious violations of order. In addition, the instrument incorporated a battery of items consisting of direct measures of control capacity as developed by Ellen et al. (2004) and Taylor et al. (1984). Finally, the survey also contained several crime-related measures of exchanges among neighbors consistent with previously-employed measures (Bellair, 2000; Lynch et al., 2002; Warner et al., 2003).

What follows is the description of these specific instruments, as well as measures of their individual and aggregate reliability, contrasting results with those reported in the literature.

Child-centered controls (PHDCN)

The South Bronx project replicated the instrument developed by the PHDCN to measure informal social control. This construct was measured using a seven-item scale rating the likelihood of the respondent's neighbors intervening in several situations. These situations ranged from relatively minor violations of order involving youth (e.g., kids skipping school) to more serious events (e.g., fight in front of the house), to interventions of social supports (e.g., neighbor ill) and

collective concerns (e.g., fire station to be close-down). These questions were operationalized using a five-point ordinal scale ranging from 1= "very unlikely" to 5= "very likely"). General descriptive statistics for these items are presented below (Table 37).

Table 37
Descriptive statistics for child-centered informal control (PHDCN)

	Valid N	Mean (SD)	Min-Max
Children skipping school	101	3.04 (1.36)	1-5
Children painting graffiti	100	3.44 (1.21)	1-5
Children being disrespectful	102	3.17 (1.28)	1-5
Well-known neighbor short of cash	97	2.01 (1.01)	1-4
Fight in front of the house	102	3.28 (1.24)	1-5
Neighbor ill	99	3.88 (1.08)	1-5
Fire station to be closed	98	3.66 (1.14)	1-5

These statistics suggest that patterns of perceived intervention are context-specific. For example, respondents consistently rated the activation of financial support as the most infrequent form of intervention (M=2.01, SD=1.01) whereas assistance for ill neighbors exhibited the highest scores (M=3.88, SD=1.08). Several of these items have been systematically employed by research when operationalizing the concept of informal social control. Sampson and colleagues, for example (1997), combined the child-centered items with the measure of direct intervention (i.e. fight in front of the house) and the measure of collective mobilization (i.e. fire station to be closed). Most studies using the PHDCN data have followed this specification (Sampson and Raudenbusch, 1999; Browning et al., 2004; Morenoff et al., 2001). Other analyses of the data have used only the child-centered items (Sampson, 1997) or deleted the item mentioning the closure of the fire station (Silver and Miller, 2004). The five-item PHDCN version of informal control (Sampson et al., 1997) has been widely replicated on its entirety or combined with other constructs (Renauer, 2006; Reising and Cancino, 2004; Warner et al., 2003, among others).

The algorithm for the selection of informal control items is not clearly specified in the PHDCN literature although other studies have found high reliability scores at both the respondent-level and the community-level[22]. The Crombach's alpha for the five-item version of this scale (Sampson et al., 1997) has ranged from .62 (Reisig and Cancino, 2004) to .78 (Coulton et al., 2004). Its level-2 reliability has been slightly lower, around the .60 threshold depending on the level of aggregation (Coulton et al., 2004). Silver and Miller (2004) reported a respondent-level reliability score of .82 using the four-item version of informal control (i.e. dropping the fire station scale item). When applied to other populations, reliability scores tend to be slightly lower (Renauer, 2006), though remaining above the .70 threshold across versions of the same construct (De Coster, 2006; Sampson, 1997; Brody et al., 2001). There is limited information about the aggregate reliability of the youth-deviance version of informal social control. Using the three child-centered items, Sampson (1997) reported a cluster-level reliability of .81.

In some cases, the construction of these scales is based not only on calculations of internal consistency, but also in the measurement of latent constructs (Renauer, 2006). More general applications of factor analysis via principal components suggest that the scale items developed by PHDCN may actually load into different variables (Warner et al., 2003; Elliott et al., 1997).

Using the same data-reduction approach for the analysis of the items presented in Table 37 revealed the existence of a single factor explaining over 44% of the construct's total variation[23]. The reliability score for the full seven-item version of this informal control scale was .795. Slightly lower estimates were found when implementing the five-item specification by Sampson et al., (1997) and the four-item construct by Miller and Silver (2004) (.742 and .758 respectively).

[22] PHDCN-based articles usually focus on the scale of collective efficacy without reporting the reliability of its two subscales (informal control and social cohesion). See, for example, Sampson et al. (1997).

[23] Factor analysis using principal components, varimax rotation, and pairwise deletion of missing cases. Scales were created summing scores for each respondent and dividing by the valid number of items. DK responses were recoded in the middle category (see, for example, Sampson et al., 1999:n21).

Similar results are obtained when limiting the sample to include only the eight census tracts within the study are that are suitable for the multi-level analysis (n=70 respondents)[24].

The aggregate reliability scores for this subset of cases indicate that there was very little agreement among respondents residing in the same tracts (approximately .001 across all three measures). Likewise, the proportion of the variation in the outcome attributable to differences between tracts was less than 1%. These results were obtained when using an additive version of the scales described above and when using regression-based PCA factor scores. Overall, the indicators suggest that tract means did not differ by measure of informal control using various configurations of the PHDCN scale. In consequence, additional multi-level models implemented in this study do not employ this particular operationalization of informal control as the main dependent variable.

Child-centered controls (Coulton et al., 1996)

The operationalization of informal control has systematically included measuring the supervision of children outside the sphere of parental influence (Sampson, 1986; Sampson and Groves, 1989; DeCoster et al., 2006). Several works have employed the PHDCN data to address this substantive area of inquiry (Sampson, 1997; Silver and Miller, 2004). However, such studies have been limited due to the small number of questions focused directly on the socialization of youth and likelihood of adult interventions.

Coulton et al. (1996) developed a series of scales targeting the development and supervision of children in urban neighborhoods. Their multi-level approach was based on qualitative and quantitative assessments by caregivers residing in proximity to one another. Their analyses validated a series of scales representing the respondents' expectations regarding neighborhood-based patterns of children's socialization. Among these, the six-item subscale known as "stop

[24] The reliability for the full seven-item scale is .797. Similar scores were calculated for additional versions of the scale.

delinquency" described a range of situations involving young children and the need for adult involvement. Like the PHDCN, some items measured relatively minor events (e.g., graffiti, taking something from a neighbor's house). However, the instrument included also more serious events such as "a child has a hold of a gun" or "a child has a hold of a knife" (1996:28). Responses were coded using a 10-point Likert scale ranging from 1 (not likely) to 10 (likely). At the respondent level (n=156 subjects), researchers reported a Cronbach's alpha of .89; At the block-group level (n=16 blocks), the reliability was significantly lower (.32). Similarly, other sub-scales measuring the likelihood of direct intervention had low levels of inter-rater reliability.

The survey instrument implemented in the South Bronx incorporated Coulton et al.'s (1996) scale of potential adult interventions. Their instrument was included in the research despite its low ecological consistency because of its theoretical relevance and qualitative grounding in poor urban settings. Table 38 (below) presents item-specific descriptive statistics:

Table 38
Descriptive statistics for child-centered informal control (Coulton et al., 1996)

	Valid N	Mean (SD)	Min-Max
Child spraying graffiti	103	6.89 (3.04)	1-10
Child gets hold of a gun	103	9.33 (1.76)	1-10
Child gets hold of a knife	103	9.00 (2.07)	1-10
Child playing with matches	103	7.92 (2.94)	1-10
Child shoplifting	100	6.95 (3.15)	1-10
Child takes something from neighbor	102	7.55 (3.01)	1-10

Higher scores in Table 38 are associated with a greater perceived likelihood of adult intervention. As expected, more serious violations of social order are more likely to increase the expectations of informal control. The scale items were found to load into two different constructs associated with the gravity of the events when using a principal components approach with varimax

rotation. These two components explained about 78% of the total variation of the subscale. The factor describing relatively minor infractions (i.e., spraying graffiti and taking something from neighbor) exhibited high respondent-level reliability (.75) and acceptable consistency across the eight tracts suitable for multi-level analysis (.30). Serious violations as well as comprehensive scale measures failed to show high levels of agreement across participants living in the same tract (<.20). Similarly, estimates of between-neighborhood variation for these outcomes were not significant and were extremely low (<2.5%).

The scale of minor infractions mentioned above can be used as a dependent variable when exploring multi-level models. However, the specification of the model and interpretation of results require heightened attention due to the relatively low levels of level-2 reliability (.30) and the relative magnitude of the level-2 variance (5%). Estimation routines are presented in the last segment of the current section.

General resident-based control capacity

An alternative approach to the study of informal control has highlighted the importance of micro processes of control over public spaces (Taylor, 1997; Stark, 1987). Drawing upon this particular perspective—labeled by some as "territorial cognition" (Taylor, 1986, 1997)—a number of survey-based studies have implemented a series of scales measuring the respondent's perception of their own control capacity over immediate environments (Brown et al., 2004). Some works have expanded this notion in order to include assessments made at the neighborhood level. For example, Ellen et al. (2002) developed a 7-item instrument asking subject to rate in a scale, ranging from 1 ("none") to 4 ("a lot"), the degree of control they report having over near-home environments. While their study found high levels of reliability across items (.85), block-level

estimates of consistency were markedly low (.0002) with less than 1% of the total scale variance explained by ecological differences (2004:119-120).

Despite the lack of empirical support for the use of this instrument in multi-level research, most of its items were included in the South Bronx survey because of its substantive contribution to the understanding of community-based controls. In particular, this set of measures implemented an alternative approach to the study of informal mechanisms of intervention focusing on ratings about the respondents' themselves rather than scores about the willingness of neighbors' to intervene in a given set of situations. In addition, the scale by Ellen et al. (2002) also encompassed general patterns of regulation beyond the sphere of the monitoring of children.

Table 39, below, presents descriptive statistics for each of the items implemented in the South Bronx study to measure explicit mechanisms of control across six domains. Responses were reverse-coded and, therefore, higher scores represent greater levels of control capacity.

Table 39
Descriptive statistics for general resident-based control capacity

	Valid N	Mean (SD)	Min-Max
People hanging out	103	2.31 (1.08)	1-4
Safety residents	103	2.58 (1.08)	1-4
People moving	103	2.19 (1.00)	1-4
Exposure to violence	103	2.41 (1.21)	1-4
Exposure to drugs	100	2.26 (1.27)	1-4
Business in neighborhood	100	1.75 (0.99)	1-4

Table 39 indicates that safety-related items exhibit the highest scores, although overall responses do not vary significantly across the set of events described in the instrument. Respondents reported having the lowest level of control when asked about their ability to intervene on the relocation of business within the neighborhood (M=1.75, SD=0.99). Using Principal components ,all six items loaded into a single factor explained 53.4% of the total variance of the

scale. Its combined respondent-level reliability was 0.831. However, the business-related question shared a very small fraction of its variance with the other items and was therefore removed from further analyses. The final five-item Crombach's alpha remained virtually unchanged (0.826)[25].

The aggregate, tract-level consistency of this indicator was moderate (0.49), suggesting that there was an acceptable degree of agreement of respondents living in the same census tracts. Consistent with previous models specifications, this estimation was based on the analysis of 70 surveys nested in 8 tracts located within the study area (Community District 1 of the South Bronx). Further, 11% of the total variance of the scale corresponded with between-tract variations (significant at the $p<.1$ level).

These results granted the use of the modified scale by Ellen et al. (2002) as an outcome variable for the multi-level analysis of the determinants of informal social control. A similar finding was obtained when using the minor-violations subscale included in the instrument of child-related interventions by Coulton et al. (1996) (see Table 38, above). However, in this particular case, the two-item construct revealed fair indicators of ecological reliability and between-tract variance (0.30 and 5% respectively). The respondent-level correlation between these two indicators of informal social control was estimated at .351 ($p<.01$) suggesting that while significantly associated with one another, these variables measure different processes[26]. Substantively, the control scale by Ellen et al. (2002) reflects general ratings of direct control whereas the instrument by Coulton et al. (1996) focuses on adult-children supervision mechanisms. These mechanisms, when measured via the PHDCN scales, failed to exhibit acceptable levels of inter-rater reliability across tracts.

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[25] PCA with varimax rotation and pairwise deletion of missing cases. A scale was created by summing valid item responses and dividing the sum by the total number of available items. Only one case had more than one missing/DK item. This case was removed from the analysis.

[26] For example, the tract-level correlation between these two constructs was negative and non-significant ($r=-.125$) .

Consistent with this general assessment, the multi-level models (in the remaining section of this chapter) will examine individual and tract-level covariates of informal controls using both the modified specification originally developed by Ellen et al. (2002) and Coulton et al. (1996).

6.1.2 The measurement of network-proxies and other covariates of informal controls

The study of community-based social controls has been a consistent feature of works addressing the correlates of social order. In recent years, this tradition was reinvigorated via the emergence of new methodologies and more comprehensive analytical frameworks. For example, in *The Truly Disadvantaged*, Wilson (1987) developed a series of postulates linking the spatial concentration of the urban poor to structural constraints affecting these individuals' access to jobs and mainstream values. According to Wilson and others, such environment is associated with conflicting normative definitions, some of which favor rule-breaking behavior (Anderson, 1990; Sampson and Bean, 2006). This perspective shared with earlier ethnographic works a concern about the connections between micro and macro levels of action (Valentine, 1978; Hannerz, 1969; Suttles, 1967); However, Wilson moved beyond earlier works by focusing on the significance of the ecological processes and mechanisms that amplify conditions of economic disadvantage. Recent works have built on this tradition by examining the structural narratives associated with the social organization of specific subpopulations (Patillo, 1999; Venkatesh, 2000; Wacquant, 2004a).

The renewed interest in the study of social control dynamics in urban communities is also the result of more widely employed methods for the statistical modeling of contextual effects (Raudenbush and Sampson, 1999; Taylor et al., 1986; Coulton et al., 1996). These tools have allowed researchers to examine more effectively cross-level interactions between levels of analysis as

well as new approaches to the estimations of changes over time. Large-scale projects such as the PHDCN have provided the necessary data to test these new approaches.

The advent of new resources for the study of community-based controls has been accompanied by the development of multiple analytical approaches. As described in the previous section, researchers have operationalized pro-social informal in different ways, ranging from the measurement of direct interventions in crime related-events (Lynch et al., 2002; Bellair, 2000), to general ratings of control capacity (Taylor et al., 1986; Ellen et al., 2004) and perceptions of the neighbors' willingness to intervene in the socialization of youth (Sampson et al., 1997; Coulton et al., 1996).[27] Other studies have developed additional typologies considering the interface between formal and informal controls (Warner, 2007; Velez, 2001).

The study of the covariates of informal controls has also suffered from the proliferation of measurement tools. This is particularly the case of the survey-based variables associated with community-level properties such as indicators of social cohesion, trust, and civic engagement. These constructs share an interest for the generation of variables capturing general patterns of exchange among individuals or between individuals and local organizations. However, for the most part, they relied on the respondents' perceptions about the nature and scope of these associations. Therefore, they constitute representations of shared expectations and values that may or may not translate on actual social interactions. In this dissertation such approaches are labeled as "network proxies" because they are not grounded on the explicit capture of inter-personal contacts. As suggested by Bellair (1997), measures of individual interactions have been restricted to single-item assessments or have been sometimes confounded with other concepts reflecting general

[27] Other forms of informal control involving explicit anti-social processes (related, for example, to criminal enterprises) are not considered in this dissertation (Waring, 2002).

properties of the local social organization such as neighborhood attachment, or collective expectations (see also Bursik, 1988; Portes and Landolt, 1996).

What follows is a systematic review of the most frequently-employed indicators of social organization at the community level. Further, its empirical relevance for the study of informal social control practices in the South Bronx will be addressed.

Social cohesion

Perhaps the most prevalent survey-based measure of community organization is the level of social cohesion as expressed by local residents. This concept has been often operationalized via a series of Likert-type scales asking respondents about their level of agreement with statements about general patterns of socialization among neighbors. In a widely-employed approach, Sampson and colleagues (1997) developed a five-item scale of cohesion based on the analysis of the community survey data from the PHDCN. Such an assessment was combined with an additional scale of informal control, leading to a construct known as collective efficacy. Using the same dataset, other studies have implemented relatively similar scales of cohesion (Browning et al., 2004; Morenoff et al., 2001). The original approach by Sampson et al. (1997) has been applied to other populations yielding estimates of internal consistency ranging from .70 (Coulton et al. 2004; Renauer, 2007) to .90 (Reisig et al., 2004). Other combinations of scale items have generally followed this structure with similar results (Ellen et al., 2004; Warner et al., 2003; Gibson et al., 2002; Brown et al. 2004). At the aggregate level, studies also report high levels of inter-rater reliability (Ellen et al., 2004; Coulton et al., 2004).

Following previous research, the survey instrument fielded in the South Bronx contained a battery of items related to neighborhood-level processes often interpreted as measures of social cohesion. Each question asked respondents about their level of agreement with general statements

about the level of social integration among residents. The responses ranged from 1 (strongly disagree) to 5 (strongly agree). Table 40, below, presents the factor loadings obtained when implementing an analysis of principal components analysis to the total sample (N=103).

Table 40
Factor loadings of proxy measures of community organization
Principal Components, Varimax Rotation

Variable	Integration	Support	Mobilization	Supervision children	Social values
Most people can be trusted	**.760**	.124	-.019	-.093	.214
Mot people go their own way (rev)	**.677**	.150	-.024	.153	.069
No one cares about me (rev)	**.664**	.076	.321	.005	.112
Most people willing to help	**.662**	.237	.275	.000	-.089
This is a close-knit neighborhood	**.638**	.108	.029	.442	.215
People willing to help neighbors	**.488**	.357	.353	.450	.050
Neighbors will watch home	.149	**.819**	.082	.257	.047
Can borrow $30 from neighbors	.298	**.777**	.163	-.166	.088
Neighbors would help if sick	.148	**.638**	.063	.179	.418
Park is safe during the day	-.038	.026	**.864**	.044	.081
Neighbors solve problems together	.252	.107	**.710**	.008	.114
Children without place to play (rev)	.208	.292	**.485**	.256	-.229
Adults know local children	.003	-.058	-.012	**.798**	-.011
Count on adults to watch children	.096	.278	.151	**.676**	.176
People get along with each other	.158	.249	.093	-.088	**.772**
People share same values	.122	.012	.017	.214	**.752**

Note 1: Some items have been reverse-coded
Note 2: Highest loadings in bold

Results from the analysis reveal five latent constructs explaining 63.8% of the total variation in the instrument: six items loaded simultaneously in a concept labeled here as social integration. For the most part, this indicator corresponds to similar instruments developed by previous studies. However, unlike the formulation reported by Sampson and colleagues (1997), items with an explicit normative content loaded in a separate factor (social values). The second factor includes three items measuring overall ratings of social support, including a surveillance-related item (neighbors will watch home). The third factor reflects statements about the ability of neighbors to address collective problems such as the safety of parks and the existence of playgrounds. The

fourth factor addresses general patterns of supervision of neighborhood children. The fifth construct includes items measuring the degree to which the respondent perceives that residents share the same set of beliefs.

Other studies have reported that there are multiple domains of community organization. For example, in one of the earlier studies of neighborhood effects, Simcha-Fagan and Schwartz (1986) found nine different dimensions of local processes related to "informal neighboring", "neighborhood attachment", and "organizational involvement" among others. In their study of high drug-use neighborhoods, Warner et al. (2003) found four constructs associated with informal control—e.g., "cohesion", "intervening in community behaviors", "intervening in school truancy", and "supervision" (2003:59). The scale labeled "cohesion" included several of the statements listed in Table 40 above such as "people in my neighborhood can be trusted" and "people generally get along with each other". These domains were elicited via a factor analysis using a varimax rotation. A similar approach was implemented by Coulton et al. (1996) when studying the neighborhood context of children's supervision or by Bursik (1988) when examining informal controls in Oklahoma City.

It is crucial to recognize differences in the operationalization of cohesion and related processes of social integration because these constructs may represent substantively distinct neighborhood-level mechanisms. For example, for Bursik (1988), the notion of cohesion reflects properties of private networks of association. Likewise, Wells et al. (2006) conceptualize cohesion in terms of general perceptions about actual exchanges between neighbors. Goudriaan et al. (2006) combine measures of cohesion with indicators of overall resident satisfaction with the neighborhood. The implications attached to the use of particular measures of community organization are seldom addressed by this group of studies. However, the lack of consistent measures across research projects poses significant challenges for the generalization of results (Taylor, 2002; Kubrin and

Weitzer, 2003). As described in the previous section, this observation appears to be a constant feature of neighborhood-level works and may be one of the leading causes of the absence of a clearer understanding of the mechanisms linking characteristics of communities to processes of social integration (Sampson, 2002; Forrest and Kearns, 2001).

General exchanges

Several studies based on the analysis of the PHDCN data have developed scales of perceived local social exchanges. Such instruments rely on a five-item series of questions regarding the frequency of contact with neighbors across a variety of domains, ranging from doing favors to safety-related interactions (watching over each other's property). The response categories in the corresponding data are 1 (never), 2 (rarely), 3 (sometimes) and 4 (often). Morenoff (2003) and Sampson et al. (1999) used all available items in a scale of "reciprocated exchange" and found an inter-rater reliability of .65. Browning et al. (2004) implemented a four-item version of this construct removing the surveillance item[28].

