THE INTERGENERATIONAL TRANSMISSION OF SOCIAL CAPITAL, ITS MEANING FOR CRIME IN ADOLESCENCE, AND FOR OFFENDING IN EARLY ADULTHOOD

DISSERTATION

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By

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ABSTRACT

Social capital has grown into an important theoretical concept in the social sciences. Within criminology it has been applied in the framework of social disorganization theory and other theories of social control. However, while adult social capital has received much attention, adolescent social capital, and its possible relationship to offending, has not been studied. This gap in the literature is somewhat surprising since criminologists have recognized adolescents as major agents of crime.

In order to fill this gap in the literature I answer three important questions. First, I theorize about, and empirically investigate, the development of social capital and the possible transmission of it from parents to adolescents. Second, I investigate the relationship between adolescent social capital and adolescent violence and property offending. Third, I investigate how adolescent social capital is associated with offending in early adulthood.

My results suggest that the intergenerational transmission of social capital is an important source of social capital development that influences adolescents' behaviors for years to come. Parental social capital relates positively to adolescent neighborhood social capital and adolescent school social capital. The investigation also shows that the

relationship between parental social capital and adolescent school social capital is as strong as the one with neighborhood social capital. This suggests that parental social capital transmission teaches adolescents the know-how to accumulate social capital in a number of different environments, not only those safeguarded by parents.

The intergenerational transmission of social capital has diametrically opposed effects for violence. While adolescent neighborhood social capital increases violence, social capital in school decreases violent offending. The cause for these opposing relationships is likely the different environmental contexts in which both types of social capital exist. While adolescent neighborhood social capital exists in an environment providing adolescents with unstructured activities, the environment in which adolescent school social capital is developed represents structured activities and, by definition, pro-social value formation.

My research also shows that, at least for the early years of adulthood, adolescent social capital is an important predictor of offending. The relationships in early adulthood mirror the associations in adolescence. It is likely that young adults in the transitional period between adolescence and adulthood maintain their adolescent social capital networks, leading them to engage in the same offending patterns they displayed in adolescence. Social capital networks, and with them offending patterns, likely shift after the young adults have established themselves in adult life.

Dedicated to my parents, Harald and Ulrike Weiss, who have supported me all these years, and to my sister Doris, who is currently suffering through her Masters Thesis.

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CHAPTER 1

INTRODUCTION

> "One little girl made sure she wouldn't miss any of the good things to eat at the Stop the Violence *block party* Saturday. She managed to juggle a snow cone, a bag of popcorn and a funnel cake without spilling anything until she found a convenient spot of empty sidewalk, where she sat down to eat. The *block party*, held at Maple Avenue and Locust Street near the Ambassadors for Christ headquarters, was the seventh of 10 such events planned this summer. 'This is the biggest event of the year for the Stop the Violence festival," said Apostle Jessie Bates. 'We're giving away backpacks, we're giving away school supplies. All total, we're giving away about 300 pieces today." Stop the Violence is affiliated with the Decatur CeaseFire Coalition and has held *block parties* with music, food and Christian messages to encourage *neighbors* to get to know one another and work together to reduce violence. Bates said he had just been informed by Decatur police that violent crime has fallen some 65 percent this year, and he credits at least some of the drop to the work of the organization."
>
> Valerie Wells (2007)

Neighborhood parties have become frequent in many neighborhoods in U.S. cities. For local residents these parties offer an opportunity to relax in their own community without the need to travel, to eat, drink, and enjoy games, and to get to know their neighbors. For local organizations, like home owners associations and the local police, such gatherings provide an opportunity to recruit membership or become

acquainted with the people they deal with professionally. Block parties have also, as the above excerpt shows, found use in the prevention of crime within neighborhoods.

Knowing each other, establishing rapport, and being aware of neighborhood rules makes it much more likely that the community can stand united against those who would offend. Criminologists have also recognized the value of social networks for inhibiting crime. A large literature on social disorganization in neighborhoods exists and posits that social capital, consisting of social networks and the positive values and emotions contained in them, are indispensable for keeping crime in check.

