

THE RELATIONSHIP BETWEEN SOCIAL DISORGANIZATION, SOCIAL CAPITAL AND
HOMICIDE: A CROSS-NATIONAL EXAMINATION

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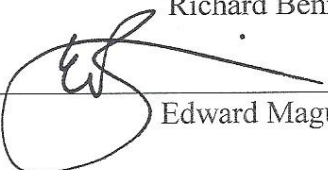
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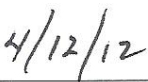
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DEDICATION

To Paul for the emotional, financial, intellectual and technical support;

to Goombah, my private tutor for my entire academic career;

to Mom for fiber support, proofreading, and listening;

and to Connor for reminding me what is truly important.

This really was a team effort. I love all of you.

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ABSTRACT

This study examines the direct and indirect effects of social disorganization on cross-national homicide rates, while controlling for social capital. Social disorganization theory is conceived of as communities with poverty, high mobility, and ethnic heterogeneity which result in ineffective community cultures and structures, which in turn lead to the weak controls that account for increased levels of crime. Social capital has been associated with membership in voluntary organizations, time spent socializing with friends and neighbors, participation in local politics, voter turnout, volunteering, religiosity, social trust, and family cohesiveness. It is generally considered that greater disorganization will be associated with higher crime and greater levels of social capital will be associated with lower the rates of crime. It is reasoned here that social disorganization will decrease the likelihood of a viable community social network. Lacking these social relationships, community members are less likely to intervene in support of neighborhood controls ultimately creating an environment in which there is a greater opportunity for predatory crime to occur. I hypothesize that social disorganization will have a positive effect on homicide rates cross-nationally, but that this effect will be mediated by social capital. This hypothesis is tested using both a series of direct OLS regression models and through an indirect effect model written specifically to test a mediating relationship. The study includes a total of 87 nation-years and controls for standard crime covariates. Results indicate that while social

disorganization has a significant effect on cross-national homicide rates, social capital does not appear to mediate this effect. Implications of these findings are discussed.

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CHAPTER 1 - INTRODUCTION

“The ties that bind” have allegorically been the cure for many of society’s ills helping to support, uplift, encourage and reprimand individuals as necessary; these ties bind us to family, friends, neighborhood, and nation. Without these ties individuals may feel lost, confused, and alone, contributing to an increase in crime and a decline in democratic processes. The criminological study of social disorganization and the sociological study of social capital, respectively, portend just such outcomes. The theory of social disorganization submits that a neighborhood characterized by a lack of cohesiveness and communication among residents is “disorganized” and unable to achieve community objectives, one of which being low rates of crime. The theory of social capital posits that the interconnectedness of individuals through social groups facilitates a host of positive societal ends, including democratic processes, social trust, civic engagement, and the reduction of crime. The purpose of this study is to tie together social capital and social disorganization theories as they relate to crime by examining the direct and indirect effects of social disorganization on cross-national homicide rates, when controlling for social capital.

The social disorganization theory of crime as set forth by Shaw and McKay (1942) suggests that factors such as economic deprivation, population turnover and ethnic heterogeneity within a neighborhood result in weak social networks, reducing residents’ ability to exercise control over other residents’ behavior; this inability to control behavior creates an environment conducive to predatory crime. Social capital theory focuses on the resources individuals acquire through their interactions with one another; namely through trust and ties to the community (Paxton, 1999). According to Robert Putnam (1995), higher social capital in a community will lead to a lower crime rate, due to the “networks, norms and trust – that enable participants to act

together more effectively to pursue shared objectives” (p. 664), one of which is a lack of crime. These two theories have much in common. Both suggest that communities or networks of individuals work toward low crime as a shared objective, but when the social networks are disrupted or absent, community cooperation is hampered, creating an environment in which crime is more likely to occur. The key constructs of social capital and social disorganization overlap to a significant degree, and I propose combining the key constructs of these theories as a way to enhance their abilities to predict predatory crime in communities worldwide.

A significant portion of social disorganization research (Sampson & Groves, 1989; Shaw & McKay, 1942; Veysey & Messner, 1999) examines the effect of factors such as economic deprivation, population turnover, ethnic heterogeneity, population density and family disruption on crime rates in a given area. Other research (Kornhauser, 1978; Kubrin & Weitzer, 2003; Sampson, Raudenbush & Earls, 1997) explores the possibility that social disorganization is related to crime rate, but only because it is mediated by community control (Kornhauser) or collective efficacy (Sampson et al.). As illustrated in Figure 1.1, a mediator is the middle variable in a causal sequence of three or more variables. The idea being that the independent variable (i.e., social disorganization), causes a change in the mediator variable (i.e., collective control/collective efficacy), which in turn causes a change in the dependent variable (i.e., crime).

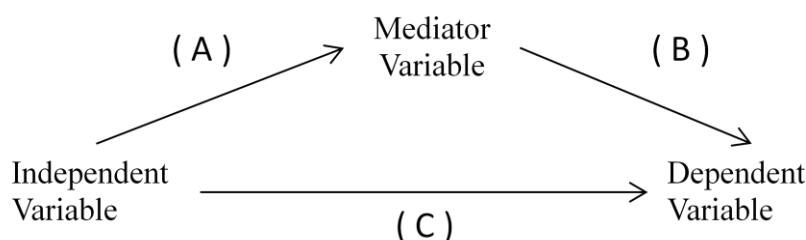


Figure 1.1 - Simple Mediation Model

Path C represents the direct effect of the independent variable (IV) on the dependent variable (DV); this measures the change in the DV when the IV changes by one unit. The indirect effect is the path AB; this measures the change in the DV when the IV is held constant and the mediator changes the extent it would have attained had the IV changed by one unit. In perfect mediation, path C would not be statistically different from zero once the mediating variable is taken into account. In other words, for this example, any direct effect social disorganization has on crime would be reduced to nonsignificance once the mediating influence of collective control/collective efficacy is added to the equation (Baron & Kenny, 1986; Tabachnick & Fidell, 2007).

Kornhauser (1978) summarizes the mediating influence of community control thus: “In summary: economic status, mobility, and heterogeneity are the three aggregate community characteristics that account for the variation in the social disorganization of communities . . . poverty, high mobility, and heterogeneity result in ineffective community cultures and structures, which in turn lead to the weak controls that account for delinquency” (p. 66). For this paper, I consider Kornhauser’s ‘community cultures and structures’ to be social capital, and instead of measuring this effect on delinquency, I am measuring the effect on homicides. Using these terms, I think that social capital mediates the relationship between social disorganization and homicide.

Social disorganization theory has primarily evolved from the outcomes of research focused on phenomena traditionally within the discipline of criminology, such as juvenile delinquency¹. Social capital theory, on the other hand, has been constructed from sociological research involving a variety of social phenomena, such as altruism. The application of social

¹ A body of literature is developing on the role of social disorganization and diverse outcomes relating to health, education, and risky behaviors. See, for example, Sampson and Morenoff (1999).

capital theory to crime involves research that examines the impact on crime rates of factors such as membership in voluntary organizations, time spent socializing with friends and neighbors, participation in local politics, voter turnout, volunteering, religiosity, social trust, and family cohesiveness on crime rates (DeCoster, Heimer & Wittrock 2006; Lederman, Loayza & Menendez 2002; Rosenfeld, Messner & Baumer 2001; Wright, Cullen & Miller 2001). I propose that social disorganization influences social capital, and both influence crime rates, specifically homicide. Poverty, mobility and heterogeneity decrease the likelihood of a viable community social network through such mechanisms as reduced participation in social and political organizations. Lacking these social relationships, community members are less likely to intervene in support of neighborhood controls (collective efficacy) ultimately creating an environment in which there is a greater opportunity for predatory crime to occur.

Social capital and social disorganization have been studied in concert before (see, for example, Kawachi, Kennedy & Wilkinson, 1999), but previous research has been limited primarily to the United States. In this study I will examine the interrelationships of these constructs cross-nationally. This study will explore the association between social disorganization and social capital by using cross-national panel data for 25 nations over the course of 25 years. The intent is to examine the direct effect of social disorganization on homicide rates and whether or not social capital mediates this relationship. Chapter two will provide details on the evolution and structure of social disorganization and social capital theories.

CHAPTER 2 - THEORETICAL BACKGROUND

Social Disorganization

Social disorganization theory was first proposed by Clifford Shaw and Henry D. McKay in their seminal work *Juvenile Delinquency and Urban Areas* published in 1942 and revised in 1969, which attempted to explain the variations in delinquency across neighborhoods in Chicago between 1927 and 1933. Shaw and McKay both lived and attended school in Chicago and they noticed that during the growth of the city, certain areas were used almost exclusively for industry, others for residential purposes; some areas were occupied by the wealthy and others by the poor; some areas were occupied by one ethnic group versus another. Most importantly, Shaw and McKay noticed that there were “wide differences in the rates of truants, of delinquents, and of adult criminals, as well as in disease and mortality rates and other indexes of well-being” (1969, p. 17). They wanted to know why these variations existed and built a theory based in part on the work of the Chicago School of Human Ecology (Park, Burgess & McKenzie, 1925). Park et al. “viewed the development of urban areas much like an ecologist viewed the invasion of organisms into new areas occupied by other species” (Vowell & Howell, 1998 p. 364). New immigrants to urban areas typically move into the least desirable sections of the city, those abutting industrialized areas and characterized by cheap and dilapidated housing and characterized by residential heterogeneity, economic disadvantage, and residential instability.

These neighborhoods consistently had higher rates of delinquency over the course of decades, despite the fact that the individuals and the overall ethnic make-up of these neighborhoods completely changed during the intervening years. The consistency of Chicago neighborhood delinquency rates “supports emphatically the conclusion that the delinquency-

producing factors are inherent in the community” (Shaw & McKay, 1969, p. 315). Having established the constancy of delinquency in certain neighborhoods, Shaw and McKay then attempted to discover which community characteristics produced delinquency. Studying 56,000 juvenile court records from 1900-1933 and using a series of maps to show spatial distributions of juvenile delinquency, Shaw and McKay noted that low-income areas adjacent to industrial areas retained the highest levels of not only delinquency, but also infant mortality, tuberculosis, school truancy, insanity, foreign-born and Negro head of families, and low rates of home ownership.

Shaw and McKay found that areas characterized by low socioeconomic status (SES), high residential turnover and high ethnic heterogeneity were “disorganized” communities. The ethnic diversity of such locales interfered with communication among adult residents. Language barriers coupled with differences in customs and a lack of shared experiences often bred fear and mistrust within the neighborhood. High rates of residential turnover also disrupted the ability of residents to form and maintain social relationships. Community residents therefore did not come together to form and work towards community goals and objectives, such as requests for social services, supervision of neighborhood children and teens, and crime control. Simcha-Fagan and Schwartz (1986) best summarize Shaw and McKay’s characteristics of high-crime neighborhoods: “[they] tend to have high rates of population turnover and to be heterogeneous. These characteristics, in turn, result in unstable and inadequate institutional resources and in the isolation of institutions. Such an institutional structure is ineffective in articulating goals and creates discontinuity on socialization; this results in institutional incapacity to exact instrumental and affectively based conformity which translates into weak individual social bonds” (p. 670). In other words, people live in low-income, undesirable neighborhoods because they have no other choice and will move elsewhere as soon as they have the economic wherewithal to do so.

Residents in such communities are uninterested in investing time and effort in order to establish or maintain institutions pertaining to internal neighborhood control when they hope to leave the neighborhood at the first opportunity.

Social disorganization theory thus postulates a two-stage model in which structural constraints characteristic of a community, such as high ethnic heterogeneity, high population turnover, and low SES, result in weak neighborhood social bonds. These weak social bonds, in turn, affect individual-level bonds to conventional norms both directly and indirectly. The direct effect is on individual behavior; for example, neighbors are unwilling confront strangers or disperse street-corner gangs of juveniles because they do not feel particularly attached to the neighborhood or feel comfortable enforcing nebulous neighborhood standards of behavior. The indirect effect is that neighborhood residents, particularly juveniles, fail to develop strong bonds to key socializing institutions, such as school and church that typically help to instill adherence to conventional norms.

This two-stage model is akin to Hirschi's social bonds theory (1969), which shares many similarities with social disorganization theory, even though social bonds is a micro theory and social disorganization is a macro theory. Hirschi proposed that there is one dominant conventional cultural system in the United States which defines crime as inappropriate conduct. Those individuals who do not learn the values, norms and beliefs of the conventional culture are expected to have a higher probability of committing crime than those who do (Akers & Jensen, 2006). Hirschi posed the question: "why *do* men obey the rules of society? Deviance is taken for granted; conformity must be explained" (Hirschi, 1969, p. 10). According to social bonds theory many people would commit crime if it were not for the fear of social consequences ("What would my family, friends, neighbors say?"). It is only the bonds to others that hold

individual behavior in check. The four elements that comprise this bond are attachment to others (usually parents, school and peers), commitment to conformity and education, involvement in conventional activities, and belief that the rules of society are morally correct and should be obeyed. According to the theory, the stronger an individual scored on each of these elements, the more likely the person was to refrain from criminal activity (Akers & Sellers, 2009).

Hirschi's social bonds theory is a helpful complement to social disorganization theory, because social bonds theory describes the people who are more likely to be involved in crime (the unit of analysis is the individual), and social disorganization theory describes the context where crime is more likely to occur (the unit of analysis is the neighborhood/community). Social disorganization theory, as a macro theory, does not attempt to explain why only certain individuals (and not everyone living in a particular community) engage in crime. Social bonds theory does attempt to explain individual-level variation in criminal involvement.

Connecting social bonds and social disorganization theory provides a fuller potential explanation for crime. Individuals living in a "disorganized" community are more likely to be poor and socially isolated. These individuals, and particularly children growing up in a neighborhood where crime and delinquency may be prevalent, are less likely to form positive attachments to conventional institutions and people. Attachments to conventional institutions may be hampered by the lack of such establishments in disorganized communities, and attachment to people (conventional or otherwise) may be hampered by the high rate of turnover (residential mobility). Such circumstances do not guarantee individual involvement in crime, they do increase the possibility of it. While the connections between social bonds and social disorganization are important and interesting, they are not the focus of this research project other than as a link between community disorganization and individual-level crime.

Another link between community disorganization and crime is physical disorder and neighborhood deterioration. Disorder is an outward, visible indicator that community controls are no longer in place, and criminals have free reign (Skogan, 1990) because community residents will most likely look the other way rather than intervene. Visible signs of neighborhood disorder cause residents to physically flee a neighborhood if they have the financial means to do so, and if they do not, they psychologically flee – thus reducing the level of supervision and amount of social capital in the neighborhood (Skogan, 1990). Such a response generates a vicious downward cycle: an increase in disorder leads to a decrease in social capital, less neighborhood supervision, lower collective efficacy (discussed in greater detail below), which leads to more disorder; and the cycle continues. Again, physical disorder is not a focus of this study, but it is another way neighborhood disorganization can be linked to increased neighborhood crime.

So, exactly what physical, economic, population or family conditions comprise a socially disorganized area? The very fact that crime and deviance were high in an area was sometimes used, tautologically, as an empirical indicator that an area was “disorganized” (see Bursik, 1988, for a full discussion of this issue). Shaw and McKay noted an extensive list of social and physical ills in disorganized communities; however subsequent social disorganization theorists have focused on three main indicators: namely, population mobility, economic disadvantage and ethnic heterogeneity.

Population mobility is linked with crime through the loss of informal social controls (Sampson & Wilson, 1995). Neighborhoods with high rates of turnover are more likely to have residents who do not know each other and do not look out for each other. Individuals do not form relationships with their neighbors and may not feel it is appropriate or necessary to

intervene in events occurring in and around a neighbor's dwelling. Additionally, when social relations are in constant flux due to high rates of residential turnover, the development and maintenance of residents' reputations becomes less essential in communities (Kubrin & Herting, 2003). This social anonymity frees residents to behave in ways they might not if they knew and valued their neighbors' opinions of them.

Economic disadvantage, or poverty, has long been associated with crime, although the exact relationship is subject to debate. From a rational-actor approach, individuals weigh the consequences of committing crime (Wilson & Herrnstein, 1985). They resort to crime only if the cost or consequences are outweighed by the potential benefits to be gained. The logical conclusion to this theory is that people living in poverty are far more likely to commit property crimes such as burglary, larceny, or theft. However, the "pure" rational actor theory has been disproven empirically (Akers & Sellers, 2009).

Strain theory suggests a different link between economic disadvantage and crime. From the strain perspective, crime results from the strain experienced by individuals who experience "dissociation between valued cultural ends and legitimate societal means to those ends" (Akers & Sellers, 2009). Robert Merton (1968) asserts that American culture promotes success at any cost; acquiring success (the end) is more important than succeeding legitimately (the means). When individuals are socialized to hold high aspirations but are blocked from achieving those aspirations by limited access to educational and occupational opportunities, the individual experiences strain and may take advantage of illegitimate or illegal avenues to success. As a result, Merton suggests that the cause of crime is the disparity between success goals and access to legitimate means.

Although Merton's (1938) causal elements are at the structural level (goals, institutionalized means of attaining them), his description of deviance operates at the individual level, because it is the individual's mode of "adaptation" that determines his or her behavior. Merton originally conceived his theory at the macro-level, attempting to explain why crime rates were higher in the United States and in other nations. This macro-level theory was called anomie theory, and the focus was on institutional norms and institutional means of success. However, implicit Merton's anomie theory was the psychological states of individual people who were frustrated when blocked from material success. The individual-level theory which evolved, including the typology of individual adaptations, became known as strain theory and has been tested extensively at both micro- and macro- levels of analysis. Thus, social disorganization can be seen as a macro-level theory describing the context where individuals are most likely to offend, and strain theory can be seen as the micro-level theory describing which individuals are most likely to offend is a group theory where the unit of analysis is the neighborhood or community; but group behavior is comprised of the behavior of individuals; in this way the micro-level strain theory is related to the macro-level social disorganization theory.

More recent developments of the "strain" theme, such as Sampson and Wilson (1995), argue that the effects of living in an impoverished neighborhood marked by family disruption and joblessness results in "concentration effects" such as social disorganization and social isolation. These economically disadvantaged neighborhoods lack sustained interaction with institutions and individuals that represent mainstream society and societal values resulting in the attenuation of larger cultural values, including values that discourage delinquency and crime. Some research (Anderson, 1999; Bruce, Roscigno & McCall, 1998; Horowitz, 1983) indicates

that crime may be a cultural adaptation to the environment created by concentrated disadvantage in these communities.

Regardless of the exact mechanism underlying the relationship between economic disadvantage and crime, the relationship does exist and places where poverty is high are often the same as those where crime is high. Therefore it is theoretically prudent to include economic disadvantage in any theory of crime.

The third indicator, ethnic heterogeneity, impedes communication because the variety of spoken languages obstructs the quest to solve common problems and reach common goals (Bursik, 1988). Shaw and McKay (1969) suggested that each ethnic group may have different views regarding what constitutes acceptable behavior, so even finding common ground upon which to define problems and reach common goals may be difficult in heterogeneous neighborhoods. Nielsen, Lee and Martinez (2005) suggested that ethnic heterogeneity is linked to social disorganization obliquely, as a result of economic disadvantage. Areas with high levels of immigrants have higher crime rates because these groups can only afford to settle into areas already characterized by social disorganization, and not because of any characteristic of the racial, ethnic or immigrant group per se. However, Nielsen et al. do concede that immigration might reduce neighborhood solidarity and social trust as a result of language barriers and conflict over conduct norms potentially stemming from increased ethnic heterogeneity.

Since Shaw and McKay's research in the 1930s, other theorists have suggested either adding to or modifying some of the original constructs of social disorganization theory. Sampson and Groves (1989) added two constructs to the three already mentioned. They contended that urbanization and family disruption were also indicative of social disorganization because both may decrease informal social controls at the community level. They reason that

two-parent households provide increased supervision not only for their own children but also for the activities of other children and adolescents within the community. Because a great deal of delinquency is attributable to unsupervised peer-group and gang activity, increasing the level of adult supervision within a neighborhood will decrease the activities of these adolescent groups, thereby reducing crime.

Sampson and Groves consider urbanization to be a theoretically important variable and suggest that Shaw and McKay's original framework is consistent with the idea that urban communities have a decreased capacity for social control as compared to more rural areas. Urbanization "may weaken local kinship and friendship networks and impede social participation in local affairs" (Sampson & Groves, 1989, p. 782). Sampson and Groves operationalize urbanization as a dichotomous variable – a central-city location is "urban" and any other location is not. In their seminal 1989 study, Sampson and Groves' findings indicate that family disruption and urbanization do disrupt local friendship networks, and are associated with increased criminal victimization.

Recent critics (Warner & Pierce, 1993) suggest that income, residential mobility, and heterogeneity in urban areas may interact differently now than they did when Shaw and McKay studied Chicago in the 1930s. At that time, economically deprived neighborhoods were typically also neighborhoods with high mobility and significant heterogeneity. Today families and individuals living in impoverished urban neighborhoods are often long-term residents because they cannot afford to move out of public housing. These neighborhoods have long since stabilized into ethnic homogeneity, frequently Black, and have become increasingly socially isolated from one another as well as from other economic groups. Today, neighborhoods characterized by economic deprivation, *low* residential mobility, and high ethnic *homogeneity*

have the highest rates of crime in the United States (Warner & Pierce, 1993), nearly the opposite of what Shaw and McKay observed seven decades ago.

Critiques of social disorganization usually focus on how social disorganization theory does not, and cannot, predict who will commit crime (Akers & Sellers, 2009). Social disorganization theory is not designed to elucidate individual behavior because the unit of analysis is typically the neighborhood. Neighborhood-level data do not permit separation of the effect of shared social conditions from those of individual characteristics (Simcha-Fagan & Schwartz, 1986). Social disorganization theory provides a foundation for conceptualizing the influence of social factors on crime and delinquency by pointing to a mechanism by which geographical and structural characteristics are associated with differential rates of criminality, and does not attempt to postulate the manner by which the characteristics of aggregates affect the behavior of individuals apart from individual predispositions (Simcha-Fagan & Schwartz, 1986). Researchers using social disorganization theory must be careful to confine their scrutiny to aggregate, group level analysis (Bursik, 1988).

Sampson et al. (1997) proposed that the effects of social disorganization are mediated by an intervening construct, collective efficacy, which is the concept that people must *do* something to promote community goals and exercise social controls (Morenoff, Sampson & Raudenbush, 2001). Sampson and his colleagues argue that collective efficacy has a greater overall influence on neighborhood crime rates because it implies some level of action on the part of community residents. Neighbors may know each other and the community may be organized around prosocial ideals, but if no one is willing to actually question strangers or break up groups of juveniles hanging out on street corners, then the neighborhood may still have high levels of crime. This is a community-level factor above and beyond Hirschi's ideas of social bonds and

informal social control and brings the discussion to the other half of this analysis, which is the theory of how social interactions may prevent crime.

Social Capital

The concept of social capital first appeared in the literature in the 1980s, but it has been defined and used in several different ways. Social capital does not have a clear, undisputed meaning and therefore the particular definition adopted by a study will depend on the discipline and the particular type of investigation. James Coleman (1988) first conceived of social capital as the combination of two streams of thought regarding social action, one sociological and the other economical. The sociological stream views an individual as an actor who is socialized and whose actions are governed by social obligations, norms and rules. The economic stream views an individual as someone who acts independently, is solely self-interested and whose goals are arrived at independently. Coleman argued for the development of a sociological theory that combines both schools of thought by importing the economists' ideals of the rational actor into the sociological view of social systems. "If we begin with a theory of rational action, in which each actor has control over certain resources and interests in certain resources and events, then social capital constitutes a particular kind of resource available to an actor" (Coleman, 1988, p. S98). Coleman viewed social capital as a productive exchange that enables the achievement of certain ends that would otherwise be impossible.

Coleman defines social capital as a type of capital, like physical capital or human capital, but one that is less tangible than other forms of capital. Just as physical capital is some sort of tangible asset that is created by individuals and used in some form of production, and human

capital is a set of skills an individual acquires which increases the individual's worth in the marketplace, social capital is about the "changes in relations among persons that facilitate action" (p. S100). Coleman gives examples of wholesale diamond markets in New York city, South Korean student radical activists, a mother who moved from Detroit to Jerusalem, and the Kahn El Khalili market in Cairo as examples of how the relationships between members of the group to improve economic and social outcomes. Because the members of the group know each other and have an interest in a long-term relationship with each other, they will support as well as sanction each other for the good of the group as a whole. Coleman considers these sorts of "closed" social networks (where everyone in the network knows everyone else) as the most effective for guiding, monitoring, and sanctioning the behavior of group members. Closed vs. open social networks will be discussed on greater detail a bit later, at this point it is more important to continue with the definitional differences of social capital among various researchers.

The next sociologist to bring attention to the idea of social capital was Robert Putnam (1995, 2000). Putnam defined social capital as "features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives" (Putnam, 1995, pp 664-5), regardless of the praiseworthiness of those objectives. Putnam sees social capital as the social connections and the attendant norms and trust that serve civic ends such as a connection to one's community through civic engagement, membership in social clubs and organizations, political involvement, and social trust. Putnam's book, *Bowling Alone* (2000), argued that America's stock in social capital has been in decline since the 1950s. This generated a great deal of discussion among the sociological community. That debate will not be outlined here, other than to say that those who refute Putnam's claim do so on the basis of

measurement. Whether a researcher finds social capital to be declining or not depends almost entirely on the definition of social capital and on the variables chosen to measure the construct (Ladd, 1996).

Additionally, whether or not one laments the decline of social capital depends on whether one considers social capital to be a positive or a negative concept. Putnam is often criticized as holding up social capital as a panacea, whereas others consider social capital to be neutral – the stock of social capital can be used for positive or negative actions. Pamela Paxton (1999) considers social capital as the resources accessible to individuals or groups via their connections to one another whereas Nan Lin (Lin 1999, Lin 2000; Lin, Ensel & Vaughn 1981) defines social capital as embedded resources in social networks that are accessed and used by actors for actions.

The conventional argument to this point has been that social capital, or the connections between individuals, will lead to prosocial behavior and a lack thereof will lead to antisocial behavior. But this may not be the case, and in fact the opposite has been argued by a number of other researchers. Sampson, Morenoff and Earls (1999) suggest that social capital is essentially neutral; it is a resource that can be used for either pro- or antisocial behavior. In fact, strong ties within a disadvantaged area can create what Portes and Landolt (1996) call “downward leveling pressures.” Far from being bereft of social capital, ghetto areas contain considerable levels of social capital, but all that capital does is link individuals to others trapped by poverty and isolated from mainstream society. The social pressures exerted in these ghetto subcultures actually discourage members from attempting to enter the mainstream thereby perpetuating isolation and preventing the acquisition of human capital (Portes & Landolt, 1996, 2000).