Similar instruments have been implemented in other studies: Warner and Wilcox (1997) used a three-item dichotomous scale asking respondents whether they had borrowed tools from their neighbors, had lunch/dinner with them, or have provided help during the past year (alpha=.80) (see also Bellair, 2000). Lynch et al. (2002) followed an analogous approach but added questions about actual activities involving local interactions (e.g., watching home, take-in neighbor's mail) (alpha=.73). In some cases, items measuring exchanges have been combined with indicators of social integration or cohesion. For example, Robinson et al., (2003) reported using a five-item

[28] This modification of the instrument is particularly relevant for the study of social control because it symbolizes the apparent confusion associated with the study of neighborhood-level processes: variables capturing the perceived frequency of neighbors watching each others' property have been studied by some as an outcome associated with social control (Bellair, 2000; Warner et al., 2003). However, in other studies the same item is operationalized as a measure of general exchanges (Sampson et al., 1999).

"sense of community scale" averaging a set of dichotomous responses (alpha=.69). The same approach has been developed in other studies (Wells et al., 2006; Ross and Joon Jang, 2000; Brown et al., 2004).

The survey instrument used by the South Bronx study followed the specification of items employed by the PHDCN and other studies. Table 41, below, displays general descriptive statistics for each of the five items of the scale. Higher values indicate more frequent interactions between residents.

Table 41
Descriptive statistics for general exchanges

	Valid N	Mean (SD)	Min-Max
Frequency favors	103	2.80 (1.07)	1-4
Frequency watching over property	103	2.58 (1.18)	1-4
Frequency personal advice	103	2.28 (1.07)	1-4
Frequency parties and get-togethers	103	2.50 (1.13)	1-4
Frequency visits	103	2.67 (1.11)	1-4

Estimates of central tendency and dispersion are stable across items, although more intimate contacts are less frequent (i.e. personal advice). An analysis of principal components revealed the existence of a single component explaining 55.3% of the total variance of the instrument. Items were combined in an additive scale. Its overall reliability was .796.

Social Ties

A few survey-based research projects have developed general measures of the size of the respondents' social networks.[29] These indicators often request subjects to provide an estimate on the number of relatives and friends living in the neighborhood (separate from household members)

[29] This review does not include survey data on the locality of social ties collected in network-based studies (Wellman, 1979; 1996; Fischer, 1982). Such literature is reviewed in the second section of this chapter.

as well as the number of friends living outside the neighborhood. In the PHDCN, responses for these items include: 1 (None), 2 (one or two people), 3 (three to five), 4 (six to nine), 5 (ten or more). Studies based on the analysis of PHDCN data have combined these measures in different ways either by adding local kinship and friendship contacts or by calculating the relative weight of community-based interactions (Sampson et al., 1999; Morenoff et al., 2001; Browning et al., 2004; Silver and Miller, 2004). Using data from the Los Angeles Family and Neighborhood Survey (L.A. FANS), Sastry et al. (2002) linked the same scales to perceptions of neighborhood size—although responses were dichotomized for the analysis. Warner has employed the same scale in her series of studies of high drug-use neighborhoods (Warner et al., 2003; Warner, 2007).

Other projects have relied in similar measures of local contacts. For example, in one of the earlier contemporary studies of community organization, Sampson and Groves (1989) operationalized neighborhood-based ties by measuring the number of friends within a 10-15 minute-walk of the respondents' home (see also Lowenkamp et al., 2003). Alternative approaches have relied on exchange-based measures to define local ties (Warner and Wilcox, 1997; Bursik, 1988).

Following the most frequently-employed set of items, the South Bronx instrument asked respondents to estimate the number of relatives and friends by place of residence. We used the three-item specification by the PHDCN but added a question about the number of relatives living outside the neighborhood (but in the same city). Descriptive statistics are presented in Table 42, below. Greater scores indicate larger networks. Figures suggest that local friendships are more frequent than kinship associations (M=3.63 vs. M=2.92). This pattern was also observed when restricting the sample to include survey data for the multi-level analysis (i.e. 70 respondents nested in eight census tracts within District 1).

Table 42
Descriptive statistics for social ties

	Valid N	Mean (SD)	Min-Max
Relatives in neighborhood	103	2.92 (1.64)	1-5
Relatives outside of neighborhood	103	4.01 (1.39)	1-5
Friends in neighborhood	103	3.63 (1.63)	1-5
Friends outside of neighborhood	103	3.63 (1.55)	1-5

Participation in local organizations

The participation of residents in local organizations is a central narrative of the systemic model of social disorganization (Bursik and Grasmisk, 1993). This perspective builds upon prior studies emphasizing the role of community-based agencies in the development of self-regulatory mechanisms (Janowitz, 1951; Kornhauser, 1978). Contemporary tests of the disorganization theory have included several indicators of civic engagement at the local level. For example, studies using the British Crime Survey relied on a measure capturing the respondents' participation in committee and clubs the week prior to the interview (Sampson and Groves, 1987; Veysey and Messner, 1999; Lowenkamp et al., 2003). Other studies using the same dataset combine this indicator with general perceptions of neighborhood satisfaction and acquaintanceship patterns among residents (Markovitz et al., 2001).

Similar information has been captured in large-scale community studies such as the PHCDN and L.A. FANS. The PHDCN, for example, listed seven different domains of participation in voluntary associations raging from local church groups to community councils (Sampson et al., 1999; Swaroop and Morenoff, 2006). In addition, respondents of the community survey were also asked to estimate the number of local organizations and programs (e.g. newspaper, tenant association, drug rehab) (Morenoff et al., 2001; Silver and Miller., 2004). The L.A. FANS

instrument also contained information about participation in a larger set of organizations (12), although these items were not designed to capture local processes (Sastry et al., 2002).

In one of the first studies accounting for contextual effects, Simcha-Fagan and Schwartz (1986) developed a series of measures of community-level processes in New York City neighborhoods. Among these indicators, they created a scale which included the total number of organizational affiliations reported by study participants as well as two attitudinal questions about civic engagement (alpha=.64). Other studies have implemented similar approaches, combining actual measures of membership with general perceptions about the organizations themselves and socialization and supervision patterns in the community (Brown et al., 2004). Other projects have focused on the measurement of patterns of participation in association as an independent construct (Lynch et al. 2002; Decoster et al., 2006; Ross and Joon Jang 2000).

Recent assessments of the survey-based literature on the organization of communities have highlighted the fact that civic engagement is not longer seen as a mechanism of informal control per se (Taylor, 2002; Kubris and Weitzer, 2003). Such a perspective was a key element of the first generation of neighborhood-effects studies (Simcha-Fagan and Schwartz, 1986; Sampson and Groves, 1989) but has been relatively dismissed by most recent works (Sampson et al., 1997; Sampson, 2002). Substantively, some works suggest that the role of local organizations may not be as important as otherwise suggested (Mc Roberts, 2003).

A total of ten domains of community involvement were captured by the South Bronx survey (Table 43, below). Participants were asked to report about their current participation in local organizations and activities. Unlike the PHDCN, this instrument only focused on the respondents' activities rather than general reports for the household (Swaroop and Morenoff, 2006). Figures presented below indicate that religious involvement is the most frequent form of formal association in the study area. About a third of participants participate in religious activities (M=0.33,

SD=0.47) and about a fifth are involved in charity and other forms of religious associations (M=0.19, SD=0.39). Overall, a slight majority of respondents are engaged in one or several forms of civic participation (M=0.53, SD=.50).

Table 43
Descriptive statistics for participation in local organizations

	Valid N	Mean (SD)	Min-Max
Religious organization	103	.33 (.47)	0-1
Church/temple-connected groups	103	.19 (.39)	0-1
Informal leisure group	103	.12 (.32)	0-1
Parent-teacher association	103	.11 (.31)	0-1
Same nationality	103	.08 (.26)	0-1
Youth group	103	.04 (.19)	0-1
Political group	103	.03 (.16)	0-1
Block group/tenant association	103	.11 (.31)	0-1
Labor union	103	.03 (.16)	0-1
Other group	103	.10 (.29)	0-1

This review of the research focused on survey-based tools designed to capture relational processes associated with ability of communities to self-regulate. It explored several definitions of informal social control and applied these to the data collected in the South Bronx. Two scales were adopted for further examination in multi-level models. These are, on the one hand, a children-centered two-item indicator of the perceived willingness of neighbors to intervene when witnessing minor infractions (Coulton et al., 1996); on the other, a five-item scale measuring the perceived level of resident control over public spaces (Ellen et al., 2004). These two constructs exhibited high levels of respondent–level reliability and more importantly, moderate estimates of consistency at the census tract level.

Beyond the review of outcome variables, this section also described traditional approaches to measure domains of community organization—social cohesion, general exchanges, social ties, and participation in local organizations. For each of these domains, issues of scale construction were

addressed as well as key substantive implications in the operationalization of constructs across studies. Drawing upon this review, this section derived a series of independent variables to be employed in the following set of analyses.

6.2 Multi-level Models of Informal Control

Early works on the social organization of urban communities focused, for the most part, on the analysis of aggregate patterns. Park and Burgess (1925) for example, wrote about the relationship between population distributions and physical characteristics of places. Shaw (1929) and Shaw and McKay (1942) studied the association between delinquency rates and properties of neighborhoods. More recent works have continued to concentrate on either macro-level or micro-level processes associated with the organization of communities (Bursik, 1988; Bellair, 1997; Renauer, 2007). Rarely, the scope of these inquiries has involved cross-level interactions involving the examination of individual and ecological attributes. Despite the value of their contributions, most of the contemporary expansions of the systemic model and the traditional social disorganization theory have been based on a multi-level framework (Taylor et al., 1986; Raudenbusch and Sampson, 1999) and the examination of longitudinal patterns (Markowitz, et al., 2001; Robinson et al., 2003).

Results from a number of studies suggest that respondent-level indicators of informal control do vary significantly across macro-level (ecological) units. For example, Silver and Miller (2004) found that 12% of the variance in their scale of informal control corresponded to differences between neighborhood clusters. An analogous figure was reported by Sampson et al. (1999) when studying child-centered social control (aggregate reliability of .72). In an earlier study using a

smaller sample of the same PHDCN dataset Sampson (1997) found that his measure of informal control exhibited a 10% between-cluster variance (aggregate reliability of .81). Results from other projects follow the same general pattern: The intra-class correlation for informal control reported by Coulton et al. (2004) was 5.2% at the tract level (aggregate reliability of .58). Using hierarchical logistic models, Warner (2007) found significant between-neighborhood variation in measures of both direct and indirect informal controls. Other studies have employed various measures of informal control as dependent variables with significant ecological predictors and variances in the baseline models (Brody et al., 2001; Lynch et al., 2002; Bellair, 2000). In other studies outcome measures of informal control have been dropped of the analysis due to low levels of aggregate reliability or non-significant variance across ecological units (Ellen et al., 2002; Coulton et a., 1996).

The survey data collected in the Bronx in analyzed below using a multi-level framework focused on the individual and tract-level determinants of informal controls. The sample for such examination is a total of 70 surveys nested in 8 census tracts within Community District 1. As described in the first section of this chapter, models rely on two related yet weakly correlated ($r=.35$, $p<.01$) assessments of control capacity. The first outcome variable is a reduced version of the child-centered control developed by Coulton et al. (1996). Such instrument reflects the respondents' perception about the willingness of neighbors to intervene when witnessing minor infractions by children. This indicator has a substantial respondent-level reliability (.75) and acceptable aggregate reliability (.30) and between-tract variance (5%). The second outcome corresponds to a general assessment on the residents' ability to locally enforce controls (Ellen et al, 2002). The respondent-level reliability for this four-item scale is .83. At the tract level, the reliability of the outcome was moderate (.49) with significant variation across tracts (11%).

Table 44 (below) shows respondent-level bivariate correlations among variables included in the first set of multi-level models analyzed in this section. In addition to indicators of informal control (outcomes), the table includes a series of indicators of community organization examined in the previous section of this chapter. *Perceived cohesion* is a nine-item Likert-type scale combining two factors measuring social integration and mobilization (alpha=.76). The same format is used for the three-item measure of *perceived support* (alpha=.76) and the two-item indicator of *perceived social values* (alpha=.41). The factor loadings for these three dimensions of social integration are presented in Table 40. The scale of *perceived exchanges* reflects the aggregation of responses for five items asking respondents about the frequency of contacts with neighbors (alpha=.80, Table 41). The scale of *perceived ties* combines respondent-based estimates of the number of kin members and friends living in the neighborhood. All the instruments described here are additive scales based on the calculation of overall scores with valid observations. *Participation* is a dummy variable capturing whether the respondent participates in any neighborhood organization.

Table 44

Respondent-level bivariate correlations between proxies of community organization and measures of informal social control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Perceived Cohesion	1							
Perceived Support	.56**	1						
Perceived Social Values	.29*	.33*	1					
Perceived Exchanges	.57*	.51*	.26*	1				
Perceived Ties	.36**	.24*	.16	.55**	1			
Participation in local org.	.25*	.32*	.02	.16	-.03	1		
Child-centered interventions	.34*	.23	.04	.25*	.20	.03	1	
Control capacity	.60*	.31**	.26*	.48*	.24*	.22	.35**	1

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

Note: Outcome variables measuring social control in italics

Most of the associations tested in Table 44 are significant, especially those involving the two measures of informal control, although the dummy for participation is an important exception to this pattern. More substantively, the magnitude and significance of the correlations between predictors and outcomes vary by type of social control measure: for example, greater levels of control measured in terms of child-centered interventions are associated with higher perceived exchanges and perceived social cohesion ($p<.05$). Measures of control capacity, while exhibiting a parallel pattern, also have significant, positive correlations with perceived support, perceived social values and perceived social ties.

In the second part of this section, outcome measures of informal control are linked to a series of network-based indicators of social exchanges such as network size, density, and tie-strength.

6.2.1 Network proxies in multi-level models of informal control

The multi-level estimation below (Table 45) focuses on child-centered interventions as the first outcome indicator of informal control. The analyses begin with an examination of an ANCOVA model using only group-centered individual-level controls (model 1). Control variables included in the models are gender (1=female), race/ethnicity (1=Latino), employment (1=employed), educational attainments (7-point scale, from 1=none, to 7=graduate), and residential tenure (in years). Consistent with the estimations developed in Chapters 4 and 5, the baseline models also include a dummy measuring the respondent's participation in religious organizations.[30] The analyses continue by adding the three main ecological predictors of the systemic model—e.g., concentrated disadvantage, residential stability and population heterogeneity

[30] Models examined in Chapter 5 suggest that different operationalizations of participation in local organizations yield equivalent results. However, the overall fit of the model is enhanced when using the religious-based indicator. This form of voluntary involvement is the most frequent mechanism of civic engagement (Table 43).

(model 2). These predictors are grand-mean centered. Models 3 through 6 examine in sequential order the association between selected dependent variables of perceived social exchanges and child-centered social control. The inclusion of additional covariates at both levels of analysis was limited due to the number of available degrees of freedom. Estimated presented below correspond to fixed-effects models. Following previous studies, the significance threshold was relaxed to .10 due to the low number of level 1 and level 2 units (Warner, 2007).

Table 45
Hierarchical regressions of child-centered interventions
with network proxies as individual-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	1.046***	1.046	1.014	1.056	1.014	1.070
Race/Ethnicity (Latino)	1.944*	1.944#	2.487*	2.471*	1.940#	1.906#
Employment	.572	.572	.261	.500	.550	.530
Education	-.399*	-.399	-390	-.524#	-383	-.391
Participation religious org.	-.134	-.134	-.111	-.508	-.146	.251
Residential tenure	.021	.021	.026	.021	.019	.012
Perceived cohesion			.912#			
Perceived support				.674*		
Perceived ties					.079	
Perceived exchanges						.384
Tract-level covariates						
Residential stability		1.100#	1.100*	1.100*	1.100#	1.100#
Concentrated disadvantage		-.041	.017	.017	-.041	-.041
Population heterogeneity		-.347	-.377	-.377	-.347	-.347
Constant	7.564***	7.717***	7.686***	7.686***	7.717***	7.717***
Within Var (R_{ij})	5.756	5.524	5.047	4.991	5.610	5.539
Between Var (U_{0j})	.388	.000	.000	.000	.001	.000
Chi2 for Var U_{0j}	10.52	.776	.951	.962	.764	.774

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Model 1examines a baseline model with all the individual-level controls and a dummy for civic involvement. Findings show that this measure of community organization is not significantly associated with child-centered informal control. In fact, this pattern was reproduced in all the models tested, even when using different specifications of local participation. Model 1 also

indicates that greater levels of control were significantly higher among females and Latino respondents. Study subjects with lower levels of education attainment also exhibit higher indicators of child-centered social control. The use of individual-level variables reduced significantly the magnitude of the between-tract variance of the outcome as measured in the empty model. Estimates from model 1 show that this variance is no longer significant (Var U_0.=.388, χ^2=10.52).

Model 2 includes tract-level measures of concentrated disadvantage, residential mobility, and heterogeneity. These indicators were derived from an analysis of principal components of the administrative data compiled by the 2000 U.S. Census (see Chapter 4). The inclusion of these variables decreases the precision of the individual-level predictors making insignificant the association between education and informal control and informal control and gender. Contrary to previous studies, results suggest that in areas of greater residential mobility individuals have higher levels of child-centered controls.

Models 3 through 6 test the effect of measures of community organization on child-centered interventions when controlling for structural tract-level covariates. Perceived cohesion is positively and significantly associated with higher levels of control ($p<.1$). A similar yet smaller effect is observed for the measure of perceived support ($p<.05$). Indicators of social ties and perceived exchanges while positively related to the outcome were not significant. Including all four independent variables in the model renders all them insignificant.

Overall results systematically link Latino respondents to higher levels of social control. More substantively, the outcome was significantly related to higher levels of perceived social cohesion and support. Consistent with findings from prior studies, results indicate that tracts with a lower population turnover also have higher levels of child-centered control.

While models on Table 45 (above) contribute to the understanding of the linkages between control mechanisms and variables of social organization, their estimates are potentially biased due

to the operationalization of independent variables as a set of respondent-level constructs. Consistent with previous theoretical and empirical works, perceptions of community organization are assumed to provide a macro-level framework for the analysis of individual-level outcomes. In other words, measures of cohesion, exchange, civic participation, and support, need to be included in the models as tract-level predictors. While substantively relevant, this avenue of inquiry is greatly limited in this current study due to the low number of level-2 units (8) and the available degrees of freedom to control for structural covariates (i.e., disadvantage, mobility, heterogeneity). Further, as shown in Table 45 the between-tract variation of informal control is low when controlling for respondent attributes and virtually zero when including the structural covariates.

Models presented below (Table 46) assess the direction and magnitude of the effects associated with social organization variables when specified as level-2 covariates. This procedure allows the computation of estimates aligned with those developed by the majority of the multi-level studies on informal controls. More crucially, these models are more consistent with the postulates of the systemic model.

Table 46
Hierarchical regressions of child-centered interventions
with network proxies as tract-level predictors

	(1)	(2)	(3)	(4)	(5)
Individual-level covariates					
Gender	1.006	1.006	1.006	1.006	1.006
Race/Ethnicity (Latino)	1.925#	1.925#	1.925#	1.925#	1.925#
Employment	.556	.556	.556	.556	.556
Education	-.401	-.401	-.401	-.401	-.401
Residential tenure	.020	.020	.020	.020	.020
Tract-level covariates					
Participation religious org.	-.066				
Perceived cohesion		-.531			
Perceived support			-.017		
Perceived ties				-.450	
Perceived exchanges					-.260
Residential stability	1.105#	1.216#	1.100#	1.325#	1.185
Concentrated disadvantage	-.042	-.061	-.039	.23	-.024
Population heterogeneity	-.357	-.497	-.346	-.403	-.427
Constant	7.720***	7.731***	7.718***	7.661***	7.702***
Within Var (R_{ij})	5.526	5.515	5.526	5.488	5.521
Between Var (U_{0j})	.001	.001	.001	.001	.001
Chi2 for Var U_{0j}	.774	.665	.776	.372	.716

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results indicate that none of independent variables of community organization is significantly related to informal controls when specified as a tract-level covariate. As expected, the between-tract variance for the outcome remains non-significant and extremely small, suggesting that in these models, variations in child-centered interventions are mostly determined by respondent-level processes. These findings are somewhat consistent with those reported when specifying the independent variables of perceived social exchanges as individual-level attributes (Table 45). For example, in both sets of models the sign and magnitude of the dummy for race/ethnicity is similar and the variance of the outcome at level-2 is non-significant. More importantly, like previous models, results reveal that greater residential stability increases child-centered social control. In other words, when controlling for ecological characteristics of the local social organization, the

control capacity of residents is significantly greater in areas of lower population turnover. This set of findings are consistent with others reported elsewhere using comparable approaches (Silver and Miller, 2004; Lynch et al., 2002). However, contrary to previous research, results failed to show significant associations between informal controls and variables of community-level exchanges (i.e., participation in religious organizations, density, exchanges, local ties and social values). Using a wide range of methodologies, research has consistently linked these variables to levels of informal control (see for example, Warner, 2007). When operationalizing these variables as respondent-level covariates, measures of perceived social cohesion and perceived social support were positively and significantly associated with greater levels of control (Table 45).

A second set of models use as outcome variable a four-item scale measuring the respondents' perceptions on the capacity of residents to exert control over public spaces (Ellen et al., 2004). The response options included in the survey ranged from 1 (none) to 4 (a lot). The scale was described in the first section of this chapter (Table 39). Its overall aggregate reliability is acceptable (.49) and ANOVA results indicate significant ecological variation (Var U_0.=.09, χ^2=13.61, p<.10) representing 11% of its total variation.