1.1 Social Capital as a Crime Prevention Strategy

Criminologists have, for decades, argued that social capital, the concept that ties individuals to networks containing positive emotional attachment and reciprocity, is a vital component of crime control. Researchers generally recognize three levels at which social capital can be turned into social control (Bursik and Grasmick 1993). Block parties are likely most important for the lowest level of this three-level theory, that of social control based on interpersonal relationships. This mechanism proposes that, if people have a positive relationship towards each other, they are less willing to offend because they do not want to lose the respect of their friends and acquaintances. Familiarity with their neighbors also gives residents the opportunity to respond informally to situations that might lead to crime because they know the potential perpetrator and have a previously established bond with them.

At the parochial level, that of local organizations, social capital affects social

control through the ability of organizations to bring people, who would not otherwise meet each other, together. Also, these organizations have some control over local neighborhood resources and can use them in order to make the community safer. An example for such organizations would be neighborhood block watches, like the Columbus Citizens Patrol (CCP) in Columbus OH, where volunteers patrol the streets and report suspicious activities to the police.

At the public level, finally, social capital within the neighborhood can reduce crime control by providing a closed residential front towards threats to the community. High social capital in a community can forestall the closing of police stations and fire houses, can derail outsiders' plans to place undesirable institutions and businesses into the neighborhood, and petition city and state government for resources (Logan and Molotch 2007).

For the individual resident, possessing social capital means that they can both control and be controlled by neighbors. Nevertheless, joining social capital networks is something that appears to simply happen. Potential offenders do not rationally decide not to participate in order to make themselves harder to control. This begs the question what exactly makes individuals develop social capital. If there is no rational self-exclusion from social networks, why are some individuals principally more involved in social activities than others? Why do some people find it easier to develop social capital than others?

Social disorganization theorists and other criminologists working in this area frequently view social capital mostly as being affected by neighborhood factors like

poverty, racial heterogeneity, and residential mobility (Bursik and Grasmick 1993; Sampson 1988; Sampson and Groves 1989; Shaw and McKay 1942). But even within the same neighborhoods some individuals are more social than others; highlighting the need to explain why some individuals form more social capital than others beyond potential neighborhood influences.[1] Why did some people in the excerpt above show up for the block party while others stayed away? Certainly, some people had to work or were busy in other ways but there were almost certainly people who were simply not interested and decided not to participate. Furthermore, why are there residents for whom the same block party is less helpful in developing social capital than for others? It is unlikely that every participant took away the same amount of connectedness from the party.

These questions all aim at elucidating why individuals' ability and openness to social interaction varies beyond what criminologists have, so far, considered. Organizers can announce a neighborhood party, but if people are not interested in attending it the social capital to reduce crime will not appear. By the same token, if people go to the party but lack the skills to meaningfully interact with other attendees, social capital will, again, not materialize.

1.2 Adult versus Adolescent Social Capital

In addition to being less concerned about individual differences in social capital accumulation, the crime literature has also mostly dealt with adult social capital. Adult

[1] This does not mean that individual-level factors are being completely ignored but, overall, the focus of studies involving social capital in criminology appears to be the neighborhood

residents are seen as having social capital and they are using it to socially control other residents, both adult and adolescent. Adolescents, the population that is, according to Sampson and Groves (1989), responsible for much of the crime in neighborhoods, do not seem to matter as sources of social capital. Of course, in part this neglect is partly due to a dearth of useful data on adolescent social capital. Most of these data come from surveys based on adults.

Nevertheless, the fact that children and adolescents draw on and generate social capital has so far been overlooked, which is a gap in the research that I intend to address. Adolescents are just as likely exerting social control as they are responding to it. They judge each other's behaviors just like adults do and may, in many instances, not be any less willing to voice their misgivings than parents. For adults who belong to an adolescent social capital networks the membership may provide an incentive to not offend. Such adults may consider themselves role models so that, in this case, the adolescents are the source of social control, rather than the recipients of it.

Adolescent social capital can also affect children and adolescents' delinquency through their routine activities (Cohen and Felson 1979). When adolescent social capital occurs within the confines of structured activity it serves as a protective factor on both offending and victimization because the group of adolescents that is involved in this activity neither has the opportunity to offend nor is in any danger of being victimized (Osgood and Anderson 2004). And because adolescent social capital networks transcend graduation from school, and moving out of the parental neighborhood, it is likely that it influences adolescents' offending for many years after entering adulthood.