Sudhir Venkatesh, a professor of sociology at Columbia University, has done a number of studies exploring how people in disadvantaged communities (namely in Chicago) are subjected to social pressures that encourage illegal behavior. Venkatesh's interviews with residents indicate that residents in poor neighborhoods realize they have insufficient social capital to secure good jobs (Venkatesh, 1994), and that peer acceptance of illegal employment encourages such behaviors (Rosen and Venkatesh, 2008).

If social capital is merely a resource “embedded in a group to be accessed by an actor for action” (Lin, 1999, 2000), the action could be good or bad. In certain neighborhoods there may be a significant amount of community social capital and a high degree of organization, and high crime rates. “The same kinds of ties that sometime yield public goods can also produce ‘public bads:’ mafia families, prostitutions rings, and youth gangs” (Portes & Landolt, 1996, p. 3). As a member of a street gang or a member of the mafia, an individual's social capital may be invested in a group whose purpose is criminal behavior. Putnam (1995, 2000), does differentiate between what he calls “bridging” and “bonding” social capital. The difference being that bridging social capital helps link different sectors of the community and span social cleavages, whereas bonding social capital helps to tie like individuals closer to each other. A social group, like a community orchestra, will bring together individuals from a variety of different backgrounds and social strata. The relationships formed between members of this organization would be considered bridging social capital, where relationships are forged between people of all ages, genders, ethnic groups, religious affiliations, political proclivities, education levels, and employment status. Bonding social capital is formed in the example of ghetto relationships given above where strong relationships are formed among members of an essentially homogeneous group. This is not to say that bonding social capital is “bad,” either. Bonding social capital is formed within any

group that is homogeneous, whether that is the Officer's Wives Club, Gold Key National Honor Society, or the Ku Klux Klan. Even though Putnam does differentiate between bonding and bridging social capital and he does make nodding reference at how bonding social capital within the Ku Klux Klan can be used for socially detrimental ends, has been criticized for "romanticizing" the notion of social capital and failing to sufficiently acknowledge that social capital can be a detrimental as well as a positive force in a community.

Bonding and bridging social capital can be at work at the same time, within a single community or even a single individual. Mary Pattillo-McCoy's book, *Black Picket Fences*, illustrates how residents of black middle-class neighborhood navigate between "decent" and "street" parts of their social network by persona switching. When at work or at school, the individuals will speak proper English, go by their given name, and study hard; when hanging out with friends, the individuals will speak "Black English," will not discuss academic subjects, and smoke marijuana. In one way these individuals are bridging between their world and the world of increased physical and human capital, and they are also bonded to their neighborhood friends and relatives.

Black Picket Fences serves as an excellent example of the difference between the forms and definitions of social capital. As mentioned previously, Coleman (1988) contested that the "closed" nature of the social networks (bonding) better facilitated the exchange between individuals, because those bonding ties made it possible to sanction miscreants. Sanctions are only effective if the members are beholden to the group in some way. An individual cannot be shamed or coerced into cooperating with the group if the individual is not invested in the group and has no qualms about severing ties with the group. However, other social capital theorists argue that open social networks are more powerful than closed one; Granovetter (1983) being

one of the latter. For Granovetter, what he refers to as the “weak tie” between two tightly knit social groups serves as a crucial bridge for the formulation and capitalization on all forms of social capital. He argues that in a close-knit group of individuals, individual A knows virtually all of the people and information that individual B knows, so individuals A and B are not able to help one another, except through friendship and mutual support. However, if individual A is merely acquainted with individual R, who is part of a different close-knit group of individuals, individual R and individual A have different social contacts and different sources of information, so they can be of greater assistance to each other. Social systems, according to Granovetter, lacking in weak ties will be “fragmented and incoherent” (1983, p. 202). His research indicates that impoverished individuals often rely more heavily on strong ties than weak ties.

Similar to Granovetter, Burt (1992) also contends that the weaker your membership link is, the more productive the exchanges and greater opportunity for tapping in to social resources; Granovetter focused on the ties, and Burt on the holes, in social networks. Burt’s foundational argument is that structural holes are entrepreneurial opportunities for “information, access, timing, referrals and control” (p. 2). Individuals with networks rich in structural holes enjoy high rates of return on their network investment by creating opportunities for certain players and not for others (note that Burt’s research focused mainly on professional rather than social ties). All else equal, a large, diverse, sparse network is best, in other words, a large proportion of bridging social capital. The weak ties of such a network are essential to the flow of information that integrates otherwise disconnected social clusters into a broader society. “The weak tie argument [Granovetter] is about the strength of relationships that span the chasm between two social clusters. The structural hole argument [Burt] is about the chasm spanned” (p. 28). In either case, the concept of using one’s social ties to facilitate beneficial outcomes for oneself is the same.

Some researchers think greater benefit comes from closed social networks while others tout open social networks as superior.

The supremacy of one over the other depends in part to what purpose the network will be put. In exchanging information and finding employment, an open network is most useful; in sanctioning behavior of group members, a closed network is better suited to the purpose; the latter being the most relevant link to crime and the focus of social capital for this paper. For the purpose of this research, I consider social capital to be the informal social ties between members of a group that enable that group to form and achieve collective goals without external formal intervention. One of the key concepts of social capital is that social capital is only capital if an individual uses it to achieve some objective. This concept of use, or action, is closely related to the aforementioned idea of collective efficacy. Namely, individuals must be willing to act, when needed, for one another's benefit and in pursuit of shared community aims. Social capital is the relationship that makes the action of collective efficacy more likely, Robert Sampson (Sampson et. al, 1999) makes this connection in a number of his works, as discussed previously in the collective efficacy section.

It is this notion of an organization of individuals working toward a common goal that ties social capital to the concept of social disorganization. Coleman (1988) implicitly makes this tie when he writes that it would be difficult to imagine such a system as the New York City diamond merchants being able to operate in a disorganized community (p. S103). A disorganized community, according to Bursik (1988) is one that is unable to achieve the common goals of its residents, while Rosenfeld et al. (2001) define social capital as "cooperative social relationships that facilitate the realization of collective goals" (p. 284). If social capital consists of resources embedded in a social structure of network ties (Lin, 2000), and if a disorganized

community is characterized by a lack of social network ties, there can be, by definition, little social capital in a socially disorganized neighborhood. It is reasonable to surmise, then, that social disorganization will affect crime through its effect on social capital.

In a community that is essentially free of social network ties (Coleman, 1988), individual residents have little reason to be concerned with the potential social sanctions that may result if they behave in an antisocial, or even criminal manner. A disorganized community discourages the formation of intra-neighborhood relationships, the lack of relationships is indicative of a reduced level of neighborhood social capital, and with reduced social capital, criminal behavior is more likely to be the result. In addition to the effect of social bonds as envisioned by Shaw and McKay and elaborated by Hirschi, social capital inspires prosocial behavior because the potential risk is more, because social ties are valuable. That is, they are valuable capital.

As such, social capital and social disorganization are, to my mind, opposite sides of the same coin. Social capital, the ties between individuals, decreases the costs of social transactions and can allow for the peaceful resolution of conflict, hopefully preventing crime. Social capital can also enable communities with strong ties to organize themselves to overcome problems and work towards overarching community objectives, one of which is presumably living in an area free from crime. This is the same ideal that disorganized communities are unable to achieve. Disorganized communities, according to Bursik (1988) are those that are unable to realize common values of residents, such as living in crime-free areas. The theory states that the reason these communities cannot effectively solve problems is because norms are not shared, people move in and out, and signs of disorder tell everyone this. Social capital, by contrast, provides, in some ways, an explicit explanation for what social disorganization theory is saying implicitly. Social capital theory attempts to explain what a community can achieve regarding the control of

crime; social disorganization theory attempts to explain why a community cannot control crime. I think the two theories work together in the following manner: a disorganized community will inhibit the formation of social capital among the residents; the lack of community ties will be conducive to an environment in which more crime occurs. To test this connection empirically, I will explore the direct effect of social disorganization on homicide, and then see how this relationship changes when social capital is added to the equation. If social capital does influence how social disorganization operates on homicide, then the direct relationship between social disorganization and homicide should be significantly attenuated once the effect of social capital is included.

CHAPTER 3 - EMPIRICAL RESEARCH

Social Disorganization and Crime

The following section examines the work done by other researchers regarding the links between social disorganization and crime (mostly homicide) in the United States and a few foreign countries. Because social disorganization theory (SDT) has been in use since the 1940s with a particular resurgence of interest starting in the late 1980s, there are a large number of studies that could be included. Included in this review are the major “classics” of SDT literature and others published work pertinent to this study. The articles included here come from both criminological and sociological literature. They were selected via two main methods: gathering the literature cited in other studies of SDT and homicide, and keyword searches of the electronic databases Criminal Justice Abstracts, Sociological Abstracts, Academic Search Premier and JSTOR. This review focuses almost exclusively on studies appearing since 1985 that have employed multivariate analysis to explore the relationship between social-structural concepts and homicide rates. The review includes studies for the United States and other nations; cross-national studies will be discussed in a separate section. Understanding the theoretical and measurement choices of other researchers helps orient the reader for this study.

One could argue that Ernest Burgess (1925) was actually the first person to posit a theory of social disorganization causing delinquency and crime. Burgess stated that city expansion facilitates social disorganization. He found, when examining the growth of Chicago around the turn of the 20th Century, rapid urban expansion was accompanied by “excessive increases in disease, crime, disorder, vice, insanity, and suicide” (Park, Burgess & McKenzie, 1925, p. 57) which he considered to be rough indexes of social disorganization. “Where mobility is the

greatest, and where primary control breaks down completely, is in the zone of deterioration which develops into areas of demoralization, promiscuity and vice” (p. 59). In his chapter, Park suggests that the increases in crime and vice occur when local attachments, restraints and inhibitions of the primary group of residents are weakened by the invasion of new residents into a neighborhood. Nearly twenty years later, Shaw and McKay used the foundation laid by Park and Burgess, to gather delinquency data and actually tested the theory of social disorganization in an attempt to explain what specific neighborhood attributes seemed the most closely related to criminal behavior.

Shaw and McKay (1942) looked at the spatial distribution of 8,411 male juvenile delinquents who were brought before the Cook County, Illinois, Juvenile Court between 1 January 1927 and 31 December 1933. They found that most of the areas characterized by high rates of delinquents were either in or adjacent to areas zoned for industry and commerce such as those areas close to the central business district or in industrial-zoned outlying areas. Those neighborhoods also tended to be associated with an overall lower economic class of residents. In the neighborhoods with the highest levels of delinquency, Shaw and McKay also found high rates of: school truants, young adult offenders, infant mortality, cases of tuberculosis, and mental disorder. Shaw and McKay therefore shifted their attention from individual characteristics to neighborhood conditions. They concluded that “it may safely be assumed that other problems highly correlated with rates of delinquency . . . are, in fact, similarly associated with neighborhood conditions.” (Shaw & McKay, 1969, p. 106-7)

In examining the neighborhoods where the 8,411 male juvenile delinquents in Cook Country, Illinois, lived, Shaw and McKay (1942) noted that neighborhoods with high rates of delinquency were associated with a large percent increase in the population, significant

economic segregation, a high percentage of families on relief, a low median rental price, a low percentage of home ownership, significant segregation by race or nativity, a large percentage of foreign-born or Negro head of families and a large number of various nativity groups. They referred to these variables as “community characteristics” and designed Social Disorganization Theory “to describe briefly the mechanisms and processes through which these [characteristics] are translated into conduct” (Shaw & McKay, 1969, p. 169).

When Shaw and McKay looked at the delinquency rates of Chicago neighborhoods over time, they discovered that there was a high degree of consistency in the association between delinquency and other community characteristics. This level of consistency supported their conclusion that delinquent behavior was not only related to the community itself but that “all community characteristics, including delinquency, are products of the operation of general processes more or less common to American cities.” (1969, p. 315) Moreover, the fact that the rates of delinquency in Chicago neighborhoods adjacent to commercial and industrial areas remained relatively constant over time, despite changes in composition of the population, “supports emphatically the conclusion that the delinquency-producing factors are inherent in the community” (p. 315) and not the demographics of the residents.

While it seems Shaw and McKay are suggesting that all juveniles living in low-income, industrial-adjacent zones of deterioration will become delinquents, they emphatically deny this charge. They believed many factors contribute to a particular child’s involvement in delinquency, such as individual personality differences as well as differences in family relationships. However, Shaw and McKay (1942) focused their study on how neighborhood factors might influence individuals to accept or reject opportunities to engage in delinquent activities. Simcha-Fagan and Schwartz (1986) best summarize the factors Shaw and McKay

considered to have the greatest contribution to neighborhood rates of delinquency. “Areas characterized by economic deprivation tend to have high rates of population turnover and to be heterogeneous. These characteristics, in turn, result in unstable and inadequate institutional resources and in the isolation of institutions. Such an institutional structure is ineffective in articulating goals and creates discontinuity on socialization; this results in institutional incapacity to exact instrumental and affectively based conformity which translates into weak individual social bonds” (p. 670). In other words, people only live in low-income, undesirable neighborhoods because they have no other choice and will move elsewhere as soon as they have the economic wherewithal to do so. Residents in such communities are uninterested in establishing or maintaining institutions pertaining to internal control when they hope to leave at the first opportunity.

Interestingly, Shaw and McKay, while descriptive about their data, do not clearly state a theory in their book. Their analyses are mostly simple descriptions of maps and charts, including percentage of change of certain populations or property values. They described their observations regarding Cook County, but they did not suggest a macro-level, generalizable Theory (with a capital “T”). “The causal linkage between social disorganization and neighborhood delinquency rates are not clearly explicated by Shaw and McKay. . . That is, the dynamics of social disorganization lead to variations across neighborhoods in the strength of the commitment of the residents to group standards. Thus, weak structures of formal and informal control decreases the costs associated with deviation within the group, making high rates of crime and delinquency more likely.” (Bursik, 1988, p. 521) The “theory” portion of SDT must be inferred from reading Shaw and McKay. SDT is not, as Bursik writes, “clearly explicated” in their book. Since Shaw and McKay’s theory was not clearly developed in their book, it was

inevitable that some confusion would result when subsequent researchers attempted to test the theory.

One of the initial criticisms of SDT was that delinquency was both a dependent and an independent variable when testing the level of neighborhood disorganization; that the rates of delinquency are a measure of neighborhood disorganization as well as the result. Lander (1954) was one of SDT's first and harshest critics; his article contributed in large measure to SDT's decline in popularity from the 1950s until the 1980s. Lander argued that social disorganization is "the general basic causal factor of which juvenile delinquency and the other variables including bad housing, poverty, percentage of foreign-born and Negroes, and population change may be considered manifestations or dependent variables . . . How much this statement means is dubious in view of the fact that social disorganization itself has to be defined as a complex group of factors in which juvenile delinquency, crime, broken homes, prostitution, truancy, etc. and other socio-pathological factors are included. It is therefore circular reasoning to make a loosely defined whole the explanation of one of its own components." (Lander, 1954, p. 10)

Snodgrass (1976) also criticized SDT because it was unable to explain non-delinquency in high delinquency rate areas. Obviously, in even the most crime-ridden neighborhood, not everyone who lives in that neighborhood is committing crime. If the area causes delinquency, Snodgrass inquired, how does SDT explain why not all juveniles are involved in delinquency? The answer is that it doesn't. SDT may be able to predict why some neighborhood may be more crime-ridden than others, but it is not designed to predict who in the neighborhood will commit crime and who will not. Researchers using SDT must confine their scrutiny to aggregate, group level analysis and not misapply SDT by attempting to predict individual criminal behavior.

Bursik (1986) refocused attention on SDT after an extended period of disfavor in the

1960s and 1970s. In particular, SDT was criticized for a number of reasons, including: being tautological, for failing to explain non-delinquency in socially disorganized areas, for downplaying the significance that certain ethnicities may not consider certain behavior wrong even though they are illegal in their current place of residence, and for failing to recognize the ‘reverse concentric zone model’ – that in some nations the rich live in the inner city and the poor live on the city fringes (Snodgrass, 1976). Bursik’s article (1986) addressed many of the criticisms leveled at SDT, refuting or acknowledging their validity. While this article is not empirical in nature, Bursik points out several key aspects of SDT, one of which is that Shaw and McKay (1942) were not explicit about what particular aspects constitute a disorganized community. The basic assumption of SDT is that when a neighborhood is stable, there is little crime; when a neighborhood is unstable, then social processes usually in place to control crime break down, resulting in increased crime (Bursik, 1986). Shaw and McKay’s central observation was that “local communities tend to retain their relative delinquency character despite changing racial and ethnic compositions” (Bursik, 1988 p. 524) and SDT grew out of an attempt to explain that observation. While Shaw and McKay listed a large number of social ills prevalent in disordered communities, there are no direct measures of social disorganization qua social disorganization (Bursik, 1986) and the subsequent decision to use residential instability, economic disadvantage and ethnic heterogeneity are interpretations by contemporary researchers. In 1989 Sampson and Groves published their seminal test of SDT, which has since been twice replicated, once in 1999 by Veysey and Messner and again in 2003 by Lowenkamp, Cullen, and Pratt. The 1989 Sampson and Groves study established residential instability, economic disadvantage and ethnic heterogeneity as the foundational measures for SDT and all subsequent empirical studies have used some version of these constructs. Sampson and Groves also used

family disruption and urbanization as indicators of social disorganization, however these two constructs are not consistently included in other SDT studies. The next section discusses each of the six indicators of SDT in more detail.

Population Mobility

Population mobility, also referred to as residential instability or population turnover, is theoretically linked to crime because rapid rates of population turnover lead to “a greater proportion of strangers in a neighborhood, who are less likely to intercede on behalf of local residents in crime-related situations” (Bursik, 1988 p. 527).

Residential stability is typically measured by the proportion of the target area’s residents, aged five years or older, who have lived at their current residence for more than five years (Heitgerd & Bursik, 1987; Kubrin & Herting, 2003; Petee, Kowalski & Duffield, 1994; Sampson et al., 1999; Warner & Pierce, 1993). Residential stability has also been measured by the percentage of residents who have lived within the same area (defined as a 15-min walk from their current residence) for more than 10 years (Lowenkamp et al., 2003) and as the percentage of residents brought up within a 15-minute walk from their current residence (Sampson & Groves, 1989; Veysey & Messner, 1999). Residential instability is occasionally constructed by including such community factors as percentage of renter-occupied households and percentage of vacant housing units (Martinez, Rosenfeld & Mares, 2008).

Studies on population mobility have been conducted in the United Kingdom (Lowenkamp et al., 2003; Sampson & Groves, 1989; Veysey & Messner, 1999), Israel (Herzog, 2009) and in the United States. In the United States, most studies have been conducted in cities (Bernasco & Block, 2009; Browning, 2009; Bursik, 1986; Grattet, 2009; Heitgerd & Bursik, 1987; Kubrin & Herting, 2003; Martinez et al., 2008; Morenoff & Sampson, 1997; Nielsen et.

al., 2005; Oh, 2005; Pizarro & McGloin, 2006; Sampson et al., 1999; Simcha-Fagan & Schwartz, 1986; Taylor, 1997; Triplett, Sun & Gainey, 2005; Warner, 2003; Warner & Pierce, 1993), in more rural counties (Bouffard & Muftić, 2006; Melde, 2006; Osgood & Chambers, 2000; Petee et al., 1994; Reisig & Cancino, 2004), or a mixture of urban and rural communities (Vowell & Howell, 1998).

Results regarding the relationship between population mobility and crime are inconsistent. Some researchers found a significant positive relationship between residential instability and such variables as violent crime (Bouffard & Muftić, 2006; Herzog, 2009; Petee et al., 1994) rape, aggravated assault, weapons violations and simple assault (Osgood & Chambers, 2000), property crime (Herzog, 2009; Petee et al, 1994), and self-reported delinquency (Simcha-Fagan & Schwartz, 1986). Warner and Pierce (1993) found population mobility to be weakly but positively associated with robbery, and negatively associated with assault and burglary, but only the relationship with assault was statistically significant. On the other hand, Triplett et al. found that residential mobility was *positively* associated with assault and burglary, but only reached a 0.10 level of significance; the relationship between mobility and robbery was not statistically significant (Triplett et al., 2005). Other researchers reported non-significant relationships between population mobility and property crime (Browning, 2009), any of the forms of violence or victimization as measured by the British Crime Survey (Sampson & Groves, 1989), and violent crime in rural Appalachia (Melde, 2006). Morenoff and Sampson (1997) found that high levels of neighborhood homicide were consistently associated with total population loss in the subsequent decade, but in a 2005 study, Oh found that population outmigration had little significant effect on central-city crime rates (Oh, 2005). In short, while population mobility continues to be a theoretically important concept associated with a

disorganized community, its direct effect on crime not been confirmed by the extant research findings.

Economic Disadvantage.

Unlike population mobility, economic disadvantage has been shown to have a relatively consistent and significant positive association with crime. As reported by Pridemore (2002) in his exhaustive review of the literature, “The positive association between poverty and homicide rate is the most consistent finding in the literature. Moreover, these positive findings are consistent across time periods, levels of analysis, various measures of poverty, cross-section and longitudinal analysis, and model and relationship specifications” (p. 144). It is beyond the scope of this review to consider all the studies of economic disadvantage and crime, because they are too numerous. Additionally, many of the studies on this topic are testing strain theory, so they will not be covered here. This section will describe the findings of those studies with a focus on SDT and crime.

In the relevant SDT literature, the economic disadvantage variable is typically constructed from a combination of different measures that include: female-headed households, unemployed persons, percent Black, persons below the poverty level, and males under the age of 17 (Grattet, 2009; Sampson et al., 1997), poverty, percentage of children not living with both parents, median family income, percentage Black (Kubrin & Herting, 2003), percentage college educated, percentage employed in professional or managerial positions, and percentage with high incomes (Sampson & Groves, 1989; Veysey & Messner, 1999), and the “Robin Hood Index” of inequality, which was calculated by determining the share of total income that would have to be transferred from households above the mean income level to those below the mean in order to achieve a perfectly equal income distribution in a particular state (Kawachi et al., 1999). In

some studies economic disadvantage is measured by a single concept, such as welfare status (Vowell & Howell, 1998), the percentage of the population in each neighborhood living below the poverty level (Melde, 2006; Warner, 2003; Warner & Pierce, 1993), and percentage with low income (Petee et al., 1994).

The majority of studies have found a positive association between economic disadvantage and crime although the magnitude of these effects has varied widely. Specifically, economic disadvantage has been found to be significantly associated with these variables: assault (Grattet, 2009; Kawachi et al., 1999; Melde, 2006; Triplett et al., 2005; Warner & Pierce, 1993), bias crime (Grattet, 2009), burglary (Herzog, 2009; Kawachi et al., 1999; Warner & Pierce, 1993), gang homicide (Pizarro & McGloin, 2006), homicide (Hannon, Knapp & DeFina, 2005; Kawachi et al., 1999; Kubrin & Herting, 2003; Melde, 2006; Messner et al., 2004), juvenile delinquency (Simcha-Fagan & Schwartz, 1986), motor vehicle theft (Kawachi et al., 1999), property crime (Browning, 2009; Herzog, 2009; Petee et al., 1994), rape (Kawachi et al., 1999), robbery (Grattet, 2009; Kawachi et al., 1999; Melde, 2006; Triplett et al., 2005; Warner & Pierce, 1993), vandalism (Grattet, 2009), and violent crime (Herzog, 2009; Petee et al., 1994). In contrast, Osgood and Chambers (2000) found no significant relationship between poverty and delinquency rates, Sampson and Groves (1989) found that SES was not statistically related to violence or victimization, and Kubrin and Herting (2003) found that economic disadvantage was not consistently significantly associated with domestic homicides. In a small number of cases, researchers have found an unexpected *negative* association between economic disadvantage and crime when the latter was measured by the incidence of rape (Melde, 2006), larceny (Kawachi et al., 1999), and assault (Bouffard & Muftić, 2006).

The established conclusion that economic disadvantage impacts individuals and communities in myriad negative ways implies that the inclusion of a measure of this variable is theoretically and empirically critical for any study related to crime.

Ethnic Heterogeneity

Significant ethnic heterogeneity is thought to be associated with increases in crime only to the extent that an ethnically heterogeneous group of people may be unable to reach a consensus regarding rules of behavior within the community (Bursik, 2004). Communities lacking cohesion and behavioral constraint are unable to prevent crime and delinquency (Hagan, 1993). The concept of ethnic heterogeneity and its relationship with crime rates has been a significant point of discussion in SDT literature. Some authors contend that the inner city areas upon which Shaw and McKay focused are much more ethnically homogeneous (mostly black) in the 2010s than they were in the 1940s, and that immigration is different in the 21st Century than it was in the mid-20th Century (Warner & Pierce, 1993). Other authors emphasize that large sections of the United States are ethnically homogeneous (mostly White) and that ethnic heterogeneity does little to explain the variability of crime rates (Bouffard & Muftić, 2006). However, the concept of ethnic heterogeneity remains an integral part of SDT and is included in virtually all empirical tests of this theory.

Ethnic heterogeneity has been measured by a myriad of variables, including: percentage nonwhite (or percentage Latino/Black/ Asian, etc) and percentage foreign-born (Browning, 2009; Heitgerd & Bursik, 1987; Sampson et al., 1999), percentage White versus nonwhite (Grattet, 2009; Oh, 2005), number of residents who immigrated within the last 10 years (Nielsen et al., 2005), and a form of Blau's (1977) index of diversity, which is the probability that any two residents, chosen at random, would be of different ethnicities (Melde, 2006; Osgood &

Chambers, 2000; Petee et al., 1994; Sampson & Groves, 1989; Triplett et al., 2005; Veysey & Messner, 1999; Warner & Pierce, 1993).