Consistent with the previous set of models on child-centered control, the estimations presented in Table 47, below, begin with the specification of independent variables of perceived social organization as individual-level covariates (i.e., social cohesion, support, exchanges, local ties). Model 1 corresponds to an ANCOVA model which includes only respondent-level control variables. While none of these is significant, the between-tract variance remains relatively constant when compared to the variance exhibited by the (Var U_0.=.10, χ^2=14.54, p<.05). The structural covariates of the systemic model are added to the estimation routine in model 2 although none of these is significant and they do not contribute to the reduction of the ecological variance. Model 3 though 6 sequentially test each of the independent variables already described in previous routines.

With the exception of local social ties, all of these predictors are significantly associated with greater levels of control capacity. The direction of the effects is in the expected direction with respondents who perceive a more cohesive, supportive, and highly-connected community exhibiting also greater levels of perceived informal control. None of the tract-level estimates is significantly associated with the outcome. In fact, the use of the independent variables increased the magnitude of the unexplained between-tract variance.

Results in Table 47 do no differ substantially from those obtained by equivalent models that rely on the child-centered version of informal social control (Table 45). For example, in both sets of models higher perceptions of support and cohesion are significantly associated with higher levels of informal controls. In both sets of models the variable capturing local social ties was non-significant. Despite the importance of these similarities, models differ in the nature of the findings for tract-level variables: while lower residential turnover predicts higher child-centered controls, it does not predict the broader scope of controls captured by the outcome variable tested below (Table 47). None of the individual-level attributes is associated with such control capacity. These apparent inconsistencies across measures of informal control reflect the fact that in actuality, these are indicators of related yet independent processes of social supervision and monitoring.

Table 47
Hierarchical regressions of control capacity
with network proxies as individual-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	.254	.254	.251	.265	.210	.287
Race/Ethnicity (Latino)	.114	.114	.055	.128	.110	.065
Employment	.254	.254	.197	.296	.224	.199
Education	-.054	-.054	-.011	-.086	-.033	-.044
Participation religious org.	-.011	-.011	-.098	-.173	-.028	-.164
Residential tenure	.015	.015	.013	.013	.012	
Perceived cohesion			.773***			
Perceived support				.231#		
Perceived ties					.108	
Perceived exchanges						.502***
Tract-level covariates						
Residential stability		-.084	-.088	-.084	-.084	-.087
Concentrated disadvantage		-.362	-.355	-.351	-.362	-.364
Population heterogeneity		-.053	-.049	-.060	-.052	-.046
Constant	2.356***	2.343***	2.340***	2.338***	2.343***	2.343***
Within Var (R_{ij})	.700	.698	.496	.676	.693	.564
Between Var (U_{0j})	.101*	.143*	.160**	.139*	.143*	.158**
Chi2 for Var U_{0j}	14.54	10.64	14.45	10.54	10.72	13.19

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

As mentioned when assessing the child-centered version of informal control, the multi-level tests of the systemic model are based on the ecological operationalization of community organization variables such as perceived social cohesion and perceived local ties. This approach is particularly relevant for the control capacity-version of informal control given that models tested above actually increase the between-tract variance of the outcome. For example, the routines described above with the greatest effect size (cohesion, model 3, and exchanges, model 6), also exhibit the largest between-tract variance (Var U_0 =16 and Var U_0 =.158 respectively, both significant at p<.01 level). Table 48, below, specifies perceptions of community organization as level-2 predictors aggregating survey responses at the tract level.

Table 48
Hierarchical regressions of control capacity
with network proxies as tract-level predictors

	(1)	(2)	(3)	(4)	(5)
Individual-level covariates					
Gender	.251	.251	.251	.251	.251
Race/Ethnicity (Latino)	.113	.113	.113	.113	.113
Employment	.253	.253	.253	.253	.253
Education	-.054	-.054	-.054	-.054	-.054
Residential tenure	.015	.015	.015	.015	.012
Tract-level covariates					
Participation religious org.	1.424#				
Perceived cohesion		1.596#			
Perceived support			.820#		
Perceived ties				.480	
Perceived exchanges					.581
Residential stability	-.148	-.400	-.029	-.287	-.230
Concentrated disadvantage	-.336	-.280	-.435#	-.645	-.391
Population heterogeneity	.100	.330	-.174	-.027	.102
Constant	2.286***	2.300***	2.317***	2.380***	2.360***
Within Var (R_{ij})	.694	.674	.695	.692	.690
Between Var (U_{0j})	.000	.000	.011	.077#	.125*
Chi2 for Var U_{0j}	3.53	1.86	3.99	6.07	7.49

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Most of the models tested above successfully rendered insignificant the between-tract variance of the overall rating of resident-based controls—the use of tract-level variables of community organization fully explained ecological variations. With the exception of models of perceived ties and perceived exchanges, all the independent variables were significant: respondents residing in tracts with greater levels of civic participation, ansd higher perceptions of cohesion/support, reported higher levels of local control capacity. In contrast with the child-centered version of informal control (Tables 45 and 46), none of the respondent-level controls was significant.

Overall, the two versions of informal social control tested in this section show different yet non-conflicting results: while none of the independent variables was found to be a significant tract-level predictor of child-centered support (Table 46), greater aggregate levels of perceived cohesion,

support and civic participation, were significantly associated with greater levels of general control capacity (Table 48). When operationalizating the independent variables as level-1 predictors, both sets of models showed significant associations between informal control and perceptions of community organization when controlling for tract-level structural properties. In particular, greater levels of perceived cohesion and perceived support predicted higher levels of informal control in the form of children supervision (Table 45) or resident-based control capacity (Table 47). Among the structural covariates included in the models, only population stability was found to predict greater levels of self-regulation perceptions focused on the socialization of children (Tables 45 and 46). These models also related Latino respondents to greater levels of perceived control.

6.2.2 Models of informal control with network-based indicators

The next set of multi-level models test the association between the two versions of informal control and several network-based measures captured by the South Bronx survey instrument. As described in Chapters 4 and 5, network data on the social interactions of study participants was elicited through the use of six name generators —living arrangements, emotional support, financial support, social activities, job-seeking interactions and patterns of avoidance. Respondents were free to nominate an unlimited number of contacts (alters) for each of these relations. Additional attributes of these alters was collected via a alter matrix (e.g., demographics, length of acquaintanceship, education, employment, place of residence). The average number of total ties reported by survey participants (N=101) was 22.4 (SD=10.2) whereas indicators for parochial ties were slightly lower (M=18.97, SD=9.33). As described in Chapter 5, parochial ties do not account for exchanges elicited only through the name-generator of avoidance or those exclusively linked to living-arrangements.

Models developed in Chapter 5 indicate that controlling for structural covariates at the tract level (mobility, heterogeneity and disadvantage), women and non-Latino respondents tended to report more parochial social ties than other study participants. A similar pattern was observed for those who were employed at the time of the interview and those who reported participating in local neighborhood organizations. At the aggregate level, subjects residing in tracts with lower levels of population turnover also reported higher greater personal networks (total and local) (Table 36).

Measures of network size were the only constructs that showed significant levels of between-tract variance (Table 34). Other indicators of network structure such as cohesion, average multiplexity, and average distance, displayed inconsistent ecological patterns and were not significantly associated in any of the models tested predicting network size and local patterns of inter-personal exchanges.

This subsection seeks to complement the examination of network properties developed in Chapter 5 by investigating the association between characteristics of the personal networks of study participants and their levels of perceived social control. Unlike the independent variables studies in previous models employed in this chapter, network-based measures reflect actual exchanges between individuals instead of perceptions about cohesion, number of social ties, and content of such interactions. For example, the support variables included in previous model specifications (Table 40) corresponds to a Likert-type three-item scale measuring the respondents' level of agreement with general questions regarding the likelihood of financial, emotional and safety-related support (e.g., I can borrow $30 from a neighbor). The network-based formulation of the same construct captures the actual number and characteristics of contacts that may be mobilized by the main respondent in case of need.

Models in Tables 49 and 50, below, focus on the determinants of child-centered interventions as reported by survey respondents. All the independent variables included in the models correspond to structural measures of network properties. Model 1 tests the significance of an overall measure of network size in terms of the total number of parochial ties. Model 2 operationalizes a status-based measure of the composition of personal network in terms of the fraction of kin alters named by main respondents. Model 3 follows the same approach but focused on alters who live within a third of a mile from the respondents' home, regardless of the type of tie connecting them to ego. Model 4 captures the effect of the density of parochial networks on informal control. Model 5 includes in the estimation a measure of the average frequency of contact reported between ego and his/her set of alters. Frequency of contact is a five-point scale ranging from 1 (less frequently than once a month) to 5 (daily or almost daily). A measure of the average multiplexity of ties is added to the baseline estimation in Model 6. Multiplexity refers in this monograph to the average number of parochial ties attached to each alter (i.e., the same person can be used for emotional and financial support). Respondent-level predictors are group-centered and tract-level covariates are grand-centered (fixed-slopes).

Table 49
Hierarchical regressions of child-centered control
with network-based measures as individual-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	.532	1.275#	.976	1.040	1.022	.539
Race/Ethnicity (Latino)	3.271*	1.954#	2.182*	1.955#	1.942#	2.871*
Employment	.124	.612	.329	.610	.562	.385
Education	-.559#	-.465	-.608*	-.443	-.342	-.386
Participation religious org.	-.303	-.349	.193	-.141	-.083	.163
Residential tenure	.043	.023	.039	.022	.015	.038
Total parochial ties	.101**					
Proportion kin alters		-.973				
Proportion local alters			-2.629*			
Density				-.010		
Frequency of contact					.786	
Multiplexity						.587*
Tract-level covariates						
Residential stability	1.113#	.1113#	1.113#	1.043#	1.113#	1.113#
Concentrated disadvantage	-.028	-.028	-.028	-.028	-.028	-.028
Population heterogeneity	-.360	-.360	-.360	-.287	-.360	-.360
Constant	7.711***	7.711***	7.711***	7.774***	7.711***	7.711***
Within Var (R_{ij})	5.09	5.63	5.24	5.61	5.57	5.28
Between Var (U_{0j})	.000	.001	.000	.001	.001	.000
Chi2 for Var U_{0j}	.806	.729	.784	1.057	.737	.778

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results presented in Table 49 show that several structural measures of personal networks are significantly associated with the child-centered definition of informal control: respondents with larger parochial networks reported higher levels of perceived social support (p<.01). The same pattern was observed for individuals reporting a greater number of overlapping ties (p<.05). Contrary to expectations, a higher fraction of local alters is associated with lower levels of informal control. In other words, respondents who depended more on local parochial interactions were less confident about the ability of their neighbors to intervene when confronted with unruly children. Consistent with previous models of child-center control, the estimates displayed in Table 49 also indicate that in areas with lower levels of population instability respondents have higher perceived

levels of informal control—although the tract-level variance of the outcome is extremely low and insignificant. Replicating previous results, the control variable for race/ethnicity is significant, indicating that Latino respondents exhibit higher levels of perceive control when controlling for level-1 and level-2 predictors (see also Table 45).

Models in Table 50 operationalize network measures as tract-level covariates. Figures indicate that none of these indicators predict child-centered controls when specified as ecological constructs. In contracts, controls for race (level 1) and residential mobility (level 2) are significant. Patterns are analogous to those reported in Table 46 (network-proxies as tract-level covariates).

Table 50
Hierarchical regressions of child-centered control
with network-based measures as tract-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	1.006	1.006	1.006	1.006	1.006	1.006
Race/Ethnicity (Latino)	1.925#	1.925#	1.925#	1.925#	1.925#	1.925#
Employment	.556	.556	.556	.556	.556	.556
Education	-.401	-.401	-.401	-.401	-.401	-.401
Residential tenure	.020	.020	.020	.020	.020	.020
Tract-level covariates						
Total parochial ties	.047					
Proportion kin alters		-4.131				
Proportion local alters			-1.275			
Density				.006		
Frequency of contact					1.237	
Multiplexity						-.603
Residential stability	.975	1.002#	1.171#	1.130#	1.116#	1.094#
Concentrated disadvantage	-.218	.225	.040	-.037	-.063	-.136
Population heterogeneity	-.302	-.107	-.403	-.407	-.333	-.214
Constant	7.702***	7.669***	7.692***	7.721***	7.713***	7.707***
Within Var (R_{ij})	5.604	5.557	5.519	5.525	5.497	5.513
Between Var (U_{0j})	.001	.001	.001	.001	.001	.001
Chi2 for Var U_0	.609	.120	.696	.761	.460	.632

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

The second version of social control corresponds to a four-point scale of resident-based control capacity (Ellen et al., 2004). In Table 51 (below) this dependent variable is predicted by

network-based measures operationalized as respondent attributes. In Table 52 (next page), survey responses are aggregated at the tract-level and included in the models as ecological characteristics.

Table 51
Hierarchical regressions of control capacity
with network-based measures as individual-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	.086	.279	.229	.226	.242	.264
Race/Ethnicity (Latino)	.529	.122	.171	.116	.121	.082
Employment	.090	.233	.176	.229	.226	.234
Education	-.104	-.065	-.099	-.055	-.053	-.055
Participation Rel. org.	-.069	-.051	.052	-.005	-.016	-.030
Residential tenure	.024*	.017	.021	.016	.017	.016
Total parochial ties	.031*					
Proportion kin alters		-.151				
Proportion local alters			-.557			
Density				.003		
Frequency of contact					.024	
Multiplexity						-.024
Tract-level covariates						
Residential stability	-.092	-.091	-.091	-.089	-.091	-.091
Concentrated disadvantage	-.369	-.369	-.369	-.366	-.369	-.369
Population heterogeneity	-.045	-.048	-.047	.050	-.048	-.048
Constant	2.347***	2.347***	2.347***	2.345***	2.347***	2.347***
Within Var (R_{ij})	.658	.719	.698	.725	.721	.720
Between Var (U_{0j})	.141*	.134*	.137*	.137*	.134*	.134*
Chi2 for Var U_{0j}	10.81	9.89	10.18	9.83	9.86	9.87

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Unlike patterns observed for models based on network-proxies (Table 47), network-based indicators in Table 51 do not significantly predict overall ratings of local control capacity. The tie measure of network size is the only exception to this trend, indicating that respondents with a larger number of parochial associations believe that their community has a greater capacity for self-regulation. Aligned with results presented in Table 47, the between-tract variance in the outcome was not explained by the inclusion of the three socio-economic ecological covariates of the systemic model (stability, disadvantage and heterogeneity).

The operationalization of network-based measures as tract-level covariates (Table 52, below) yields similar results as those presented above. None of the network-based predictors is significantly associated with variations in the outcome. However, in most cases, the addition of the independent variables as ecological predictors decreases the magnitude of the between-tract variance in ratings of resident-based control capacity. Results are presented below.

Table 52
Hierarchical regressions of control capacity
with network-based measures as tract-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	.251	.251	.251	.251	.251	.251
Race/Ethnicity (Latino)	.113	.113	.113	.113	.113	.113
Employment	.253	.253	.253	.253	.253	.253
Education	-.054	-.054	-.054	-.054	-.054	-.054
Residential tenure	.015	.015	.015	.015	.015	.015
Tract-level covariates						
Total parochial ties	-.029					
Proportion kin alters		1.952				
Proportion local alters			1.589			
Density				-.028		
Frequency of contact					-1.547	
Multiplexity						1.204
Residential stability	-.016	-.048	-.142	-.223	-.108	-.037
Concentrated disadvantage	-.262	-.486	-.462	-.390	-.336	-.149
Population heterogeneity	-.068	-.016	.011	.204	-.096	-.368
Constant	2.346***	2.355***	2.356***	2.332***	2.344***	2.358***
Within Var (R_{ij})	.687	.687	.689	.687	.687	.692
Between Var (U_{0j})	.201*	.179*	.170*	.137*	.083#	.062
Chi2 for Var U_{0j}	10.70	9.56	9.26	8.27	6.14	5.34

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Overall, network-based predictors of informal control showed relatively similar patterns to those observed for traditional measures of community organization based on the respondents' perception of social integration, cohesion and associated measures. This was particularly the case of models based on the children-centered formulation of informal control: both network-proxies and network-based measures significantly predicted perceptions of control when specified as level-I

covariates (Tables 45 and.49). Both approaches also highlighted the relevance of residential mobility as a level-2 covariate. The alignment between proxies and network-based measures was less evident when employing the second version of informal control (ratings of overall control capacity). Specifically, all of the network measures exhibited non-significant associations with the outcome and explained a very small fraction of its between-tract variance (Table 52). This pattern sharply contrasts with the significant associations detected for several proxies—in particular, aggregate social cohesion, support, and participation in religious organizations) (Table 48).

6.2.3 Conclusion: the convergence between network measures and proxies

Models of informal control that rely on network-based indicators of social interactions showed relatively little convergence with those obtained with network proxies. While some of these differences are difficult to identify given that the two outcomes variables as substantively different, it is likely that measures of the independent variables are also capturing intrinsically distinct processes. For example, it has been suggested that the use of name generators bias responses toward the reporting of stronger, more intimate and frequent ties (Killworth et al., 1976; McCarty, 2002). More importantly, survey items capturing overall perceptions about neighborhood cohesion and integration may be determined by respondent-level cognitive processes that have little to do with actual exchanges (Coulton et al., 1996; Campbell and Lee, 1992).

In order to explore the alignment between these two approaches, Table 53, below, reports bivariate correlations for the subset of surveys employed in the multi-level analyses described in this chapter (n=70). The top-left section of the table lists the four network proxies included in the earlier models—i.e., perceived cohesion, support, social ties and exchanges. As previously described, this family of indicators exhibits high inter-item associations (see also Table 44). The

bottom-right section of the table corresponds to the series of network-based measures used in earlier models—i.e., network size, density, average frequency of contact and average multiplexity.

As expected, correlations between items tend to be higher within the two highlighted sets of associations. However, the focus of the current exploration lies on the remaining section of Table 53, which includes bivariate correlations between network proxies and network measures. The only significant associations encompass relatively-straightforward relations: individuals reporting more local alters also tend to report more neighborhood-based kin and friends ($r=.34$, $p<.01$). An analogous pattern is observed for ratings on the frequency of exchanges and the relative size of the local personal network ($r=.33$, $p<.01$). However, other theoretically-relevant constructs show a very small degree of alignment: this is the case of perceived cohesion and network density ($r=-.01$) and perceived exchanges and frequency of contact ($r=.10$).

Table 53
Respondent-level bivariate correlations
Network proxies and network-based measures of community organizations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Perceived cohesion	1									
Perceived support	.56**	1								
Perceived ties	.36**	.24*	1							
Perceived exchanges	.57**	.51*	.55**	1						
Parochial ties	.06	.06	.12	.10	1					
Parochial alters	.20	.20	.23	.14	.65**	1				
Local alters	.13	.14	.34**	.33**	.34**	.61**	1			
Density	-.01	-.01	.20	.14	.01	-.11	.04	1		
Frequency of contact	.07	.08	-.03	.10	-.03	-.16	-.14	.10	1	
Multiplexity	-.21	-.13	-.13	-.10	.54**	-.22	-.23	.06	.06	1

* p<.05 **: p<.01 *** p<.001 (two tailed tests)

Table 53, above, shows a substantial lack of alignment between network-based indicators of social interactions and traditional measures of community organization: for example, individuals who perceive a "dense" network of neighborhood-level interactions do not have dense personal

networks (measured in terms of ration of actual vs. potential ties of acquaintanceship between network alters). The small correlations between these two families of measures likely impact estimates generated in multivariate settings. In other words, the fact that perceived cohesion is significant in models of informal control and network density is not, is likely associated with the fact that these two measures are empirically different. General perceptions of exchanges between neighbors and levels of social integration do not reflect structural properties of personal networks—at least not so in the sample of respondents from the South Bronx.

This is an important finding given widespread beliefs linking general perceptions of neighborhood organization with hypothetical observations of actual exchanges. For example, in a recent paper, Browning et al. claim that their measure of kinship/friendship ties captures "actual ties" operating at the neighborhood level (2004:514). Others have employed scales of perceived exchanges as indicators of social ties because these "appear to address the extent of neighboring or social ties among residents" (Warner and Wilcox, 1997:525).

Data reviewed in this monograph questions the validity of these findings. While network proxies are effective predictors of informal controls, these constructs capture processes that are not relational in nature. Rather, these may be based on cognitive processes attached to the creation of trust or feelings of attachment to particular places. Actual measures of exchanges are less effective at predicting informal controls, especially when employed as tract-level covariates. At the individual level, findings do reveal that respondents with larger parochial associations and stronger (multiplex) ties exhibit greater levels of child-centered control (Table 49). However, the stability and effect-size of these associations is lower than otherwise observed for network-proxies. While it is likely these findings are limited in scope given the nature and size of the sample, they also suggest that researchers need to be more cautions when inferring relational patterns when using network-proxies.

CHAPTER 7. CRIME, NETWORKS, AND INFORMAL CONTROL

This chapter explores the linkages between crime, social networks, and informal social controls in the South Bronx. It relies on both the analysis of administrative data on reported crimes and on the development of survey-based models of criminal victimization. The former is employed for a general tract-level assessment of the association between crime rates and summary measures of social control (n=20 tracts); the survey data is analyzed using respondent-level logistic regressions (n=101) and multi-level models (n=70 respondents nested in 8 census tracts). Both types of models predict the likelihood of violent/property victimization using a range of scales on perceptions of community organization and network-based measures of parochial exchanges. Survey-based models also examine the association between individual and aggregate levels of social control and crime-related outcomes, such as reported victimization and perceived level of crime.