Furthermore, because social disorganization approaches the social capital-crime relationship mostly from the direction of the neighborhood and social capital is seen mostly as a characteristic of adults, the idea that social capital, and the skills to acquire it, may be learned has not been a prominent part of the social capital literature nor of the crime literature. Nevertheless, there is evidence that suggests that drawing and generating social capital could be, at least in part, a learned behavior.[2] For instance, a Swedish study showed that nationals from different regions of the world had differing levels of both social capital and participation, levels which depended upon their national and ethnic group membership (Lindström 2005). Similarly, a study by Rice and Feldman (1997) compared the levels of civic engagement in European countries to that in Americans who immigrated from these countries generations ago. They found that there were surprisingly high continuity, even after several generations in the U.S. Americans maintain a level of civic engagement that is similar to the level still found in the countries their families emigrated many generations ago. These studies illustrate variation in levels of social capital and suggest that social capital is not only based on individual psychological factors, but rather, that it is being transmitted across generations using some social mechanism and with surprisingly little loss. The fact that both nationality and ethnicity can be tied to this continuity in social capital behavior suggests that, in addition to potential genetic predisposition to sociability, social learning could also play a role in determining individuals' social capital.

[2] It is also likely that there are some biological influences on sociability. Nevertheless, it is likely that whatever inborn sociability an individual possesses is also influenced by social learning.

In this dissertation I argue that adolescents obtain social capital and learn the skills to develop their own networks that generate social capital from their parents. While it is certainly true that individual characteristics, and characteristics of the neighborhood, affect social capital, I suggest that the intergenerational transmission of social capital from parents to their adolescents has a cumulative effect on the ability of the latter to develop future social capital and, through this ability, influence criminal behavior.

1.3 The Goals of this Dissertation.

This dissertation examines the transmission of social capital from parents to their children and maps how this transmission affects the offending of the latter in adolescence and early adulthood. In Chapter 2 I review what we know about how individual and neighborhood characteristics affect the formation of social capital, at least in adults. Following this review, and because there is currently no theory to describe the intergenerational transmission of social capital, I outline a theoretical model that serves as a starting point for research on this important developmental process in childhood. Next, I empirically investigate this intergenerational transmission, as it has not yet been established that such a process exists.

I examine intergenerational transmission in two ways: First, I investigate how parental social capital relates to adolescents social capital in the neighborhood in which the latter reside. In this environment adolescents likely profit from parental social capital through both the transmission of social skills and through their integration in parental

social capital networks. The neighborhood is also likely the location where adolescents can work on their social skills, make mistakes, and be corrected without jeopardizing their future opportunities.

The second environment in which I study the intergenerational transmission of social capital represents an environment where adolescents are, for the most part, on their own: school. This environment allows adolescents to develop their own social capital networks independently of parental influence. School also differs from neighborhoods in that developing high social capital in school requires that the networks have to contain the pro-social values and rules the school represents. Neighborhood-based social capital networks likely differ from this type of networks because they are less structured and may be subject to adolescent sub-cultural norms.

In Chapter 2 I also investigate how adolescents' characteristics and family structure affect their social capital. Research has accumulated a lot of information on how adult characteristics affect adult social capital. Far less is known about how the same characteristics encourage or discourage social capital in adolescence. Chapter 2 investigates whether characteristics that help adults develop social capital have the same effect on adolescents. Here I investigate whether parental education, which is generally tied to higher levels of social capital in adults, also increases the social capital of adolescents living in families with more educated parents.

The findings in Chapter 2 will be important for understanding my task for Chapter 3. In this chapter I relate the intergenerational transmission I show in Chapter 2 to adolescent delinquency. In this analysis I control for variables that criminological

literature has shown to be important for understanding crime. I investigate how the social capital that adolescent have, thanks to their parents, cultivated in both neighborhood and school affects their violence and property offending. I find that parents transmit social capital to their offspring. The latter use their social capital in both neighborhood and school, leading to a paradoxically diametric opposition of the effects of social capital on delinquency. While adolescent neighborhood social capital increases violent behavior, adolescent school social capital inhibits it.