Relevant research findings suggest that communities undergoing a significant compositional change from one ethnicity or racial group to another, as opposed to a more stable but ethnically mixed community, tend to be characterized by a higher rate of crime and delinquency (Bursik, 1986; Grattet, 2009; Heitgerd & Bursik, 1987; Morenoff & Sampson, 1997). When racial heterogeneity of a community is static, this measure is still frequently statistically associated with crime, but the direction of the relationship is often inconsistent and dependent on the measure of crime employed. Researchers have found heterogeneity to be positively and significantly associated with mugging/street robbery, but not with stranger violence or total victimization (Sampson & Groves, 1989). Warner and Pierce (1993) found racial heterogeneity was positively associated with assault, burglary and robbery, but only reached statistical significance for burglary; whereas Triplett et al. (2005) found racial heterogeneity was negatively associated with assault and burglary, but did not reach statistical significance. Others have reported racial heterogeneity to be positively and significantly associated with violent crime (Petee et al., 1994) and property crime (Browning, 2009; Petee et al., 1994). Osgood and Chambers (2000) found ethnic heterogeneity was significantly associated with higher rates of arrest for all violent offenses except homicide and simple assault. Similarly, Land et al. (1990) found that population heterogeneity failed to consistently exhibit a significantly positive relationship with homicide rates. Bouffard and Muftić (2006) and Melde (2006) concluded that ethnic heterogeneity was not a consistent predictor of assault or violent crime, respectively, however both sets of researchers acknowledged very little racial heterogeneity in the areas they studied.

Other authors suggest that ethnic heterogeneity operates differently on different racial groups. Bernasco and Block (2009) examined offending patterns in Chicago, arguing that offenders commit crimes in areas where the residents are ethnically similar to themselves. Upon transiting from a completely racially-similar residential tract to one completely dissimilar to the offender, the odds of that tract being chosen for robbery by that particular offender decreased by 58% (Bernasco & Block 2009). Nielsen et al. (2005) examined Latino and Black populations in Miami and San Diego using motive-specific homicide, a disadvantage index, and neighborhood instability as variables. They reported mixed results; namely, certain indicators were significant for one ethnic group but not another, or for one city but not another (Nielsen et al., 2005). Herzog (2009) conducted a study in Haifa, Israel to explore whether or not a high proportion of immigrants in a neighborhood could serve as a stabilizing (versus destabilizing) force, observing that “immigrants living in areas with high concentrations of co-ethnics are embedded in a web of social relationships with family, friends, neighbors and co-workers” (Herzog, 2009, p. 429). He found that, supporting his contention, neighborhoods with a higher percentage of immigrants from the former Soviet Union were significantly negatively associated with all four crime measures he employed (that is, total crime, violent crime, property crime, and burglary) at the .01 level of significance (Herzog, 2009).

In summary, the relationship between various measures of racial heterogeneity and crime rate is relatively well-supported; that is, an influx of a new group of individuals into a community may upset the current social norms, or delay the establishment of those norms. However, the mere presence of a high proportion of non-natives in a community does not accurately reflect this destabilizing effect, which may explain the mixed results for this measure.

This literature review serves as a cautionary tale for researchers to make sure their construct accurately measures the desired theoretical concept.

This concludes the literature review of the “big three” SDT measures (population mobility, economic disadvantage, and ethnic heterogeneity), however three other constructs deserve mention here.

Family Disruption

Since Sampson and Groves (1997) used family disruption as a measure of social disorganization, measures of family disruption appear in a large portion of the research literature. Family disruption is measured in a variety of subtly different ways, such as: the percentage of households in a given area that are headed by a female and have children under age 18 living in the home (Warner, 2003; Warner & Pierce, 1993), percentage of divorced women (Herzog, 2009), percentage of children under age 18 not living with both parents (Land, McCall & Cohen, 1990), the proportion of divorced and separated adults, and the percentage of single-parent households with children (Sampson & Groves, 1989; Veysey & Messner, 1999), and a composite scale called Area Family Disorganization consisting of percentage married, male separation rate, divorce rate, percentage bad units, and percentage children in two-parent families (Simcha-Fagan & Schwartz, 1986).

Empirical studies indicate that, even more so than economic disadvantage, family disruption exhibits the most statistically significant and consistently positive relationship with crime across all the studies (Land et al., 1990; Pizarro & McGloin, 2006; Pridemore, 2002). Higher levels of family disruption have been reported to be strongly and consistently associated with a number of variables, such as: higher rates of juvenile arrest for violent offenses (Osgood & Chambers, 2000), all forms of personal violence and total victimization (Sampson & Groves,

1989; Veysey & Messner, 1999), total crime, violent crime, property crime, and burglary (Herzog, 2009), robbery, burglary and assault (Warner & Pierce, 1993).

Urbanization and Population Density

Urbanization and population density have occasionally been included in studies of social disorganization starting with Sampson and Groves (1989) and Veysey and Messner (1999).

Urbanization is often linked to increased crime rates, but there is insufficient evidence to support a conclusion that all urban areas are disorganized. Similarly urbanization is frequently studied in conjunction with population density, and though urbanization often appears in the literature as associated with higher crime rates, it is indefensible to conclude that all densely populated areas are, by default, disorganized. In fact, the effects of population density on crime rates are mixed. Measured as the percentage of structures in each neighborhood with five or more units, Warner and Pierce (1993) found population density to be positively (and significantly) associated with assault and robbery, but not with burglary. In contrast, Land et al. (1990) found that population density fails to exhibit a consistent and significantly positive effect on homicide rates, and exhibits a significant negative effect in some cases. Browning (2009) found the statistical association between population density and property crime changed signs depending on the specification of the model; moreover, the association never reached statistical significance.

To summarize, research results suggest that social disorganization, measured most frequently by population mobility, economic disadvantage, ethnic heterogeneity and family disruption, is positively associated with higher rates of crime. Disorganized communities confront difficulties mobilizing residents to exercise various forms of informal controls, and these communities are also handicapped in securing external forms of formal controls because they lack a solid economic base and consequently, political clout (Bursik and Grasmick, 1993;

Sampson et. al., 1997). In the absence of effective internal or external controls, hostile impulses emerging in conflict situations are more likely to be expressed in violent ways (Messner, Raffalovich & Shrock, 2010). However, with the notable exception of family disruption, no single social disorganization variable or combined construct has presented a consistently positive relationship with crime rates in a variety of geographic areas across a variety of studies (Land et al., 1990; Pizarro & McGloin, 2006; Pridemore, 2002).

Social Capital and Crime

Similar to social disorganization, myriad constructs have been brought into play to operationalize social capital depending on the particular author's theoretical perspective. Some social capital data are obtained through the use of proxies such as census data and membership rosters, but a great deal of social capital data come from local, national, and international surveys. Although social capital may vary in its theoretical construction, researchers are generally consistent in trying to tap into a small set of concepts that include: trust (in strangers, neighbors, friends, family, institutions, generalized 'other') (Adam, 2006; Galea, Karpati & Kennedy, 2002; Helliwell, 2005; Kennelly, O'Shea & Garvey, 2003; Messner, Rosenfeld, R., & Baumer, 2004; Newton, 2004; Paxton, 1999, 2002; Rosenfeld et al., 2001; Salmi & Kivivuori, 2006; Sampson et al., 1999), belief in God/religiosity (Beyerlein & Hipp, 2005; Deller & Deller, 2010; Helliwell, 2005; Lederman et al., 2002; Newton, 2004), volunteer work/altruism/philanthropy (Adam, 2006; Kennelly et al., 2003; Messner et al., 2004; Paxton, 2002), membership in voluntary associations (social, political, religious, etc.) (Adam, 2006; DeCoster et al., 2006; Finsveen & van Oorschot, 2008; Galea et al., 2002; Helliwell, 2005; Kennelly et al.,

2003; Lederman et al., 2002; Lee & Bartkowski, 2004; Messner et al., 2004; Newton, 2004; Paxton, 1999; Paxton, 2002; Rosenfeld et al., 2001; Saegert & Winkel, 2004; Sampson et al., 1999), friendship networks (size, density, closure, and contact frequency) (Browning, 2009; Bursik, 1999; DeCoster et al., 2006; Finsveen & Van Oorschot, 2008; Haynie & Payne, 2006; Helliwell, 2005; McPherson, Smith-Lovin & Brashears, 2006; Paxton, 1999; Salmi & Kivivuori, 2006; Sampson et al., 1999), and political activism (voting, contact with local officials, political action to address a local problem) (Akçomak & ter Weel, 2012; Lee & Bartkowski, 2004; Rosenfeld et al., 2001; Sampson et al., 1999).

Social capital theorists contend that, all other factors being equal, communities with higher levels of social capital should have lower rates of crime (Lederman et al., 2002; Putnam, 1995, 2000). However the relationship between social capital and neighborhood crime rates is not as simple as it might first appear. The following section details some the work done by researchers regarding the links between social capital and crime. The articles included here come from the criminological and sociological literature. They were selected via two main methods: gathering the literature cited in other studies of social capital and crime, and keyword searches of the electronic databases Criminal Justice Abstracts, Sociological Abstracts, Academic Search Premier and JSTOR. This review focuses on studies that have employed multivariate analysis to explore the relationship between social capital and crime, preferably homicide. The review includes studies from a variety of nations, including China, Finland, the United States and Australia. While this is by no means a full review of the social capital and crime literature, it does cover the most relevant research for this study.

Lee and Bartkowski (2004) studied the links between civic participation, regional subcultures of violence and age-specific homicide rates aggregated to the county level. The key

dependent variable was juvenile and adult homicide offense rates, obtained from the Supplementary Homicide Reports. For civic participation, they used data from the Census of Churches and Church Membership, a measure of average voter turnout in the 1988 and 1992 presidential elections, and the number of civic and social organizations per 100,000 people in the population. They controlled for socioeconomic disadvantage, racial heterogeneity, the size of the juvenile population, divorce rates, and Southern and Western regions. As expected, they found the effects of the various measures differed significantly for juveniles and adults. Increased religious participation was negatively correlated with homicide offending for both adults and juveniles; secular civic participation was significantly negatively associated with adult homicide but not with juvenile homicide.

Salmi and Kivivuori (2006) examined the association between social capital and self-reported delinquency in a nationally representative sample of 15 to 16 year-old Finnish adolescents (N=5,142) conducted in the spring of 2004. The authors studied indicators of social capital (parental control, parental support, teacher control, teacher support, neighborhood control, trust, and intergenerational closure), while controlling for family structure, economic situation, self-control, cognitive ability and participation in delinquent behavior. The authors found that among the social capital variables, average-to-low levels of parental support, low levels of teacher control, and low levels of interpersonal trust were the only measures to be statistically and positively related with frequent delinquent behavior for all three regression models. Of the structural variables, residential stability and parental employment were unrelated to delinquency, while family economic difficulties and non-nuclear family composition had a statistically significant positive association. Self-control and cognitive ability were very strongly

correlated to delinquency; low self-control had the single most statistically significant effect ($p < .001$) of all the included measures.

DeCoster et al. (2006) hypothesized that structural aspects of communities either facilitate or inhibit the creation of community-based and family-based social capital, which in turn affects individual participation in violence. Using data from the National Longitudinal Study of Adolescent Health ($N=11,207$), they found network closure and collective supervision to be *positively* associated with violent delinquency, and parental participation in community organizations to be negatively associated, but none of these relationships reached the level of statistical significance. Only family cohesiveness was significantly associated with violent delinquency ($p < .001$) and in the expected negative direction. Similarly, Browning (2009) also found that neighborhoods characterized by high levels of reciprocal exchange and network interaction (in other words, a high level of bonded social capital) had higher levels of crime than neighborhoods with more open networks.

There are other studies that illustrate the potentially negative influence of social capital. Beyerlein and Hipp (2005) explored the differences between the closed network of evangelical Protestants and the more community-tie-based open network of mainline Protestants and Catholics. The results of their research indicate that the sort of bonding social capital formed by evangelical Protestants was consistently associated with higher rates of crime and the bridging social capital formed by the other two religious groups was consistently associated with lower levels of crime. Indicating that neither social capital nor religious participation are the panaceas some social capital theorists claim. Messner et al., (2004) used data from the Social Capital Benchmark Survey to test whether aspects of social capital that are considered beneficial for the community are linked to homicide rates. They found that homicide was significantly negatively

linked to social trust, but was statistically *positively* related to social activism, indicating there may be some reciprocal effects between social capital and crime; that is, high homicide rates may increase social activism and not vice versa. These findings are further supported by those of McVeigh (2006) whose research indicated that ethnic and religious heterogeneity simultaneously increased crime and participation in activist organizations; and as participation in activist organizations rose, voter turnout decreased.

As such, religious participation, political and social activism may be good measures of social capital, but perhaps not good measures of positive social capital. The results of these six studies highlight the complexity of the various social capital constructs and suggest that the behavior, especially criminal behavior, of different groups of people (adults versus juveniles, for example (Lee and Bartkowski, 2004) is differentially influenced by various forms of social capital and that different forms of social capital may actually be detrimental to the community.

Recall that bonding social capital is characterized by dense interactions within a relatively homogeneous group of people. It is frequently developed based on family ties, religious beliefs, ethnic similarities, etc. Although bonding social capital strengthens norms of reciprocity, solidarity and trust, it tends to be inward-looking and exclusionary of ‘others.’ Bridging social capital, on the other hand, promotes interactions between diverse and heterogeneous groups of people. This form of social capital is more outward-looking and inclusionary, creating looser but wider-reaching networks of friends and associates (Lo, 2010; Putnam, 2000). Research, such as presented above, has found bonding social capital to be positively associated with crime, whereas bridging social capital is negatively associated with it.

A number of studies have looked at the directionality of the relationship between social capital and crime. Some authors suggest that social capital may affect crime just as crime may

affect levels of social capital. For example, Rosenfeld et al. (2001) studied the relationship between social capital and homicide, controlling for other well-established homicide determinants. They operationalized social capital with measures of generalized social trust (derived from the 1990 General Social Survey) and civic engagement (based on voter turnout and Elks Club membership) for a sample of 99 geographic areas² in the contiguous United States. By testing the effects of the other explanatory variables in the first statistical model and then adding the social capital construct to the second model, results indicate that social capital exerts a significant negative effect on homicide; increased the goodness of fit from 63% to 66%. The effect of social capital on homicide also withstood the statistical adjustment for the reciprocal effect of homicide on social capital accomplished by flipping the statistical model and adding homicide to a model testing explanatory variables against the level of social capital. Social capital was statistically significant in the homicide model, while homicide was negatively associated with social capital, although it failed to reach statistical significance.

Lederman et al. (2002) explored the effect of different indicators of social capital on the incidence of violent crime in a panel study of 39 developed and developing countries from 1980 to 1994. They used six measures of social capital from the World Value Survey (community trust, membership in community organizations, membership in (purely) secular organizations, volunteer work, the importance of religion, and church attendance). They ran six different regression models, adding (and controlling for) one of the six social capital measures in each regression model. They found that of the six social capital variables, only the prevalence of community trust had a significant and robust effect on violent crime (a 1% increase in trust was associated with a 1.2% decrease in crime.). Lederman et al. suggest that the incidence of violent

² The geographic areas are the “primary sampling units” (PSUs) from the 1990 General Social Survey (GSS). They are considered a nationally representative stratified area probability sample (Rosenfeld et al., 2001).

crime may diminish aspects of social capital, such as trust, but it may also increase it through the formation of community organizations to fight crime. In contrast, Saegert and Winkel (2004) found that crime has more of a chilling effect on social participation rather than an energizing one. In their study, high crime in a previous year was associated with less informal and formal organizational participation in the subsequent year. Other research (Gainey, Alper & Chappell, 2011) indicates that feelings of vulnerability (often based on demographic variables) decreased levels of trust among neighbors (lowered social capital), which resulted in higher levels of fear of crime regardless of actual neighborhood victimization rates. These findings bolster Saegert and Winkel's contention that crime, or fear of crime, does not galvanize neighbors into action, but actually decreases the likelihood of neighborly cooperation.

Galea et al. (2002) tested the hypothesis that variations in social capital in the United States over time predict variations in regional homicide rates. They used measures of social capital (perceived trust, fairness, and helpfulness, and membership in voluntary organizations) from the General Social Survey and age-adjusted homicide rates from the National Center for Health Statistics in a panel study of 32 states between 1974 and 1993. Results indicate that social capital had a significant, negative effect on homicide rates when controlling for income, region and urbanization. However, homicide rates also predicted levels of social capital. After testing the directionality of the relationship, the authors concluded that a simple unidirectional relationship does not accurately represent the data and that the relationship between social capital and violence over time is most likely non-linear and dynamic. In some cases there is evidence that social capital directly contributes to criminal behavior. T. Wing Lo (2010) published a case study where Chinese organized crime (triad) leaders converted social capital developed in mainland China into economic capital through illegitimate means in the stock market.

While the discussion to this point has highlighted the potentially negative influence of social capital on crime, there is a great deal of research that suggests that increasing levels of social capital in a community is a public good. On the whole, the research on social capital and crime suggests that communities with more social capital have less crime. Of twenty-eight empirical studies that looked at social capital and some form of crime (homicide, delinquency, car theft, etc.) fifteen of them found social capital to be inversely related to crime and five others found mixed relationships, meaning some aspects of social capital were associated with increased crime and some aspects were associated with decreased crime (see Table 3.1).

Table 3.1. - The Relationship between Social Capital and Crime

Decreased Crime	Increased crime	Inconclusive/*Mixed
Akçomak & ter Weel (2012)	Browning (2009)	*Beyerlein & Hipp (2005)
Buonanno, Montolio, & Vanin (2009)	Lo (2010)	DeCoster, Heimer, & Wittrock (2006)
Deller & Deller (2010)	McVeigh (2006)	Hawdon & Ryan (2009).
Gainey, Alper, & Chappell (2011)		Haynie & Payne (2006)
Galea, Karpati & Kennedy, (2002)		*Lee & Bartkowski (2004)
Katz (2002)		*Lüdemann & Peter (2007)
Kennedy, Kawachi, Prothrow-Stith, Lochner & Gupta (1998)		Mazerolle, Wickes & McBroom (2010)
Kruger, Hutchinson, Monroe, & Morrel-Samuels (2007)		*Messner, Rosenfeld & Baumer (2004)
Lederman, Loayza, & Menendez (2002)		Saegert & Winkel (2004)
Macmillan (1995)		*Woodhouse (2006)
Rosenfeld, Messner, & Baumer, (2001)		
Saegert, Winkel, & Swartz (2010)		
Salmi & Kivivuori (2006)		
Wright, Cullen & Miller (2001)		
Yamamura (2009)		

Samples have been varied regarding location, both within country and internationally. Research on social capital and crime was conducted in rural (Deller & Deller, 2010; Woodhouse, 2006), suburban (Hawdon & Ryan, 2009) and urban (Browning, 2009; Saegert, Winkel & Swartz, 2010) locations. Studies have also been conducted in a number of different countries such as Australia (Ball et al., 2010; Mazerlooe, Wickes & McBroom, 2010; Woodhouse, 2006), Canada (Macmillan, 1995), China (Lo, 2010), Germany (Lüdemann & Peter, 2007), Finland (Salmi & Kivivuori, 2006), Italy (Buonanno, Montolio & Vanin, 2009), Japan (Yamamura, 2009) and the Netherlands (Akçomak & ter Weel, 2012). These diverse research findings contribute to the generalizability of social capital theory. However, there are several methodological problems with some studies including measurement errors, sampling errors and endogeneity (Buonanno et al., 2009).

Measurement errors come about both from the crime data such as systematic bias from official police data, as well as problems with large survey data such as the WVS because the questionnaires are produced without a design and are not based on preliminary theoretical grounds (Adam, 2006). Of course, there may also be data entry and other types of human error when dealing with large surveys and amounts of data; however these are not systematic, and as such are less problematic to the researcher. Sampling errors may occur when an important group of individuals is omitted from a sample. As a notable example, the studies that used national survey data to examine social capital and delinquency (DeCoster et al., 2006; Haynie & Payne, 2006; Wright et al., 2001), failed to include school drop-outs who, arguably, are engaged in high levels of delinquency. As a result these studies suffer from a significant (and uncontrolled for) selection bias.

Endogeneity is a loop of causality between the independent and dependent variables. In this case, the possibility that the amount of crime changes as a result of the level of social capital, but also that the level of social capital changes as a result of the amount of crime. Including endogenous variables in a regression could bias estimates of relationships (Buonanno et. al, 2009, Yamamura, 2009). Several researchers have overcome problems of endogeneity by using a simultaneous equation model or a time-lagged effect analysis. These analyses actually test for this loop of causality in order to determine whether changes in levels of social capital influence changes in crime rates, or vice versa. Rosenfeld et al. (2004) as well as Saegert and Winkel (2004) serve as examples for this approach

Considering the breadth and depth of previous social capital research, a clear link has been established regarding the potential relevance of social capital to the explanation of variation in crime rates (Messner et al., 2004). Overall the link between social capital and crime, as currently measured, appears fairly robust. The next section discusses the concept of collective efficacy and how it relates to crime. Collective efficacy is the next, active step beyond social capital; collective efficacy implies an action taken to protect or further the goals of the community.

Collective Efficacy and Crime

Sampson introduced the concept of collective efficacy in 1997. Originally, Sampson and Groves (1989) reported that urbanization, residential mobility, ethnic heterogeneity, poverty, and family disruption were linked to high crime rates. As Sampson continued his research over the next 21 years, he arrived at the conclusion that neither social (dis)organization nor social capital

has a significant direct impact on crime rates. Instead he avers that it is community collective efficacy which affects crime (Sampson, 2008). Sampson and his colleagues contend there is something “that communities supply (or fail to supply) that may explain the link between these structural features of neighborhood environments and the rates of violent crime” (Morenoff et al., 2001, p. 518).

Collective efficacy links and extends social disorganization and social capital theories as they relate to crime. Areas characterized by residential instability, economic disadvantage and ethnic heterogeneity (social disorganization) have low levels of social interaction between neighbors (social capital), which makes it less likely that one neighbor will intervene on behalf of the common good (collective efficacy), creating an area conducive to higher rates of crime.

Collective efficacy is difficult to measure and has been included in only a few studies. Sampson et. al. (1997) and Morenoff et al. (2001) both examined data from the Project on Human Development in Chicago Neighborhoods (PHDCN), where 8,782 residents in 343 neighborhood clusters were interviewed in an attempt to understand the effect of collective efficacy on crime. Collective efficacy was measured by combining two five-item Likert-type scales. The first asked residents about informal social control (the likelihood that their neighbors could be counted on to intervene in various ways) and the second asked residents about social cohesion and trust (how well people in the neighborhood get along, and the level of neighborhood trust). Sampson et al. (1997) found that collective efficacy was the most important predictor of homicide, even compared to and controlling for other theoretically important variables such as concentrated disadvantage and residential instability. The capacity of residents to control group-level processes and visible signs of social disorder was a key mechanism influencing opportunities for interpersonal crime in a neighborhood. Similarly,

Morenoff et al. (2001) found that collective efficacy was inversely related to the homicide rate for all five regression models which included the measure. A one-standard deviation increase in the level of neighborhood collective efficacy was associated with a 12% reduction in the homicide rate. Their analysis further indicated that measures of social capital, such as local organizations and social networks, had no independent association with homicide rates after controlling for collective efficacy.

Reising and Cancino (2004) included a measure of collective efficacy³ similar to that of Sampson et al. (1997) and Morenoff et al. (2001) but collected the data independently via mail surveys in Michigan. Initially they found a negative relationship between collective efficacy and perceived incivilities. But when they examined the two components of collective efficacy separately they discovered that the social cohesion construct was statistically significantly related to incivilities, but informal social control was not. In fact, each unit increase in social cohesion corresponded to a 27% decrease in incivilities, whereas the combined collective efficacy construct corresponded to a 14% decrease. It is possible collective efficacy operates slightly differently on a variety of neighborhood ills.

In one of the few non-U.S. studies regarding collective efficacy, Zhang, Messner and Liu (2007) examined household variables, neighborhood structural factors (social disorganization variables) and neighborhood social control processes (including collective efficacy) as they related to burglary rates in Tianjin, China. Based on the work of Sampson et al. (1997) Zhang et al. also constructed a collective efficacy measure by combining the results from survey data related to social cohesion and informal social control. They found that neighborhoods characterized by

³ Survey recipients were asked five social cohesion questions, on a scale of 1 – 5 (strongly disagree – strongly agree) the trustworthiness of residents and the cohesiveness of the neighborhood; combined with five informal social control questions regarding the likelihood of neighbors to intervene in various neighborhood events. All ten items were summed to create an RU-level variable termed collective efficacy.

high collective efficacy had relatively low risks of burglary, bolstering the generalizability and robustness of the collective efficacy theory.

Other research linking collective efficacy to crime levels include Kawachi et al.'s (1999) study combining social capital, collective efficacy and social disorganization into one measure of social cohesion and exploring how social cohesion acts as a protective force for relative deprivation, absolute deprivation and crime. Button (2008) explored indicators of social disorganization and social capital as they related to approval for intimate partner violence and corporal punishment of children, finding no significant relationship.

There exist a number of studies of social control that could be construed as studies of collective efficacy. For example, Triplett, Sun and Gainey (2005) examined the relationship between ability and willingness to enact neighborhood social control (collective efficacy), and their impact on crime rates. The authors used survey data from the Project on Policing Neighborhoods from Indianapolis (n = 5,400). The studies explored perceptions of the quality of police work, social ties, and willingness to enact neighborhood controls. They also used data from the 1990 census (age, education level, gender, years residing in the neighborhood, own/rent, concentrated disadvantage, and ethnicity) and the Indianapolis Police Department (assault and burglary rates). The results indicated considerable variation in willingness and ability to enact social control both between and within neighborhoods. Willingness appears to significantly impact crime rates, but ability did not; this finding indicates, most importantly, that there is a difference between ability and willingness. One might interpret ability as social capital and willingness as collective efficacy, which bears on expectations for this study.

Bernasco and Block (2009) examined cleared robbery cases in Chicago from 1996-1998 to try and determine why robbers choose to offend in a particular area over another. They used

data from the U.S. Census (population size and ethnic composition), the Chicago Police Department (drug and prostitution related arrests) and the collective efficacy measure created by Sampson (Sampson et al. 1997). They also controlled for offender's age, sex and ethnic origin, distance from offender's home, neighborhood racial and ethnic dissimilarity, gang and territorial dissimilarity, presence of a high school(s), and retail employment. They found that the presence of illegal markets and other crime generators and attractors make areas attractive for robbers, whereas collective efficacy seems to keep them out, but the effect was small. Browning (2009) used data from the 1990 U.S. Census and the 1994-5 Project on Human Development in Chicago Neighborhoods Community Survey to explore the effect of collective efficacy on property crime. His results indicate collective efficacy has a statistically significant ($p < .001$) negative effect on property crime.