The research on neighborhood-level offending patterns has been a long-standing area of inquiry for studies on the organization of communities. As described in Chapter 2, much of this literature has built upon the work by Shaw and McKay (1942). Their theory of social disorganization incorporated the postulates of the Chicago School of Human Ecology, reformulating the study of crime and disorder from an ecological perspective. In particular, Shaw and McKay focused on the covariates of delinquency rates across urban areas of Chicago (see also Shaw, 1929). Their work highlighted the instrumental role of structural characteristics of neighborhoods such as poverty and residential turnover in creating environments with weak social controls, which in turn favored potential increases in crime. The connection between the nature and quality of these controls and the emergence of criminal behavior was perhaps better specified by earlier works by Thrasher (1927). His theory of gang formation linked this form of anti-social behavior to the absence of mainstream institutions of self-regulation and supervision.

Despite the significance of the contributions by social disorganization theorists, their analytical models were seldom specified with clarity. For example, the framework employed by Shaw and McKay (1942) to explain variations in aggregate rates of delinquency shifted multiple times from control-based explanations to sub-cultural approaches (Kornhauser, 1978). Other important criticisms to the original formulation of the theory have consistently emphasized its strong normative framework, the lack of a distinct set of outcomes, and the relatively little attention paid to interpersonal associations as a source of social control (Bursik, 1988, among others).

Expansions to the models by Shaw and McKay have generally addressed these and other concerns regarding the mediating effects of community organization on crime. As reviewed in Chapter 2, researchers have been guided by multiple hypotheses and a proliferation of measures for dependent and independent variables. For example, in terms of outcome measures, self-reports of victimization and perceived levels of crime have complemented traditional approaches based on indicators of crime rates at the neighborhood level (Sampson and Groves, 1989; Bellair, 1997; Warner and Wilcox, 1997; Velez, 2001). Other neighborhood-level studies of social organization have focused on the reporting of crimes and other instances of mobilization of institutional support (Goudriaan et al., 2006; Wells et al., 2006), the resolution of disputes among neighbors (Warner, 2007), and self-reported delinquency (Simcha-Fagan and Schwartz, 1986; Sampson, 1997; DeCoster et al., 2006). Researchers have developed a vast array of instruments designed to specify and measure the independent variables of informal control, social integration, and other perceived, survey-based characteristics of community organization (see Chapter 6). Among these, the construct of collective efficacy is perhaps the most influential representations of neighborhood-level processes (Sampson et al., 1997). Higher levels of collective efficacy have been associated with lower rates of violent victimization and perceived/recorded crime rates (Sampson et al., 1997; Morenoff et al., 2001; Browning et al., 2004; Warner et al., 2003). Similar measures of social

control and ratings of cohesion have also been linked to decreases in incivilities and fear of crime (Taylor, 1997; Reisig and Cancino, 2004; Ross and Joon Jang, 2000; Robinson et al., 2003).

There is little support for the mediating role of supervision-based informal controls on the relationship between structural characteristics of neighborhoods and crime-related outcomes. For example, Greenberg at al. (1982) found that types of neighboring patterns and informal controls did not vary by observed levels of crime. Using a multi-level framework, Ellen et al. (2004) found that their measure of control capacity had low aggregate inter-rater reliability with non-significant between-block variations. Some studies have found that more general measures of informal controls do not predict levels of reported crimes (Brown et al., 2004). A small—yet emerging—body of literature has shown opposite results, highlighting the relevance of informal social control for the study of local offending patterns. For example, using the PHDCN data, Sampson (1997) found that child-centered controls had a negative relation with delinquency rates at the neighborhood-cluster level. Bellair (2000) also tested the relationship between informal control and crime showing that, when controlling for simultaneity, patterns of resident-based surveillance were significantly related to robbery rates when accounting for more general offending patterns. Taylor et al. (1986) found that in street blocks where residents had higher perceptions of control, residents reported less incidents of violent victimization.

Other specifications of informal control in terms of perceived local social ties have been slightly more successful at showing significant associations with crime-related outcomes. For example, Sampson and Groves' (1989) analysis of the British Crime Survey found that having friends who live nearby was associated with lower victimization rates for certain crimes (mugging/street robbery and total victimization), both self-reported and through administrative records (see also Veysey and Messner, 1999; Lowenkamp et al., 2003). Using several waves of the same survey, Markowitz et al. found that more fluid exchanges between neighbors were negatively

associated with lower neighborhood-level burglary rates (2001). Warner and Wilcox (1997) reported opposite results when examining cross-sectional data on Seattle neighborhoods. In particular, they found that areas with more local interactions had higher burglary rates (although the same areas also had lower rates of assaults). Another study by Bellair (1997) suggested that the frequency of interactions among neighbors was not related to lower crime rates for particular offenses (i.e. burglary, robbery, and car theft). However, an alternative measurement for local interactions—combining frequent and infrequent contacts—was significantly associated with lower crime robbery and burglary rates.

Lastly, research has been generally more supportive of the relationship between crime-related outcomes and measures of informal control pertaining to local involvement in community organizations (Sampson and Groves, 1989, Veysey and Messner, 1999; Rosenfeld, et al., 2001; Putnam, 2000; Taylor et al., 1986). For example, in one of the first studies of neighborhood effects on crime, Simcha-Fagan and Schwartz (1986) found a significant negative association between self-reported delinquency and involvement in local agencies. Other studies have been less supportive of this argument. Using data from the PHDCN to predict neighborhood-level homicide rates, Morenoff et al. (2001) concluded that the density of organizations or levels of civic involvement were not associated with the models' outcomes. Similar findings have been reported elsewhere (Ross and Joon Jang, 2000; Lynch et al., 2002; Hannerz, 1969).

The following set of models contributes to this body of research by examining the association between crime rates and measures of social organization. The first section focuses on tract-level and respondent-level predictors of crime-related outcomes. Specifically, this section assesses the ecological predictors of rates for robbery, assault, and burglary at the tract level. It also expands this general perspective to include survey-based measures of social exchanges in models of criminal

victimization. The second section relies on a multi-level approach to measure the strength and direction of the relation between informal controls and crime-related outcomes.

7.1 Examining Patterns of Criminal Offending and Victimization

Reported crimes in New York declined consistently throughout the nineties (Zimring, 2006; Rosenfeld et al., 2007). Most of the public attention focused on the drop in the number of homicides: after peaking in 1990-1991 incidents declined by 71% through 2001. A similar pattern was observed in the South Bronx (a decline of 68%). After 2001, counts for murder and non-negligent manslaughter stabilized and began to rise: between 2005 and 2006, citywide homicides rose by 5% whereas in District 1 it increased from 9 to 15 incidents (a 67% rise)[31].

The South Bronx remains a high-crime area. The robbery rate in 2006 for District 1 is over double that of the overall city (628 incidents per 100,000 residents in vs. 300 in New York City); the rate of aggravated assaults is 131% higher (496 vs. 214). District 1 has more robberies and assaults than its three nearest neighbors (41st precinct, 42nd precinct and 44th precinct). The Bronx has also been consistently targeted by intense law-enforcement activities. In 2006 District 1 alone registered 11,147 arrests, up 4.1% from 2005 (10,706). Between 2005 and 2006, citywide arrests increased 3.4% (Mayor's Management Report, 2006). In both years, District 1 registered the highest number of arrests in the Bronx and one of the highest in the city.

[31] Data for the first trimester of 2007 indicates that murder counts are lower than those observed during the first trimester of 2006: citywide, murders decreased 30.4% (from 128 to 89 in 2007). Other crimes also show significant drops (robbery, -14.2%; assault, -2.1%; burglary, -12.9%). A similar trend was observed in the 40th Precinct: YTD murder counts went from 4 to 2, assault counts from 101 to 95, and burglary counts from 57 to 48. Data produced by the New York City Police Department. Available online at http://www.nyc.gov/nypd (accessed on 04/04/2007).

Data on reported crimes in District 1 was provided by the NYPD for 2005 and 2006. The information was geo-coded and aggregated at the tract-level. As shown in Exhibits 16-18, below, levels of reported crimes vary significantly within District 1.

Exhibit 16
Robbery rate 2005-2006 in District 1

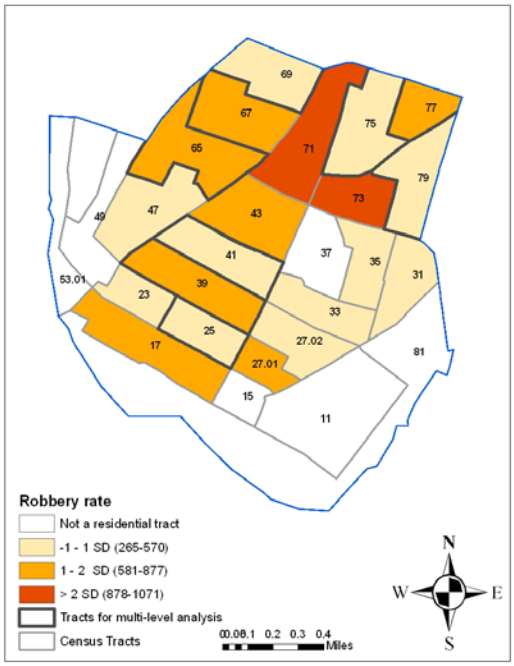


Exhibit 17
Assault rate 2005-2006 in District 1

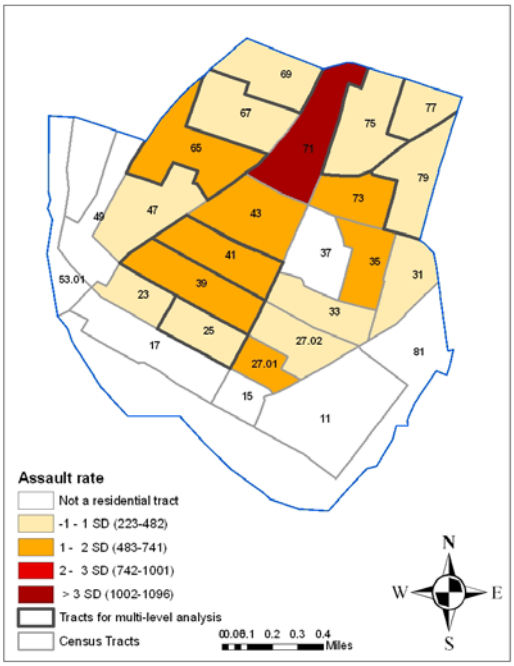
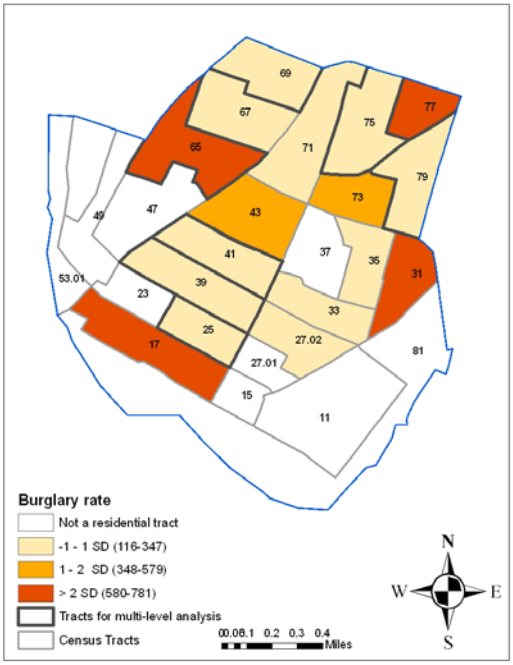


Exhibit 18
Burglary rate 2005-2006 in District 1



At the census-tract level, average counts for burglaries (2005-2006) appear to be more widely distributed across tracts (M=21.3, SD=13.4) when compared to robberies (M=42.8, SD=19.6) or serious assaults (M=38.4, SD=16.9). Between 2005 and 2006, robberies and burglaries in District I declined by 19% and 7%, respectively, while assaults experienced a slight increase (4%).

7.1.1 Tract-level models of crime

The first set of models examine ecological associations between crime rates for specific offenses and structural characteristics of residential tracts in District I (n=20). This general inquiry focuses on the analysis of administrative data and does not include any of the variables collected through the resident survey—this information is employed for respondent-level models to be analyzed in the next section. Further, the assessment of tract-level associations is limited by the low number of available observations.

Consistent with prior studies on communities and crime, models assess the linkages between reported crimes and structural tract-level characteristics. Such characteristics correspond to latent constructs of concentrated disadvantage, population heterogeneity, and residential stability. These factors were created using a principal components approach applied to the 2000 Census data (Chapter 4). Previous studies have found that greater levels of disadvantage, mobility and heterogeneity are associated with higher crime rates and victimization rates, even when controlling for neighborhood-level control processes (Sampson and Groves, 1989; Sampson et el., 1997; Warner and Wilcox, 1997). In addition to these structural variables, ecological models include two proxy variables for social control. First, formal interventions are measured using arrests rates for 2005. Event-level data was provided by the NYPD. Like criminal complaints, descriptive statistics suggests significant between-tract variations (M=11,865 arrests per 100,000 residents,

SD=6,166). Second, informal mechanisms of control were captured via an indicator of the density of community-based organizations. This measure was produced as part of the systematic observation of street blocks within the study area (see Chapter 4). As in the case of arrests, rates of organizations per 100,000 residents were calculated for each tract (M=427.6, SD=345.9). Table 54, below, shows general descriptive statistics for all the variables included in the tract-level models of reported crimes.

Table 54
Descriptive statistics for tract-level models of reported crimes
(n=20 tracts)

	Mean (SD)	Min-Max
Dependent variables		
Robbery rate	563.8 (215.7)	285 -1071
Assault rate	475.0 (184.7)	146 -1096
Burglary rate	311.9 (222.9)	22.2 -781.2
Independent variables		
Arrest rate	11865 (6166.2)	4122.3 -28148.9
Rate of organizations	427.6 (345.9)	97.1 - 1269.5

Table 55 below displays bivariate correlations for offense-specific crime rates, the three main structural variables of the systemic model (disadvantage, heterogeneity, and stability), arrest rates, and density of organizations. These associations are calculated for the 20 residential tracts within Community District 1. The correlations among structural variables are zero because these constructs were produced by a factor analysis with varimax rotation (see Chapter 4). There is a significantly negative association between disadvantage and offense rates, indicating that tracts with higher levels of poverty and other measures of socio-economic hardship have relatively fewer incidents of reported crimes. This result is in contrast to bivariate results presented by previous studies (Bellair, 1997), although figures may not be comparable given that the sample for the current study is composed of unusually poor neighborhoods with unusually high crime rates. The

relationship between the density of organizations and structural variables is negative, replicating findings from similar studies (Morenoff et al., 2001; Renauer, 2007).

Table 55
Tract-level bivariate correlations between crime variables
and indicators of community organization
n=20 tracts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Concentrated disadvantage	1							
Population heterogeneity	0	1						
Residential stability	0	0	1					
Robbery rate	-.61**	.23	.06	1				
Burglary rate	-.55*	-.12	-.38	.42	1			
Assault rate	-.50*	.07	.37	.68*	-.11	1		
Arrest rate	-.40	.22	.14	.68**	.03	.79**	1	
Rate of organizations	-.48*	.51*	-.42	.57*	.55*	.27	.46*	1

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Table 55 also demonstrates that the association between arrest rates and robbery/assault rates is strong, positive, and significant (p<.01). This suggests that police activities are more intense in high-crime areas.[32] A similar trend is observed for the variable capturing the density of community-based organizations. It is also important to note the high, significant ecological association between the two proxies of social control (e.g., arrest rate and rate of organizations) (r=.46, p<.05).

The association between crime rates and tract-level characteristics is further explored using a series of multivariate OLS regression models (Table 56, below). These estimations are limited in scope due to the low number of available observations (n=20). General results confirm some of the bivariate associations described above: areas with higher levels of disadvantage have lower robbery and burglary rates. Greater population turnover is associated with an increase in the relative number of break-ins but with a decrease in the rate of serious assaults. In most models, population heterogeneity is non-significant. Results also confirm a general alignment between

[32] Causal relations cannot be established with cross-sectional data. Using a system of simultaneous equations, Lynch et al. (2002) also found a positive association between crime levels and arrest rates, challenging assumptions about the crime-reduction effect of policing patterns.

formal and informal proxies of social control—with higher crime rates related to relatively more abundant controls. This pattern may be associated with environments marked by a "defended neighborhood" atmosphere (Suttles, 1972).

Table 56
OLS regressions estimating the effect of tract-level covariates
on robbery, assault and burglary rates
n=20 tracts

	Robbery		Assault		Burglary	
	1	2	3	4	5	6
Concentrated disadvantage	-.416*	-.351	-.224	-.278	-.613**	-.283
Population heterogeneity	.128	-.044	-.078	-.163	-.088	-.409#
Residential stability	-.006	.289	.279#	.564*	-.356#	-.142
Arrest rate	.484*		.675***		-.149	
Density of CBOs		.543#		.454		.564#
Constant	363.02**	419.09***	235.16**	371.28***	375.79**	156.51#
F^2	5.906**	4.238*	10.76***	3.204*	3.462*	4.967**
R^2	.61	.53	.74	.46	.48	.57

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Some of the patterns observed in Table 56 are consistent with findings described by previous studies. For example, Warner and Wilcox (1997) also found that their measure of informal control (social ties) was positively associated with higher burglary rates. However, the opposite effect was observed for assaults. Using observations made at several points in time, Lynch et al. (2002) found a positive and significant association between arrests and reported crimes. Models also indicated that more economically-deprived neighborhoods experienced higher crime rates. However, in their system of simultaneous equations, authors of this study found that the enhancement of formal controls via arrest practices had negative implications for informal mechanisms of social regulation (i.e. participation in voluntary associations and community solidarity). Results from Tables 55 and 56 are at odds with this assessment, suggesting a substantial alignment between these two related variables.

Overall, there is mixed evidence connecting proxies for informal controls and crime-related measures at the neighborhood level. While several studies have found that greater levels of community involvement in local issues is associated with lower crime and offending rates (Taylor et al., 1986; Simcha-Fagan and Schwartz, 1986; Velez, 2001), others have failed to establish such a relationship (Morenoff et al., 2001).

7.1.2 Individual-level models of criminal victimization

The next set of models complement the ecological perspective presented above with survey-based estimations of the likelihood of victimization among study participants. These routines do not include tract-level covariates—such covariates are explored in the following section.

As described in Chapter 4, the survey instrument fielded in the South Bronx included a series of questions aimed to capture different types of household-level victimization. Specifically, the instrument asked respondents if during their tenure in the neighborhood "anyone ever used violence, such as in a mugging or fight, against you or any member of your household?". Similar questions captured the incidence of burglaries and thefts (see Appendix A). This approach to the measurement of victimization has been employed in other neighborhood-level studies such as the Project of Human Development on Chicago Neighborhoods (Sampson et al., 1997).

Nearly one-third of survey respondents reported at least one violent household victimization (M=0.32; SD=0.47). Statistics for residential break-ins and thefts are lower (M=0.13, SD=0.33 and M=0.16, SD=0.36, respectively). As described in Chapter 4, survey respondent residing in District I exhibited higher self-reported rates of assault and theft than study participants living elsewhere. Models presented in Tables 57 and 58, below, estimate the likelihood violent

victimization (assault) and property (burglary) victimization. The outcome variable is represented by a binary outcome (1=respondent was the victim of a crime in the neighborhood; 0=if not).

The first set of models examine the covariates of violent victimization (Table 57). Coefficients represent the odds ratios for each individual predictor. The first estimation corresponds to a baseline model including demographic controls. The second model specifies a series of network-proxies capturing the respondents' perceptions of neighborhood-level exchanges and social cohesion. Model three focuses on network-based measures of parochial interactions (ties elicited in public and pro-social contexts). Model four is an abbreviated version of previously-tested estimation routines.

Table 57
Logistic regressions estimating the effect of individual-level covariates on the likelihood of violent victimization
Odd ratios, entire sample (n=103)

	(1)	(2)	(3)	(4)
Control variables				
Gender (female)	1.021	.885	1.138	1.145
Race/Ethnicity (Latino)	2.484	4.908#	3.404	4.650#
Age	.961*	.976	.958*	.970
Employed	.555	.449	.435	.381#
Education	1.364	1.512#	1.454	1.431
Residential tenure	1.032	1.016	1.027	1.025
District 1 resident	.265#	.275#	.401	.342
Independent variables				
Perceived Cohesion		.432#		.511#
Perceived exchanges		2.039		
Perceived support		.669		
Perceived social ties		.985		
Density			1.024*	1.025*
Parochial ties			.975	
Local alters			1.088	
Constant	.834	3.347	.167	.688
Chi2	16.04*	23.41*	21.67*	24.67**
-2log*likelihood	112.37	104.22	103.35	100.55
Percent correctly classified	68.6	74.3	70.7	74.5

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results suggest that most measures of perceived social organization are not significantly associated with variation in the likelihood of violent victimization: having more social ties or a greater local network is not related to reports of assaults in the neighborhood. Similarly, perceptions of exchanges with neighbors, or ratings of social support, do not predict the occurrence of such events. However, the two measures of cohesion showed significant, yet contradictory, results: respondents who perceive a more cohesive, integrated community are less likely to report a violent victimization event. At the same time, those exhibiting more cohesive parochial networks are more likely to report violent incidents. These results are consistent with patterns described in Chapter 6 regarding the small degree of alignment between network-proxies and network-based measures of social organization.