In Chapter 4 I extend the study of crime to early adulthood. I argue that intergenerational transmission of social capital has a cumulative effect and will likely be related to offending for years to come. Because the transition from adolescence to adulthood happens comparatively quickly, and brings with it rapid change in both responsibilities and roles, I predict that social capital experiences made during adolescence will have a great influence on offending in early adulthood. Adolescents who are more successful in developing social capital will likely be able to draw from this experience in early adulthood. In the long run their social capital should increase their stake in conformity through better jobs and more normative social ties (Try 2005). However, because adolescents are likely unwilling to make changes to their support networks during a time in which their lives change so radically, I expect that, in the short run, offending patterns in early adulthood will mirror those that respondents displayed in adolescence.

Chapter 5 concludes the dissertation and combines the findings of my research into a cohesive framework. It describes how intergenerational transmission of social

capital early in children's lives sets them on a trajectory that depends greatly on their relative levels of social capital and the environmental context in which it occurs. Chapter 5 ends by noting important limitations to these studies and future research questions this dissertation creates.

CHAPTER 2

THE INTERGENERATIONAL TRANSMISSION OF SOCIAL CAPITAL

"I could ask my friends to help me but they will want payback some time."
Red Green

2.1 Social Capital

Social Capital is an abstract concept that describes a network of shared dependencies and obligations within a community. It is differentiated from human and financial capital in that it exists strictly between individuals, rather than within them. Nevertheless, social capital can be used to obtain goods and services, both material and social, through its network.

As a concept, social capital is by no means new and has been rediscovered at least six times throughout social science history (Putnam 2000). The concept of social capital has been part of Sociology for a long time, although the terminology has evolved over the decades. Durkheim's (1951) study of suicide, apart from demonstrating to his colleagues how scientific principles could be applied to the study of societies, dealt intimately with social capital. His findings, that in countries with higher shares of religions that foster

community, as opposed to individualism, residents are less likely to commit suicide emphasizes the importance of social capital. Similarly, Durkheim's (1933) work on solidarity focused on social capital of societies, although the binding forces that caused it differed between mechanical and organic solidarity. Social capital has also featured prominently in the discourse about different forms of government, some of which later were perceived as threats to democracy in the U.S. Tönnies (1887), for example, differentiated between social capital formations in different forms of societies, especially communism and socialism. The use of social capital in political science research continues until today (Paxton 2002a; Putnam 2001).

The most recent formulation by Bourdieu (1986) expressly compares it to financial and human capital and states the causes for its development in solely economic terms. According to his formulation, social capital networks develop because individuals provide help and favors to others in order to gain obligations from them. Thus, people do not aid each other out of altruism, or a feeling of solidarity, but because their goal is to strengthen their economic position by obtaining debts from other residents that can, if needed, be called in.

A subsequent theoretical elaboration of social capital by Coleman (1988) explains social capital in similar language but goes into more depth on the actual mechanism of its formation within communities and the role trust plays in it. Coleman agrees with Bourdieu (1986) when the latter argues that people engage in social capital in order to entrap others in obligations. However, while Bourdieu did not consider the possibility that an obligation could go unrecognized, Coleman considers the quid pro quo system the

former envisions far from automatic. Rather, it is here where trust is of the utmost importance and enters social capital as a vital component. Trust, in this respect, refers to the belief that an existing obligation can be called in at a later date. A resident who recognizes a neighbor's need and renders aid does so with the unarticulated understanding that the neighbor will reciprocate at some point in the future when the tables are turned. If, for some reason, the neighbor is unaware of this expectation the resident's trust was misplaced.

Coleman (1988) argues that, even though residents do not keep track of obligations in an accounting sense, a large network in which members are tied to each other, both helps individual actors within a community and creates solidarity within the community. The exchange of obligations represents an investment into the community that welds community members together.

Because the unique interdependent ties of a social capital network form the social equivalent of nuclear elementary particles it is little surprising that many social scientists have been interested in the effects of this social glue on individuals and communities. Studies suggest that social capital has the potential to alleviate many of the problems faced by inner city residents of U.S. cities and beyond (Almgren 2005; Almgren, Magarati, and Mogford 2004; Altschuler, Somkin, and Adler 2004; Cattell 2001; Coleman 1988; Sampson, Morenoff, and Earls 1999; Sampson, Raudenbush, and Earls 1997).

2.2 Social Capital and Its Consequences

Social capital has transcended its use in sociology and has become a part of many other fields of study, as well as the mainstream media (Blade 2007; Brock 2007; Enquirer 2006). Portes even went so far as to call social capital "one of the most successful 'exports' from sociology to other social sciences and to public discourse during the last two decades" (Portes 2000). One of the reasons for the appeal of social capital is that it is shared between individuals and connects people in ways few other concepts can. For socially connected individuals these ties, in turn, can negate many of the difficulties that exist in society.