Overall, the preponderance of collective efficacy research results indicate that it is negatively associated with crime. This is based on a small number of studies mostly conducted in Chicago, Indiana and one in urban China. Reising and Cancino's study (2004), conducted in Michigan, did not support the collective efficacy construct as strongly as it did the social cohesion (social capital) construct, but again, they were examining perceived neighborhood incivilities and not crime. Even though the theory of collective efficacy and crime is popular, it is unclear how robust or externally valid it is because tests of the theory require survey data which is a resource-intensive undertaking even at a small level. The idea of gathering survey data of this type in a sufficient number of locations to consider it to be a representative national sample, is daunting and has not yet been undertaken.

Combined Effects of Social Disorganization, Social Capital and Crime

The final set of studies reviewed here are not pure tests of social disorganization, social capital, or collective efficacy, but tests that combine various measures of the three theories as a means to study the relationships among these variables and crime.

Sampson and Groves (1989) and Veysey and Messner (1999) both analyzed data from the 1982 British Crime Survey (BCS). Veysey and Messner were able to reexamine Sampson and Groves' original data using advances in statistical theory and software that was not available in 1989. Lowenkamp et al. (2003) also used 1982 BCS data as well as 1994 BCS data. The constructs included by all three sets of researchers were: local friendship networks, organizational participation, unsupervised peer groups, SES, residential stability, ethnic heterogeneity, family disruption and urbanization. The dependent variable (total criminal victimization rate) was regressed on the aforementioned independent variables.

The results of the studies by Sampson and Groves, (1989) and by Veysey and Messner, (1999) identified a potentially important mediator variable: the control of unsupervised peer groups. That is, the impact of SDT to victimization rate appeared to be due to the effect of social disorganization on unsupervised peer groups (Veysey & Messner, 1999). This result would suggest that "poor heterogeneous communities with pronounced family disruption foster street-corner teenage groups, which, in turn, leads to increased delinquency and ultimately to a pattern of adult crime" (Sampson & Groves, 1989, p. 797). The researchers also found that although urbanization and family disruption were positively related to victimization rate, their effects were largely mediated by the existence of unsupervised peer groups (Veysey & Messner, 1999).

Lowenkamp et al. (2003) found that both family disruption and unsupervised peer groups were significantly and positively associated with total victimization, while local friendship networks were significantly negatively associated with victimization for both 1982 and 1994. SES, ethnic heterogeneity, and residential stability all failed to reach statistical significance and the coefficients of association even changed signs at different time periods. Urbanization and organizational participation were significant in 1982 but not in 1994 (Lowenkamp et al. 2003). Despite the shortcomings of the three studies, they all concluded that the mechanisms operating among SDT, social capital, and collective efficacy, and the relationships of these variables to crime, are complex and multifaceted.

The best way to summarize the SDT and social capital research and apply it to this dissertation is that both theories posit social processes as the underlying cause of crime. While acknowledging that crime is committed by individuals, the environments in which these individuals operate make it more or less likely for a particular person to commit crime and for crime to occur in a particular place. According to SDT, crime will most likely occur in those areas characterized by poverty, high residential turnover, a mix of ethnicities, and where the nuclear family has been disrupted. According to social capital theory, crime is more likely to occur in areas characterized by low social trust, and low levels of religious, political, and civic participation. The research summarized above has usually supported these claims. I propose that the two social processes work hand-in-hand. Social disorganization is likely to affect social capital because locations characterized as ‘disorganized’ will fail to engender social trust and residents will be less involved in religious or secular civic pursuits. High rates of residential mobility and a mix of different ethnicities disrupt the ability of residents to establish and maintain social ties. Residents in such communities are unlikely to be able to identify strangers

and may be unwilling to intervene in antisocial behavior especially if community norms of behavior are nebulous. Further, disorganized communities do not engender a sense of trust among residents, and trust is one of the central tenants of social capital theory. If social capital is a form of “capital” that can be used to solve problems and make it so people can work together more harmoniously, in disorganized communities, the stock of social capital is depleted or simply may not exist. Community disorganization and the subsequent lack of social capital among residents make it unlikely that residents will be able to work together to discourage criminal behavior or encourage anti-crime behavior, such as a community watch. Disorganized communities may also be incapable of obtaining extra-local resources – such as police and fire services – which may have an indirect effect of crime control (Kawachi et al., 1999). Consequently, disorganized communities, those lacking in social capital, are likely to experience higher rates of crime.

Furthermore, I think these theories apply not just to neighborhoods, where they are most frequently studied, but to higher levels of analysis, such as nations. Because cross-national crime is an entirely separate body of literature, I will now review studies from that discipline before tying together social disorganization and social capital theories at the cross-national level, which is the focus of this dissertation.

CHAPTER 4 - CROSS-NATIONAL RESEARCH

Introduction

If social capital and social disorganization are “general” theories, then one might expect they would explain some of the enormous differences in the occurrence of crime at the national level. Cross-national variation in crime has been the subject of some research and debate although some of the most popular theoretical ideas about cross-national homicide rates have not been systematically supported. Only inequality has emerged as a consistent predictor (LaFree, 1999). Perhaps part of the variation is due to cross-national differences in social disorganization and social capital. Nations with disorganized communities may be unable to maintain control over the behavior of individuals unless those communities contain strong social ties among residents. The next section will examine the state of crime research at the cross-national level and then highlight several empirical cross-national crime studies that are of particular relevance to this dissertation.

Background

Comparative criminological research did not begin until the late 1960s and early 1970s, but has since expanded to include international and comparative criminology, and criminal justice research on a variety of topics (Bennett, 2004). The appearance of comparative criminological research corresponds partially with the increased availability of comparative crime data. The five most common sources of international criminological data are: Interpol (International Criminal Police Organization), the United Nations (UN), Archer and Gartner’s

(1984) Comparative Crime Data File (CCDF), Ted and Erica Gurr's longitudinal crime survey (GURRS), and the World Health Organization (WHO).

Although there are a number of challenges (discussed in the latter part of this section) in conducting cross-national research, there are some significant benefits as well. Bennett (2004) discusses four broad benefits of conducting comparative or transnational research. The first is that cross-national criminal justice researchers can aid national intelligence organizations in their battle against terrorist or international crime organizations through the examination of cultural foundations, organizational structures, and social processes that underlie these groups. Scholarly knowledge may help international law enforcement organizations understand and subsequently control threatening behavior.

Second, comparative research provides an in-depth understanding of different national criminal justice systems. This knowledge can provide a 'best practices' inventory for assisting developing nations in crafting their own national criminal justice system; it can also help law enforcement agencies more effectively deal with crime that occurs across national borders (terrorism, computer hacking, smuggling, etc).

Third, cross-national research allows criminologists to test the generalizability of theories developed to explain crime in one particular nation. There are many examples of this generalizability test, a notable example being Wikstrom's (1991) analysis regarding homicide rates in Philadelphia, Pennsylvania and Stockholm, Sweden in the 1950s. He found that the age of offenders differed significantly between the two locations (victims and offenders are typically older in Stockholm), and that explanatory variables crucial in Philadelphia ("race, guns, and slums") were irrelevant in Stockholm where immigration, alcohol and the lifestyles of socially marginalized groups were more relevant. Similarly, comparative research may help in the

development of a comprehensive theory that explains a particular behavior in a variety of nations. Bennett (2004) gives the example of Bayley (1985) who developed a comprehensive theory of policing by looking at the development and operation of various policing systems throughout the world.

Finally, Bennett (2004) writes that comparative research allows for the examination of correlates that have limited variability in one particular country, across different nations where more variability exists. For example, the effect of inequality on homicide may not appear significant when studied in Denmark where inequality may not vary substantially, but inequality may be significant when studied in countries with substantial inequality, such as India, China, or the United States.

These four reasons illustrate the importance of cross-national comparative criminological research; however there are several challenges in attempting this type of research. Several challenges deal specifically with the quality and quantity of cross national crime data. The first, and broadest, problem with international crime datasets is that there are quite a few nations which do not report their crime data at all, or fail to do so for certain periods of time. It is likely that there is something nonrandom regarding which nations report and which do not. For example, very poor nations may lack the resources necessary to gather and report the required data. This non-reporting of a certain type of nation may potentially introduce a selection effect (Bennett & Lynch, 1990; Huang & Wellford, 1989; Marshall & Block, 2004) which limits the generalizability of cross-national research to countries dissimilar from those who reported (Bennett, 2009).

For the purposes of longitudinal research there is an additional issue of sporadic reporting. Sporadic reporting forces a researcher to reduce the number of nations included in an

analysis; and for sporadically-reporting nations, one needs to employ an estimate for the missing years, such as the mean homicide rates for multiple years, instead of a single year.

Crime definitions are also inconsistent from nation to nation (Bennett & Lynch, 1990; Huang & Wellford, 1989; Marshall & Block, 2004). Interpol and the UN provide broad classifications, but CCDF allows each nation to use their own indigenous classification. To mitigate the definitional problem, Bennett and Lynch (1990) recommend aggregating the data into larger umbrella definitions. For example, the level of injury required to categorize an assault as aggravated assault might be quite different in Spain than in Norway, so comparing Norway's aggravated assault rate to Spain's aggravated assault rate is problematic. It is also possible that a particular country changed its definition regarding the amount of injury necessary to classify an assault as either simple or aggravated assault at some point in time, say in 1996. As a result of the internal definitional change, the country's simple and aggravated assault data pre and post 1996 are not comparable within the country itself, let alone to other nations. However, as Bennett and Lynch suggest, both of these hurdles can be overcome by combining the data for simple and aggravated assault into the larger umbrella definition of 'assault,' at which point the data from different countries are more comparable; the drawback being less nuanced and therefore less useful data.. Because the definition of homicide has greater cross-national agreement than other forms of crime, it is frequently the crime measure of choice for cross-national researchers, although there is still some variability in the definition of homicide (abortion, death penalty imposed by the state, etc).

A further definitional problem is how each database categorizes crimes that contain multiple components, commonly referred to as the "hierarchy rule." As an example, Interpol instructs its national representative to report only the most serious offense when a number of

offenses are committed by the same person or group of persons. For example, if an individual steals a car, conducts a fatal drive-by shooting, and then crashes the car causing significant damage to a building; only the murder will be reported. Obviously, these instructions may cause significant underreporting of certain crimes (Bennett, 2009). This is another reason why homicides remain the most reliable measure of crime cross-nationally – homicide will virtually always be the most serious offense in a compound crime.

The hierarchy rule decreases the number and type of offenses in the dataset, as reported by the police. However, there is a great deal of other crimes that are never reported to the police. Commonly referred to as the “dark figure of crime,” this is the amount of unreported or undiscovered crime. Crimes go unreported for a number of reasons, a few examples include: the crime remains undiscovered (embezzlement or fraud), the victim finds the matter embarrassing (sexual assault), the crime may be considered too trivial (minor assault or minor theft), the victim lacks confidence in the police, the victim may not understand they were victimized (child molestation). There also appears to be the danger that nonreporting is also nonrandom, but that a large component of hidden crime varies systematically with a number of factors, including the type of crime and victim characteristics (MacDonald, 2001).

An additional challenge is that the organizations sponsoring the databases conduct minimal quality control, at best. No explanation is provided for why the crime rate in Finland declined 82.5% in a year – the numbers are simply entered into the database and reported as is. In nations with an extreme fluctuation of crime rates over time suggests a potential recording error. Thus, one may need to exclude data for a nation that shows extreme fluctuation in crime rates over a period of years.

Another difficulty using international datasets is one that plagues all official crime data – police bias. Van Dijk and his associates (2005) have conducted the International Criminal Victimization Survey (ICVS) since the 1980s and they consider police data to be unreliable. Van Dijk compared self-reported victimization data with official police data and found either no correlation or negative correlation between the two, leading Van Dijk to conclude that the use of official police data provides invalid results, at least in cross-sectional or short-term studies. However, the lack of correlation between victimization data and official police data could result from measurement errors within the ICVS instead of, or in addition to, official reporting errors or police bias. In contrast to the explanation proposed by Van Dijk, it could be that, because both data sets likely contain different types of measurement or reporting errors, the errors contribute to reduced inter-database correlation. Van Dijk did concede that for a longitudinal study, police data may accurately reflect crime trends, but he asserted that police data were unreliable for any study covering four years or less.

With the cessation of GURRS and CCDF, and with Interpol removing its database from general use⁴, the international comparative researchers' toolbox of official crime data is significantly diminished. As crime victimization surveys become more common and as official crime data become scarcer, the comparative criminologist will find him or herself relying more and more on victimization data such as ICVS. While victimization survey data may more accurately reflect the true crime level in a country, ICVS data are not without problems as well, many of them being the same as those plaguing official police data. ICVS was first fielded in 1989, so comparative researchers are unable to map changes in crime over an extended period of

⁴ Because member nations did not want their crime data made public, in 2001, Interpol restricted access to international crime data to accredited law enforcement members only. Even though official reporting has not been terminated, the last comprehensive data collection occurred in 2003. 2004 is the last year of available Interpol data. (Bennett, 2009).

time, such is currently possible with Interpol. Also, the ICVS is not a random sample of nations either, so it also suffers from sampling bias; and some nations do not fully participate, but instead only poll residents of their largest city, restricting the generalizability even within that particular nation. And of course, because ICVS is a victimization survey, it is of little use to scholars wishing to study homicide.

Attempts have been made to determine which international crime data source is “best,” but without success. Huang and Wellford (1989) found that for nation-by-nation point estimation, the various international crime datasets differ by varying degrees (Finland’s theft rate rank is #5, #10 or #17, depending on the dataset); as such, dataset choice will likely alter a researcher’s results. Neapolitan (1996) also found that the association between independent variables and homicide rates from Interpol, WHO and the UN varied substantially. He suggested that the different rates may account for some of the inconsistencies in past research on homicide correlates. However, Bennett and Lynch (1990) found that for aggregate point estimation in cross-sectional descriptive and longitudinal descriptive studies, the four datasets are statistically similar. In short, the particular use for which the dataset is employed affects the comparability and reliability of the descriptive statistics generated.

While it may not be possible to definitively determine which of the cross-national homicide datasets is the most reliable, choice of a particular dataset in published empirical research is revealing. LaFree provides an excellent summary and review of cross-national homicide literature, including a superb table (LaFree, 1999, pp. 127-132) listing the crime data source, sample size, analysis type, dependent and independent variables, and their relation to homicide. This table covers cross-national homicide studies from 1965 – 1997. I constructed a similar table (see Appendix A) which builds upon LaFree’s table, filling in pre-1997 studies

originally omitted by LaFree, and including studies from 1997 to the present-day. If one tallies all the homicide studies in both LaFree's (1999) table and my table in Appendix A, essentially half of the studies used WHO data and half used Interpol data (34 and 33 of 69, respectively). Twelve studies used UN data, three used CCDF data, and the remainder used assorted other data sources⁵. However, there has been a definite shift in database preference over the years. Pre-1997, Interpol was the database of choice for most cross-national homicide researchers (21 of 34 studies), however post-1997, WHO data has come into favor (23 of 35 studies). This may partially be due to Neapolitan's article (1999) claiming WHO data was more reliable than Interpol data, and it may also be the result of Interpol removing its dataset from public access in 2001.

The next section reviews some selected cross-national homicide research from the criminological and sociological literature chosen by keyword search for 'international homicide' or 'cross-national homicide' in the Criminal Justice Abstracts and the Academic Search Premier electronic databases. This review focuses on studies that explore homicide covariates between at least two different nations. The table in Appendix A provides a summary of all the studies, whereas the following literature review highlights those works most pertinent to this particular research project.

⁵ The numbers do not add exactly to 69 because a number of studies either examined data from more than one source, or used data from one source to fill in missing data missing from another.

Empirical Cross-National Research on Homicide

The remainder of this review focuses on articles that used similar constructs to those used in this research project; the review is broken down by social capital, social disorganization, and control variables and their respective relationship to homicide in a cross-national context.

Overall, cross-national homicide studies run the gamut regarding covariates. The independent variable ranged from social support (Alzheimer, 2008; Pratt & Godsey, 2002), social welfare (Savage, Bennett & Danner, 2008), degree of capitalism (Antonaccio & Tittle, 2007), development (Bennett, 1991), sex and age ratio (Barber, 2009; Gartner & Parker, 1990; Monirussaman & Andersson, 2005; Pritchard & Butler, 2003; Pritchard & Evans, 2001), economic and political legitimacy (Chamlin & Cochran, 2006), economic inequality (Jacobs & Richardson, 2008; McCall & Nieuwebeerta, 2007; Messner et al., 2002; Rosenfeld & Messner, 1991), modernization (LaFree, 2005), political structure (Lee & Bankston, 1999; Messner & Rosenfeld, 1997; Stamatel, 2009), alcohol sales (Rossow, 2001), and number of military personnel (Sun, 2006).

There is a dearth of studies that examine social capital and homicide at the cross-national level. Chamlin and Cochran (2006) authored one of only three cross-national homicide studies that used World Value Survey (WVS) data, although they did not explicitly test social capital indicators, but rather economic inequality and political legitimacy. Their findings failed to support their hypotheses on two levels. One, they found economic and political illegitimacy had the inverse relationship to homicide as they expected; two, the associations failed to reach statistical significance. In fact, the only statistically significant finding from their study was that of economic inequality and its positive association with homicide.

The other two cross-national homicide research articles do examine social capital and homicide, and one actually builds upon the work of the other. Lederman, Loayza and Menendez (2002) used data from wave 1 and wave 2 of the WVS for social capital indicators and WHO for homicide data, compiling a maximum sample of 39 countries. They argued that social capital (trust and civic engagement), independent of structural determinants (like inequality and GDP), reduces homicide because it allows for peaceful resolution of conflict and it reduces the free-rider problem in collective action. Unlike other social capital studies (Rosenfeld et al., 2001), Lederman et al. kept trust and civic engagement as separate measures of social capital. They found that trust had a consistently significant negative effect on homicide rates, but the results regarding civic engagement was inconclusive, and possibly even positively associate with homicide. Additionally, structural variables like inequality and GDP, remained significant predictors of homicide even when social capital measures were included in the analysis.

Robbins and Pettinicchio (2011) built on the work of Lederman et al. but used UN instead of WHO homicide data, the fourth wave of the WVS, and some different statistical techniques to examine the data. Interestingly, the two sets of researchers arrived at a similar conclusion. They both conceded that social capital, as a whole construct, did not rise to the level of statistical significance as regards homicide cross-nationally; however certain aspects of social capital did help to explain homicide variation. As stated above, Lederman et al found trust to be negatively associated with homicide, but voluntary participation in secular organizations was positively associated with homicide. Robbins and Pettinicchio, on the other hand, only found increased social activism to be associated with decreased homicide rates. The other aspects of social capital (trust, religiosity, and social interconnectedness) appeared to be unrelated to homicide. They concluded that the direct effects of social capital on homicide, besides social

activism, are either conditional or spurious. They reasoned that social activism (attend a demonstration, participate in a boycott, etc.) was the best measure of behavior directly related to social or political change. In a manner of speaking, social activism could be considered the best substitute measure for collective efficacy – measuring those who actually do something to make their community better, rather than those who merely talk about community improvements.

As for social disorganization, while a number of studies controlled for common SDT measures, few specifically explored social disorganization as a whole theory, and two did not use homicide as a dependent variable. McCall and Nieuweerta (2007) examined the social and economic forces characteristic of European cities and their influence on homicide rates. Drawing from several theories, including SDT, the authors examined data from the Urban Audit dataset based on 117 cities in 16 European nations. They found that greater levels of urbanization and economic deprivation were positively and statistically associated with higher homicide rates, whereas level of population heterogeneity was not consistently correlated with the cities' rates of homicide. They cautioned that the conclusion regarding population heterogeneity might stem from that fact that non-EU natives may include skilled immigrants from Asia and the Americas as well as unskilled immigrants from Africa or the Middle East. Skilled immigrants would likely not exert the disorganizing influence predicted by the original social disorganization theory.

Van Wilsem (2004) purported to test SDT as it related to homicide, theft and vandalism in 27 nations; however the percentage of the population living in urban areas was his sole measure of social disorganization. He also controlled for income inequality (Gini index) and national affluence (GDP per capita) in order to test strain theory and routine activities theory. Using WHO data, the results of his analysis were inconclusive regarding the relationship

between SDT (urbanization) and homicide. The results of this analysis are questionable simply because the SDT construct was underspecified. Another study that used a social disorganization index as part of a test of social support, inequality and homicide was authored by Pratt and Godsey (2003). This index, unlike van Wilsem's (2004), is a factor consisting of the following: age structure, sex ratio, infant mortality rate, and a proxy measure for residential mobility (the five-year rural-urban population change). Looking at a sample for 46 nations, the authors did not find evidence that social disorganization had any effect of homicide rates.

Two other cross-national SDT tests that did not use homicide as the dependent variable were conducted by Bennett and Bennett (1983) and Jacobs and Kleban (2003). Bennett and Bennett combined SDT and anomie theory for the purpose of examining national police personnel level, while Jacobs and Kleban used homicide as a control variable while studying national incarceration rates. Bennett and Bennett's SDT measure included national revenue per capita, national percent of world trade, percent of the workforce in industry, and adult literacy rate. The results indicated that the SDT variables explained property crime better than the measures used to test anomie theory. Jacobs and Kleban (2003) used more traditional SDT measures (ethnic heterogeneity, economic inequality, unemployment, GDP per capita, out-of-wedlock birth rates, and infant mortality rates). Of the SDT variables, they found the following to be significantly positively associated with national incarceration rates: out-of-wedlock births, ethnic heterogeneity and GDP per capita.

Neapolitan (1999) conducted a comparative analysis of nations with low and high levels of violent crime. One of his indicators was social integration versus disorganization, as measured by ethnic conflict and discrimination, forced population dislocation, urban slums and street people, political and social instability, and diminished kinship and local community

systems. Of the six nations he categorized as High Violent Crime, five of them scored 'high' on the social disorganization scale and the sixth nation scored 'moderate' on the same scale. Even though this research was not a direct test of SDT and homicide, it does lend further support to the contention that social disorganization and violent crime often coexist in a nation. Jacobs and Richardson (2008), using a pooled time-series estimate of 14 nations over the course of 20 years, found SDT to be positively associated with homicide, however their main test regarded the association between economic inequality and homicide. However, these findings should be interpreted cautiously because, like van Wilsem, Jacobs and Richardson also only used one variable as a proxy for social disorganization: infant mortality rate. However, they also have other 'typical' SDT measures included in their analysis such as minority presence and economic growth and unemployment (as potential poverty measures).

While there is a distinct lack of cross-national tests of SDT as a whole, there are quite a number of studies that examine components of SDT (poverty, ethnic heterogeneity, and family disruption) and their association with homicide. Table 4.1 lists each SDT variable and the study which found a positive, negative or no association with homicide.

Table 4.1 - SDT Variables and their Empirical Association with Homicide

SDT Variable	Association with Homicide		
	Positive	Negative	Indeterminate
Poverty	Barber (2009) McCall & Nieuwebeerta (2007) Messner, Raffalovich & Sutton (2010) Neapolitan (1999), Rahav (1990) Savage, Bennett & Danner (2008)	Neapolitan (1996) Neumayer (2003) Robbins & Pettinicchio (2011) Stamatel (2009)	Alzheimer (2008) Hansmann & Quigley (1982) Krahn, Hartnagel & Gartrell (1986) Lee & Bankston (1999) Messner (1982) Pridemore (2008) Savolainen (2000) Sun (2006) Sun, Sung & Chu (2007) Unnithan & Whitt (1992)
Population Mobility	None	None	None
Ethnic Heterogeneity	Alzheimer (2008) Avison & Loring (1986) Gartner (1990) Hansmann & Quigley (1982) Jacobs & Richardson (2008) Robbins & Pettinicchio (2011) Stamatel (2009)	None	Antonaccio & Tittle (2007) Krahn, Hartnagel & Gartrell (1986) McCall & Nieuwebeerta (2007)
Family Disruption	Gartner (1990) Rahav (1990)	Messner, Raffalovich & Sutton (2010)	Krahn, Hartnagel & Gartrell (1986) Stamatel (2009)

Cross-national studies explored a number of control variables including economic inequality (most frequently measured by the Gini Index), indices of relative deprivation, urbanization (percent of the population living in urban areas), sex ratio (proportion of males to females), percent young people (usually age 15 – 34, sometimes age 15 – 29, sometimes only

young males), GDP per capita, average life expectancy, adult literacy rate, ethnic heterogeneity, predominant national religion, family disruption (divorce rate), form of government, economic development, police per capita, level of drug trafficking, population size (total population), population growth, unemployment, infant mortality, energy consumption, level of social support, female labor force participation, inflation, and ethnic diversity. Table 4.2. lists the control variables that are used in this study and their relationship to homicide (positive, negative or inconclusive) as reported by other researchers.

Table 4.2 - Cross-National Covariates and their Reported Relationship with Homicide

Covariate	Association with Homicide		
	Positive	Negative	Indeterminate
Sex Ratio	Messner, Raffalovich & Sutton (2010)	Antonaccio & Tittle (2007) Barber (2000), (2009) Messner, Raffalovich & Shrock (2002) Messner & Rosenfeld (1997) Pratt & Godsey (2002), (2003) Savolainen (2000)	Alzheimer (2008) Chamlin & Cochran (2006) Conklin & Simpson (1985) Savage & Vila (1997)
Crime Age Population	Conklin & Simpson (1985) Hansmann & Quigley (1982) Jacobs & Richardson (2008) Messner, Raffalovich & Sutton (2010) Pratt & Godsey (2003) Savage & Vila (1997)	Bennett (1991) Lee & Bankston (1999) Stamatel (2009) Sun, Sung & Chu (2007)	Alzheimer (2008) Avison & Loring (1986) Gartner (1990) Gartner & Parker (1990) Krahn, Hartnagel & Gartrell (1986) McCall & Nieuwbeerta (2007) Neumayer (2003) Pridemore (2008) Savolainen (2000)

Table 4.2. (cont) - Cross-National Covariates and their Reported Relationship with Homicide

Covariate	Association with Homicide		
	Positive	Negative	Indeterminate
Urbanization	Bennett (1991) McCall & Nieuwbeerta (2007) Pratt & Godsey (2002) Pridemore (2008)	Barber (2009) Conklin & Simpson (1985) Messner, Krohn (1978) Raffalovich & Sutton (2010) Savage, Bennett & Danner (2008)	Alzheimer (2008) Hansmann & Quigley (1982) Jacobs & Richardson (2008) Kick & LaFree (1985) Krahn, Hartnagel & Gartrell (1986) Lee & Bankston (1999) Messner (1982) Neumayer (2003) Pratt & Godsey (2003) Sun (2006) Sun, Sung & Chu (2007)
Population Density	Conklin & Simpson (1985) Savage & Vila (1997) Stamatel (2009)	Lee & Bankston (1999)	Alzheimer (2008) Avison & Loring (1986) Barber (2009), Hansmann & Quigley (1982) Lee (2001) Messner (1982) Messner, Raffalovich & Shrock (2002) Neumayer (2003) Sun (2006) Sun, Sung & Chu (2007)

As these tables clearly illustrate, there is no consensus regarding any of the SDT variables or covariates and their relationship with homicide. However, each study uses different sources of data, different periods of time, different measures for each variable, different variable combinations, and different statistical analyses in order to reach their conclusions. Of course, if a consensus had been reached, additional research would be unnecessary. The articles listed above indicate that continued exploration into these variables is worthwhile and that additional support or refutation is still necessary.