As shown in Table 57, previous studies indicate that individuals residing in more cohesive and integrated communities also report lower individual/household victimization rates (Sampson et al., 1997; Lauritsen, 2004). In contrast, there is little support for results denoting a positive, significant association between cohesion and likelihood of victimization. It is possible that this linkage reflects a problem on the causal ordering of variables—that respondents who were victimized engage in cohesive associations in order to reduce the likelihood of subsequent attacks. More likely, the cohesion variable may represent specific patterns of highly-connected networks highly prevalent in the study area. In fact, the mean density of personal networks in the District I was 74.6 (SD=2.75), significantly higher than the estimate for subjects residing in other areas (M=59.3, SD=4.9). Further, in the models tested above (Table 57), the indicator variable capturing District I respondents is no longer statistically significant when network-based measures are introduced. In consequence, the association between density and likelihood of victimization likely reflects the fact that residents in the study area have more connected, denser networks than those living in other neighborhoods.

Table 58, below, reproduces the models tested above but focuses on the likelihood of property victimization (burglary) in the neighborhood. Slightly over 10% of the survey respondents reported to have been the victims of a residential break-in (M=0.13, SD=0.33). Unlike measures of violent victimization, these events were more frequently reported among those not living in the study area (10.8% vs. 20%). These estimates should be interpreted with caution because are based on very small samples.

Table 58
Logistic regression estimating the effect of individual-level covariates on the likelihood of burglary victimization
Odd ratios, entire sample (n=103)

	(1)	(2)	(3)	(4)
Control variables				
Gender (Female)	4.162*	4.323*	6.919*	5.018*
Race/Ethnicity (Latino)	.000	.000	.000	.000
Age	1.013	1.007	1.023	1.008
Employed	.541	.510	.601	.453
Education	1.121	1.086	1.054	1.101
Residential tenure	1.007	1.015	1.007	1.009
District 1 resident	2.551	2.267	3.345	4.106#
Independent variables				
Perceived cohesion		1.879		1.413
Perceived exchanges		.777		
Perceived support		1.029		
Perceived social ties		.838		
Density			1.025#	1.024
Parochial ties			1.078	
Local alters			.879	
Constant	.031*	.019*	.001**	.002**
Chi2	10.78	11.93	15.82#	14.09
-2log*likelihood	67.05	65.62	61.17	62.62
Percent correctly classified	87.30	86.10	87.90	87.80

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Results presented in Table 58 indicate that the network-based measure of cohesion (density of parochial networks) is positively associated with a greater likelihood of burglary reports (although this relation is not significant when controlling for perceived cohesion). Unlike models addressed

in Table 57, the network proxy of perceived cohesion does not have a significant, independent effect on the dependent variable. Compared to estimates of violent victimization, models presented below show that female respondents are significantly more likely to have been the victims of a residential break-in. Unlike estimates in Table 57, this association was not statistically significant other controls such as race, education, or age. More importantly, the overall fit of the burglary-specific models was markedly lower than figures reported above—in fact, with the exception of Model 3 in Table 58, all of the estimations yielded non-significant chi2 test results.

Models of self-reported victimization indicate that, with the exception of cohesion and density measures, ratings of community organization are not associated with variations in the likelihood of violent/property victimization. More negative perceptions of local social integration patterns are related to a higher likelihood of assaults. Denser parochial networks are also related to higher violent/property victimization risk, although this pattern reflects underlying patterns of association in the study area (i.e. respondents in District I have more connected, yet more place-dependant networks). The multi-level models implemented in the next section move beyond respondent-level effects via the operationalization of measures of social organization as tract-level covariates.

7.2 Multi-level Models using Crime-related Outcomes

One of the most important findings generated by studies of urban neighborhoods is the fact that certain variables of community organization are associated with variations in crime-related outcomes. Sampson and Groves (1989) found that higher aggregate levels of civic engagement were related to lower self reported household and personal victimization. Other studies using the

same data have reported similar findings (Veysey and Messner, 1999; Lowenkamp et al., 2003). More generally, constructs such as collective efficacy and social capital have been systematically employed to describe relational processes among neighborhood residents that appear to generate more resilient communities (Sampson et al., 1997; Morenoff et al., 2001; Rosenfeld et al., 2001; Putnam, 2000). While most of these assessments relied upon cross-sectional data, findings from longitudinal designs reveal similar patterns (Taylor et al., 1986; Lynch et al., 2002; Markowitz et al., 2001; Bellair, 2000).

Despite the value of these contributions, researchers have been confronted with a series of challenges when specifying the actual processes captured under the notion of neighborhood effects (Sampson, 2002; Ellen and Turner, 1997; Forrest and Kearns, 2001). For example, several studies suggest that indicators of informal control do not vary by neighborhood or, even more importantly, that these measures are not significant predictors of variations in crime-related outcomes (Greenberg et al., 1982; Ellen et al., 2004; Brown et al., 2004). Analogous results have been obtained when measuring perceived patterns of social interactions (Warner and Wilcox, 1997). As recently described by Warner, the effects of social ties on crime remains "uncertain" and "elusive" (2003:22). Chapters 2-6 link the lack of a more robust set of quantitative findings to the inadequacy of survey instruments to capture actual processes of social control. Findings from qualitative works have been traditionally better positioned to describe the specific linkages between macro and micro-level determinants of social exchanges and the different avenues by which these exchanges may traduce into various forms of controls. For example, ethnographers have consistently highlighted the difficulties associated with the enforcement of controls in poor neighborhoods due to the heightened confusion over multiple social roles, the overlapping of pro-social and anti-social ties and long-term confrontations with formal agents of controls (Patillo, 1998; Merry, 1981; Wacquant, 2002a).

The lack of a more solid understanding of neighborhood-level processes, however, has been limited by the theoretical framework employed to analyze ecological and multi-level associations. While expansions to the social disorganization theory enhanced its control-based arguments, other key elements of this approach remain relatively under-developed. For example, Taylor (1997) has suggested that the systemic model lacks a more comprehensive account of the determinants of parochial controls. Taylor (2002) has also addressed significant inconsistencies between theoretical and empirical approximations aimed to represent processes of integration and cohesion. Other contributions have problematized the strong normative assumptions of the systemic model (Warner and Wilcox, 1997).

This section seeks to contribute to this debate by exploring the association between a network-based operationalization of social ties and crime related outcomes including household victimization and a scale of perceived crimes.

7.2.1 Multi-level models of victimization

In contrast to the models explored in the previous section, the estimation routines presented below integrate respondent-level and tract-level covariates. However, given the nature of the chain-referral sampling approach employed in the South Bronx, only eight tracts within District 1 had a sufficient number of survey respondents. Overall, the multi-level models tested in this manuscript correspond to 70 individuals nested within 8 census tracts. Table 59, below, shows the tract-level correlations between crime-related outcomes and a subset of the independent variables employed in the multi-level analyses (n=8 tracts). The magnitude and direction of the associations is similar to those observed for the general sample (n=20 tracts, Table 55).

The most substantial results are those associated with the two survey-based measures of informal social control (child-centered controls and overall control capacity, Table 59). As described in Chapter 6, these two indicators reflect the respondents' perception of the willingness of other residents to intervene in the socialization of children (child-centered control). However, they also constitute an overall rating of the resident-based control over public spaces in the neighborhood (overall control capacity). Responses were aggregated at the tract level and higher scores represent higher perceived levels of informal control. The ecological association between measures of informal control and reported crimes is inconsistent across indicators: while higher crime rates are generally related to lower overall rating of control capacity, the opposite trend is noted for the child-centered version of control. In fact, the correlation between the two indicators of informal controls is negative (r=-.12) reflecting the fact that there construct capture different processes of community regulation (see Chapter 6).

Table 59
Tract-level bivariate correlations between crime variables and
indicators of community organization (sub-sample employed in multi-level models)
n=8 tracts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Concentrated disadvantage	1									
Population heterogeneity	.02	1								
Residential stability	-.30	.54	1							
Robbery rate	-.33	-.90	.19	1						
Burglary rate	-.51	-.04	.23	.77*	1					
Assault rate	-.06	-.38	-.24	.62	.29	1				
Arrest rate	-.28	-.28	-.09	.81*	.37	.86**	1			
Density of CBOs	.02	.35	-.03	.46	.48	.56	.36	1		
Child-centered control	-.40	.36	.93**	.22	.25	.00	.05	.70	1	
Overall control capacity	-.62	-.11	-.00	-.12	.16	-.57	-.25	-.56	-.12	1

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

The first series of multi-level models tested in this section focuses on respondent-level reports of violent victimization in the neighborhood. This outcome was examined in the previous section of this chapter using an individual-level framework. A multi-level approach allows for the assessment of the influence of varying tract-level conditions on the likelihood of assaults and other violent incidents. The outcome is a binomial variable following a Bernoulli-type distribution. There is no need to establish an additional parameter for over-dispersion (Mean=0.33, Variance=0.22). Models are based on a logit-link function. Estimates are produced using penalized quasi-likelihood (PQL) with unit-specific effects. The intraclass correlation is not informative in this environment because errors are assumed to be correlated between respondents. Odd ratios are presented below for each of the estimation routines (Table 60).

The first model includes the three main covariates of the systemic model as well as a series of respondent-level controls. The chi2 test indicates that the between-tract variation in the log-odds of violent victimization is not significant. However, this result is likely a byproduct of the low number of level-2 units. Models 2 and 3 introduce network proxies and network-based measures of the local social organization. These routines replicate the respondent-level models described earlier (Table 57) but control for structural differences across census tracts. Findings indicate that when controlling for tract covariates, individuals with larger and denser networks are more likely to report at least one violent victimization. Unlike other models examined, in this chapter none of the network proxies for social cohesion/integration significantly predicted variations in the outcome. Similar patterns were detected for the tract-level structural covariates (i.e., residential stability, disadvantage and heterogeneity).

Table 60

Hierarchical logistic regressions of violent victimization
with independent variables as individual-level predictors
Unit-specific estimates, odd ratios

	(1)	(2)	(3)
Individual-level covariates			
Gender	1.154	1.578	.983
Race/Ethnicity (Latino)	.284	.110#	.184
Age	.984	1.006	.980
Employment	2.00	3.577	2.352
Education	1.666#	2.068*	1.882#
Residential tenure	1.047	1.040	1.031
Perceived cohesion		.562	
Perceived exchanges		1.765	
Perceived support		.467	
Perceived social ties		.800	
Total parochial ties			.956
Total local alters			1.296#
Density			1.031#
Tract-level covariates			
Residential stability	.803	.745	.682
Concentrated disadvantage	.725	.606	.640
Population heterogeneity	1.543	1.684	2.070
Constant	.448#	.422	.392*
Between Var (U_{0j})	.042	.556	.000
Chi2 for Var U_{0j}	5.81	7.35	5.27

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Table 61, below, reproduces the analysis with the inclusion of the burglary victimization covariates. Results indicate that none of the independent variables are significantly associated with variations in the likelihood of victimization. Patterns observed via a multi-level approach are analogous to those reported for the respondent-level models (Table 58). However, unlike estimates generated for the entire sample, analyses restricted to tracts within the study area consistently suggest that female respondents are less likely to report a residential burglary when compared to male participants.

Table 61

Hierarchical logistic regressions of burglary victimization
with independent variables as individual-level predictors
Unit-specific estimates, odd ratios

	(1)	(2)	(3)
Individual-level covariates			
Gender	.089#	.081	.003#
Race/Ethnicity (Latino)	4.995	20.377	2539.950
Age	1.053	1.104	1.050
Employment	.888	.734	.803
Education	1.849	2.191	1.048
Residential tenure	1.015	1.020	1.101
Perceived cohesion		.739	
Perceived exchanges		2.181	
Perceived support		.805	
Perceived social ties		.278	
Total parochial ties			1.302
Total local alters			.620
Density			1.043
Tract-level covariates			
Residential stability	.250	.138	.304
Concentrated disadvantage	.471	.464	.176
Population heterogeneity	1.156	1.087	.149
Constant	.020*	.004*	.001#
Between Var (U_{0j})	.025	1.524	7.150#
Chi2 for Var U_{0j}	3.33	3.88	8.88

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

While the victimization models presented above control for tract-level structural characteristics, they do not specify any neighborhood level processes of social cohesion or social control. Further, when operationalized as level-1 covariates, these constructs increase the between-tract variance of the outcome without reaching the threshold of statistical significance. An important exception to this general assessment is Model 4 of Table 60, which includes network-based measures of parochial exchanges. Results from this particular procedure indicate that respondents with denser networks and a greater number of local contacts have a higher likelihood of violent victimization. Models presented below (Table 62) complement these respondent-level effects with the operationalization of variables measuring exchanges as tract-level covariates.

Table 62
Hierarchical logistic regressions of violent victimization
with independent variables as tract-level predictors
Unit-specific estimates, odds ratios

	(1)	(2)	(3)	(4)	(5)	(6)
Individual-level covariates						
Gender	1.169	1.133	1.166	1.160	1.158	1.156
Race/Ethnicity (Latino)	.280	.294	.282	.283	1.662	.281
Age	.984	.983	.982	.982	.984	.984
Employment	1.991	1.975	2.062	1.957	1.995	1.984
Education	1.687#	1.746#	1.868#	1.782#	1.662#	1.678#
Residential tenure	1.048	1.049	1.053#	1.050#	1.047	1.048
Tract-level covariates						
Residential stability	.796	.540	.198	1.148	1.369	.751
Concentrated disadvantage	.683	.457	.174	.748	.654	.769
Population heterogeneity	1.439	1.847	5.585	.710	1.382	1.596
Perceived cohesion	.654					
Total parochial ties		1.130				
Total local alters			2.638			
Density				1.102		
Child-centered informal control					.567	
Overall informal control capacity						1.270
Constant	.474	.423#	.430#	.437#	.474	.470
Between Var (U_{0j})	.649	.113	.000	.000	.372	.541
Chi2 for Var U_{0j}	5.91	4.82	1.78	2.608	5.37	5.67

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Models 1-6, above, reintroduce measures of community organization in the estimation of the likelihood of a violent household victimization. Model 1 uses the measure of perceived cohesion. This covariate is the only network proxy significantly associated with variations in this particular outcome in the respondent-level models (Table 57). When specified as a level-2 covariate, average ratings of cohesion do not predict changes in the risk of assaults. Additional models using other network proxies show analogous results (using perceived exchanges, perceived support and perceived local ties; models not shown). Routines 2 though 4 focus on the successive specification of network-based measures. While all of the independent variables suggest that more integrated tracts are linked to greater individual-level risk of assaults, these associations are not significant. In fact, in most of these models, the between-tract variation of the outcome is extremely small and

not statistically different from zero. Models 5 and 6 test for the effect of informal social control on self-reported violent victimization. These two routines constitute the core of the systemic model because it relates ecological measures of self-regulation with crime-related outcomes. However, the data do not support the hypothesis by which tracts with higher levels of control would be associated with respondents reporting a lower risk of victimization.

Models below replicate the analysis focusing on the prediction of burglary victimization.

Table 63
Hierarchical logistic regressions of burglary victimization
with independent variables as individual-level predictors
Unit-specific estimates, odds ratios

	(1)	(2)	(3)	(4)
Individual-level covariates				
Gender	.105#	.107	.078#	.097#
Race/Ethnicity (Latino)	13.94	14.48	5.249	10.46
Age	1.046	1.037	1.054	1.048
Employment	1.081	1.428	.822	1.002
Education	1.542	1.351	1.962	1.642
Residential tenure	1.014	1.013	1.015	1.015
Tract-level covariates				
Residential stability	.895	.086	.037	.426
Concentrated disadvantage	.558	.167	.628	.300
Population heterogeneity	.337	3.727	1.096	.546
Perceived Cohesion	.067			
Total parochial ties				
Total local alters				
Density		.781		
Child-centered informal control			8.634	
Overall informal control capacity				.164
Constant	.021#	.008	.017#	.020#
Between Var (U_{0j})	2.18	4.66	.005	1.545
Chi2 for Var U_{0j}	4.63	5.32	2.72	3.82

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Some of the model estimates presented above do not produce convergent models. This was particularly evident for tract-level measures of network size (total/local). However, other results are similar to those reported for models of criminal victimization: the between-tract variation in

the outcome is extremely small and non-significant; none of the ecological predictors are significantly related to the outcome. In fact, the only statistically significant predictor of burglary victimization was gender, with females being less likely to report such an event when controlling for other respondent-level predictors and for tract-level covariates. These results are aligned with those produced by models specifying the independent variables as level-1 predictors (Table 61).

From these analyses, the data do not support the association between tract-level measures of community organization and variations in the likelihood of criminal victimization. This assessment encompasses the two social exchanges approaches (proxies or network-based) and, more importantly, measures of informal social control. Self-reports of victimization exhibited very little between-tract variation, reflecting limitations in the size of the sample employed for the multilevel analysis. When operationalized as individual-level processes, network-based measures of social exchange did predict variations in risk of violent victimization. However, this specification is not consistent with the basic postulates of the systemic model.

7.2.2 Multi-level models of perceived levels of violence

Studies examining communities and crime have relied on the respondents' perception about the level of crime in the neighborhood as dependent variables. This particular approach has been employed systematically by studies on the neighborhood effects of cohesion and social control on crime and victimization outcomes. For example, in a study Chicago neighborhoods, Sampson et al. (1997) found that higher levels of collective efficacy were associated with lower levels of perceived neighborhood violence even when controlling for individual and other neighborhood-level covariates (see also Sharkey, 2006). Similar approaches have been employed in other research projects (Sastry et al., 2002; Duncan et al., 2003; Martinez et al., 2002; Kuo et al., 2007).

The South Bronx survey reproduced the six-item scale of perceived crimes employed by the PHDCN (Table 64). This set of items asked respondents to rate the frequency of occurrence of a series of criminal events in the neighborhood. While the time frame originally set for the recall was six months, results from the pre-test of the survey indicated that such threshold would not yield significant variations. In the final version of the survey the time frame was reduced to a one month window. Response options ranged from 1 (never) to 4 (often). By far, the most prevalent crime as reported by survey respondents is the sale of controlled substances (M=2.95, SD=1.27). The most infrequent event corresponded to reports of sexual assaults (M=1.91, SD=0.53).

Table 64
Descriptive statistics on perceived neighborhood violence

	Valid N	Mean (SD)	Min-Max
Fight in which weapon was used	103	2.09 (1.07)	1-4
Violent argument between neighbors	102	2.12 (1.09)	1-4
People selling drugs	96	2.95 (1.27)	1-4
Gang fight	100	1.86 (1.07)	1-4
Sexual assault or rape	100	1.19 (0.53)	1-4
Robbery or mugging	100	1.66 (1.00)	1-4

Using a principal components approach (varimax rotation) all six items loaded into a single construct explain 51.9% of the total variation of the outcome. The reliability of the scale was .80—analogous to the reliability estimates calculated with the restricted multi-level sample (.81). The six-item version of the perceived violence scale is slightly different that the one implemented by Sampson et al. (1997), which did not employ ratings of drug sales.

The multi-level models specified below (Table 65) predict respondent-level assessments of perceived neighborhood crime. Scores for individual scale items were aggregated and combined into a general rating of local levels of violence (M=1.97; SD=0.76). Given that this is a continuous outcome, models were estimated using linear regression models with group-centered

level-1 covariates and level-2 predictors centered around the grand mean (fixed slopes). Measures of community organization are specified as level-2 correlates. Model 1 includes individual and tract-level controls. Model 2 includes an independent variable of perceived social cohesion. Models 3 through 5 include network-based measures of exchanges and social organization. Models 6 and 7 test the independent effects of informal control on perceptions of neighborhood violence.

Table 65
Hierarchical regressions estimating the effect of respondent-level and tract-level covariates on perceived crime

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Individual-level covariates							
Gender	-.362#	-.362#	-.362#	-.362#	-.362#	-.362#	-.362#
Race/Ethnicity (Latino)	-.638*	-.638*	-.638*	-.638*	-.638*	-.638*	-.638*
Age	-.005	-.005	-.005	-.005	-.005	-.005	-.005
Employment	.077	.077	.077	.077	.077	.077	.077
Education	-.014	-.014	-.014	-.014	-.014	-.014	-.014
Residential tenure	-.001	-.001	-.001	-.001	-.001	-.001	-.001
Participation religious org.	-.256	-.256	-.256	-.256	-.256	-.256	-.256
Tract-level covariates							
Residential stability	-.146	-.037	-.288	-.206	-.060	-.891#	-.193
Concentrated disadvantage	-.030	-.055	-.219	-.108	-.013	.066	-.205
Population heterogeneity	.052	-.077	.104	.109	-.139	.200	.025
Perceived Cohesion		-.500					
Total parochial ties			.051				
Total local alters				.054			
Density					.021		
Child-centered control						.707#	
Overall control capacity							-.483
Constant	1.89***	1.90***	1.89***	1.89***	1.92***	1.87***	1.90***
Within Var	.431	.430	.430	.431	.437	.408	.426
Between Var (U_{0j})	.027	.034	.012	.050	.001	.000	.003
Chi2 for Var U_{0j}	6.25	5.09	3.77	6.22#	3.96	.192	2.77

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

The majority of variables included in the models above are not significantly associated with variations in the outcome. None of the indicators of community organization are related to perceived levels of violence and the same pattern was observed for the three structural tract-level covariates (disadvantage, mobility, and heterogeneity). More importantly, overall indicators of fit

suggest that perceptions of violence are mostly driven by individual-level processes such as gender and race—in the models presented in Table 65 females and Latinos perceived a less frequent number of criminal events than male/non-Latino respondents.

The child-centered version of social control was the only significant level-2 covariate displayed in Table 65 (Model 6). However, the direction of the effect was contrary to findings reported by previous studies: higher levels of informal control were associated with higher levels of perceived violence in the neighborhood. This association remained significant when controlling for tract-level robbery rates. Likewise, the coefficient for residential stability remained negatively and significantly associated to the outcome, indicating that tracts with less population turnover have lower crime rates as perceived their residents.