Studies on health outcomes suggest that social capital networks have the ability to lessen the deleterious effects of economic neighborhood decline (Cattell 2001; Denner, Kirby, Coyle, and Brindis 2001). Neighborhoods with high levels of social capital seem to be beneficial to the health of their residents because the social support from other community members helps lessen psychological and physical stress (Altschuler, Somkin, and Adler 2004; Bolin, Lindgren, Lindström, and Nystedt 2003; Cattell 2001; McCulloch 2003). The same types of communities also appear to be more effective in fighting crime, in part because they find it easier to socially control local would-be offenders with their more cohesive social network (Beyerlein and Hipp 2005; Bursik and Grasmick 1993; Galea, Karpati, and Kennedy 2002; Sampson and Groves 1989; Shaw and McKay 1942). However, a closer look at more severe forms of crime leaves doubts as to social capital's ability to control these types of offenses (Rosenfeld, Messner, and Baumer 2001). Furthermore, more recent evidence suggests that getting tough on would-be

offenders is made more difficult when the latter are part of the social capital network of the community (Browning, Feinberg, and Dietz 2004; Pattillo-McCoy 1999). It appears that in this situation community members are less likely to call police on offenders and informal social control appears to be less effective as well.

Economic structures can profit greatly from social capital. Coleman (1988) points to diamond markets in which sellers allow buyers to examine diamonds in their own time and place without the need for receipts. The exchange is grounded in trust based on social capital that is cemented through both kinship and religious ties and lubricates the diamond trade because expensive, complicated, contractual exchanges are shortened to a handshake. Potential temptations to betray trust in favor of personal gain are countered by the fear of potential responses that would affect the offender in professional, kinship, and religious spheres, potentially for the rest of their lives (Coleman 1988).

In political science and related fields, social capital has become a hot topic for investigating political participation and democracy. In a popular book, Putnam used social capital to argue that changes in affiliation and associational participation since the 1960's have resulted in a decrease in social capital that, in turn, lowers the civil engagement of the U.S. population and threatens democracy as we know it (Putnam 2001). The book has set off a debate within political sciences and related fields that will likely continue for some time. Nevertheless, research in response to the book suggests that the relationship is more complicated than Putnam suggested. Paxton (2002a), for example, has demonstrated that the relationship between social capital and democracy is bidirectional and, while some researchers agree that a decline has occurred, they argue

that Putnam's book overstates the effect (Costa and Kahn 2003b). Other evidence also again reveals that social capital has to be seen in context. While Putnam's (2000; 2001) concern is that reduced social involvement destroys cohesion, too much involvement can be just as harmful. Fiorina (1999) provides an example in which a relatively small group of highly connected individuals derailed a public project by unduly monopolizing the political process.

Social capital also appears to be invaluable in helping individuals to escape poverty, both by taking advantage of networks to find a job and by enabling them to improve their human capital (Try 2005). Adolescents with higher levels of social capital appear to have higher levels of educational aspirations (Marjoribanks 1997) and both adolescents and adults seem to find it easier to find better jobs through social networking (Try 2005).

Clearly, researchers attribute many positive outcomes to social capital, which explains why this concept has been such a major focus in recent studies. But how does social capital develop? What factors contribute to its formation, and what deters it? Few studies have investigated social capital formation directly. Much of what we know about its development comes from research that either used social capital as a mediator or investigated Robert Putnam's argument that social capital has seen a steady decline since the 1960's. What can be gleaned from these studies can best be categorized as affecting social capital on two different levels of analysis, namely the neighborhood level and the individual level.

2.3 Predictors of Social Capital

2.3.1 Neighborhood-Level Predictors of Social Capital

Structural influences on individual social capital are often tied to compositional factors in the neighborhood. While, for example, being a single parent may reduce ones social capital, living in a neighborhood with a high proportion of single parent families reduces social capital neighborhood-wide and beyond the effects one would expect if one were to sum the individual effects. Thus, while some of the following factors have individual-level counterparts, they likely have structural effects on social capital neighborhood-wide.