Overall, there are a large number of cross-national studies separately examining social capital and homicide, but few cross-national SDT studies; there are very few cross-national studies that explore the combination of social capital and homicide or SDT and homicide. And there are none that combine social capital and social disorganization and examine their influence on homicide at a cross-national level, which is the purpose of this study.

Level of Analysis

I would be remiss if I omitted to mention that a debate does exist regarding the appropriate level of analysis for both social disorganization and social capital theories. Clearly SDT is a group-level theory, but what size group is most appropriate? Because the theory was designed for neighborhood analysis, some believe that SDT must remain confined to the neighborhood. SDT researchers have mostly confined tests of the theory to urban neighborhoods in the United States; however some research (Bouffard & Muftić, 2006; Melde, 2006; Osgood & Chambers, 2000; Petee et al., 1994; Reisig & Cancino, 2004; Vowell & Howell, 1998) indicates the effects of social control processes are also applicable to rural areas, counties and

nonmetropolitan communities. Internationally, Herzog (2009) studied SDT in neighborhoods in Israel, Sampson and Groves (1982) and Lowenkamp et al. (2003) used postal-code sectors in the UK, Zhang et al. (2007) explored SDT in a city in China, while van Wilsem (2004) analyzed SDT across 27 countries in Europe. Most of the studies listed found significant effects between SDT and homicide.

One must bear in mind however, that aggregation of data to higher levels of analysis (i.e. community level to national level) may mask the social processes that exist at the smaller, community, level (Veysey & Messner, 1999). It is possible that constructs such as social disorganization and social capital are only characteristic of communities and that nations cannot be described as highly disorganized or low in social capital. This concern has, at times, been expanded to include all variables related to crime in general, and homicide in particular. Are the effects of structural covariates on homicide rates so context specific that they appear to vary at different levels of analysis? If so, there is little likelihood of developing a generalizable theory to explain community, metropolitan, or ecological structural effects of homicide, or any other crime (Land et al., 1990).

Methodologically speaking, a national-level measure of social disorganization and social capital means that international data are averaged, potentially concealing tremendous variation in these measures at the community level. Countries with wide variability in social disorganization, for example, will appear to be as "average" as countries with narrow variability close to the mean for all countries. Countries in which some communities are highly disorganized and high in crime may appear to be average because they are also comprised of communities with low disorganization and low crime. Conducting analyses on national averages limits the fidelity of the data and can make results difficult to interpret. The most likely problem is that an analysis of

national-level data may fail to detect correlations that might be detected if the analysis was conducted on community level data. Failing to find a relationship when one does exist is an example of a Type II error⁶. This is a risk that researchers examining phenomenon at the national level must acknowledge. However, engagement with the material leads me to believe these theories can be applied at the cross-national level. In fact, Land et al. (1990) argued that "A general theory of structural covariates of homicide should be capable of accommodating all . . . levels of analysis. . . . We find no rationale in the theories guiding research on the structural covariates of homicide rates for restricting sample sizes or constraining them only to large cities or SMSAs [Standard Metropolitan Statistical Areas]" (pp. 933-4).

Another reason to believe SDT may apply beyond the neighborhood level is that tests of SDT are frequently not confined to a neighborhood, even in purported "neighborhood" research. The definition of "neighborhood" is arbitrary in most social science research and the areas typically being examined are proxy neighborhoods (usually geographic areas divided by census tracts) and are only rarely divided by true neighborhood boundaries (Land et al., 1990; Messner et al., 2004). Land et al. (1990) conducted a meta-analysis of the empirical literature on the structural covariates of homicide rates, testing whether statistical relationships remain consistent for different time periods, units of analysis, samples and model specifications. Their regression models⁷ accounted for 50-60% of the variance of homicide rate at the city level, 55%-60% at the SMSA level, and 65%-85% at the state level. They concluded that these findings corroborated

⁶ A Type I error is when a researcher finds a relationship when one does not actually exist; rejecting the null hypotheses when it is true - a false positive. A Type II error is when a researcher fails to find a relationship when one actually does exist; accepting the null hypotheses when it is false - a false negative.

⁷ The variables Land et al. used in their analysis were typical SDT variables: population structure, resource deprivation/affluence, percentage divorced, percentage ages 15-29, unemployment rate, and southern state.

their argument regarding the applicability of general theories of crime to a variety of units of analysis.

Similar arguments surround the elevation of social capital theory to a national level. Some social capital researchers protest that there is no such thing as national-level social capital. “Collective social capital . . . cannot simply be the sum of individual social capital. If social capital is a resource available through social networks, the resources that some individuals claim come at the expense of others” (Portes & Landolt, 1996). Bankston and Zhou (2002) argue that social capital is neither an individual-level nor a group-level phenomenon, but one that emerges across levels of analysis as individuals participate in groups. They argue that the moniker of “capital” may be misleading because unlike financial capital, which is a resource held by an individual, the benefits of forms of social capital are not held by actors, but result from the participation of actors in advantageously organized groups. Rosenfeld et al. (2001) argues that trust and social engagement are vital and mutually enforcing elements of social capital, and that “trust may be local or global in scope” (p. 285).

At this point the consensus among social scientists appears to be that social capital can be analyzed at the national level. The WVS website alone lists 73 published articles using national-level data and a cursory search of the Academic Search Premier database reveals another 76 articles and conference papers. Adding together indicators of “social capital” to create scales at higher levels of aggregation is not likely to be the *best* measure of national level social capital, because it will probably mask the capital available to individuals who are not directly involved in groups. However, on the whole, countries where more residents report being involved in community organizations, have trusting relationships with friends, etc. are likely to have higher levels of social capital than countries where these participation and network rates are low.

This dissertation is designed to examine the direct and indirect effects of social disorganization on cross-national homicide rates, when controlling for social capital, and also to examine these theories at a level at which they are not generally examined - the national level. Just as neighborhoods take on the characteristics of their residents, cities take on the characteristics of their neighborhoods, states take on the characteristics of their cities, and therefore nations take on the characteristics of their states. In this regard, the characteristics of a country reflect the aggregate characteristics of communities or neighborhoods. While I acknowledge that examining data at a national level disguises variation between individual communities, I contend that higher-level analysis still provides useful and relevant information. A national-level analysis reduces the within-nation variation to zero, but it maximizes the variation between nations.

As previously mentioned, one of the benefits of cross-national research is that it allows for testing the generalizability of theories outside the national borders where they were conceptualized (Bennett, 2004). So, just how robust and generalizable are SDT and social capital theory? Both of these theories were developed in the United States, using indicators that explain the way Americans behave, but will the theories explain variations in homicide rates in nations with different social and ethnic behavior patterns? The exploration of this question is one way that this dissertation can contribute to the body of cross-national homicide literature.

CHAPTER 5 - METHODS

Hypotheses

The present dissertation will test four hypotheses. First, I expect greater levels of social disorganization to be associated with higher rates of homicide and lower levels of social capital. Second, I expect social capital to be associated with lower rates of homicide. Finally, I hypothesize that social disorganization will have an indirect effect on homicide via its effect on social capital. I expect that the direct effect of social disorganization on homicide will be significantly, but not fully, mediated by this indirect effect. This mediation relationship is diagrammed in Figure 5.1.

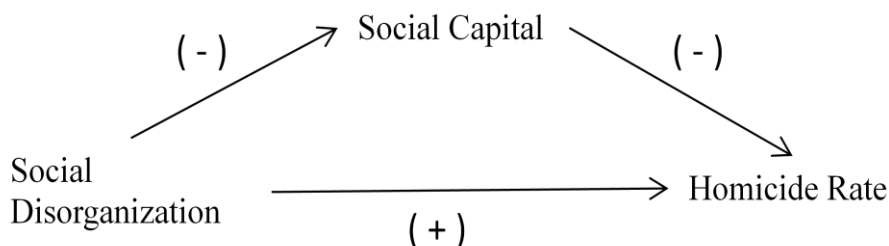


Figure 5.1. - Relationship between Social Disorganization, Social Capital, and Homicide

The figure shows two causal paths leading to the outcome variable (homicide rate). One is the direct influence of the predictor (social disorganization) and the second is the influence of this predictor through the mediator (social capital). I predict that the direct effect of social disorganization on homicide will be attenuated when the indirect effect through social capital is taken into account. In particular, I hypothesize the following relationships:

Hypothesis 1: Social disorganization will be positively associated with homicide rate

Hypothesis 2: Social capital will be negatively associated with homicide rate

Hypothesis 3: Social disorganization will be negatively associated with social capital

Hypothesis 4: The direct effect of social disorganization on homicide will no longer be significant when the indirect effect has been taken into account.

Data

In order to test the hypothesized relationship between social capital, social disorganization and homicide rates, I constructed a panel dataset which includes homicide rate (dependent variable), indicators of social disorganization and social capital (independent variables), and other factors related to crime (covariates). Homicide data were obtained from Interpol, and social capital data were obtained from the World Values Survey. Data for the social disorganization and control variables were obtained from several sources: the United Nations Demographic Yearbook (population density, percent young men, divorce rate), the World Bank (urban population, GDP, migration rate), and the CIA World Factbook (literacy rate, ethnic heterogeneity). The total number of country-years available, after cross-referencing all five datasets, and supplementing some items using a missing data interpolation method (described below) was 87 (N=87). This relatively small sample is due to missing data; some countries provide data to Interpol, for example, but not complete the World Values Survey, or vice versa. For a detailed explanation of the construction of this database, please see Appendix B.

As Messner (1989) points out, the limited availability of data is a major obstacle to the comparative study of social disorganization, social capital and crime rates. It is difficult to get data on any single variable for an appreciable sample of nations, and the problem is compounded when the objective is to get measures for multiple variables for multiple nations. As a result, the sample selected reflects the constraints imposed by the data sources as much as purely theoretical considerations. Missing data are a particular challenge when small data sets are used. The seriousness depends on how much data are missing, why they are missing, and the pattern of missingness; the latter being potentially the most serious (Tabachnick & Fidell, 2007). Data that are MCAR (missing completely at random) pose the least serious problem regarding missing data, but are rare. If the pattern of missing data can be predicted from other variables in the dataset, the data are considered MAR (missing at random), and if the missing data are related to the dependent variable then they are MNAR (missing not at random). Data are MAR if the probability of missing data on Y is unrelated to the value of Y, after controlling for the other variables in the analysis. If, however, the probability of missing data on Y is *related* to the value of Y, even after controlling for the other variables in the analysis, then the data are MNAR (Allison, 2002) and pose a serious threat to the generalizability of results.

There are several ways to deal with missing data. The first and simplest solution is listwise deletion, where one excludes any case with missing data from the analysis. This technique is problematic for two reasons. First, if the missing data are not MCAR, but are missing based on some commonality among the cases, then deleting the cases can distort the sample and yield biased estimates. It is reasonable to assume that the poorest countries fail to report data because they cannot afford the infrastructure necessary to collect data and file reports. Consequently any analysis will only be generalizable to countries rich enough to report data.

The second problem with listwise deletion is that it can exclude a large proportion of the original sample. In the case of this research project, listwise deletion of any case with a missing variable would reduce the sample size from 87 to 23. This reduces statistical power to unacceptable levels.

Alternative methods such as mean substitution, pairwise deletion, dummy variable adjustment, marginal mean imputation, and conditional mean imputation are equally problematic and several of these techniques may be inferior, even, to listwise deletion. This is because these methods often introduce substantial bias, make the analysis more sensitive to departures from the assumption of MCAR, or yield standard error estimates that are usually too low (Allison, 2002).

Maximum likelihood is another method used for handling missing data problems. Maximum likelihood estimators, when estimated correctly, are generally unbiased, have small standard errors (especially as the sample size gets larger), and in repeated sampling, the estimates have an approximately normal distribution (Allison, 2002). The concern regarding the use of maximum likelihood in this dissertation is the sample size. My N is relatively small, and maximum likelihood has been demonstrated to work best with large samples; maximum likelihood estimators may be unstable with samples as small as mine.

Consequently, I elected to use multiple imputation (MI) to fill in any remaining missing data. MI carries out a form of data averaging via simulation. In MI, developed by Rubin (1987, 1996), missing values are replaced with $m > 1$ plausible values repeatedly drawn from simulated conditional probability distributions. The variation among the m imputations reflects the uncertainty with which the missing values can be predicted from the observed ones (Rose & Fraser, 2008; Schafer & Olsen, 1998). MI is superior to other missing data approaches because it produces estimates that are “consistent, asymptotically efficient, and asymptotically normal

when the data are [missing at random]” (Allison, 2002, p. 27). Data produced by multiple imputation can be used with virtually any kind of data, any kind of model, and the results can be used with any kind of statistical software (Allison, 2002).

To conduct the imputation, I transferred my data into NORM, a multiple imputation software package written by Joseph Schafer (1999), a professor of statistics at Pennsylvania State University. NORM uses a Markov chain Monte Carlo procedure called data augmentation, an iterative process similar to expectation maximization (EM) algorithms that alternately fills in missing data and makes inferences about the unknown parameters in a stochastic, or random, fashion. Tabachnick and Fidell (2007) find MI to be superior to EM because MI can be applied to longitudinal data, retains sampling variability, and makes no assumptions about whether or not the data are missing at random.⁸

My entire dataset was transferred into NORM because the imputation model should not only contain all variables to be subsequently analyzed, but should also include any variables that help explain the missing data (Marshall et al., 2010), even variables that are not used in the final analysis. Homicide data were excluded, because allowing NORM to impute data using information from the dependent variable could inflate the estimates of associations between the dependent and independent variables in subsequent analyses. For this project, NORM was programmed to conduct 5000 data runs, saving an imputed data set at every 1000th run, resulting in five separate imputed datasets, a sufficient number to produce quality inferences (Rubin, 1996). All five datasets were then combined by averaging, resulting in one complete set of data. This is a departure from the standard procedure for analyzing imputed datasets. Typically, each

⁸ For a complete discussion of MI, please see Schafer and Yucel (2002) or Schafer and Olsen (1998). For further discussion of NORM, see Marshall, Altman, Royston and Holder (2010); for an example of the use of MI in the published criminal justice research literature, see Fox and Swatt (2009).

of the five datasets is analyzed by the researcher, resulting in five separate point estimates and five estimated variances. The researcher then uses Rubin's rules (Rubin, 1987) to combine the results of the five separate analyses (Parker & Schenker, 2007; Rose & Fraser, 2008). The compiled result then effectively incorporates the uncertainty which is due to missing data (Schafer & Yucel, 2002). However, several of my five imputed datasets contained implausible values (negative divorce rates, over 100% WVS response rates, etc.), making those particular estimates useless for analysis purposes. Consequently, I combined all five imputed datasets into one by taking the mean for each variable. In this way, implausible variables were averaged so that the final dataset contained only possible values of each variable. This single, complete dataset was used for index formation and further analysis. Please see Table 5.1. for descriptive statistics on the single, complete, imputed dataset.

Table 5.1. - Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Family Important	87	0.927	0.998	0.981	0.014
Friends Important	87	0.49	0.982	0.893	0.107
Politics Important	87	0.182	0.712	0.421	0.126
Religion Important	87	0.195	0.991	0.526	0.207
Member of Service Organization	87	0.008	0.06	0.148	0.101
Trust People	87	0.05	0.695	0.377	0.160
Interest in Politics	87	0.205	0.768	0.488	0.137
Sign Petition	87	0.136	0.874	0.479	0.207
Join Boycott	87	0.022	0.696	0.134	0.107
Attend Demonstration	87	0.044	0.402	0.199	0.091
Frequently Pray	87	0.381	1.0	0.699	0.162
Religious Person	87	0.223	0.883	0.593	0.178
Member of Local Community	87	0.181	0.982	0.513	0.201
Mobile Cell Subscriptions (per 100 people)	87	0	122	28.362	35.631
Telephone Lines (per 100 people)	87	0.6	68.4	39.805	19.276
3-yr ave Homicide Rate	87	0.47	9.33	2.516	1.826
Population Density	87	1.88	475.63	144.61	142.53
Sex Ratio	87	0.841	1.241293	0.977	0.047
% Urban	87	25.5	90.3	72.354	13.526
% 15-24 Males in Population	87	2.084	11.46047	7.644	1.564
Illiteracy Rate	87	00	52	5.421	10.831
GDP (constant 2000 US\$) in Millions	87	1615.24	11,241,038.76	1,158,828.62	2,072,191.41
Life Expectancy at Birth, total (years)	87	58.21	82.51	75.428	4.775
Migration (# per 1,000 population)	87	-2.09	6.53	1.4612	2.009
Ethnic Heterogeneity	87	0.002	0.775	0.264	0.233
Divorce Rate	87	0.2	5.08	1.896	1.072
Valid N (listwise)	87				

Dependent Variable

The main dependent variable is national homicide rate as reported by Interpol and aggregated in Bennett's (1992) Correlates of Crime (COC) database. The homicide rate is the total number of homicide offenses per 100,000 of population, adjusted to exclude attempted homicides (Savage, 1997; Savage et al., 2008). Most scholars agree that homicide is the most reliable measure to use because it is the most likely crime to be reported to the police (Hansmann & Quigley, 1982). The presence of a dead body or the absence of a family member, neighbor, or colleague is typically noticed and reported to the authorities.

One must be careful when examining national-level homicides as reported to organizations such as Interpol because some nations include attempts in their homicide count, and some do not. The inclusion of attempts produces exaggerated crime rates for those countries. For example, according to Interpol, Finland reported 298, 275 and 302 homicides for 1983, 1984 and 1985, respectively, but then they reported 53, 36 and 33 homicides for 1986, 1987 and 1988 respectively. That would be an amazing 82.5% reduction in homicide if true; however it is more likely that Finland had been including attempted homicides in its homicide reporting up until 1985 and from 1986 forward, just reported completed (successful) homicides. Therefore, researchers must be careful to calculate "pure" homicide rates by excluding attempts (Savage, 1997), the percentage of which is indicated on the Interpol forms. Neapolitan (1996) cautions that past cross-national research using unadjusted homicide rates may be invalid as the associations with theoretically relevant independent variables differ substantially when using attempt-adjusted or unadjusted rates.

Interpol data were collected by the International Criminal Police Organization based in Lyon, France. Data were collected each year, starting in the 1950s, and were made available to the public through Interpol's bi-annual publication: *International Crime Statistics*. Because contributions to Interpol are voluntary, the number of nations covered in each bi-annual publication has varied. The challenges regarding the use of Interpol as a source of homicide data has been discussed at length elsewhere (Bennett & Lynch, 1990; Kick & LaFree, 1985; LaFree, 1999, 2005; LaFree & Drass, 2002; Lynch, 1995; Messner, 1989; Neapolitan, 1996; Pratt & Godsey, 2003), but for this type of analysis where variations in crime across nations are explored, Interpol data are as good a choice as any other set of cross-national data (Bennett & Lynch, 1990; Hansmann & Quigley, 1982). Homicide data were not imputed; three year averages (up to two years distant) were used to minimize effects of annual fluctuations and to increase the number of observed data (Avison & Loring, 1986).

Interpol data have been criticized for many of the reasons discussed previously in the cross-national section (Archer & Gartner, 1984; Neapolitan, 1999), however all international crime databases have their pitfalls. I chose to use the Interpol database because it contains crime data as collected by police agencies, whose business it is to deal with crime. The WHO data are collected by medical authorities and are intended for use regarding medical issues, although the data are put to other uses. While crime researchers can certainly use the homicide rates as reported by WHO, I prefer to use true crime data. In addition, Interpol has a membership of 190 countries, compared to 100 countries providing detailed death information to WHO. Because it was necessary to overlap homicide and WVS data, Interpol's larger membership increased the likelihood of finding countries common to both datasets. Finally, there has been no definitive evidence proving that one comparative data set provides the most valid indicator of crime

(Bennett & Lynch, 1990). Because numerous other researchers have used Interpol data for their cross-national research, I felt confident in selecting this database.

The current version of the COC database contains 1,498 country-years of homicide data spanning the period from 1960 to 2004. However, Interpol stopped publishing crime data after 2004, and because the period of analysis for this project extends through 2009, alternate sources of data were needed for the most recent years. For most nations, the homicide data came from each country's national police as reported to the United Nations Office on Drugs and Crime (UNDOC) International Homicide Statistics (IHS); this includes: Andorra, Chile, Finland, France, Italy, South Korea, Peru, Spain, and Sweden. Some nations did not report their homicide data to UNDOC so homicide data for those nations had to be found separately. Other nations reported homicide data to UNDOC, however when comparing UNDOC data to those nations' homicide data reported by Interpol in previous years, a substantial difference between the two sets of numbers was apparent. In cases where a significant discrepancy existed between Interpol and the national database, the national database was employed for all homicide data for that country for the entire time period studied. See Table 5.2 for specifics about alternate homicide data sources. I intentionally did not select WHO data for missing data substitutions because I wanted to stay in the realm of official police reporting. While correlation between WHO and other crime databases is significant, for the purposes of consistency in this research project, I elected to gather all homicide data from official police data sources.

Table 5.2 - Alternate Homicide Data Sources

Nation	Source	Years Replaced
Andorra	UNDOC	2005
Australia	Australia Institute of Criminology	2005
Canada	Statistics Canada	2005-6
Chile	UNDOC	2005-6
Finland	UNDOC	2005-6
France	UNDOC	2005-6
Germany	Polizeiliche Kriminalstatistik	All
India	Indian National Statistics Bureau	2005-6
Italy	UNDOC	2005-6
Japan	Japan Ministry of Justice	2005-6
South Korea	UNDOC	2005
The Netherlands	UNDOC	2005-6
Norway	Statistisk Sentralbyra	All
Peru	UNDOC	2005-6
Spain	UNDOC	2005-7
Sweden	Swedish National Council for Crime Prevention	All
United Kingdom (England & Wales)	Home Office	2005
United States	FBI Uniform Crime Reports	2005-6

Measures of Social Disorganization

Social disorganization is operationalized by an index comprised of four variables: population mobility, economic disadvantage, ethnic heterogeneity, and family disruption. The first three are interpreted from Shaw and McKay's work (1942). Since that time urbanization/population density and family disruption have been added by other researchers as measures of societal disorganization (Land, McCall & Cohen, 1990; Sampson & Groves, 1989;

Veysey & Messner, 1999; Warner & Pierce, 1993). As explained in the social disorganization empirical review section, urbanization will not be included as an indicator of social disorganization; as a result, urbanization is included as a control variable (see discussion of control variables). The remaining four variables were chosen because, taken together, they capture the critically important dimensions of the social disorganization construct at the national level.

Population Mobility

National migration rate, which captures the potential disorganization of a nation, was selected as the best measure of the construct of population mobility. This variable was calculated using net migration data from the World Bank (1979-2008), divided by the national population, (population data from UN Demographic Yearbook, 1979-2008), and multiplied by 1,000.

Economic Disadvantage

GDP is used to operationalize economic disadvantage. It is a measure of the total final output of a nation's economy, all goods produced and services rendered within its territory by residents and nonresidents without regard to its allocation among domestic and foreign claims, in 2000 U.S. dollar equivalents (World Bank, 1979-2008). Its value is calculated before deductions are made for depreciation and other capital consumption allowances. Previous research suggests a negative relationship between a nation's economic output and the reported homicide rate (Antonaccio & Tittle, 2007; Messner & Rosenfeld, 1997; Neapolitan, 1994, 1996).

Ethnic Heterogeneity

Ethnic heterogeneity is defined as the mix of nationalities or races in a particular target area. It is intended to measure the potential disruption of community processes as a result of

varying backgrounds and standards of behavior among individuals in the community (Heitgerd & Bursik, 1987). This variable was calculated using Blau's (1977, p. 78) heterogeneity formula, which sums the squared fractions of the proportion of the population in each group and subtracts that sum from one. This formula represents the chance that two randomly chosen individuals do not belong to the same ethnic group. The more homogeneous the population, the closer the score is to zero, the more heterogeneous the population, the closer the score is to one. As an example, in 2005, South Korea, a very homogeneous nation, has a Blau score of 0.002 whereas France, a very diverse nation, has a Blau score of 0.592. Data for national ethnic makeup came from the CIA World Factbook (1984-2007).

Family Disruption

Family disruption is defined as the disruption of the nuclear family (mother, father and children) by divorce, death or imprisonment. Increased family disruption is linked to increased rates of delinquency and crime (Herzog, 2009; Land et al., 1990, Osgood & Chambers, 2000; Pizarro & McGloin, 2006; Pridemore, 2002; Sampson & Groves, 1989; Veysey & Messner, 1999; Warner & Pierce, 1993). For this study, family disruption is measured by divorce rate. Data from the United Nations Demographic Yearbook (1979-2008).

Social Disorganization Index

The social disorganization index was constructed from the aforementioned four measures. To create the SDT index, each variable was coded such that a higher score indicates a higher level of social disorganization (e.g., GDP and immigration were reverse-coded). Because SDT was judged to be a "formative" construct, an additive scale was created. Each indicator of SDT was standardized by calculating the z-score and then adding the z-scores together. Thus,

the index of social disorganization is the sum of the standardized values of GDP (reverse-coded), ethnic heterogeneity, migration rate (reverse-coded)⁹, and divorce rate.

Identifying a model as formative rather than reflective has implications for index construction. An index of a formative model is appropriately created by adding together standardized measures of the individual variables. An index of a reflective model is appropriately created by submitting the individual variables to a Principal Component Analysis, and then saving the component scores (Tabachnick & Fidell, 2007).