Overall results examined in this chapter suggest that, for the most part, crime-related outcomes from the South Bronx study are not determined by ecological processes. This assessment applies to indicators of structural disadvantage as well as to measures of social organization (proxy- or network-based). In several models, however, measures of network size and density were significantly associated with variations in the likelihood of a violent victimization (Table 60). While such estimations controlled for tract-level processes, inferences about the social organization of communities required these network variables to be specified as ecological covariates. When implementing this approach, network effects drop as significant predictors, reflecting the outcome's low between-tract variance—a pattern observed for all crime-related dependent variables. Previous studies linking network proxies to crime rates have also failed to show a robust connection between these two phenomena (Warner and Wilcox, 1997; Bellair, 1997).

Models specified in this chapter also yielded non-significant associations between measures of informal control and most of the crime-related outcomes. However, tract level models of crime rates (Table 56) and multi-level estimations of perceived neighborhood violence (Table 65)

indicated a positive relationship between crime measures and the two versions of informal control. Contrary to previous studies, it was found that higher levels of social control are associated with higher levels of perceived and reported crimes. The magnitude, direction, and significance of this association was stable even when implementing ecological controls for other types of control (arrest rates in Table 56) and general levels of crime (robbery rates in Table 65). This pattern was observed exclusively for the child-centered version of informal controls—ratings of resident-based controls were non-significant, although negatively related to crime outcomes. Child-centered controls may be positively related to objective and subjective measures of crime because this construct reflects the adaptation of residents to systematically-high local offending rates. In a high-crime neighborhood, residents increase their efforts to monitor children and rely in their personal networks to facilitate this type of intervention. At the same time, the adaptation to high-crime environments does not translate to efforts to increase the levels of resident-based controls over public areas—this version of social control was non-significant in all the models tested.

It is likely that the absence of more robust patterns of associations between crime-related outcomes and measures of social organization is related to the relatively low number of observations available for the multi-level analysis. Such explanation is explored in the following chapter. More substantially, the tracts examined here are consistently resource-deprived and are demographically and socio-economically homogeneous. Previous neighborhood-level studies generally have relied on samples of neighborhoods with relatively heterogeneous units across levels of analysis. As shown by Warner et al. (2003) dynamics of socialization in poor, isolated neighborhoods may be conditioned by the particular structural and cultural characteristics of these areas (see also Freundenberg et al., 1999; Sampson and Bean, 2006).

CHAPTER 8. DISCUSSION AND CONCLUSION

This study assessed the role of social networks in neighborhood-level processes of social control. It examined the extent to which properties of personal social ties are determined by structural ecological characteristics such as concentrated poverty and residential mobility. It also measured the association between indicators of the breadth and scope of personal networks and several scales of informal social control. This dissertation compared this network-based approach with the more traditional perspective of examining local organizations based on proxies of relational processes of social cohesion, perceived neighborliness and other exchanges. Finally, self-regulatory practices were studied in connection to tract-level crime rates for specific offenses and individual-level estimates of victimization. These assessments were based on the multi-level analysis of survey data and administrative records for Community District 1 in the South Bronx.

The overall structure of the inquiry was guided by the postulates of the systemic model of social disorganization (Bursik and Grasmick, 1993). The systemic perspective addresses aggregate variations in crime levels by using a community-based approach focused on the relationship between processes of social integration and types of social control. Specifically, it concentrates on the measurement of relational processes representing properties of personal networks—e.g., reach, homogeneity, locality—as well as the degree of involvement of residents in local organizations. According to the theory, these primary and secondary domains of association reflect key structural characteristics of neighborhoods in terms of socio-economic conditions and population turnover. More importantly, networks are hypothesized to influence the capacity of communities to self-regulate beyond actual patterns of civic engagement and formal controls. This emerging construct is often labeled as informal social control and encompasses behaviors and expectations ranging

from the supervision and socialization of youth to actual safety and crime-related interventions by local residents including their participation in community organizations.

This dissertation tested the network component of the systemic model at different stages. First, it assessed the role of ecological socio-economic covariates on structural properties of social ties. Second, it measured the significance of these ties when predicting various measures of informal control and crime-related outcomes. This particular perspective was developed in order to expand the current body of research on the neighborhood-level mechanisms associated with the social organization of communities and their aggregate capacity to enforce social order. While the representation of this type of contextual effect has been the subject of important works, little is know about the actual processes by which expectations of control and patterns of socialization are distributed across population groups (Leighton, 1988; Carr, 2003; Sampson, 2002).

Results indicate partial support for the systemic model: while most indicators of network structure did not vary across tracts, the overall size of these networks was positively and significantly associated with patterns of residential stability when controlling for individual-level and other tract-level variables. Similarly, residents of more disadvantaged tracts were found to have larger parochial networks, although these also tended to be increasingly dependant on local interactions. Several network properties also predicted variations in informal control, although their value as independent variables decreased when these measures were operationalized as tract-level covariates. Compared to traditionally-employed network proxies (e.g. perceived cohesion, perceived social ties) network-based ecological measures were less stable and less likely to yield significant associations with ratings of control capacity. This dissertation found little convergence between tract-level or respondent-level network measures and empirically-derived network proxies. Finally, the majority of the models testing multi-level associations between crime variables and measures of community organization did not support the association between these two constructs.

The following sections will discuss these findings and will summarize other important patterns described in the previous three chapters of this dissertation. Results are based on the estimation of a series of multi-level models using survey-based data and administrative records centered in District 1 in the South Bronx. The research questions and hypotheses will be revisited incorporating the overall results described throughout this manuscript.

8.1 To what extent are personal networks a reflection of the structural characteristics of communities?

The study found support for the relationship between measures of network size and the main community-level variables of the systemic model—e.g., population turnover, economic disadvantage, and population heterogeneity. Specifically, results indicate that the number of alters known by survey respondents was higher in tracts with more residential stability and heightened concentrated disadvantage. A less robust, non-significant effect was also detected for the variable of population heterogeneity suggesting that residents in more homogenous tracts had larger networks. At the respondent-level, individuals participating in civic organizations also reported more social ties (total/local). A similar effect was observed for variables capturing employment status and level of education. The respondent's race, gender or length of residential tenure was not statistically associated with different network sizes. Overall, the ecological variations in this outcome remained significant after introducing the tract-level predictors and the individual-level variables.

In addition to counts of network size, other properties of personal networks were examined although none of these demonstrated acceptable levels of ecological reliability—the within tract correlation ranged from .001 to .003 for aggregate indicators of network density, multiplexity,

average geodesic distance, among others (Table 33, Chapter 5). In most cases, variations in these outcomes were completely mediated by respondent-level covariates. Table 66, below, summarizes some of these models with individual-level and tract-level covariates.

Table 66
Hierarchical regressions estimating the effect of individual-level and tract-level covariates on measures of network properties (group-centered/grand-centered predictors, fixed slopes)

	Size	Density	Multiplexity	Frequency
Individual-level covariates				
Gender	.005	6.928	.858*	.003
Race/Ethnicity (Latino)	-.220	1.292	-1.576**	.027
Employment	.218*	-2.841	.308	.005
Education	.107*	1.807	-.022	-.072
Participation religious org.	.250*	-4.803	-.509	-.066
Residential tenure	-.004	.485	-.026#	.009
Tract-level covariates				
Residential stability	.191#	-4.661	-.018	-.011
Concentrated disadvantage	.260*	-.811	-.164	.017
Population heterogeneity	-.183	9.373	.227	-.011
Constant	2.023***	76.100***	2.606***	4.495***
Between Var (U_{0j})	.009	.390	.000	.000
Chi2 for Var U_{0j}	6.583	3.14	I.67	4.72

# p<.1 * p<.05 **: p<.01 *** p<.001 (two tailed tests)

Note: The model of network size was estimated using a hierarchical Poisson Regression (unit-specific model). The other three models specify the dependent variable as a continuous outcome.

The first model reproduces findings presented in Chapter 5 regarding the determinants of alter-based counts of network size using a hierarchical Poisson regression (Table 36, Chapter 5). The other outcomes are based on linear estimations with continuous outcomes (i.e., density, multiplexity, and frequency of contact). Results indicate that with the exception of network size, tract-level variables do not predict variations in aggregate network properties. Further, when including the three main structural variables of the systemic model, the between-tract variance of the network size model becomes extremely small and no longer statistically significant at the p<.10

level. There is also very little consistency across models, even in terms of the respondent-level controls. For example, while race/ethnicity, gender and residential tenure are significantly related to variations in multiplexity (i.e. ratio of parochial ties to alters), these variables do not predict variations in any of the other outcomes, including network size.

Models of network size provided partial support for the systemic model's perspective on the determinants of parochial ties. On the one hand, individuals with broader, more comprehensive levels of social integration—as measured by employment status, education level, and civic participation—had larger personal networks. Routines presented in Chapter 5 indicate that this pattern of association was particularly strong for overall estimations of network size, suggesting that respondents connected to broader social circles tend to rely to a lesser extent on local, neighborhood-based interactions (see for example Tables 35-36, Chapter 5). However, residential stability was associated with the creation of ties. Residents in more stable tracts have access to a consistent pool of potential associates and are more likely to develop feelings of attachment to both places and people. Results also indicate that at the ecological level, residents of less affluent census tracts had significantly larger personal networks. In these communities, inter-personal contacts constitute a form of capital that fosters patterns of resource-sharing, communication, and support. In addition to the increased relevance of local interactions in a context of heightened disadvantage, models examined also indicate that these exchanges are heavily skewed toward the presence of strong ties—i.e. ties based on very frequent, highly-dense kin or kin-like contacts. These interactions, while key for the mobilization of social support, are less likely to provide access to sources of new information and non-redundant resources (Granovetter, 1973). This pattern was clearly observed when identifying differences between name-generators for job-seeking activities versus those representing other forms of inter-personal associations.

These findings are consistent with results presented by prior studies. Despite challenges in the operationalization of constructs, both qualitative and quantitative projects have systematically highlighted the negative effects of mobility of social ties (Kasarda and Janowitz, 1974; Sampson and Groves, 1987; Sampson et al., 1997; Liebow, 1967). Residential turnover affects patterns of socialization via expectations and opportunities for contact. As addressed by Sally Merry, "[The] expectation of termination discourages investment of time and energy in the creation of a relationship and reinforces boundaries between social networks" (1981:121). According to Stack, this assessment is particularly critical for kinship networks, whose "success. … [also] depends upon this stability" (1974:24). At least one network-based study also supported the significance, strength, and direction of the association between properties of networks and measures of residential stability (Thomese and Van Tilburg, 2000). Results suggesting that networks are larger in less affluent tracts is consistent with the observation that individuals lacking access to economic and human capital are forced to rely more on the social capital available to them (Bourdieu, 1986). In poor neighborhoods, researchers have shown that patterns of exchange are fluid, although such patterns seldom involve inter-personal associations outside their communities (Venkatesh, 2000; Wilson, 1987).

8.2 Do the data support the relationship between properties of networks and individual levels of informal social control?

One of the central arguments of the systemic model is that parochial controls are determined by interpersonal networks and dynamics of civic involvement in local matters (Bursik and Grasmick, 1993). This dissertation found that several measures of actual social exchanges

effectively predicted two independent—yet moderately correlated—constructs of informal social control (a two-item child-centered supervision scale and a four-item scale of resident-based control capacity). Alternative operationalizations of informal social control—using for example the scales included in the community survey of PHDCN (Sampson, 1997; Sampson et al., 1997)—were tested but exhibited inconsistent ratings across census tracts. In contrast, the two adopted measures of informal control showed acceptable levels of ecological reliability and significant between-tract variance. However, the overall variance in these outcome variables was generally explained by respondent-level covariates. This was particularly apparent in network-based measures: when specified as individual-level predictors, network-based measures were significantly associated with variations in informal control; however, when specified as tract-level covariates, none of the network-based variables exhibited a consistent correlation with the two informal control outcomes.

As shown in Chapter 6, respondents with larger and broader parochial ties are more confident than other participants regarding their neighbors' likelihood of intervention when confronted with minor disruptions of social order (e.g., children painting graffiti, children taking something from a neighbor's house). Further, higher levels of child-centered control were reported by respondents with stronger connections to others—i.e. with a higher number of multiplex ties (Table 49, Chapter 6). When implementing an alternative measure of informal control based on ratings of resident-based control capacity, most network-based measures did not effectively predict variations in the outcome variable. Nevertheless, study subjects with larger networks were significantly more likely to believe that their neighbors had the capacity to monitor the status of their immediate public environments (Table 51, Chapter 6). At the respondent-level, Latinos were more likely to report higher scores for the scale of child-centered interventions than non-Latino study participants. At the tract-level, an analogous trend was observed for respondents living in areas of low residential turnover. While non-significant, tract-level measures of disadvantage and

heterogeneity were negatively correlated with the two outcome measures of informal control. When specified as a respondent-level attribute, civic engagement was not significantly associated with measures of informal social control—in fact, most of the partial regression coefficients indicated a negative relationship between participation in local associations and measures of community-based self-regulatory abilities.

Network-based models of informal control based were compared to other models capturing perceived characteristics of the local social organization (e.g., social cohesion, exchanges, support). These measures have been traditionally employed by previous studies on neighborhood effects such as the community survey of the Project of Human Development of Chicago Neighborhoods (PHDCN). When employed as respondent-level covariates, several of these network proxies showed significant associations with the two versions of informal control: respondents with higher levels of perceived cohesion and perceived support also reported higher levels of child-centered control and resident-based control (Tables 45 and 47, Chapter 6). When specified as tract-level covariates, aggregate indicators of perceived cohesion and support remained positively and significantly associated with variations in informal control—although these patterns were only observed for ratings of control capacity (Table 48, Chapter 6). Further, this specification was the only one suggesting a significant relationship between informal controls and tract-level measures of civic engagement (measured via religious participation). As suggested by previous studies, this set of results indicates that ecological attributes of the local community organization (e.g., perceived cohesion, support, civic engagement) effectively predict variations in informal control.

However, these results only held for one version of community-based self-regulatory abilities: respondents' ratings of overall control capacity. Other remarkable differences distinguished the two versions of control-related outcomes. For example, residential stability was associated with greater child-centered controls, although this pattern was not observed for ratings of control capacity. An

analogous trend was observed for some of the respondent-level controls: for example, while expectations of child-centered control were higher for Latinos, ratings of control capacity did not vary significantly by race/ethnicity.

Overall, results indicate that network proxies were a more effective set of predictors of informal social control than estimates generated by similar, network-based models. Unlike measures of actual social exchanges, general perceptions about the quality and frequency of these interactions were significantly associated with ratings of control capacity at both the individual and the tract levels. The direction of these associations is consistent with findings from previous studies: higher levels of perceived cohesion and related measures of exchanges are positively associated with perceptions of community-based regulatory abilities: individuals living in communities with higher levels of perceived social integration are more likely to believe that their neighbors effectively regulate certain public spaces (Sampson et al., 1997; Silver and Miller, 2004; Coulton et al., 2004; Warner et al., 2003; Taylor et al., 1984).

Beyond the examination of control-centered models, this dissertation also studied the convergence between network-based measures and network proxies of social organization. Most studies on communities and crime have interpreted these proxies as indicators of actual inter-personal interactions and local social ties (Warner and Wilcox, 1997; Browning et al., 2004). Data reviewed in this dissertation problematized this approach: While network proxies were found to be effective ecological predictors of informal controls, these constructs captured processes that were not relational in nature: results presented in Chapter 6 revealed very low tract-level and individual-level correlations between network proxies and network-based measures. In fact, several network-based measures did predict variations in informal control when specified as respondent-level covariates. It is likely that instead of capturing relational processes, network proxies reflect ratings based on cognitive processes attached to the creation of trust or feelings of attachment within

particular contexts. Such ratings were not found to reflect properties of parochial exchanges, local interactions or any other structural property of social ties. Given the nature and size of the sample, it is likely these findings are limited in scope. However, the findings also suggest that studies need to be more cautions when inferring relational patterns when using network proxies.

8.3 Do the data support neighborhood-level and individual-level associations between crime and social ties or between crime and informal social control?

A number of neighborhood-level studies have found a significant association between crime-related outcomes and survey-based measures of community organization. Results indicate that neighborhoods with higher levels of perceived cohesion, resident-based controls, and local personal/institutional ties register lower levels of crime, including both offenses known by the Police and self-reported criminal victimization (Sampson and Groves, 198; Sampson et al., 1997; Morenoff et al., 2001), although the evidence provided in other studies is less conclusive (Bellair, 2000; Warner and Wilcox, 1997). Consistent with this tradition of research, Chapter 7 of this dissertation examined the respondent-level and tract-level covariates of crime-related outcomes in the South Bronx. At the tract-level, crime rates for specific offenses (e.g., burglary, robbery, and aggravated assault) were examined with ecological indicators of formal and informal controls. At the respondent-level, this study related victimization measures and a scale of perceived crimes to levels of informal control and network proxies and network-based measures of social interactions. These outcomes were also studied in a series of multi-level models. Crime rates were calculated for all residential tracts within District 1 using records by the New York Police Department.

This research found little support for the ecological covariates of crime-related outcomes. For example, structural conditions of disadvantage, while-non-significant in most models, appeared to be negatively associated with crime-related outcomes, suggesting that in tracts of more concentrated disadvantage and more residential instability there were fewer crimes known by the police and a lower number of self-reports of criminal victimization. Further, results did not support the mediating role of measures of community organization in multi-level models on the incidence of criminal victimization. This was particularly evident for traditionally-employed network proxies such as perceived cohesion and frequency of perceived exchanges. In several models, network-based indicators were more effective predictors. For example, respondents with a heightened dependence in local networks were found to be more likely to report a violent incident of household-level victimization (Table 60, Chapter 7). While such estimations controlled for tract-level processes, inferences about the social organization of communities require these network variables to be specified as ecological covariates. When implementing this approach, network effects were no longer significant predictors, reflecting the outcome's low between-tract variance—a pattern observed for all crime-related dependent variables (Tables 62-63, Chapter 7). Previous studies linking network proxies to crime rates have also failed to show a robust connection between these two phenomena (Warner and Wilcox, 1997; Bellair, 1997).

Models specified in Chapter 7 also yielded non-significant associations between measures of informal control and most of the crime-related outcomes. However, tract level models of crime rates (Table 56, Chapter 7) and multi-level estimations of perceived neighborhood violence (Table 65, Chapter 7) indicated a positive relationship between crime measures and particular versions of informal control: contrary to previous studies, higher levels of social control were associated with higher levels of perceived and reported crimes. The magnitude, direction, and significance of this association was stable even when implementing ecological controls for other types of control

(arrest rates in Table 56) and crime levels (robbery rates in Table 65). This pattern was observed exclusively for the child-centered version of informal controls—ratings of resident-based controls were negatively related to crime outcomes, but the relationship was not statistically significant. Child-centered controls are positively related to objective and subjective measures of crime likely because this construct reflects the adaptation of residents to systematically-high local offending rates. In a high-crime neighborhood, residents increase their efforts to monitor children and rely in their personal networks to facilitate this type of intervention. At the same time, the adaptation to high-crime environments does not result in efforts to increase the levels of resident-based controls over public areas—this control outcome was non-significant in all the models tested.

8.4 Strengths and limitations

Before summarizing the conclusions of the study, it is important to describe its most significant limitations. The disclosure of these elements is a key process that informs the interpretation of findings and examines its external validity. This section highlights the limitations of the research along two substantive domains—sample and measurement—while also focusing on the particular strengths of the approach implemented and its relevance to the study of the relationship between communities and crime.

8.4.1 Sample strengths and limitations

The main challenge of the sample employed in this dissertation is the relatively low number of observations for both individual respondents (n=103) and census tracts (n=8). Compared to other neighborhood-level studies, this sample is not only small but also more homogeneous in

terms of structural characteristics such as socio-economic composition and exposure to crime. Small samples are a particularly critical problem for multi-level models and can impact negatively the generation of robust, unbiased estimates. For example, it is likely that the low and inconsistent between-tract variation for key network and control outcomes (e.g., network density, average distance between alters) was a byproduct of a small sample of relatively-similar ecological units.

Perhaps more significantly, results reported in this dissertation cannot be applied to the general population of South Bronx residents or other poor urban neighborhoods in the United States. Results are not generalizable because they are not based on a random sample of the population. While such a sampling approach was employed for the first wave of data collection, the recruitment of subsequent study participants followed a chain-referral sampling method. Using computer simulations, this method has been shown to produce estimates that are not significantly different from those obtained by random selection (Salganick and Heckathorn, 2004). Similar approaches have been employed to generate samples of hidden populations (Heckathorn, 2002).

While highly compatible with the research area and study questions for this dissertation, chain-referral methods violated one of the basic assumptions of standard regression analysis, that is, the assumption of independence of observations. However, this important caveat was counterbalanced by two important considerations: on a substantive level, the fact that respondents were in fact connected to one other is an inherent focus and desirable attribute when working under the theoretical framework of network analysis (Berkowitz, 1982). On an estimation level, other network studies have bypassed the assumption of independence when implementing multi-level models (Wellman and Frank, 2001; Mok et al., 2007), even when working with snowball samples (Snijders et al., 1995). Estimates from such analyses have proven to be unbiased and relatively consistent under several model specifications. Following this approach, models tested in this dissertation demonstrated an insignificant association between a variable capturing "wave of

data collection" and most substantive outcomes (e.g., informal control, self-reports of victimization, network properties). Despite the absence of this form of bias, model estimates should be interpreted with caution given the fact that most of the non-randomly selected participants were close associates of previously-interviewed subjects (e.g., kin, individuals living in the same household). The recruitment of subjects via strong ties in a context of a small sample size imposes an additional limitation to the generalizability of findings reported by this study.