Residential mobility has, early on, been tied to weaker acquaintanceship networks and, consequently, lower levels of social capital (Shaw and McKay 1942). Because newly arrived residents do not remain long enough in high-residential-mobility neighborhoods to socially connect to others the networks in these communities are weak (Sampson and Groves 1989). In terms of Bourdieu's (1986) and Coleman's (1988) arguments, there is simply not enough time for the network of obligations to develop because the neighborhood network is not temporally stable.

Similar effects are observable in previously stable neighborhoods with a sudden high influx of new residents, as often happens when communities become gentrified over a short period of time. Freudenburg (1986) studied such a situation in a boom town. He observed that the existing social network in a relatively stable rural town was quickly disrupted through a large influx of new residents. The result was social disorder of the kind Shaw and McKay (1942) report.

Sampson and Groves (1989) also show that increased residential mobility disrupts social networks. In addition these authors demonstrate that the proportion of single-parent families is a predictor of smaller friendship and acquaintanceship networks. The authors suggest that single parents, having to fulfill the function of two parents, are busier than parents in traditional two-parent families trying to make ends meet and taking care of children. Consequently, single parents find it harder to connect to the neighborhood in a meaningful way.[3]

Racial and ethnic heterogeneity also affect social capital. Originally also demonstrated by Shaw and McKay (1942) the effect of heterogeneity on social capital has been studied more recently by economists. Alesina and La Ferrara (2000) show that both racial and ethnic heterogeneity reduce social capital for individuals.[4] The reason for this effect can likely be found in the two different forms social capital can take in communities. Bridging social capital usually refers to relatively large networks of individuals and organizations (Putnam 2000). Bonding social capital refers to relatively small and homogenous social networks that do not easily make connections to individuals outside their immediate group (Putnam 2000). Racial and ethnic heterogeneity likely has

[3] To be sure, there are exceptions to this statement. In ethnic enclaves older residents often run unofficial childcare centers when parents have to go to work or are otherwise occupied. These social structures are to some degree results of social capital networks but also foster their development (see Newman 1999)

[4] I should note that the authors use an index of participation in groups, clubs, and organizations as a proxy for social capital in this paper. While social capital certainly transcends participation it has become relatively common in the literature to use such proxies and participation is certainly an important facet of social capital.

a deleterious effect on social capital because members of the racial and ethnic groups have a tendency to preferentially interact with people like themselves. This creates neighborhoods with a number of bonding social capital networks that do not interact with each other to a significant degree, lowering the overall social capital in the community. However, it is also possible that what we observe is, at least in part, due to a concentration effect. Lindström (2005) investigated the social capital and participation of different ethnicities and nationalities in Sweden. He shows that members of different national and ethnic groups have a wide variety of social capital and participation, so that the ethnic composition of a neighborhood will affect the social capital in it even if homophily is not a problem in a community. Alesina and La Ferrara (2000) and Lindström (2005) findings are corroborated by other researchers as well (Aizlewood and Pendakur 2005; Costa and Kahn 2003a).

The evidence suggests that class heterogeneity functions in a way that is analogous to racial and ethnic heterogeneity. Alesina and La Ferrara (2000) use the Gini coefficient to show that heterogeneity in income levels, their operationalization for class heterogeneity, also reduces social capital for residents. In a subsequent paper the same authors studied how racial, ethnic, and class heterogeneity affects a different component of social capital; trust (Alesina and La Ferrara 2002). In this paper class and racial heterogeneity both reduce trust. However, ethnic heterogeneity had no such effect. A later study showed similar deleterious effects of class heterogeneity on social capital but did not show such affects for racial heterogeneity (Costa and Kahn 2003b).

That class heterogeneity may also lead to bonding social capital is also affirmed

by Li, Savage, and Pickles (2003). These authors studied the longitudinal change in social capital in their British sample. They show that, in the United Kingdom between 1972 and 1999, working class individuals lost social capital, whereas members of the middle class maintained the same levels. These authors suggest that the reason for these patterns is that working class individuals are mostly involved in labor unions, which tend to form bonding social capital networks that do not normally interact with many other groups. In contrast to this, middle class individuals are more likely to belong to civic and hobby organizations, groups which are usually well-connected and form bridging social capital.