In a reflective model, the latent construct exists independent of the variables selected to operationalize the construct. That is, the variables are selected to represent critical elements of the pre-existing latent construct; the direction of causality is from the latent construct to the observed measure. A common example is human intelligence. Most contemporary psychologists argue that human intelligence exists in its own right, although they may disagree on the exact components and configuration of the latent construct. Researchers typically infer intelligence through responses to standardized tests. An individual's scores on the various verbal and quantitative sections of an intelligence test are thought to be an indicator of the individual's (latent) intelligence.

In a formative model, the latent construct is defined by a set of indicators and the direction of causality is from the observed indicators to the construct. A frequently used example of a formative model is socio-economic status (SES) (Brown, 2006). SES is often constructed of three measures: income, occupational prestige and education. An increase in any

⁹ Based on recent research (Thomas, 2011; Wadsworth, 2010), I decided that a high immigration rate was likely to indicate national desirability and stability, whereas a high emigration rate was likely to indicate disaffection and instability. As such, the signs of the z-scores for migration were reversed (just like for GDP) so high immigration resulted in a low z-score (indicating less social disorganization), and high emigration resulted in a high z-score (indicating greater social disorganization).

one of the indicators increases an individual's SES, but it does not work the other way around. An increase in SES does not cause an increase in the measures; in fact, an increase in SES is impossible without an increase in one or more of the measures first.

Coltman et al. (2008), listed three theoretical considerations one should use when assessing reflective and formative models: (1) What is the nature of the construct, is it existing (reflective) or formed (formative)? SDT is a formed construct; ethnic heterogeneity, residential instability, and family disruption create a disorganized community; a disorganized community does not create ethnic heterogeneity and residential stability. (2) What is the direction of causality between the items and the latent construct? Does variation in the construct cause variation in the measures (reflective) or do variations in the measures cause a variation in the construct (formative)? For SDT, variation in the level of poverty, ethnic heterogeneity, residential stability and family disruption increases or decreases the overall level of (dis)organization in that community. SDT does not exist independently from its measures; it is determined by a combination of characteristics present in the community. (3) What are the characteristics of the items used to measure the construct? Do the items share a common theme (reflective) or not (formative)? Another way to think about having a common theme is whether or not the measures are interchangeable. For example, if a researcher was studying dexterity a number of measures could be used: tying shoes, stringing beads, typing, manipulating a puzzle toy, etc. One test of dexterity could be substituted for another. In the case of SDT, poverty could not be substituted for a measure of ethnic heterogeneity because they do not address the same underlying issue. The indicators of SDT do not share a common theme; they are often found together (in disorganized communities) but each item measures a concept wholly distinct

from the others. Based on these three considerations, SDT should be considered a formative model.

Other researchers have used factor analysis to create indices of social disorganization (Pratt & Godsey, 2003). However, Brown (2006) has argued that “the fundamental intent of factor analysis is to determine the number and nature of latent variables or *factors* that account for the variation and covariation among a set of observed measures, commonly referred to as *indicators*. Specifically, a factor is an unobservable variable that influences more than one observed measure and that accounts for the correlations among these observed measures” (pp. 12-13). Because factor analysis assumes an underlying reflective indicator model, it is inappropriate for the index construction for a formative construct (such as social disorganization) because there is no theoretical assumption about inter-item correlation (Coltman et al., 2008). Therefore, for this project, a relatively simple additive procedure was used to create the SDT index; similar to that used by Bachman (1991).

Measures of Social Capital

For this study, indicators of social capital were taken from the World Values Survey (WVS), waves 1 – 5. The WVS is a common source of cross-national social capital data (Adam, 2006; Letki, 2006). The World Values Survey Association is a non-profit association located in Stockholm, Sweden. The WVS is designed to help social scientists study value changes in the world and their impact on social and political life. A standardized questionnaire is translated into the local language and a representative sample of the nation's population are interviewed face-to-face on such issues as religion, gender roles, governance, social capital, political participation, and the environment (WVS, 1981-2008).

Social Capital Index

As with the social disorganization index explained above, social capital, for this research project, was treated as a formative construct. The index was created by summing the values of the four sub-indices: trust, religiosity, political, and social interconnectedness. See, as an example, the complete social capital index for India, 2006, in Table 5.3., below.

Table 5.3 – Social Capital Index

	Trust Index	Religiosity Index	Political Index	Social Intercon Index	Social Capital Index
India, 2006	2.11	2.54	1.47	1.66	7.77

Similar to SDT, I view social capital as a formative construct. I will apply the same three theoretical considerations (Coltman et al., 2008) used previously in assessing whether SDT was a reflective or formative model. First, social capital is a "formed" rather than an "existing"

construct because its components, trust, religiosity, political involvement, and social interconnectedness create social capital. Social capital does not exist independently from its measures; it is determined by the number of interconnections between individuals in society. Second, variation in the level of trust, religiosity, political involvement, and social interconnectedness affects the overall level of social capital available to members of that community. Variation in the level of community social capital does not alter the level of trust among citizens; it does not cause people to join social groups or participate in political activities, etc. Third, indicators of social capital are not interchangeable; a measure of religiosity could not be substituted for a measure of political involvement because they do not necessarily address the same underlying issue. The additive result of numerous indicators of social networks is likely to be a better measure of the construct "social capital" than any of the indicators standing alone. Based on these three considerations, social capital should be considered a formative construct, and the index was constructed accordingly.

The preponderance of WVS question response categories employ a Likert-type scale, such as "How important is your family to you? a) very important, b) important, c) not very important, d) not at all important". Unfortunately, the survey response options for some of the questions varied from wave to wave. In order to make survey responses for all five waves comparable, I converted the data into a binary format; that is, is your family important to you or not? As such, an answer of a, b, or c (from the example above) was considered a "yes" response. Only those who selected letter d were considered a "no" response. I calculated a percent of "yes" responses for each question (number of "yes" responses divided by total number of responses). For each sub-index, all the "yes" percentages for each question in a sub-index (i.e.

trust) were added to create the trust sub-index. Details regarding sub-indices, calculations and index formation are presented below.

Trust

Trust is measured with a three-item scale based on questions relating to both generalized and specific trust. Generalized trust is intended to measure the degree to which an individual would be willing to enter into communication and cooperation with an unknown person (Adam, 2006) indicating the potential for greater social capital. Trust can reduce “transaction costs” between individuals and can allow for peaceful resolution of conflicts (Fukuyama, 2001). The WVS question on generalized trust is: “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people? 1) Most people can be trusted, 2) Can’t be too careful”. This response was coded simply as a proportion of the population who responded “yes.” For example: Netherlands, wave 2 (1990), 53.1% of respondents answered “most people can be trusted”, so their score is 0.531.

Specific, or localized, trust is intended to measure a more personal level of trust for an individual. A person who does not trust strangers may still trust his or her family and friends. The question from the WVS relating to specific trust is: “For each of the following aspects, indicate how important it is in your life. Would you say it is 1) very important, 2) rather important, 3) not very important, 4) not at all important.” This same question is asked regarding the importance of family and the importance of friends (questions two and three for this sub-index). Anyone who answered that their family or friends were ‘very important’ or ‘rather important’ was counted as a “yes” response. Using the Netherlands in 1990 for an example again, 93.6% of respondents said their family was important to them, and 95.1% of respondents

said their friends were important to them. The wave 1 iteration of the WVS did not ask the questions about the importance of family or friends, so those data were imputed using the procedure described above. The final trust index was calculated by adding the three trust responses. To finish our example of The Netherlands in 1990; its total score on the trust index is 2.418 (see Table 5.4).

Table 5.4 - Trust Index

	Family Important	Friends Important	Trust People	Trust Index
The Netherlands 1990	0.936	0.951	0.531	2.418

Religiosity

Religiosity, and particularly church attendance, may bring individuals together who might otherwise be divided across class lines (Putnam, 2000) and provides an opportunity for individuals to form personal social bonds as well as bonds with their community. Religiosity is measured with a three-item scale based on questions from the WVS. The first item was: “How important is religion in your life? Would you say it is 1) very important, 2) rather important, 3) not very important, 4) not at all important”. The second item, regarding religious practice, was worded differently in different iterations of the WVS. In waves 1, 3, and 5 religious attendance was asked in the following way for: “Apart from weddings, funerals and christenings, about how often do you attend religious services these days? (Eight response choices ranged from: 1) More than once a week to 8) Never or practically never). In waves 2 and 4, the question was worded as follows: “How often do you pray to God outside of religious service?” The response choices ranged from: 1) often to 5) never in wave 2 and from: 1) every day to 7) never in wave 4.

Because the question and response choices changed over the history of the survey, both variations of this question were combined into one “How often to you attend religious services/pray?” Finally, the third item in the religiosity sub-index was: “Independently of whether you go to church or not, would you say you are: 1) a religious person, 2) not a religious person, 3) a convinced atheist?”

The religiosity index was created by using the average “yes” response to the three aforementioned religious indicator questions. (A similar religiosity measure was employed by Maguire, forthcoming.) Answering that religion was “important” or “very important” was counted as a “yes” response, and was coded as such. “Not important” was coded as a “no” response. For the combined question “How frequently do you pray/attend religious services” – only the response “never” is counted as “no;” all other responses, even the “less than once per year” response, were counted as “yes”. Coding the responses in this manner mitigated the fact that the answer scale varied for different waves.

Similar to the trust index, the wave 1 iteration of the WVS did not ask the question: “How important is religion to you?” so those data were imputed. All three religion measures were added to create the religiosity index, see the example for Italy, 1990 in Table 5.5.

Table 5.5. - Religiosity Index

	Religion Important	Frequently Pray	Religious Person	Religiosity Index
Italy 1990	.699	.848	.861	2.408

Political Activism

Political activism is a measure of how interested and vested an individual is in his or her community and government. Individuals interested in politics are often more involved in politics including participating in political activities and talking with others about politics – creating social capital through personal interaction (Putnam, 2000). While voting behavior is often used as a measure of political activism in the United States, that behavior is not necessarily applicable to other nations where citizens do not elect their political leaders. For this project, the political activism index was created using the following five WVS questions: “For politics, indicate how important it is in your life. Would you say it is: 1) very important, 2) rather important, 3) not very important, 4) not at all important;” “How interested would you say you are in politics? 1) very, 2) somewhat, 3) not very, 4) not at all;” “I’m going to read out some different forms of political action that people can take and I’d like you to tell me, for each one, whether you have actually done any of these things, whether you might do it, or if you would never, under any circumstances, do it: sign a petition, join a boycott, attend an unlawful demonstration?” (Each of these activities was counted separately as part of index construction.)

The political index was created by using the combined “yes” response to the five aforementioned political indicator questions. Answering that politics is “important” or “very important” to you was counted as a “yes” response. Answering that you were “very” or “somewhat” interested in politics was counted as a “yes” response. For the three questions relating to past and potential participation in political activities (petition, boycott, demonstration) only those who responded they “have actually participated” counted as a “yes” answer. “Might” participate and “never” will/would were both coded as “no” responses.

Again, the wave 1 iteration of the WVS did not ask the question: “How important are politics to you.” Neither wave 1 nor wave 2 asked the question: “How interested are you in politics”. Missing data were imputed in the same manner as the missing family/friends and religious questions described above. The score for each of the five political measures was tallied to create an additive political index. See example for Sweden, 1996, in Table 5.6., below.

Table 5.6. - Political Index

	Politics Important	Interested in Politics	Sign Petition	Join Boycott	Attend Demonstration	Political Index
Sweden, 1996	.472	.435	.716	.331	.300	2.254

Social Interconnectedness

Social interconnectedness is an indicator of passive and active membership/participation in activities that bring people together. Associational participation is seen as an opportunity for individuals to learn cooperative behavior, and as an indicator of a developed civil society capable of self-organization (Adam, 2006). Associational participation provides an opportunity for individuals to engage in face-to-face contact, a prime occasion for building social capital. Social interconnectedness was measured by two WVS questions relating to voluntary organizational participation and neighborhood attachment. Neighborhood attachment is intended to measure the level to which individuals are attached to their local community. The supposition is that communities with stronger ties among its members are better equipped to organize themselves for the good of the community as a whole (Lederman et al., 2002).

The WVS question phrasing proved to be particularly problematic for this indicator. A question regarding participation in civic organizations was included in all five waves of the WVS, but the question was asked drastically differently in waves 2 and 4 than it was in waves 1,

3 and 5. For waves 1, 3, and 5 of the WVS the question was: “Which, if any, of the following organizations do you belong to?” The list was broken into 10 types: 1) charities, 2) religious organizations, 3) education or arts groups, 4) trade unions, 5) political groups, 6) human rights organizations, 7) conservation, environmental or animal welfare groups, 8) youth work, 9) consumer groups, and 10) professional associations. Respondents were then provided three answer options: a) not a member, b) an inactive member, c) an active member; and were asked to select one of the three options for each of the ten organizational types. For waves 2 and 4 of the WVS, the question was: “Please look closely at the following list of voluntary organizations and say which, if any, you belong to.” There were 17 items on the list, including ‘none’. As a result of the question phrasing, responses in wave 1, 3 and 5 are not immediately comparable to the responses in waves 2 and 4.

In order to make the response data comparable across the waves, this study used the percentage of the population who participated in each voluntary organization and averaged that percentage across all the groups for that country for that year; essentially computing a national average for group participation for a particular year. There was also a large amount of missing data in wave 1; only three of the countries (Australia, Japan and South Korea) answered this question. Similar to the missing ‘friends/family/politics/religion important to you’ questions described above, imputation was employed to fill in the missing data.

The WVS question regarding neighborhood attachment also changed for wave 5, making response comparisons across waves challenging. Waves 1-4 of the WVS listed five different geographic locations (locality, region, country, continent, and the world) and asked: “To which of these geographical groups would you say you belong to first of all? And the next?” For wave 5, the question was worded: “people have different views about themselves and how they relate

to the world. Using this card, would you tell me how strongly you agree or disagree with the statement: I see myself as a member of my local community? Strongly agree, agree, disagree, strongly disagree.” For the purpose of this study, only those who selected ‘locality’ as their first choice in waves 1-4, and those who strongly agreed with being a member of their local community in wave 5 were included as a “yes” response. The rationalization was that those who simply agreed with being a member of the local community in wave 5 were comparable to those who selected locality as the group they belonged to second in waves 1-4.

Unlike the other social capital indicators, there was no systematic missing data for the local community question, but certain countries failed to answer this question in certain waves (Ex: Australia - wave 1, France – wave 5, etc.). Imputation was used to replace missing data. See Table 5.7., below, for an example of the additive social interconnectedness index for the United States in 2006.

Table 5.7. - Social Interconnectedness Index

	Member of Service Organization	Local Community	Connectedness Index
USA, 2006	.358	.290	.648

Control Variables

National social, economic, and political correlates of crime indicators were selected as controls based upon a careful review of the literature of crime etiology. Indicators were selected for their documented or hypothesized relationship with crime either directly or in combination with other variables. Additional factors included choosing control variables in consideration of limited availability of degrees of freedom and problems associated with multicollinearity that is common in cross-national criminological research (Alzheimer, 2008).

Population Density

Population density is a measure of the residential concentration in a particular area. It is calculated by dividing a nation's population by its area in square kilometers. Data came from the United Nations Demographic Yearbook (1979-2008). Controlling for this variable is necessary because previous research found that more densely populated areas may offer greater opportunity for criminal activity, especially for property crime. However, there may also be more guardianship associated with the densely populated areas, providing social control benefits. Previous research has generally found a positive relationship between population density and homicide (Browning, 2009; Morenoff et al., 2001; Watts, 1931).

Sex ratio

This measure was calculated by dividing the number of men in a nation by the number of women. Population data were obtained from the United Nations Demographic Yearbook (1979-2008). The sex ratio was included as a control because men typically commit more crime than women; so having a greater ratio of males to females in a population is theorized to be associated

with higher levels of crime (e.g. Altheimer, 2008; Avakame, 1998; Messner & Rosenfeld, 1997; Pratt & Godsey, 2003; Savolainen, 2000).

Urbanization

Urbanization is defined as the percentage of a nation's population residing in cities and towns. Definitions of "city" and "town" are the purview of the reporting nation. Controlling for this variable is necessary because previous research indicates a possible positive relationship between urbanization and homicide (Pratt & Godsey, 2003; Sampson & Groves, 1989; Savolainen, 2000; Shelley, 1981; Veysey & Messner, 1999). Data for this variable came from the World Bank (1979-2008).

Percent Young Men

The percent of young men in the population is defined as the percentage of the population who are males between the ages of 15 and 24 years; data were obtained from the United Nations Demographic Yearbook (1979-2008). This control variable is commonly used in cross-national research to control for the effects of a high-crime demographic group (Conklin & Simpson, 1985; Devine et al., 1988; Gartner & Parker, 1990; Hansman & Quigley, 1982).

Literacy and Educational Attainment

Literacy and educational attainment are used in cross-national research in order to control for a statistically high-crime demographic group (Antonaccio & Tittle, 2007). Especially in industrialized nations, education is the key to occupational and financial success, both of which are inversely related to crime. Studies have linked lack of education and illiteracy to crime (Bennett & Basiotis, 1991; Kutner & Jin, 2006). Literacy data came from the CIA World Factbook (1979-2008), which were reverse-coded to measure illiteracy.

Year

For a pooled time-series analysis, it is necessary to control for trends over time (Anderson & Bennett, 1996; Jacobs & Richardson, 2008; Savage et al., 2008), so a variable for year is included.

Nation

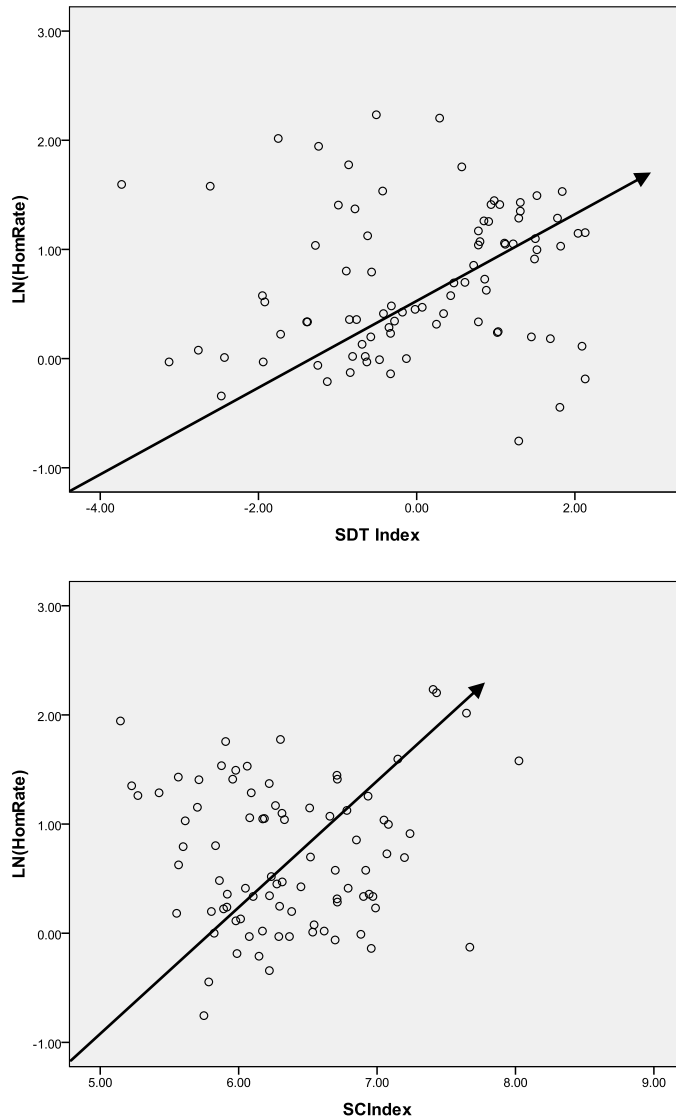
A dummy variable is also included for all nations except the United States in an attempt to capture and control for factors about a particular nation that may influence crime rates but are not controlled for by any of the other variables (Anderson & Bennett, 1996; Bennett, 1991; Jacobs & Richardson, 2008). This is standard procedure in pooled time series analysis of cross-national data. The United States was used as the index nation. (A list of included nations can be found at Appendix C.)

CHAPTER 6 – RESULTS

This chapter tests a theoretical model regarding the relationship between social disorganization and homicide at the cross-national level and whether that relationship is moderated by the effect of social capital. Overall least squares regression will be used to test the direct relationship between social disorganization, social capital and homicide. Regression analysis using a special SPSS macro will be used to test the indirect effect of social disorganization on homicide through social capital. First, however, I will provide descriptive statistics and simple correlations for the measures.

Ordinary least-squares (OLS) regression will be used and there are several assumptions of OLS regression that must be met in order for coefficients to be unbiased and "BLUE" (the best linear unbiased estimators) (Berry, 1993). First, the regression model is linear, correctly specified, and has an additive error term (Studenmund, 2006). I tested for linearity by examining a bivariate scatterplot (see Figure 6.1) of homicide with both the SDT index and the social capital index and found the relationships to be generally linear. Other researchers have also used OLS regression models for similar data examination (Antonaccio & Tittle, 2007; Lederman et. al, 2002; Lee & Bankston, 1999; McCall & Nieuwbeerta, 2007; Pridemore, 2008; Savolainen, 2000; Sun, 2006).

Figure 6.1. - Bivariate Scatterplots of LN(HomRate) with SDT Index and Social Capital Index



Another classical OLS assumption is that the error term has a constant variance (i.e., is homoscedastic (Pallant, 2010)). If the spread of errors varies systematically with predicted values, the error term is heteroscedastic and the assumption is violated (Judd & McClelland, 1989). Estimates for partial regression coefficients will be unbiased when there is heteroscedasticity, but the standard error will be incorrect (either under- or overestimated) In general, the statistical power of inferential tests will be reduced (Judd & McClelland, 1989). I

tested for homoscedasticity by examining a plot of standardized residuals against predicted values (see Figures 6.2. and 6.3.) which suggested some level of heteroscedasticity. Next, it is desirable for the dependent variable to be normally distributed (Studenmund, 2006). I tested the skewness and the skew statistic for homicide rate was 1.65, the z-score associated with this statistic is 6.36 which is statistically significant ($p < .05$). To correct for skewness and heteroscedasticity, I calculated the natural log of each nation's homicide rate (Pratt & Godsey, 2003). I then re-tested the skewness and determined that the skew statistic for the logged homicide rate was 0.24 and the z-score associated with this statistic is 0.94 which is not significant at the .05 level.

Figure 6.2. – Regression Standardized Residual Scatterplot of Homicide and SDT Index

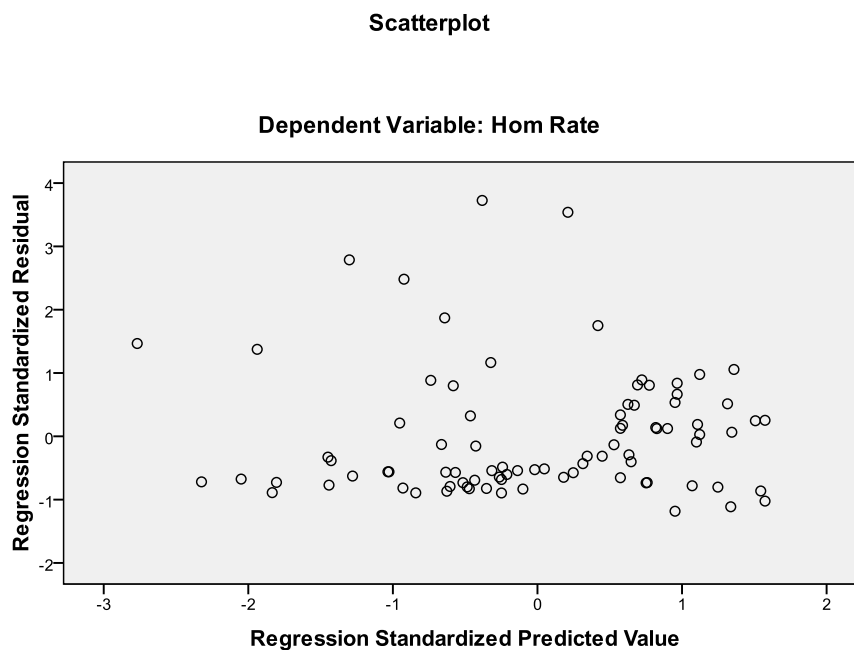
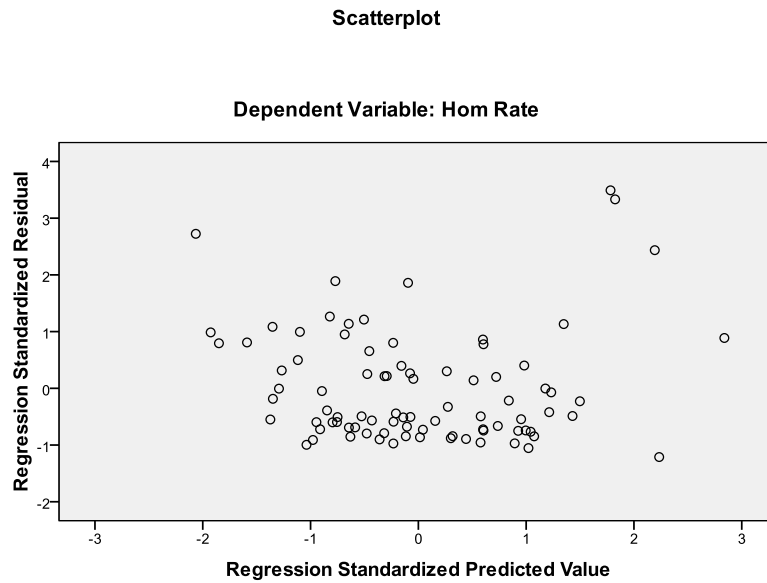


Figure 6.3. – Regression Standardized Residual Scatterplot of Homicide and Social Capital Index



Descriptive statistics for the control variables and the social disorganization and social capital indices are displayed in Table 6.1., below.