Missing data was not a significant problem in this dissertation. However, some variables were purposely dropped out of the analysis due to the low number of valid responses such as average household income, which was effectively answered by only 82.5% of survey respondents (85). Respondent-level socio-economic status was measured using level of educational attainment. Exploratory analyses showed that missing observations for substantive variables did not follow a consistent pattern; further, individual-level, bivariate associations were not significant.

Although the limitations of the sample pose important challenges to the comprehensiveness of this specification of the systemic model of social disorganization, it also provides a unique network-based approach to the dynamics of social organization in an urban environment of extreme poverty. While the body of literature on crime and communities includes a number of studies on poor urban neighborhoods, many of these are exclusively qualitative in nature (see for example, Venkatesh, 2000; Patillo, 1999; Merry, 1981). Very few concentrate on within and between-neighborhood processes in a context of heightened disadvantage (Suttles, 1967; Wilson, 1987; Simcha-Fagan and Schwartz, 1986), and not one has systematically measured personal networks as they relate to the enactment of social controls. Further, previous studies of personal networks in urban situations have been based on white, relatively-affluent communities (Laumann, 1973, Fischer, 1982; Wellman, 1979; Warren, 1981), although there are some important exceptions (Oliver, 1986; Smith, 2003). As shown by Warner et al. (2003) dynamics of

socialization in poor, isolated neighborhoods may be conditioned by the particular structural and cultural characteristics of these areas (see also Freundenberg et al., 1999; Sampson and Bean, 2006). These claims have been somewhat substantiated by ethnographic research, although this area of inquiry has lacked more formal approaches to the study of networks.

8.4.2 Measurement strengths and limitations

Studies on neighborhood effects have faced the long-standing challenge of measuring the social organization of communities. This limitation has been systematically highlighted by scholars addressing inconsistencies in the development of constructs such as collective efficacy, social capital, informal control, and social cohesion (Taylor, 2002; Ellen et al., 1997; Paxton, 1999; Bellair, 2000; Leighton, 1988). For example, civic engagement has been employed as a stand-alone measure of social control (Taylor, 1986; Putnam, 2000; Sampson, 2004) or as a proxy of community organization (Sampson and Groves, 1989; Rosenfeld et al., 2001); however, more recent works have dismissed its substantive contribution based on mostly empirical grounds (Sampson et al., 1997; Morenoff et al., 2001). In the same way, scales measuring collaborations among neighbors have been employed as indicators of personal ties (Browning et al., 2004; Ross and Joon Jang, 2000) and alternatively as measures of informal controls (Bellair, 2000; Lynch et al., 2002).

This study shares some of the limitations reported by previous studies regarding the gathering of data on key community-level relational processes. For example, despite the implementation of multiple instruments to assess informal control, these tools generally captured the respondents' expectations about the likelihood of occurrence of particular events (e.g., adult intervention when children misbehave) rather than actual instances of activation of controls.

Qualitative studies have been traditionally more effective at describing the context and mechanisms associated with this type of mobilization (Patillo, 1999; Small, 2004; Carr, 2003). Some quantitative studies have argued that operationalizations of social control based on expectations and likelihood ratings are determined by individual, cognitive processes rather than actual assessments about the local social integration (Ellen et al., 2004; Coulton et al., 1996).

From a more substantive point of view, this study confronted a number of challenges in measuring the subjects' personal networks. First, the reporting of these networks was based on the use of name-generators. This approach, while widely-employed in network studies, has been shown to be particularly vulnerable to problems of informant accuracy and recall bias (Bernard et al., 1982; Marin, 2004). For example, when compared to alternative methods to estimate network size, the use of name generators tends to undercount weak ties (i.e., infrequent, non-intimate contacts) (McCarty, et al., 2001; McCarty, 2002). Second, there is very little research on the methodology for the aggregation of network responses across name generators. While network-based studies routinely compute measures of network size, these are often compiled for all items aimed to elicit alters (Thomese and Van Tilburg, 2000; Snijders et al., 1995) or focus on a single, domain-specific name-generator (Marsden, 1987; McPherson, 2006).

This dissertation developed a construct of "parochial networks" based on the exploratory analysis of survey responses and the theoretical framework guiding this inquiry (i.e. counting alters connected to ego in pro-social interactions, and public settings, see Chapter 5). Future operationalizations of "parochial networks" should be derived from a more empirically-grounded perspective, favoring techniques of blockmodeling and cohesion-based tools to create subgroups of alters (Wasserman and Faust, 1994; Scott, 1991).Third, given the relatively small within-tract samples, structural measures of network properties exhibited low levels of ecological reliability, limiting the value of network-based measures as analytical variables. With the

exception of size-related indicators, network properties such as brokerage, distance, and multiplexity were not consistently reported across respondents living in different neighborhoods. These challenges emphasize the difficulties associated with the large-scale collection of network data aimed to elicit aggregate patterns of social interaction (Bursik, 1999; Smith, 2003).

Lastly, it is important to highlight the fact that this study is based on a cross-sectional design. Such framework constraints the ability of the models to support causal inferences and limits the interpretation of findings to the reporting of associations between dependent and independent variables. This is a critical consideration given the fact that postulates of the social disorganization theory and the systemic model are generally linked to the longitudinal assessment of changes at both the ecological level and at the individual level. As described by Taylor (2002) and others, perspectives on the social organization of communities are based on the conceptualization of interpersonal relations as events that accumulate over time and, therefore, associations between variables need to be specified in dynamic settings (see also Bursik, 1988; Stark, 1987; Dominguez and Watkins, 2003; Newman and Massengill, 2006). More general structural approaches have also emphasized the need for a longitudinal perspective. Blau and Schwartz (1984), for example, argued that assessments of network-based statuses and roles are defined by processes that extend over several generations via particular "population distributions". Similar ideas are embedded in the early writings by the School of Human Ecology and other projects on Chicago's urban areas (Park and Burgess, 1925; Shaw and McKay, 1942). A very small number of neighborhood-level studies have been able to follow this direction of research (see for example Lynch et al., 2002; Warren, 1981; Markowitz et al., 2001). In the field of social networks research, an emerging number of studies have began to measure network dynamics associating structural outcomes to changes in the properties of ties between nodes or their own attributes (see Watts, 2004 for a review).

Although the previous set of considerations limits the scope of the analyses developed in this dissertation, results remain highly relevant to the field of communities and crime in several ways. First, the survey instrument applied in the South Bronx provided a unique opportunity to test the convergence between traditional measures of social organization and alternative network-based accounts of social interactions. Second, building upon prior research, this project expanded the number of tools aimed to capture community-based processes of social control, supporting the idea that self-regulatory abilities should be represented by a variety of constructs. Third, while cross-sectional in nature, the design of this study allowed the detection of important sources of individual-level variations in the structure of personal networks. In a few cases, these variations were also significant at the ecological level. While claims of causality are not possible given the structure of the research, this study advanced the understanding of processes of social interaction by linking tract-level and individual-level covariates to patterns of pro-social, public exchanges.

8.5 Conclusions

This study found partial support for key postulates of the systemic model. As posited by this perspective, ecological covariates of socio-economic disadvantage were found to influence the size and scope of parochial networks; in many cases, other structural properties of these networks such as average density or multiplexity were mostly determined by individual-level attributes. A similar process was uncovered for the determinants of informal social controls. In addition, these models revealed that network proxies such as perceived cohesion were more effective ecological predictors of self-regulatory abilities than comparable network-based indicators. This set of results is aligned with previous studies on the determinants of social control in urban neighborhoods, although it underemphasizes the role of actual network measures when studying the correlates of local

communities (Sampson, 2002). Finally, no robust associations were found between crime-related outcomes and individual and tract-level measures of social integration and community organization. However, results indicated that child-centered controls were positively associated with higher rates of perceived crime in the neighborhood. The fact that this relationship was found to be significant in the South Bronx study supports the systemic model, although the actual direction of the effects contradicts one of its core elements—that is, the negative association between a more fluid community organization and lower levels of rule-breaking behavior or crime (Bursik and Grasmick, 1993). As explored in Chapter 7, it is likely that residents of persistently dangerous neighborhoods are forced to rely more on their own capacity for control—a perspective consistent with the "defended neighborhoods" hypothesis by Suttles (1972).

8.5.1 Methodological conclusions

Results described in this dissertation indicate that personal networks are determined by specific individual and contextual characteristics. In contrast, ratings of informal control capacity were mostly associated with ecological measures of perceived social cohesion, perceived social support and other network proxies. In other words, respondents residing in tracts with greater levels of perceived social integration reported higher ratings of informal controls. Contrary to the interpretation of findings advanced by prior studies, network proxies were found to be unrelated to actual network-based indicators of interpersonal contacts. This set of findings highlights the relevance of social network research as a new tool to describe the processes by which physical and social contexts influence the behaviors and attitudes of individuals. The measurement of actual social exchanges proved to generate a unique, independent contribution in models explaining variations in levels of perceived self-regulatory abilities. To some extent,

results empirically confirmed the mediating role of social ties in the creation, maintenance, and enforcement of informal social control.

The fact that network measures provide an independent account of variations in social control is important because there has been a debate in Criminology as to whether or not the actual social network indicators contribute to the understanding of control mechanisms and levels of crime at the neighborhood level. According to Sampson (2002) and others, actual social exchanges are not required to explain aggregate patterns of criminal offending. Instead, they argue, these patterns could be described by focusing on the role of shared expectations, trust, and more cultural-based approaches. Other scholars such as Bursik (1999) and Venkatesh (2000) continue to emphasize the significance of social ties in the organization of poor communities. This study provides evidence supporting the need to measure social networks in the context of neighborhood research; further, it advocates for the integration of this perspective with more general multi-level techniques of data analysis. Such integration, already suggested by other scholars, can be employed to better specify network-related processes of tie formation as well as the mechanisms by which contextual covariates influence individual-level outcomes (see for example, Dominguez and Watkins, 2003; Thomese and Van Tilburg, 2000).

8.5.2 Theoretical conclusions

Studies of communities and crime have systematically acknowledged the need for additional tools aimed to better understand the contextual processes associating dynamics of self-regulation to properties of the local social organization. Beginning with Shaw and MacKay (1942) this specific area of research has been stunted by ambiguity regarding the operationalization of micro-macro links, and the ecological covariates of criminal offending. As shown by Korhnauser

(1978) and others, early models of social disorganization, while mostly based on a control perspective, did not fully elaborate on determinants of self-regulatory abilities and their implication for other aspects of neighborhood life (see also Reiss, 1986; Bursik, 1988; Bursik and Grasmick, 1993). Relatively recent expansions to the theory have addressed some of these topics, although important questions about the nature and mechanisms related to contextual effects remain largely unaddressed (Coleman, 1994; Sampson, 2002; Kubrin and Weizer, 2003; Forrest and Kearns, 2001; Ellen et al., 1997)

This dissertation contributes to this debate by exploring the relevance of the network perspective to the study of social control in urban neighborhoods. In contrast to the postulates of the social disorganization theory and the systemic perspective, results indicate that most of the structural properties of parochial networks did not predict levels of informal regulation. Instead, such levels were linked to other respondent-level attributes and perceptions of social integration. While these findings were aligned with results reported by previous research (see for example Sampson et al., 1997), it is argued here that the network proxies employed for these analyses are not appropriate operationalizations of the theory. In particular, perceptions of cohesion, support and general neighbor exchanges do not share the substantive content of the primary and secondary networks described by Shaw and McKay (1942) and articulated by Bursik and Grasmick (1993). These networks reflect relational patterns that can be observed as ecological or individual-level phenomena. Regardless of the unit of analysis, these networks are representations of actual interpersonal exchanges rather than overall ratings of social integration. It is argued in this study that notions such as perceived social cohesion and perceived support are not based on social interactions; rather, they constitute general assessments about the overall integration and perceived well-being of the community. As such, these concepts are substantively closer to ideas such as neighborhood attachment (or community solidarity) satisfaction with the

neighborhood and other forms of non-relational ratings of community life (Brown et al., 2004; Lynch et al., 2002; Taylor, 1997).

The network perspective also offered a set of theoretical contributions to the study of urban communities. For example, contrary to findings reported by other studies, this research found that parochial networks in relatively disadvantaged tracts were greater and more dependent on strong ties than networks of residents in relatively more affluent areas. These results parallel ethnographic findings on systems of exchange in low-income areas (Venkatesh, 2006; Bourgois, 1995) and complements studies on the activation of social controls with an emphasis on the socialization of youth (Patillo, 1999; Zatz and Portillos, 2000).

Lastly, this dissertation also confirmed the important role of the social structure in the determination of individual patterns of affiliation (Blau and Schwartz, 1968; Berkowitz, 1982; Laumann, 1973). This structure—measured via economic disadvantage, mobility and heterogeneity—was shown to influence patterns of interpersonal and institutional interactions. This association has been central to both general structural theories and more specific works on communities and crime. However, unlike previous works, this study did not find empirical support for the linkage between these networks and community-based processes of social order.

8.5.3 Next steps

The present study was exploratory and descriptive in nature. It raised a number of important considerations regarding the relational covariates of social control in urban neighborhoods and problematized traditional approaches to the measurement of local social organizations. Additional research should continue to expand the notion of parochial controls and its relation to levels of control as posited by the systemic model of social disorganization (Bursik and

Gramsik, 1993). As mentioned by several scholars, this particular area of the theory requires a more detailed level of specification and testing with appropriate data (Taylor, 2002, 1997; Kubrin and Weiser, 2003). To a certain extent, this potential avenue of work requires longitudinal, neighborhood-level designs (see for example, Robinson, et al., 2003; Markowitz et al., 2001). In addition to exploring patterns over time, scholars in the area of communities and crime should continue to investigate the influence of spatial arrangements on various measures of community organization (Morenoff et al., 2001).

The role of social ties in processes of social control needs further attention. As mentioned above, this attention should concentrate on theory development and integration. Perhaps more critically, it requires the building of a comprehensive analytical framework that encompasses not only issues of operationalization of variables but also sampling, coding, creation of indices, and routines for the testing of hypotheses on structural properties of social ties.

Network analysts are increasingly aware of the need to include spatial and temporal dimensions in the design of research projects on neighboring associations (Mok et al., 2007; Thomese and Van Tilburg, 2000). Future works should consider larger samples that would test different sampling approaches beyond chain-referral methods. New mechanisms to estimate network size and other indicators of position constitute a promising alternative to the use of name generators (McCarty, 2002).

The field of Criminology requires new perspectives on community-based social controls. In recent years scholars have developed significant attempts to expand traditional approaches (Carr, 2003; Patillo, 1999; Browning et al., 2004). It is important to explore operationalizations that move beyond ratings of expectations and focus on the micro-ecology of dispute resolution and actual resident-based interventions to preserve social order. Several works have already studied topics of community life relying on similar perspectives, even bridging formal and informal

mechanisms of regulation (Warner, 2007; Taylor, 1997; Lynch et al., 2002). New readings of *The Truly Disadvantaged* (Wilson, 1987), for example, have highlighted the need for more works on the relational dimension contained within urban entities. For example, regarding the notion of social isolation, Venkatesh has suggested that beyond the question of access to resources, scholars should engage in research works that "could enable a re-conceptualization of the urban poor spaces in terms of their status and position with respect to broader metropolitan structures and flows" (2003:1069). Such a perspective appears to be a central component of new cultural approaches to the study of crime in urban communities (Sampson and Bean, 2006).

APPENDIX A
SURVEY INSTRUMENT

FOR OFFICE USE ONLY	
Survey #	
RC #	
ADDRESS	
WAVE	
INT	

RESIDENT SURVEY INSTRUMENT

NEIGHBORHOOD EFFECTS AND INFORMAL SOCIAL CONTROL:
EXAMINING THE ROLE OF SOCIAL NETWORKS
IN THE SOUTH BRONX

2005

1) Does your neighborhood have a name?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

2) What is it called?

_____

_____

3) People define their neighborhood boundaries differently. What do you consider to be the boundaries of your neighborhood?

[SHOW MAP 1]

[NORTH] _____

[SOUTH] _____

[WEST] _____

[EAST] _____

This project is interested in a specific definition of the community in this area. For purposes of this survey, we define the neighborhood following the boundaries created by the city for Community Board 1. Here there is a map of the area:

[SHOW MAP 2]

I would like you to keep this in mind. A number of questions will ask about your views on your neighborhood.

4) How long have you lived in the New York City area?

Less than 12 months	⬭
1 to 2 years	⬭
3 to 5 years	⬭
6 to 10 years	⬭
11 to 20 years	⬭
More than 20 years	⬭
DK	⬭
REF	⬭

5) In what year did you move into your current home? [PROBE: If you cannot remember, can you give me a good approximation?]

[YEAR]

_____

6) Not counting those who live with you…

	None	One or two	Three to five	Six to nine	Ten or more	DK	REF
a. How many of your relatives or in-laws live in <u>your</u> neighborhood? Would you say none, one or two, three to five, six to nine, or ten or more?	⬭	⬭	⬭	⬭	⬭	○	○
b. Not counting those who live with you, how many friends do you have in <u>your</u> neighborhood?	⬭	⬭	⬭	⬭	⬭	○	○
c. How many relatives or in-laws do you have who live outside of <u>your</u> neighborhood?	⬭	⬭	⬭	⬭	⬭	○	○
d. How many friends do you have who live outside of <u>your</u> neighborhood?	⬭	⬭	⬭	⬭	⬭	○	○

7) Now, I would like to talk to you about some characteristics of the people in this neighborhood. For each of the following statements, please tell me whether you strongly agree, agree, disagree or strongly disagree.

	Strongly agree	Agree	Agree nor disagree	Disagree	Strongly disagree	DK	REF
a. Most people who live in this neighborhood can be trusted. Would you say you strongly agree, agree, disagree or strongly disagree?	⬭	⬭	⬭	⬭	⬭	○	○
b. In this neighborhood, one has to be alert or someone is likely to take advantage of you. (Would you say you strongly agree, agree, disagree or strongly disagree?)	⬭	⬭	⬭	⬭	⬭	○	○
c. Most people in this neighborhood are willing to help if you need it.	⬭	⬭	⬭	⬭	⬭	○	○
d. This is a close-knit neighborhood	⬭	⬭	⬭	⬭	⬭	○	○
e. People in this neighborhood share the same values	⬭	⬭	⬭	⬭	⬭	○	○
f. People in this neighborhood generally get along with each other	⬭	⬭	⬭	⬭	⬭	○	○

8) Now I am going to read some statements about things that people in your neighborhood may or may not do. For each of these statements, please tell me whether you strongly agree, agree, disagree or strongly disagree.

	Strongly agree	Agree	Agree nor disagree	Disagree	Strongly disagree	DK	REF
a. If there is a problem around here, the neighbors get together to deal with it.	⬭	⬭	⬭	⬭	⬭	○	○
b. When you get right down to it, no one in this neighborhood cares much about what happens to me.	⬭	⬭	⬭	⬭	⬭	○	○
c. There are adults in this neighborhood that children can look up to.	⬭	⬭	⬭	⬭	⬭	○	○
d. People around here are willing to help their neighbors.	⬭	⬭	⬭	⬭	⬭	○	○
e. People in this neighborhood generally don't get along with each other.	⬭	⬭	⬭	⬭	⬭	○	○
f. You can count on adults in this neighborhood to watch out that children are safe and don't get in trouble.	⬭	⬭	⬭	⬭	⬭	○	○

	Strongly agree	Agree	Agree nor disagree	Disagree	Strongly disagree	DK	REF
g. If I had to borrow $30 in an emergency, I could borrow it from a neighbor.	⬭	⬭	⬭	⬭	⬭	○	○
h. When I am away from home, I know that my neighbors will keep their eyes open for possible trouble to my place.	⬭	⬭	⬭	⬭	⬭	○	○
i. In this neighborhood people mostly go their own way.	⬭	⬭	⬭	⬭	⬭	○	○
j. If I were sick I could count on my neighbors to shop for groceries for me.	⬭	⬭	⬭	⬭	⬭	○	○
k. Children around here have no place to play but the street.	⬭	⬭	⬭	⬭	⬭	○	○
l. Adults in this neighborhood know who the local children are.	⬭	⬭	⬭	⬭	⬭	○	○
m. The park or playground closest to where I live is safe during the day.	⬭	⬭	⬭	⬭	⬭	○	○

9) Now I am going to ask you about some things you might do with people in your neighborhood.

	Often	Sometimes	Rarely	Never	DK	REF
a. About how often do you and people in your neighborhood do favors for each other? By favors we mean such things as watching each other's children, helping with shopping, lending tools, and other small acts of kindness. Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○
b. When a neighbor is not at home, how often do you and other neighbors watch over their property? Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○
c. How often do you and other people in the neighborhood ask each other advice about personal things such as job openings? Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○
d. How often do you and people in this neighborhood have parties or other get-togethers where other people in the neighborhood are invited? Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○

e. How often do you and other people in this neighborhood visit each other's home or on the street? ⬭ ⬭ ⬭ ⬭ ○ ○

10) For each of the following, please tell me if it is very likely, likely, unlikely or very unlikely that people in your neighborhood would act in the following manner:

	Very Likely	Likely	Neither likely nor unlikely	Unlikely	Very unlikely	DK	REF
a. If a group of neighborhood children were skipping school and hanging out on a street corner, how likely is it that your neighbors would do something about it?	⬭	⬭	⬭	⬭	⬭	○	○
b. If some children were spray-painting graffiti on a local building, how likely is it that your neighbors would do something about it?	⬭	⬭	⬭	⬭	⬭	○	○
c. If a child was showing disrespect to an adult, how likely is it that people in your neighborhood would scold that child?	⬭	⬭	⬭	⬭	⬭	○	○
d. If a well known neighbor was short of cash to start a business in the area, how likely is it that he or she would be able to borrow money from people in this neighborhood?	⬭	⬭	⬭	⬭	⬭	○	○
e. If there was a fight in front of your house and someone was being beaten or threatened, how likely is it that your neighbors would break it up?	⬭	⬭	⬭	⬭	⬭	○	○
f. Suppose something unfortunate happened to someone in the neighborhood, such as a serious illness, or the death of a parent. How likely is it that your neighbors could be counted on to do something to help this person?	⬭	⬭	⬭	⬭	⬭	○	○
g. Suppose that because of budget cuts the fire station closest to your home was going to be closed down by the city. How likely is it that neighborhood residents would organize to try to do something to keep the fire station open?	⬭	⬭	⬭	⬭	⬭	○	○

11) How likely it is that someone in your neighborhood would intervene in the following situations with a 6- year old child on a scale of 1 (not likely) to 10 (very likely).