Table 6.1. - Descriptive Statistics for Final Dataset with Indices

	N	Minimum	Maximum	Mean	Std. Deviation
Homicide Rate	87	.47	9.33	2.51	1.82
Social Disorganization Index	87	-3.73	2.13	.00	1.34
Social Capital Index	87	5.15	8.03	6.35	.58
Population Density	87	1.88	475.63	144.03	143.25
Sex Ratio	87	.84	1.24	.98	.047
% Urban	87	25.50	90.30	72.41	13.59
% Young Men	87	2.1	11.5	7.67	1.55
Illiteracy Rate	87	0.0	52.0	5.47	10.88

Homicide rates range from 0.47 (Spain, 1990) to 9.33 (United States, 1990) per 1,000 population, with a mean of 2.5. The least socially disorganized nation was the United States in 2006 (SDT Index score: -3.73) and the most socially disorganized nation was Spain, 2007 (SDT Index score: 2.13). Regarding the social capital index, the United States, 1999, scored the highest (8.03) whereas Chile, 2006, scored the lowest (5.15). Three other variables had noticeably large ranges. Population density ranged from 1.88 (Australia, 1981) to 475.6 (South Korea, 2001) indicating the tremendous geographic differences between the nations. As for urbanization, Andorra (2005) had the highest percent of the population living in urban areas (90.3%) where India (1990) had the lowest (25.5%). India (1990) also had the highest illiteracy rate at 52%, whereas the Scandinavian nations of Norway and Finland repeatedly reported 0%

illiteracy (100% literacy). These statistics demonstrate the tremendous differences, regarding all the variables, between the nations included in this analysis.

Another important assumption of regression analysis is the "absence of perfect multicollinearity" between the independent variables (Berry, 1993). Although Berry (1993) tells us that even high multicollinearity does not violate any assumption of multiple regression, he also notes that in such cases "estimates of the effects of independent variables will fluctuate considerably from sample to sample" (p. 27) (see also Dometrius, 1992). A zero-order correlation (Pearson r) of at least .70 between two independent variables is generally treated as a sign of serious collinearity (Tabachnick & Fidell, 2007). Table 6.2. contains the zero-order correlation coefficients between each of the variables to be included in the multivariate analysis.

Table 6.2. - Bivariate Correlation Matrix

Variable	1.	2.	3.	4.	5.	6.	7.	8.
1. Homicide rate (ln)	1							
2. SDT Index	.154	1						
3. SC Index	.079	-.335**	1					
4. Population density	-.372**	-.204+	-.145	1				
5. Sex ratio	-.126	.013	.284**	.086	1			
6. % urban	-.194+	-.139	.035	-.257*	-.269*	1		
7. % young men	.196+	.135	-.140	-.064	.213*	.158	1	
8. Illiteracy rate	.178	.165	.056	.115	.602**	-.725**	.338**	1
+ p < .10 * p < .05 ** p < .01								

The strongest correlations occurred between control variables: illiteracy rate and percent urban ($r = -0.725$), and between illiteracy rate and sex ratio ($r = 0.602$). The correlations between the independent variables and the control variables were not high, so the partial parameter estimates for SDT and social capital should be unbiased. However, including potentially redundant variables in the analysis tends to increase the variance of the estimated coefficients. This increased variance will tend to decrease the absolute magnitude of their t -scores, thus weakening the statistical power of the analysis (Studenmund, 2006). Given that the statistical power is already low due to a small sample size, enhancing statistical power is important. In a seminal paper, Land et al. (1990) used principal components analysis (PCA) as a tool to reduce the number of control variables. They found that their control variables loaded on

two components which they subsequently used in their analysis. I followed their procedure and conducted a similar principal components analysis on my covariates (see Table 6.3).

Table 6.3. - Component Loadings of the Six Control Variables (unrotated)

	Component	
	1	2
Population Density		-.797
Sex Ratio	.703	
% Urban	-.787	.310
% Young Men	.454	.583
Illiteracy Rate	.932	

As anticipated, the six control variables loaded very strongly on two components. The control variables which loaded on component one were sex ratio, percent urban population (–), percent young men, and illiteracy rate; the variables which loaded on factor two were population density (–), percent urban and percent young men. Together, the two factors explained 67.6% of the variance with an eigenvalue of 2.26 and 1.11, respectively. On the basis of the foregoing component analysis, the component score, or index, was calculated in the conventional manner as weighted sums of the component variables, with weights equal to their component loadings (Land et al., 1990). The variables are all coded so that an increase in a variable corresponds with an expected increase in homicide. I used SPSS to compute two new variables called control component 1 and control component 2, respectively, and used these variables in all subsequent analyses. Table 6.4. reports the correlation matrix with control components included.

Table 6.4. - Bivariate Correlation Matrix with Components

Variable	1.	2.	3.	4.	5.
1. Homicide rate (ln)	1				
2. SDT Index	.154	1			
3. Social Capital Index	.079	-.335**	1		
4. Control Component 1	.205+	.167	.006	1	
5. Control Component 2	.362**	.199+	.144	-.228*	1
+ p < .10 * p < .05 ** p < .01					

Homicide rate is significantly associated with both control component variables, but is not significantly associated with either social disorganization or social capital. The controls remain associated with each other, and social capital retains its association with social disorganization.

Regression Analysis

Because this research explores both the direct and indirect effects of SDT and social capital on homicide, I explored these relationships with two sets of regression analyses. The first set of regressions includes a series which estimates the associations between social disorganization, social capital and homicide. The second set employs a more sophisticated method allowing for the estimation of indirect effects using a recently developed macro for SPSS.

The first set of OLS regressions (Table 6.5.) examines the direct relationship among the variables of interest. Included in the table are the standardized Beta estimates (β) and t statistics (in parenthesis). Because I am using standardized coefficients, the standard error for each coefficient is not reported.¹⁰ Please note that the final sample size is 86 (N=86). After running the regressions, Italy (2005) was identified as an outlier (> 3 standard deviations, via Cook's D), so it was removed from subsequent analyses. Also note that the country dummies are not reported in the table, but were included in the regression.

¹⁰ As an explicit test for multicollinearity, variance inflation factors (VIFs) were computed for each of the OLS regressions models presented in table 6.6., although not listed on the table. The VIF for several of the control variables was unacceptably high, in spite of earlier efforts to reduce multicollinearity by combining control variables. For example, in model three (homicide rate regressed on the social capital index, plus controls), the VIF for control component 1 was 54, control component 2 was 79 and many of the country control dummies had VIFs over 10 (ex: Germany – 19, India – 71, Japan, 24, the Netherlands 22, and South Korea, 41). The upper limit for VIFs is 10, although a number below 5 is preferable (Tabachnick & Fidell, 2007). The VIFs for social disorganization and social capital were both below 5 (4.96 and 4.83, respectively). This implies serious multicollinearity among the control variables, but not among the IV or mediator and should therefore not affect the partial coefficient estimates for the central variables.

Table 6.5. - OLS Regression Models of the Association Between Homicide (ln) and Social Disorganization (SDT) and Social Capital (SC)

	Model 1	Model 2	Model 3	Model 4
	β	β	β	β
	(t)	(t)	(t)	(t)
SDT Index	--	.27**	--	.28**
	--	(2.71)	--	(3.21)
SC Index	--	--	-.08	-.09
	--	--	(-.86)	(-1.09)
Control Component 1	-.61+	-.57+	-.54+	-.48
	(-1.89)	(-1.85)	(-1.73)	(-1.67)
Control Component 2	.98*	.87*	.78*	.73*
	(2.45)	(2.29)	(2.08)	(2.08)
Year	-.12+	-.11+	-.12+	-.09
	(-1.81)	(-1.74)	(-1.89)	(-1.54)
Intercept	19.25+	18.02+	20.49*	16.51+
	(1.94)	(1.91)	(2.12)	(1.83)
N	86	86	86	86
R ²	.889	.902	.897	.912

+ p < .10 * p < .05 ** p < .01

Includes country dummy codes for all countries except the United States

In model 1, we see that the control variables alone (control components 1 and 2, year, and country dummies) account for large amount of the variance in national-level homicide rate ($R^2 = .89$). Models 2 and 4 show that social disorganization has a positive and significant effect on homicide while controlling for social capital and other factors. Social capital is not significantly associated with homicide rates.

In order to test the indirect effect of social disorganization on homicide through its effect on social capital, Baron and Kenny (1986) suggest a method to test for mediation using a series of three regression equations, as I have done here. First, regress the mediator on the independent variable (not shown, however social disorganization did not have a significant effect on social capital); second, regress the dependent variable on the independent variable (model 2); and third, regress the dependent variable on both the independent variable and on the mediator (model 4). To establish mediation, the following conditions must hold: first, the independent variable (SDT) must affect the mediator (SC) in the first equation (it did not); second, the independent variable (SDT) must be shown to affect the dependent variable (HOM) in the second equation (it did); and third, the mediator (SC) must affect the dependent variable (HOM) in the third equation (it did not). If these conditions all hold in the predicted direction, the effect of the independent variable on the dependent variable should be smaller when the mediator is included in the model. It was not; in fact the relationship between social disorganization and homicide was stronger in model 4 than it was in model 2. Perfect mediation holds if the independent variable has no effect when the mediator is controlled (Baron & Kenny, 1986); in the present data, the effect of SDT on homicide was not mediated

The results of the direct effect models reveal that the effect of social disorganization on homicide does not appear to be mediated by social capital. However, I have hypothesized an indirect association. Preacher and Hayes (2008) supply a macro, "INDIRECT," which enables the researcher to test for indirect effects using SPSS. Unlike OLS, the macro computes coefficients for separate paths and allows for the examination of direct, indirect and total effects. Though unlikely here, it is possible for a variable to have a significant indirect effect without a significant direct effect. The theoretical model is displayed in Figure 6.4a. and Figure 6.4b.

Figure 6.4a. shows a model where X (in this case social disorganization) has a direct effect on Y (homicide). Figure 6.4b shows a model where X (social disorganization) operates on Y (homicide) through mediator, M (social capital). Line c' represents the relationship between X (social disorganization) and Y (homicide) after the relationship with M (social capital) has been controlled. If perfect mediation existed, the value for line c' would be zero (Preacher & Hayes, 2008).

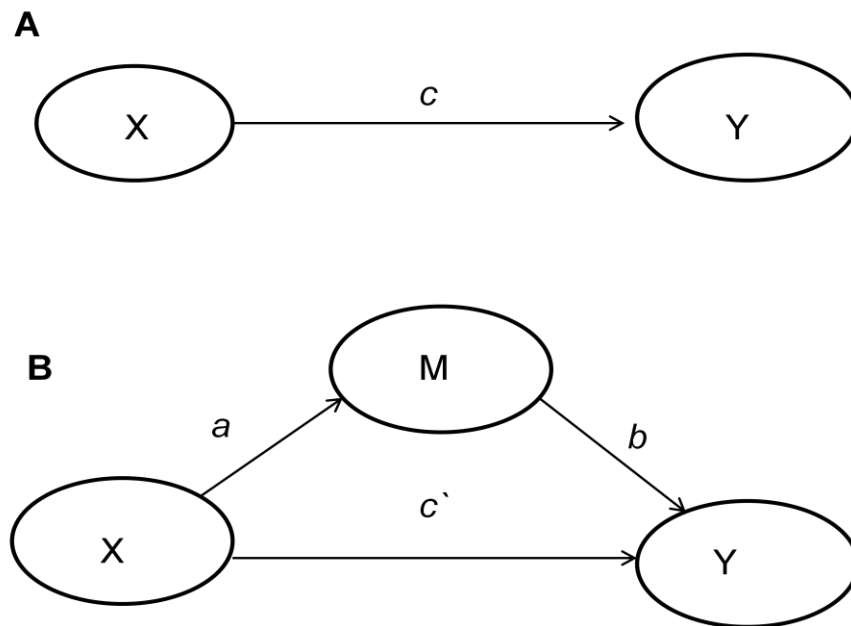


Figure 6.4. - (A) Illustration of a direct effect. (B) Illustration of a mediation design.

The results of my analysis, using INDIRECT, are reported in Figure 6.5. and Table 6.6. Table 6.6. lists the coefficients for the control variables, which are not displayed in figure 6.5. The coefficients are unstandardized so that the reader may see the computation of the indirect effect. The total effect of social disorganization on homicide can be computed by the sum of the indirect effect ($a * b$) and the remaining direct effect c' . The indirect effect of SDT on homicide was -0.0023 and the total effect was 0.137 .

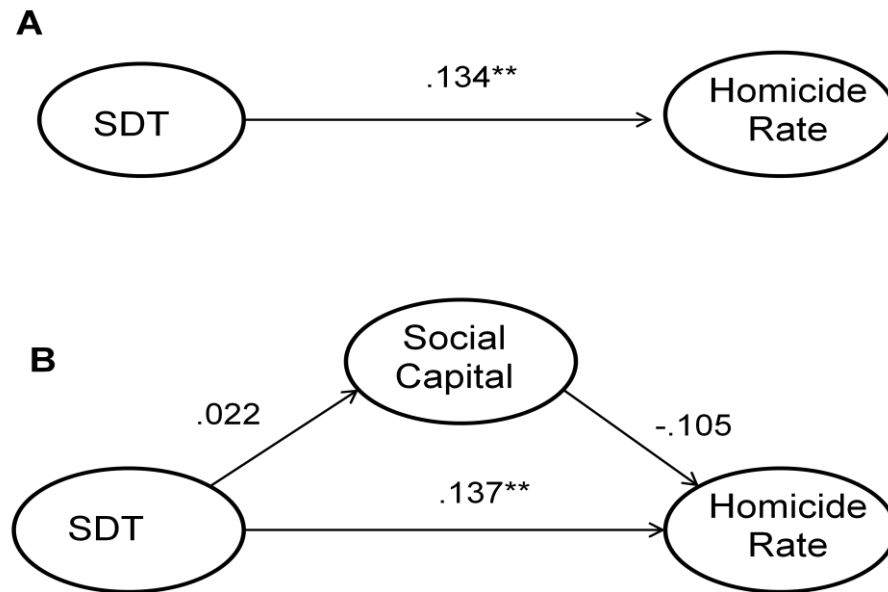


Figure 6.5. - (A) The direct effect of SDT on Homicide. (B) The mediated effect of SDT. In both models, controls for control component 1, control component 2, year, and country dummy are imposed.

Table 6.6. - INDIRECT Model of the Association between Homicide (ln) and Social Disorganization (SDT) and Social Capital (SC)

	Path a B (t)	Path b B (t)	Path c B (t)	Path c' B (t)
Dependent Variable	SC Index	LN(HomRate)	LN(HomRate)	LN(HomRate)
SDT Index	.022 (.390)	-- --	.134** (3.15)	.137** (3.21)
SC Index	-- --	-.105 (-1.09)	-- --	-- --
Control Component 1	-.016+ (-1.67)	-.016+ (-1.67)	-.016+ (-1.67)	-.016+ (-1.67)
Control Component 2	.004* (2.08)	.004* (2.08)	.004* (2.08)	.004* (2.08)
Year	-.007 (-1.54)	-.007 (-1.54)	-.007 (-1.54)	-.007 (-1.54)
N	86	86	86	86
R ²	.912	.87	.87	.87

+ p < .10 * p < .05 ** p < .01

In this analysis, the total effect of social disorganization on homicide rate was positive and significant (path c); the effect of social disorganization on social capital was not significant, and it was positive, contrary to expectations. In path b, the effect of social capital on homicide was negative, but not significant. The direct effect of social disorganization on homicide in this model (path c') was significant ($\beta = .137$, se = .042, t = 3.209, p = .0022), and actually increased

when social capital was included in the model. This result further supports the results from the OLS models; namely that social disorganization exerts a significant influence on homicide, but that influence is not mediated by social capital.

Follow-up Analyses

Because the results of these analyses did not support my hypothesis of mediation, I ran several additional regression analyses to further explore the relationship between homicide, social disorganization and social capital. As noted in the SDT theory section (Chapter 2) there has been some discussion about whether indicators of social disorganization proposed many decades ago are still valid indicators of social disorganization. For example, the most poverty stricken, high crime neighborhoods, at least in the United States, tend to be very ethnically homogeneous (Warner & Pierce, 1993) and not have a lot of residential turnover. So, should these neighborhoods be considered disorganized? This combination of factors calls in to question the relationship between the SDT variables (poverty, ethnic heterogeneity, residential turnover, and family disruption) and crime. In an attempt to better understand the relationship of the SDT variables to homicide, I ran several additional OLS regressions exploring the effect of the separate SDT index variables on homicide (see Table 6.7.).

Before discussing the results of the regressions, it is necessary to point out that the SDT Index is formed using z-scores, however when the SDT Index is separated into the four individual indicators, actual values are used. This means that the GDP is the actual GDP of a particular nation. As such, GDP is not a measure of poverty, but of wealth. Similarly, migration rate, in this set of regressions, is the actual migration rate. A positive migration rate means

people are entering the country, a negative migration rate means people are departing the country. The reader must bear these differences in mind while reading the subsequent analysis of the regression results regarding SDT in Tables 6.7. and 6.9.

Table 6.7. - Relationship between Homicide and Sub-Indices of Social Disorganization

	Model 1	Model 2	Model 3	Model 4	Model 5
	β	β	β	β	β
	(t)	(t)	(t)	(t)	(t)
GDP	-.374* (-2.07)	--	--	--	-.321+ (-1.73)
Migration Rate	--	-.065 (-.664)	--	--	-.108 (-1.125)
Ethnic Heterogeneity	--	--	.367** (2.74)	--	.399** (3.005)
Divorce Rate	--	--	--	.160 (.98)	.092 (.557)
Year	-.06 (-.93)	-.12* (-2.00)	-.14* (-2.44)	-.12+ (-1.87)	-.093 (-1.436)
Control Component 1	-.47 (-1.55)	-.537+ (-1.72)	-.68* (-2.28)	-.42 (-1.26)	-.601+ (-1.937)
Control Component 2	.75* (2.06)	.67+ (1.74)	.90* (2.52)	.79* (2.01)	.834* (2.324)
Intercept	12.04 (1.17)	20.95* (2.16)	23.48* (2.55)	19.36+ (1.99)	15.98 (1.62)
N	86	86	86	86	86
R ²	.903	.896	.907	.897	.917

+ p < .10 * p < .05 ** p < .01

The results of Table 6.7. indicate that two of the separate SDT variables appear significantly associated with homicide in this analysis. GDP has a significant negative relationship with homicide and ethnic heterogeneity has a significant positive association with homicide. So it might be the case that different results would be obtained if different indicators of social disorganization were used. I regressed SC on the sub-indices of social disorganization, however, and the associations were still not significant (see Table 6.9.). Another unexpected finding was that the social capital index had very little influence on homicide directly, and it did not serve to mediate the relationship between social disorganization and homicide at all. Perhaps disaggregating the social capital index into its components would help explain the unexpected findings reported here above. See Table 6.8. for the regression results for the relationship between homicide and the sub-indices of social capital.

Table 6.8. - Relationship between Homicide and Sub-Indices of Social Capital

	Model 1	Model 2	Model 3	Model 4	Model 5
	β	β	β	β	β
	(t)	(t)	(t)	(t)	(t)
Trust	-.083 (-.562)				-.075 (-.479)
Political Index		.014 .124			.038 (.325)
Religious Activism			.014 (.074)		.006 (.031)
Connectedness				-.121* (-2.090)	-.119+ (-1.994)
Year	-.116+ (-1.804)	-.127+ (-1.887)	-.121+ (-1.681)	-.125* (-2.070)	-.125 (-1.640)
Control Component 1	-.513 (-1.639)	-.525+ (-1.678)	-.525 (-1.671)	-.497 (-1.648)	-.477 (-1.524)
Control Component 2	.762* (2.026)	.744+ (1.980)	.738+ (1.925)	.809* (2.226)	.823* (2.159)
Intercept	19.981* (2.047)	21.134* (2.045)	20.231+ (1.749)	21.235* (2.268)	21.595+ (1.793)
N	86	86	86	86	86
R ²	.896	.895	.895	.903	.903
+ p < .10 * p < .05 ** p < .01					

As seen in Table 6.8., of the four social capital sub-indices (trust, political activism, religiosity, and connectedness), only connectedness was significantly associated with homicide. Connectedness was negatively related to homicide, as expected, but both political activism and religiosity were actually positively related to homicide rates, although not significantly so.

These findings are similar to those of Messner, Rosenfeld and Baumer (2004), who found that homicide was highest in communities with low levels of trust and high levels of political activism. They suggested two possible explanations for these results, both of which help to explain my results as well. The first is that the relationship between political activism and homicide may be operating in reverse - that communities experiencing high crime come together to lobby politicians to do something - essentially that homicide creates political activism and not the other way around. The second explanation provided by Messner et al. is that communities with low levels of crime don't feel any need to engage politically because the residents are happy with the state of their community. Unfortunately the only way to unravel which came first, political activism or homicide, is to have a longitudinal study and examine the change in homicide rates and the change in political activism over time. That is not possible with the current data, but perhaps such data will become available for future research.

As for trust, social interconnectness and the overall negative relationship between social capital and homicide (as seen in the direct OLS regression, Table 6.5., models three and four, and in the INDIRECT model, Table 6.6., path *b*), the directionality of the relationships are in line with classical social capital theory – the more social capital the less crime. The results of this analysis support that contention, even though the relationships were not very strong, with the exception of social interconnectedness. Along with more trust and more social participation comes less homicide – just as Putnam (1995) predicted.

A remaining question is why social disorganization had virtually no influence on social capital (path *a* in the INDIRECT model, Figure 6.5. and Table 6.6). We expect that as a community becomes more disorganized, the ability of the residents to form cohesive groups would decline. In an attempt to more closely examine the relationship between social

disorganization and social capital, an analysis similar to the two immediately above was run to investigate which individual indicators of social disorganization are associated with social capital (see Table 6.9.).

Table 6.9. - Relationship between Social Capital (DV) and Sub-Indices of Social Disorganization

	Model 1	Model 2	Model 3	Model 4	Model 5
	β	β	β	β	β
	(t)	(t)	(t)	(t)	(t)
GDP	-.015 (-.056)				.046 (.157)
Migration Rate		-.070 (-.506)			-.083 (-.547)
Ethnic Heterogeneity			-.044 (-.222)		-.024 (-.115)
Divorce Rate				.865 (.282)	.107 (.412)
Year	.069 (.704)	.065 (.741)	.069 (.779)	.069 (.783)	.063 (.624)
Control Component 1	-.122 (-.277)	-.135 (-.308)	-.106 (-.236)	-.079 (-.169)	-.060 (-.124)
Control Component 2	.524 (.991)	.452 (.827)	.505 (.943)	.542 (1.018)	.457 (.810)
Intercept	-2.491 (-.187)	-1.940 (-.160)	-2.488 (-.203)	-2.674 (-.218)	-1.906 (-.138)
N	86	86	86	86	86
R ²	.793	.794	.793	.793	.794

+ p < .10

* p < .05

** p < .01

As seen in Table 6.9., none of the four components of social disorganization (GDP, migration rate, ethnic heterogeneity, divorce rate), were significantly associated with homicide.

Considering the results of the previous three regression models, perhaps the operationalization of social disorganization and social capital can be improved. Regressing homicide on the component parts of SDT indicates that only GDP and ethnic heterogeneity are significant; regressing homicide on the sub-indices of social capital indicates that only the connectedness index is significant. Perhaps these three indicators (GDP, ethnic heterogeneity and the connectedness index) may better explain the relationship between SDT, social capital and homicide, rather than the full model. As a consequence, I ran two more analyses to see if using a different operationalization of the IV and mediator would uncover the expected mediating effect, however they did not (see Figures 6.6 and 6.7.).

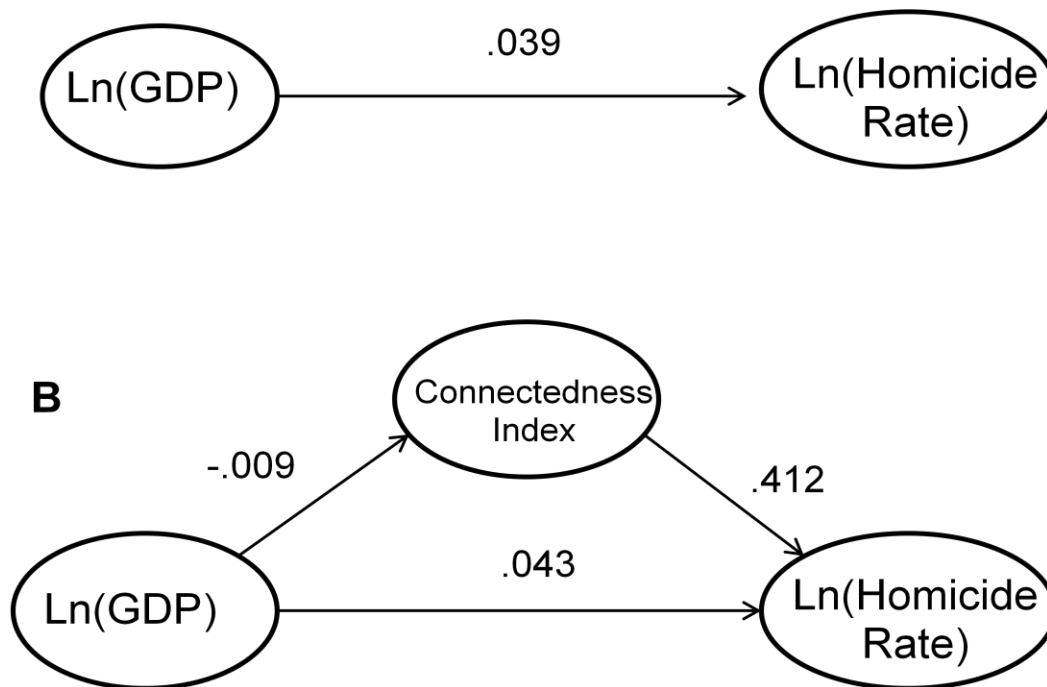


Figure 6.6. - (A) The direct effect of GDP on Homicide. (B) The mediated effect of GDP by the Connectedness Index.

The findings in Figure 6.6. suggest that GDP has a negative association with connectedness when we would expect that GDP, as an indicator of social organization rather than disorganization, would have a positive effect on any indicator of social capital; however, the relationship was not significantly different from zero. Connectedness also had an unanticipated positive relationship with homicide, but again this relationship was not statistically significant. The overall indirect effect of GDP on homicide through its influence on connectedness was -.0037 (not shown on the model), which was not significant¹¹.

¹¹ This model was run using the natural log of GDP (Ln(GDP)) and without country dummies. The model would not calculate confidence intervals without these changes.

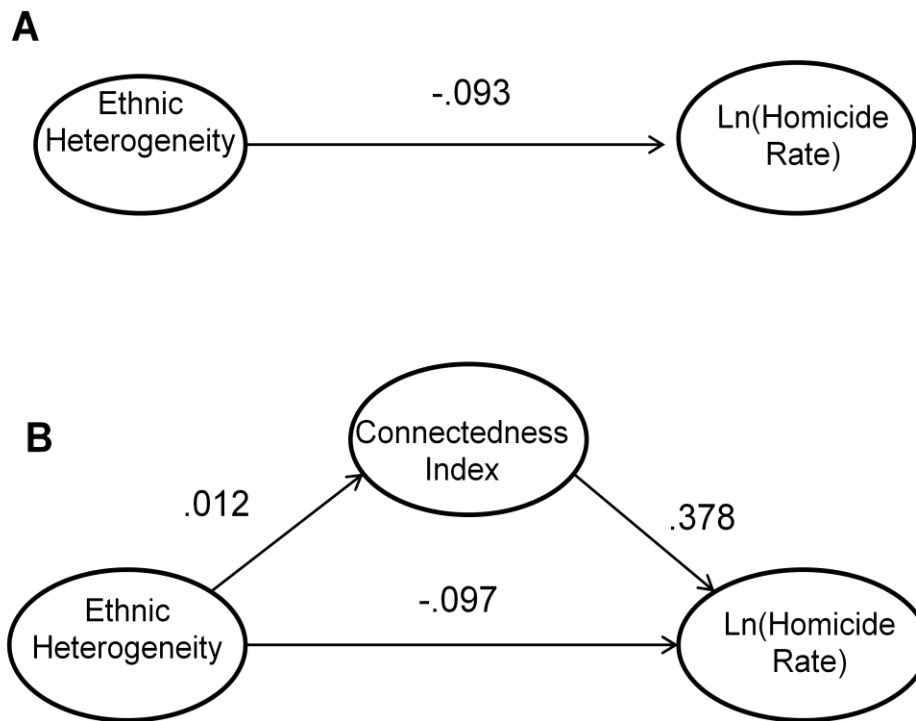


Figure 6.7. - (A) The direct effect of Ethnic Heterogeneity on Homicide. (B) The mediated effect of Ethnic Heterogeneity by the Connectedness Index.

The findings in Figure 6.7. suggest that ethnic heterogeneity has an unexpected positive effect on connectedness; however, that association was not statistically significant. In this model, connectedness also had an unexpected positive effect on homicide rate, but was also not significant. The indirect effect of ethnic heterogeneity on homicide through its effect on connectedness was .005, which was not significant.

While these additional analyses are important, I do not place great confidence in them for three reasons. First, I was not able to include all important control variables in the model because the SPSS macro, INDIRECT, could not calculate the necessary confidence intervals with the large number of country dummies included. Excluding the country dummies was

mathematically necessary, but may result in an omitted variable bias. Second, the mathematical limitations of the model prevented the use of GDP, as a measure of wealth (i.e. social organization), so the natural log of GDP was substituted. Interpreting the effect of $\ln(\text{GDP})$ on connectedness or on $\ln(\text{homicide rate})$ is less intuitive than using the untransformed variable. And third, the likelihood of a ‘chance’ finding increases with every run of a new model. Consequently, I consider the results of the models shown in Figures 6.6 and 6.7 as merely suggestive of where future research might go.

This chapter tested several theoretical models regarding the relationship between social disorganization and homicide at the cross-national level when controlling for social capital. The results of the analyses indicate that social disorganization as originally operationalized is significantly associated with homicide, but that social capital has virtually no relationship with either homicide or social disorganization at the cross-national level. When I ran follow-up analyses, using only sub-indices with a pattern of predicted correlations, I found GDP, ethnic heterogeneity, and social interconnectedness to be the only variables significantly associated with homicide. Again, these findings should be viewed with caution because the sub-indices are not the best indicators of social disorganization and because whenever multiple analyses are run on the same data set, there is an increased probability of finding an effect by chance. The next chapter describes some of the limitations of the study, and suggests directions for future research.

CHAPTER 7 – CONCLUSION

The findings of this study support classical social disorganization theory at a cross-national level. Multivariate models, controlling for year, country, population density, sex ratio, percent urban population, percent young men, and illiteracy suggest that an index of social disorganization has a positive, significant effect on homicide rates. Contrary to my original hypothesis, however, the findings indicate social capital, as operationalized here, does not mediate the effect of social disorganization on homicide. In fact, social capital was not positively associated with homicide in any comparison. Subsequent analysis, using only the sub-indices of social capital revealed that of the four sub-indices, only social interconnectedness was found to have a significant association with homicide; and for the four measures of SDT, only GDP and ethnic heterogeneity retained a significant relationship with homicide rates. While the results of the regression analyses appear to indicate that the models explain a tremendously high percent of the variance, most of that variance was explained by country-level controls. The actual proportion of variance in logged homicide rates explained by social disorganization was only 1.3%.¹²

There are six important limitations to this study that may have affected the findings. First, cross-national social disorganization is difficult to measure (Bursik, 1988; Warner & Pierce, 1993). To determine the presence of social disorganization, researchers typically use proxy measures (mean income, female-headed households, divorce rate, percentage of home sales/rentals, adult education level, etc.) frequently obtained from census data. A better measure for the presence of community disorganization, such as neighborhood-level surveys, would

¹² $R^2 \text{ LN(HomRate)} + \text{Controls} = .889$; $R^2 \text{ LN(HomRate)} + \text{SDT Index} + \text{Controls} = .902$

require in-depth interviews with residents in a large number of nations over a long period of time (Bursik, 1988). This method of data collection, while superior, is prohibitively expensive and time-consuming. Shaw and McKay (1942) focused on three indicators: economic disadvantage, ethnic heterogeneity and population turnover. I use similar measures of social disorganization as other researchers before me, but it is important to acknowledge that these measures may not reflect the construct very well.

The same difficulties hold true for measuring social capital. The sheer number of people who voted in an election or who claim membership in a church group or social club may not accurately measure the level of social capital in a community. Social networks, norms and trust should enable people to act together more effectively in pursuit of shared objectives (Putnam, 1995). If those networks do not enhance social relationships, should they really be counted as social capital? Again, the commonly used indicators of social capital (i.e. trust, participation in voluntary associations, and voter turnout) are proxies for a concept that is difficult to measure faithfully without in-depth face-to-face interviews. This study uses social capital proxies similar to those found in prior research.

A third limitation of this study is the sample. The data were obtained from a collection of nations who elected to provide crime data to Interpol and social belief data to the WVS. Because response to either survey is voluntary, there is a self-selection bias based upon which nations chose to participate and which did not. Most noteworthy, Western, industrialized nations are overrepresented, whereas African, former Soviet-bloc and less-developed nations may be underrepresented or not represented at all (see Appendix C for a list of included nations). This limits the generalizability of the research results and may mask important cultural and geographic differences regarding the constructs of interest. The nonparticipating nations may be

different in some important way from those nations that did participate. For example, a nation in political disarray may lack the ability to collect and transmit crime data to Interpol. Similarly, a nation with limited economic resources may elect to use those resources by investing in police and investigators to decrease crime, rather than investing in statisticians and record keepers to record and analyze crime data. Compounding the self-selection bias is the small sample size (N=87). The small sample size and a large number of control variables¹³ resulted in low statistical power due to the limited degrees of freedom.

Fourth, there are limitations resulting from missing data and inconsistency in survey responses. Specifically that Interpol does not standardize crime definitions for its database, and that the working of particular questions in the WVS changed from wave to wave. I attempted to mitigate this limitation by double-checking the Interpol data against national police crime databases and by using a three-year average. I attempted to mitigate the WVS data limitations by using a multiple items (typically, three WVS questions) to form each social capital sub-index which were then combined into a single social capital index.

Fifth, because a traditional panel time-series analysis was used, temporal order could not be established. The analysis indicated relationships between the variables, but it did not establish which occurred first: social disorganization, social capital or homicide. The order of precedence question appears with some regularity in the social capital and crime literature as well as social disorganization and crime literature; unfortunately, because of the nature of the data and the analysis, the results of this study cannot shed additional light on this debate.

Finally, researchers always struggle with the selection of the correct estimation technique regarding the relationship between the independent variable and dependent variable and based on

¹³ A total of 29 control variables were used in the analysis; SDT Index, SC Index, Control Component 1, Control Component 2, Year, and 24 country dummies.

the characteristics of the data. An incorrect estimation technique increases the probability of mistaken inferences about the true population parameters (Studenmund, 2006). While both theory and prior published work by other researchers suggest that a linear relationship examined by an OLS regression was an appropriate estimation technique, I could have selected a different functional form. (See Appendix A for a list of other studies and the regression techniques employed.)

The limitations of the study are not unique to this study, but afflict many of those who attempt cross-national research using preexisting sources of data. The results of this study do contribute to the literature in several important ways, one of which is the valuable addition to a scant body of cross-national research which combines both social disorganization and social capital. This particular research project also examines the effect of a mediator between social disorganization and homicide, which has rarely been tested, and never at the cross-national level, to my knowledge. This study also used several sophisticated techniques not usually found in the cross-national literature, including missing data imputation. MI is very helpful because it may prove to be an advance over more commonly used missing data techniques. This study also used estimates of indirect effects which allows for further exploration of theoretically mediating relationships among homicide covariates. While the positive relationship between SDT and homicide is not a revelation, the level of analysis and some of the techniques employed in this study are unique contributions to all three bodies of research: SDT, social capital theory, and comparative criminology.

There are several avenues for future research based on the findings of this dissertation. One is the issue of directionality among social disorganization, social capital and crime. If one could gather enough data from enough countries over a sufficient time period, it would be

intriguing to examine the temporal relationships among these three variables. Another suggestion, if homicide data from a larger variety of nations can be obtained, is to make a study of homicide, social disorganization and social capital by geographic area (Asia, South America, Western European-descended nations, the Middle East, former Soviet-bloc nations, etc). Due to data limitations, this analysis was biased towards Western European-descended nations, but there were enough nations from other parts of the world to potentially obscure any geographic-area specific relationships. In other words, the relationships between social capital, social disorganization and homicide in Western-European nations may have supported the stated hypotheses, but the inclusion of a few Far Eastern and African nations may have obscured those relationships. It may be that the relationships between the key variables are different for countries from different ethnic and political backgrounds.

An additional complication when measuring social capital is attempting to tease out constructs such as "bridging" and "bonding" social capital, as well as social capital that is employed for the improvement of society and social capital that is employed for the good of a small group (or individual), but is detrimental to society. The models employed in this study repeatedly demonstrated that social capital had very little relationship with either social disorganization or homicide, contrary to expectations. This may be because I did not make these finer distinctions. It could be that the two forms of social capital, beneficial and detrimental, essentially neutralize each other when combined in the same measure. Future social capital research should address this issue.

A different crime measure may also serve as an interesting alternative dependent variable. Neither SDT nor social capital were specifically intended to explain the most extreme of violent crimes, homicide. Perhaps a lesser violent crime, such as assault, or even a property

crime, such as burglary or car theft, could be an alternative vehicle for studying the relationship between SDT, social capital and crime. Assault or burglary may be influenced differently than homicide by the various national levels of social disorganization and social capital. Using an alternate crime variable would provide a test of robustness to the link between SDT, social capital, and crime cross-nationally. Similarly, this study could be replicated using UN or WHO data instead of Interpol homicide data to test the validity of these findings. Additionally, if data become available, it would be illuminating to examine if collective efficacy acts as a mediator between social disorganization and homicide instead of social capital. As stated in the collective efficacy section in Chapter 3, previous researchers (Sampson et. al., 1997; and Morenoff et. al., 2001) have found that when controlling for collective efficacy, the relationship between social capital and crime was negligible. This concept of the willingness to engage may be crucial to understanding the pathway from social disorganization through social relationships (social capital or collective efficacy) and finally to crime.

Study	Crime Data Source	Sample Size	Type Analysis	Independent (1) and Control (2) Variables	Relation to Homicide
Barber (2000)	Interpol	70	Correlation matrix, various regressions	1. Sex ratio Americas	- +
Savolainen (2000)	WHO	45	OLS regression	Polygyny intensity 1. Income inequality Economic discrimination Development index Sex ratio Decommodification index 2. GNP per capita % Young males Welfare spending	+ ~ - - -
Lee (2001)	WHO	50	OLS Regression	1. Population growth Economic inequality 2. Development index Small/dense countries Population size	+ + +
Lester (2001)	WHO	50	Pearson Correlations	1. War involvement	-
Rossow (2001)	WHO	14 (1950-1995)	ARIMA-models	1. Alcohol sales	+
LaFree & Drass (2002)	Interpol/ United Nations / WHO	34	Unit root series, stationary series	1. Industrialized Industrializing	- +
Lederman et. al. (2002)	WHO	25-39	Univariate linear regressions & OLS	1. Trust Membership Secular membership Participation Religiosity Church attendance 2. Income inequality GDP growth rate	- ~ ~ ~ + ~ ~ + -
Messner, Raffalovich & Shrock (2002)	WHO	51-65	Various	1. Income inequality 2. Development index Population density Total population Sex ratio Annual GDP growth rate	+ - ~ - ~ - ~
Pratt & Godsey (2002)	WHO/ United Nations	46	Weighted Least Squares, Multivariate	1. Social support (index) 2. Economic inequality Sex ratio Urbanism Human Development Index	- + - + ~ + ~
Savage & Vila (2002)	Interpol, United Nations	31-45	Multiple regressions	1. Child nurturance 2. Economic development Routine activities Inequality Demographics	- ~

Study	Crime Data Source	Sample Size	Type Analysis	Independent (1) and Control (2) Variables	Relation to Homicide
Neumayer (2003)	WHO, Interpol	274-537	Fixed-effects estimator	1. GDP per capita GDP growth 2. Urbanization Female labor force participation Household size Population density % male 15-64 Democracy Death penalty Human rights violations Economic discrimination Income inequality	- - + - ~ + + +
Pratt & Godsey (2003)	WHO/ United Nations	46	Weighted Least Squares	1. Social support Economic inequality 2. Sex ratio Urbanism Human Development Index Percent measles immunized Proportion aged 15-59 Incarceration rate Disorganization index	- + - + ~ - ~ + + - ~
Van Wilsem (2004)	WHO	27	Weighted Least Squares	1. Income inequality GDP per capita Urbanization	+ - ~
LaFree (2005)	WHO	34	Convergence scores	1. Modernization theory Conflict theory	~ ~
Moniruzzaman & Andersson (2005)	WHO	53	Regression & categorization	1. Economic development	-
Chamlin & Cochran (2006)	United Nations / Interpol	33	Poisson regression, negative binomial regression	1. Legitimacy Modernity Index Economic inequality Population size Sex ratio	~ - + - ~
Sun (2006)	Interpol	96	OLS regression	1. Military participation ratio 2. Income inequality Unemployment Inflation GDP Population density Population growth Urbanicity	~ + +
Antonaccio & Tittle (2007)	United Nations	100	OLS regressions	1. capitalism index corruption (mediator) 2. Development Sex ratio Heterogeneity Eastern religion	+ + - ~ - -

Study	Crime Data Source	Sample Size	Type Analysis	Independent (1) and Control (2) Variables	Relation to Homicide
Savage, Bennett & Danner (2008)	Interpol	25	Pooled cross-section, time-series, fixed-effect model	1. Social welfare spending 2. Unemployment GDP Inflation Democracy Manufacturing Percent urban Female labor force participation	- + + - +
Barber (2009)	United Nations / WHO	67 / 62	OLS regressions	1. Sex ratio (age 15-64) 2. GDP Gini coefficient Urbanization Population density Number of police Drug trafficking nation	- + - - + -
Stamatel (2009)	WHO, European Sourcebook	126	OLS regression, pooled time-series analysis	1. GDP per capita Ethnic diversity Population density % young people Income inequality Divorce rates Political violence Democratization Economic reforms	- + + - + - - -
Messner, Raffalovich & Sutton (2010)	WHO	119	Bivariate	1. Absolute poverty Relative poverty Infant mortality 2. GDP per capita (log) Divorce rate Total population (log) Percent youth 15-24 Sex ratio urbanism	~ + ~ + + ~ - + ~ + ~ + ~ - ~
Robbins & Pettinicchio (2011)	United Nations	56	Negative binomial regression	1. Secular memberships Generalized trust Social activism Civic norms Church attendance 2. GDP per capita Ethnic homogeneity Income inequality (Gini) Former Soviet economies	~ ~ - ~ - - + +

(+) significant positive relationship (-) significant negative relationship (~) inconclusive relationship

APPENDIX B - DATA CONSTRUCTION

In order to construct the panel dataset necessary for this research project, I required cross-national homicide rate data, social disorganization data, social capital data, and other covariate data. Five databases were used to compile the dataset for this research project: the World Values Survey (social capital data), Interpol (homicide data), the United Nations Demographic Yearbook (population density, percent young men, divorce rate), the World Bank (urban population, GDP per capita, life expectancy, migration rate), and the CIA World Factbook (literacy rate, ethnic heterogeneity). Of these five databases, the World Values Survey (WVS) proved the most limiting as regards sample size; as a result, WVS data served as my dataset's foundation, and I obtained as much homicide, covariate and SDT data as possible to correspond with the available WVS data.

The WVS is a worldwide investigation of people's values and beliefs, how they change over time, and their impact. A worldwide network of social scientists has conducted representative national surveys in nearly 100 countries since the project's inception in 1981. The WVS is conducted in waves at approximately five year intervals. Five waves of the WVS have been conducted thus far. Different countries have elected to participate in the WVS during each of the different waves (see table B.1); consequently the sample of nations has varied significantly over the years. For example, Albania only participated in wave 4, Australia participated in waves 1, 3, and 5, while Japan participated in all five waves.

Homicide data are from Interpol as supplied by Dr. Richard Bennett's Correlates of Crime (COC) database. After matching Interpol data to the WVS data, there were 85 country-years common to both sources.

Table B.1. - WVS Wave, Years Conducted, and Number of Participating Nations

WVS Wave	Time Period Conducted	Number of Participating Nations
Wave 1	1981-1984	21
Wave 2	1989-1994	43
Wave 3	1995-1998	53
Wave 4	1999-2004	69
Wave 5	2005-2009	56
Total	1981-2009	241 (96 separate nations)

Unfortunately, Interpol stopped publishing crime data in 2004. Because wave 5 of the WVS was conducted between 2005 and 2009 alternate sources of data were needed for the most recent years. For most nations, the homicide data came from each country's national police as reported to the United Nations Office on Drugs and Crime (UNDOC) International Homicide Statistics (HIS). After finding alternate homicide data sources, 101 countries had data for both WVS and homicide (see Table 5.2. in the main body of the dissertation for alternate homicide data sources). Indicators of social disorganization and the control variables were obtained from the United Nations Demographic Yearbook, the World Bank, and the CIA World Factbook.

Imputation was used to estimate missing when 33% or less of the cases were missing for a given independent variable (homicide data were not estimated). If a country-year was still missing 33% or more of its data, it was deleted listwise (see the discussion on imputation in Chapter 5). My final sample size is 87 country-years (N=87).

Table B.2 lists the years of available data for the WVS and Interpol, showing the overlap and indicating the number of useable years of data. It also indicates which country-years required homicide data from alternate sources, and which country-years were subsequently deleted because of missing data.

Table B.2. - Overlap between WVS and Interpol Data

Country	Years of WVS Data	Years of INTERPOL Data	Useable # of Years
Albania	1998, 2002	2003	1
Algeria	2002	2003-4	1
Andorra	2005	2004	1
Argentina	1984, 1991, 1995, 2006	none	0
Armenia	1997	2003	0
Australia	1981, 1995, 2005	1965-'88, '95-'03	3*
Austria	1990, 1999	1960-2003	2**
Azerbaijan	1997	2003	0
Bangladesh	1996, 2002	none	0
Belarus	1990, 1996, 2000	none	0
Belgium	1981, 1990, 1999	none	0
Bosnia/Herzegovina	1998, 2001	2003-4	0
Brazil	1991, 1997, 2006	none	0
Bulgaria	1990, 1997, 1999, 2007	none	0
Burkina Faso	2007	none	0
Canada	1982, 1990, 2000, 2006	1960-'91, '93-'01	4*
Chile	1990, 1996, 2000, 2006	1960-'96, '98-'01	4*
China	1990, 1995, 2001, 2007	none	0
Colombia	1997	none	0
Croatia	1996, 1999	none	0
Cyprus	2006	1960-97, 2000-2	0
Czech Republic	1991, 1998, 1999	none	0
Denmark	1981, 1990, 1999	1960-'91, '93-'03	3
Dominican Republic	1996	none	0
Egypt	2000, 2008	1960-84, 87-91, '03-'04	0
El Salvador	1999	none	0
Estonia	1990, 1996, 1999	none	0
Ethiopia	2007	2004	0
Finland	1990, 1996, 2000, 2005	1960-2003	4*
France	1981, 1990, 1999, 2006	1960-2003	4*
Georgia	1996, 2009	2003-4	0
Germany, West	1981	1960-1988	1
Germany	1990, 1997, 1999, 2006	1993-2003	4*
Ghana	2007	none	0
Greece	1999	1973-'96, '98-'00, '02-'03	1**

*Post-2004 homicide data obtained from alternate sources

** Subsequently deleted because of unacceptable levels of missing covariate data

Table B.2 (cont.) - Overlap between WVS and Interpol data

Country	Years of WVS Data	Years of INTERPOL Data	Useable # of Years
Guatemala	2005	none	0
Hong Kong	2005	1960-2001, 2003	0
Hungary	1982, 1991, 1998, 1999	1980, '83-'03	4
Iceland	1984, 1990, 1999	none	0
India	1990, 1995, 2001, 2006	1960-'85, '91, '97, '99	4
Indonesia	2001, 2006	1960-'97, '99, '01-'04	1**
Iran	2000, 2005	none	0
Iraq	2004, 2006	none	0
Ireland	1981, 1990, 1999	none	0
Israel	2001	1960-99, 2001-3	1**
Italy	1981, 1990, 1999, 2005	1960-'92, '94-'98, '00-'02	4*
Japan	1981, 1990, 1995, 2000, 2005	1960-2003	5*
Jordan	2001, 2007	1980, '83-'89, '91-'92, '95-'99, '03-'04	0
Kyrgyzstan	2003	none	0
Latvia	1990, 1996, 1999	none	0
Lithuania	1990, 1997, 1999	none	0
Luxembourg	1999	1960-84, 1987-2003	1**
Macedonia	1998, 2001	none	0
Malaysia	2006	1960-1998, 200, 2002-3	0
Mali	2007	none	0
Malta	1983, 1991, 1999	none	0
Mexico	1990, 1996, 2000, 2005	none	0
Moldova	1996, 2002, 2006	none	0
Morocco	2001, 2005	1960-1986, 1991	0
N. Ireland	1990, 1999	none	0
Netherlands	1990, 1999, 2006	1960-86, 1989-99, 2002-3	4*
New Zealand	1998, 2005	1960-86, 1991-2, 1994-7	1**
Nigeria	1990, 1995, 2000	1960-1984	0
Norway	1982, 1990, 1996, 2005	1960-1993, 1995-2000, 2002	4*
Pakistan	1997, 2001	none	0
Peru	1996, 2001, 2006	1960-1984, 1989-1992, 1998, 2001	3*
Philippines	1996, 2001	1960-90, 1998, 2000	1**
Poland	1990, 1997, 1999, 2005	none	0

*Post-2004 homicide data obtained from alternate sources

** Subsequently deleted because of unacceptable levels of missing covariate data

Table B.2 (cont.) - Overlap between WVS and Interpol data

Country	Years of WVS Data	Years of INTERPOL Data	Useable # of Years
Portugal	1990, 1999	1977, 79, 81, 1983-2003	2**
Puerto Rico	1995, 2001	none	0
Romania	1993, 1998, 1999, 2005	none	0
Russian Federation	1990, 1995, 1999, 2006	none	0
Rwanda	2007	2004	0
Saudi Arabia	2003	2004	1
Serbia & Montenegro	1996, 2001, 2006	none	0
Singapore	2002	1960-2001, 2003	1**
Slovakia	1990, 1998, 1999	none	0
Slovenia	1992, 1995, 1999, 2005	none	0
South Africa	1990, 1996, 2001, 2006	2003	0
South Korea	1990, 1996, 2001, 2005	1960-1990, 1992-2001	5*
Spain	1990, 1995, 1999, 2007	1960-2002	5*
Sweden	1990, 1996, 1999, 2005	1960-2001	5*
Switzerland	1989, 1996, 2007	none	0
Taiwan	1994, 2006	1960-84	0
Tanzania	2001	1960-90, '96-'00, '02-'03	1**
Thailand	2007	none	0
Trinidad & Tobago	2005	1960, 66-77, 83-94, 97-8, 2001, 2003-4	1**
Turkey	1990, 1996, 2001, 2007	1960-1985, 1987-2003	3
Uganda	2001	none	0
Ukraine	1996, 1999, 2006	none	0
United Kingdom	1990, 1998, 1999, 2005	1960-1991, 1996-1998, 2000- 2003	5*
Uruguay	1996, 2005	none	0
USA	1982, 1990, 1995, 1999, 2006	1960-1997, 2000-2001	5*
Venezuela	1996, 2000	none	0
Vietnam	2001, 2006	none	0
Zambia	2007	1960-86, 91-2, 95, 2001	0
Zimbabwe	2001	none	0

Total sample size = 87

*Post-2004 homicide data obtained from alternate sources

** Subsequently deleted because of unacceptable levels of missing covariate data

APPENDIX C – LIST OF INCLUDED COUNTRIES & WVS WAVES

Country	1981-84 Wave 1	1989-94 Wave 2	1995-98 Wave 3	1999-2004 Wave 4	2005-09 Wave 5
Albania				x	
Algeria				x	
Andorra					x
Australia	x		x		x
Canada	x	x		x	x
Chile		x	x	x	x
Denmark	x	x		x	
Finland		x	x	x	x
France	x	x		x	x
Germany		x	x	x	x
West Germany	x				
Hungary	x	x	x	x	
India		x	x	x	x
Italy	x	x		x	x
Japan	x	x	x	x	x
Netherlands	x	x		x	x
Norway	x	x	x		x
Peru			x	x	x
Saudi Arabia				x	
South Korea	x	x	x	x	x
Spain	x	x	x	x	x
Sweden	x	x	x	x	x
Turkey		x	x	x	
UK	x	x	x	x	x
USA	x	x	x	x	x

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