	Not likely								Very likely			
	1	2	3	4	5	6	7	8	9	10	DK	REF
a. A 6-year old child paints or writes on a car or building. How likely do you think that someone would intervene? 1 means not likely and 10 means very likely.	○	○	○	○	○	○	○	○	○	○	○	○
b. A 6-year old child has hold of a gun. How likely do you think that someone would intervene? 1 means not likely and 10 means very likely.	○	○	○	○	○	○	○	○	○	○	○	○
c. A child has hold of a knife	○	○	○	○	○	○	○	○	○	○	○	○
d. A child is playing with matches	○	○	○	○	○	○	○	○	○	○	○	○
e. A child is shoplifting	○	○	○	○	○	○	○	○	○	○	○	○
f. A child is taking something out of a neighbor's house, garage or yard	○	○	○	○	○	○	○	○	○	○	○	○

12) How much control do you think people in your building/block have over…

	A lot	Some	Little	None	DK	REF
a. The people that hang out in the building/block. Do you think people have a lot, some, little or no control?	⬭	⬭	⬭	⬭	○	○
b. The safety of the building/block and its residents. Do you think people have a lot, some, little or no control?	⬭	⬭	⬭	⬭	○	○
c. Who travels and/or moves through the block/building	⬭	⬭	⬭	⬭	○	○
d. Whether they are exposed to violence in the building/block	⬭	⬭	⬭	⬭	○	○
e. Whether they are exposed to drugs in the building/block	⬭	⬭	⬭	⬭	○	○
f. The businesses that come into the neighborhood	⬭	⬭	⬭	⬭	○	○

13) Next I would like you to rate the following problems you might have seen on your block in the past 12 months. We will use a scale from 1 to 10 where 1 means this is not a problem and ten means this is a very big problem.

	Not a problem								Big problem			
	1	2	3	4	5	6	7	8	9	10	DK	REF
a. How much of a problem is litter, broken glass or trash on the sidewalks and streets? Would you say it is a big problem or not a problem? (10 means big problem and 1 means not a problem).	○	○	○	○	○	○	○	○	○	○	○	○
b. How much of a problem is graffiti on buildings and walls? Would you say it is a big problem or not a problem? (10 means big problem and 1 means not a problem).	○	○	○	○	○	○	○	○	○	○	○	○
c. How much of a problem are vacant and deserted houses or storefronts?	○	○	○	○	○	○	○	○	○	○	○	○
d. How much of a problem is drinking in public?	○	○	○	○	○	○	○	○	○	○	○	○
e. How much of a problem is people selling or using drugs?	○	○	○	○	○	○	○	○	○	○	○	○
f. How much of a problem is groups of teenagers or adults hanging out in the neighborhood and causing trouble?	○	○	○	○	○	○	○	○	○	○	○	○
g. How much of a problem is different social groups who do not get along with each other?	○	○	○	○	○	○	○	○	○	○	○	○
h. How much of a problem is police not patrolling the area or not responding to calls from the area?	○	○	○	○	○	○	○	○	○	○	○	○
i. How much of a problem is excessive use of force by the police?	○	○	○	○	○	○	○	○	○	○	○	○
j. How much of a problem is the unfriendly attitude of the police?	○	○	○	○	○	○	○	○	○	○	○	○
k. How much of a problem is lack of trust between local businesses and residents?	○	○	○	○	○	○	○	○	○	○	○	○

14) I am going to describe some events that may or may not have happened in your building or block. For each, please tell me as far as you know how often it has happened in your building or block during the past month:

	Often	Sometimes	Rarely	Never	DK	REF
a. As far as you know, during the past month, how often was there a fight in your building/block in which a weapon was used? Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○
b. As far as you know, during the past month, how often was there a violent argument between neighbors? Would you say often, sometimes, rarely or never?	⬭	⬭	⬭	⬭	○	○
c. People dealing drugs	⬭	⬭	⬭	⬭	○	○
d. Gang fights?	⬭	⬭	⬭	⬭	○	○
e. A sexual assault or rape?	⬭	⬭	⬭	⬭	○	○
f. A robbery or mugging?	⬭	⬭	⬭	⬭	○	○

15) a. While you have lived in this neighborhood, has anyone ever used violence, such as in a mugging or fight, against you or any member of your household anywhere in your neighborhood?

Yes	⬭
No (Skip to question 16)	⬭
DK *(Skip to question 16)*	⬭
REF *(Skip to question 16)*	⬭

b. Was that in the past six months?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

16) a. While you have lived in this neighborhood, has your home ever been broken into?

Yes	⬭
No *(Skip to question 17)*	⬭
DK *(Skip to question 17)*	⬭
REF *(Skip to question 17)*	⬭

b. Was it in the past six months?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

17) a. While you have lived in this neighborhood, <u>have you or another member of your household</u> had anything stolen from your yard, porch, or elsewhere outside your home (but in your property)?

Yes	⬭
No *(Skip to question 18)*	⬭
DK *(Skip to question 18)*	⬭
REF *(Skip to question 18)*	⬭

b. Was it in the past six months?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

18) How many people do you know according to the following statements? The definition of knowing someone is that you know them and they know you by sight or by name, that you could contact them and that there has been some contact (either in person, by telephone, mail or email) in the past 5 years.

	None	NUMBER	DK	REF
a. How many people named Christopher do you know?	○	_____	⬭	⬭
b. How many people named Christina do you know?	○	_____	⬭	⬭
c. How many people named Jose do you know?	○	_____	⬭	⬭
d. How many people named Latoya do you know?	○	_____	⬭	⬭
e. How many school teachers do you know?	○	_____	⬭	⬭
f. How many Native Americans do you know?	○	_____	⬭	⬭
g. How many homeless people do you know?	○	_____	⬭	⬭
h. How many males currently in prison do you know?	○	_____	⬭	⬭

19) How worried are you about you or someone else in your household being a victim of a crime in your neighborhood? Would you say you are very worried, somewhat worried, a little worried or not at all worried?

Very worried	⬭
Somewhat worried	⬭
A little worried	⬭
Not at all worried	⬭
DK	⬭
REF	⬭

20) How safe would you feel if a stranger stopped you at night in your neighborhood to ask for directions?

Very safe	⬭
Somewhat safe	⬭

Somewhat unsafe	⬭
Very unsafe	⬭
DK	⬭
REF	⬭

21) Do you happen to participate in any of the following neighborhood organizations or activities?
[PROBE: You can also mention an activity or organization not included in my list]
[CHECK ALL THAT APPLY]

Church, temple or any other religious organization	⬭
Church-connected groups but not the church itself (such as charity)	⬭
Informal leisure groups such as dominoes, basketball or bingo	⬭
Parent-teacher Association	⬭
Organizations of people of the same nationality/ethnic group	⬭
Youth groups (Explorers, scout leaders, etc.)	⬭
Political groups or organizations	⬭
Block group, tenant association or community council	⬭
Labor union	⬭
Other (specify) _____	⬭

22) Whether you belong to these organizations or not, how likely is it that any of those could improve neighborhood conditions? Would you say this is likely, possible or unlikely?

Likely	⬭
Possible	⬭
Unlikely	⬭
DK	⬭
REF	⬭

Now I would like to turn to some questions on your health, as well as your activities and interests. Let me remind you that all answers are confidential.

23) Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week by indicating the appropriate response.

	Rarely or none of the time (<1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most of the time	DK	REF
a. I was bothered by things that usually don't bother me.	⬭	⬭	⬭	⬭	○	○
b. I did not feel like eating; my appetite was poor.	⬭	⬭	⬭	⬭	○	○
c. I felt that I could not shake off the blues even with help from my family or friends.	⬭	⬭	⬭	⬭	○	○
d. I felt that I was just as good as other people.	⬭	⬭	⬭	⬭	○	○
e. I had trouble keeping my mind on what I was doing.	⬭	⬭	⬭	⬭	○	○
f. I felt depressed.	⬭	⬭	⬭	⬭	○	○
g. I felt that everything I did was an effort.	⬭	⬭	⬭	⬭	○	○
h. I felt hopeful about the future.	⬭	⬭	⬭	⬭	○	○
i. I thought my life had been a failure.	⬭	⬭	⬭	⬭	○	○
j. I felt fearful.	⬭	⬭	⬭	⬭	○	○
k. My sleep was restless.	⬭	⬭	⬭	⬭	○	○
l. I was happy.	⬭	⬭	⬭	⬭	○	○
m. I talked less than usual.	⬭	⬭	⬭	⬭	○	○
n. I felt lonely.	⬭	⬭	⬭	⬭	○	○
o. People were unfriendly.	⬭	⬭	⬭	⬭	○	○
p. I enjoyed life.	⬭	⬭	⬭	⬭	○	○
q. I had crying spells.	⬭	⬭	⬭	⬭	○	○
r. I felt sad.	⬭	⬭	⬭	⬭	○	○
s. I felt that people disliked me.	⬭	⬭	⬭	⬭	○	○
t. I could not get "going."	⬭	⬭	⬭	⬭	○	○

24) Would you say that in general your health is:

Excellent	⬭
Very good	⬭
Good	⬭
Fair	⬭
Poor	⬭
DK	⬭
REF	⬭

25) Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

Number	_____
DK	⬭
REF	⬭

26) Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Number	_____
DK	⬭
REF	⬭

27) During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?

Number	_____
DK	⬭
REF	⬭

28) Which of the following categories describes most accurately your current occupation?

Self-employed, contractor, independent	⬭
Employed by someone else	⬭
Homemaker, not working outside the home *(Skip to question 30)*	⬭
Student plus job	⬭
Student and no job	⬭
Retired *(Skip to question 30)*	⬭
Unemployed for less than 3 years *(Skip to question 30)*	⬭
Unemployed for more than 3 years *(Skip to question 30)*	⬭
DK	⬭
REF	⬭

29) On average, how much time would you say you spend at your job/school per week?

Number	_____
DK	⬭
REF	⬭

30) What is the highest grade or year of school you have completed?

No formal schooling	⬭
Elementary or some high school	⬭
High school diploma or GED	⬭
Some college or Associate degree	⬭
Bachelors degree	⬭
Some graduate school	⬭

Graduate	⬭
DK	⬭
REF	⬭

31) Do you have any Hispanic origin?

Yes	⬭
No *(Skip to question 33)*	⬭
DK	⬭
REF	⬭

32) What's the country related to your Hispanic origin?

Puerto Rico	⬭
Dominican Republic	⬭
Mexico	⬭
Other	_____
DK	⬭
REF	⬭

33) What's your ethnicity?

_____

34) Were you born in the U.S.?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

35) Were your parents born in the US?

Yes, both of them	⬭
Yes, one of them	⬭
No	⬭
DK	⬭
REF	⬭

36) What was your age on your last birthday?

Number	_____
DK	⬭
REF	⬭

37) Which of these categories best describes your current living arrangement?

Domestic partnership	⬭
Single/Never Married	⬭
Married	⬭
Separated	⬭
Divorced	⬭
Widowed	⬭
DK	⬭
REF	⬭

38) Do you have any children?

Yes	⬭
No *(Skip to question 41)*	⬭
DK	⬭
REF	⬭

39) Can you please tell me for each one of them, their age-range?

	< 5	5-9	10-13	14-19	20-25	>26
1.	⬭	⬭	⬭	⬭	⬭	⬭
2.	⬭	⬭	⬭	⬭	⬭	⬭
3.	⬭	⬭	⬭	⬭	⬭	⬭
4.	⬭	⬭	⬭	⬭	⬭	⬭
5.	⬭	⬭	⬭	⬭	⬭	⬭

40) Are you currently living with your children?

Yes, all of them	⬭
Yes, most of them	⬭
Yes, some of them	⬭
No	⬭
DK	⬭
REF	⬭

41) I am going to mention several income categories. When I mention the category that describes your total household income in the past year, please stop me. Include money from all sources, not just wages and salaries.

Less than 15 thousand	⬭
Between 15 and 30 thousand	⬭
Between 30 and 45 thousand	⬭
More than 45 thousand	⬭
DK	⬭
REF	⬭

42) Please tell me as far as you remember, whether or not you experienced any of the following situations in the last five years (this is, since the year 2000):

	Yes	No	DK	REF
a. Have you been called on jury duty in the past five years?	⬭	⬭	○	○
b. Have you been involved in a child custody case or a case with the Administration of Children Services in the past five years?	⬭	⬭	○	○
c. Have you submitted a complaint to the Police (by any means) in the past five years (this is since the year 2000)?	⬭	⬭	○	○
d. Have you been given a ticket by the Police (not traffic) in the past five years (this is since the year 2000)?	⬭	⬭	○	○
e. Have you been stopped and searched by the Police in the past five years?	⬭	⬭	○	○
f. In the past five years, have the Police searched your house?	⬭	⬭	○	○
g. Have you been given a summons in the past five years?	⬭	⬭	○	○
h. Have you been arrested in the past five years?	⬭	⬭	○	○
i. Have you been convicted of a crime in the past five years?	⬭	⬭	○	○
j. Have you been to jail in the past five years?	⬭	⬭	○	○
j. Have you been to prison in the past five years?	⬭	⬭	○	○

43) Now I have some questions about people going to prison. To be clear, we define a prison as a correctional facility often located in upstate New York (although there are prisons in all states). These facilities can be operated by the State or the Federal government. People going to prison have been convicted of a crime and their sentence is usually greater than one year.

	Yes	No	DK	REF
a. Has someone you consider a close relative been to prison in the <u>past five years</u> (this is since the year 2000)?	⬭	⬭	○	○
b. Has someone you are attached to been to prison in the past five years?	⬭	⬭	○	○
c. Has someone you consider a close relative been to prison in the <u>past year</u>	⬭	⬭	○	○
d. Has someone you are attached to been to prison in the past year?	⬭	⬭	○	○
e. Are you or anyone in your household expecting someone to return from prison in the next year?	⬭	⬭	○	○

Now I would like to get an idea of the people who are important to you in a number of different ways. I will be reading descriptions of ways people are often important. After I read each description I will be asking you to give me the first names, initials, or nicknames of the people who fit the description. Please don't provide me their full names. These people might be friends, family members or other people you might know. If you have any questions about the descriptions after I read each one, ask me to try to make it clearer. Feel free to repeat the names of people connected to you in different ways.

44) With whom do you currently live? Please give me their first names or initials.

1.	4.
2.	5.
3.	6.

45) If you wanted to talk to someone about things that are very personal and private, who would you talk to? Give me their first names or initials.

1.	7.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

46) During the last month, which of these people or other people not included in the previous list did you actually talk to about things that were personal and private?

1.	5.

2.	6.
3.	7.
4.	8.

47) In the last month have some people approached you in order to share their private feelings? Can you give me their first names or nicknames?

1.	5.
2.	6.
3.	7.
4.	8.

48) Who are the people you know that would lend or give you $50 if you needed it? You can name some of the same people you named before if they fit in this description, or you can name some other people.

1.	7.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

49) During the past month, which of these people or other people not included in this list actually loaned or gave you $50 or more?

1.	5.
2.	6.
3.	7.
4.	8.

50) In the past month have some people approached you in order to ask you for a loan of $50 or more? Can you give me their first names or initials?

1.	5.
2.	6.
3.	7.
4.	8.

51) Who are the people that you get together with to have fun or to relax? These could be new names or ones you have listed before.

1.	7.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

52) During the past month, which of these people or other people not included in this list did you actually get together with to have fun or to relax?

1.	5.
2.	6.
3.	7.
4.	8.

53) Who are the people that can provide you information about jobs, in case you need it? These could be new names or ones you listed before.

1.	7.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

54) Which of these people or other people not included in this list did you actually go to for help when looking for a job?

1.	5.
2.	6.
3.	7.
4.	8.

55) Have you passed information about a job to someone? Can you give me their first names?

1.	5.
2.	6.
3.	7.
4.	8.

56) Who are the people that you would like to avoid on the street or at home? These could be new names or names you listed before.

1.	7.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

57) During the past month, which of these people have you actually had to see or talked to?

1.	5.
2.	6.
3.	7.
4.	8.

Now I will put all the names, nicknames or initials you just provided me in a table. I will be asking you specific questions about these individuals. Please give me a minute while I prepare the table.

QUESTIONS 58 TO 68 → ENTER IN ALTERS FORM -- **SHOW CARDS**

58) [First name] is a female?

Male	0	**COLUMN G**
Female	1	
DK	98	
REF	99	

59) Has [First name] a Hispanic origin?

No Hispanic	0	**COLUMN H**
Hispanic	1	
DK	98	
REF	99	

60) What do you think is the predominant race or ethnicity of [First name]

Black	1	**COLUMN ET**
White	2	
Asian	3	
Other	4	
DK	98	
REF	99	

61) How old is [First name]? [PROBE: What would be your best guess?]

Number		**COLUMN A**
DK	98	
REF	99	

62) What is [First name]'s highest level of education? (PROBE: what is your best guess?)

No formal schooling	0	**COLUMN ED**
Elementary or some high school	1	
High school diploma or GED	2	
Some college or Associate degree	3	
Bachelors degree	4	
Some graduate school	5	
Graduate degree	6	
DK	98	
REF	99	

63) On average, do you speak with [First name] almost every day, at least once a week, at least once a month, or less than once a month?

Daily or almost every day	5	**COLUMN F**
At least once a week	4	
Once or twice a month	3	
Less than once a month	2	
Less often	1	
DK	98	
REF	99	

64) Have you known [First name] for less than one year, one to three years, or more than three years?

Less than 1 year	1	**COLUMN K**
3 to 5 years	2	
5 to 10 years	3	

More than 10 years	4	
DK	98	
REF	99	

65) How is [First name] related to you? Please indicate only the most important way this person is related to you.

Partner	1	**COLUMN T**
Mother or Father	2	
Sister or Brother	3	
Child	4	
Grandfather or grandmother	5	
Grandchild	6	
Cousin	7	
Aunt/Uncle	8	
Nephew/Niece	9	
Other family	10	
Coworker	11	
Classmate	12	
Church member	13	
Organization member	14	
Neighbor	15	
Friend	16	
Other non-Family	17	
DK	98	
REF	99	

66) Where did you meet [First name]?

Family	1	**COLUMN M**
This neighborhood	2	
Other neighborhood	3	
Work	4	
School	5	
Association, church or neighborhood activity	6	
Other	7	
DK	98	
REF	99	

67) Which of the following categories describes most accurately [First name]'s main/current occupation?

Self-employed, contractor, independent	1	**COLUMN OC**
Employed by someone else	2	
Homemaker, not working outside the home	3	
Student plus job	4	
Student and no job	5	
Retired	6	
Unemployed for less than 3 years	7	
Unemployed for more than 3 years	8	
DK	98	
REF	99	

68) Can you please give me the nearest intersection or cross-street to [Name]'s residence? [PROMPT: If [NAME] lives in a large apt. complex can you list also their floor number?]

Intersection		**COLUMN intersection**
DK	98	
REF	99	

QUESTIONS 69 AND 70 → ENTER DATA IN NETWORK MATRIX

69) Now I would like you to tell me which of the individuals you mentioned are especially close to you. Please CIRCLE THE **E** CODE IN THE APPROPRIATE ROW.

70) Now, would you please tell me whether these individuals know each other (as far as you know). Lets start with the first name: does [First name] knows [second name]?

PROBE: The definition of knowing someone is that they know each other by sight or by name, that you are aware of contact between them (either in person, by telephone, or mail) in the past two years.

CODE ANSWERS INTO THE MATRIX FOR ALL ALTERS
CIRCLE THE **K** CODE IN THE APPROPRIATE ROW OF THE ALTER COLUMN.

71) Was there someone you left out from your list because he or she is currently incarcerated?

Yes	⬭
No	⬭
DK	⬭
REF	⬭

Those are all the questions I have. I appreciate your help. Thanks so much for your time. As I mentioned at the beginning of this interview, I have a $20 gift certificate as a token of appreciation for your time and cooperation.

[ISSUE GIFT CERTIFICATE]
[MAKE SUBJECT SIGN RECEIPT]

[COUPON'S DIRECTIONS]
[ISSUE 3 ENVELOPES FOR RDS]
[ISSUE ENVELOPES FOR CONTACTS]

INTERVIEWER FEEDBACK

72) Did you conduct the interview in a highly problematic environment (noise, many interruptions)?

Yes	⬭
No	⬭

73) As far as you can tell, do you think the respondent answered the survey truthfully?

Yes	⬭
No (see below)	⬭
Suspected questions_____	⬭

74) As far as you can tell, do you think the respondent understood the survey correctly?

Yes	⬭
No (see below)	⬭
Suspected questions_____	⬭

Additional comments

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