Bonding and bridging social capital also plays a role in the effect organizational memberships have on social capital. In the U.S. membership in most organizations, including labor unions, seems to be beneficial for the development of neighborhood social capital. Many organizations are tied to other groups, creating useful bridging social capital in neighborhoods (Beyerlein and Hipp 2005). An exception to this rule is religious membership. For instance, Cornwell and Harrison (2004) show that individuals who are members of churches are far less likely to belong to other organizations and vice versa. This in turn limits the social network in the communities, as churches are less linked to secular organizations (Beyerlein and Hipp 2005), and instead more likely create bonding networks . This is especially true for members of evangelical Christian churches because members of such organizations are too busy volunteering for their cause to also maintain ties to individuals and groups outside of their church (Wuthnow 1999).

In sum, the evidence suggests that neighborhood-level effects are

important for understanding social capital opportunities in communities. But these factors are only one side of the social capital coin. The other side is individuals' ability to accumulate social capital, abilities that are to some extent based on their individual characteristics. In this next section I will show how individual characteristics and behaviors influence the social capital a person can accumulate.

2.3.2 Individual-Level Predictors of Social Capital

While the neighborhoods we live in clearly influence our ability to make positive social ties, individual characteristics are equally important for social connections. Current evidence suggests that members of racial and ethnic minorities have a wide variety of social capital (Lindström 2005). Zhou (1992) notes that many recent immigrants have higher levels of social capital as compared to the native U.S. population, especially when they have the benefit of residing in an ethnic enclave where language and ethnic customs do not represent a problem.[5] Similarly, research from Sweden suggests that nationals from different nations of the world have varying, for them normal, levels of participation (Lindström 2005). In the U.S., Alesina and La Ferrara (2000) investigated different forms of both formal and informal participation and showed that African Americans appear to participate more than Whites. However, this result runs counter to more recent research on an older sample of African Americans and Whites. In their sample of respondents aged 65 and above, Barnes, Mendes de Leon, and Bienias

[5] Zhou (1992) reports that, while recent arrivals in ethnic enclaves are often exploited for their work, they do receive considerable benefits through social networks based on nationality and ethnicity.

(2004), find that the networks of African Americans are considerably smaller than those of Whites.

Needless to say, it is possible that the noticeable incongruence of the above results is based on an effect of age on social capital. Indeed, age seems to have a curvilinear relationship with social capital. On average, social capital increases early on, then levels off during middle age and declines in old age (Alesina and La Ferrara 2002; Robinson and Jackson 2001). It is possible that the smaller social networks of older African Americans are due to the lower socioeconomic status. In order to maintain a social network it requires a means of transportation. Because older African Americans were raised in an era of segregation and had less access to education and well-paying jobs they may also be less likely to have the means to travel after retiring. Thus, their smaller social capital networks may be lagged effect of segregation.

Gender also plays a significant role in social capital accumulation. Costa and Kahn (2003b) investigated the change in social capital in the U.S. from 1952-1998. They use a number of indicators for social capital and find that women are more likely to volunteer, spend more time in organizations, and spend more time visiting and entertaining than men. Therefore, their study suggests that women do have more social capital than men. However, the authors also note that women's entry into the labor force greatly reduced their social capital when observed over decades. Considering that many women not only work full-time but also carry the responsibility for a disproportionate share of the housework and childcare responsibilities their ability to maintain high levels of social capital is impressive (Hochschild 2003). Interestingly, there are also cross-level

interactions for gender. Women's social capital is higher in neighborhoods with concentrated affluence, residential stability and ethnic heterogeneity. For men the only neighborhood-level factor that increased their social capital was population density (McCulloch 2003).

An individual's occupation also affects their social capital. In terms of occupational effects on social capital, respondents in manual occupations had higher levels of social capital, compared to respondents who reported being in professional and managerial occupations (McCulloch 2003). This finding is inconsistent with Li, Savage, and Pickles (2003) findings. They argue that, for structural reasons, the social capital of the working class is lower than that of the middle class. However, similar to other researchers, they also use participation in groups and organization, as well as participation in informal gatherings, as a proxy, while McCulloch (2003) operationalizes social capital through a more diverse index. Furthermore, as the previously noted research by Cornwell and Harrison (2004) shows, participation and bonding social capital formation for specific organizations appears to be different for the U.S. than it is in Great Britain (Li, Savage, and Pickles 2003).

Again, the effect of occupation on social capital reveals an interesting gender effect. While working in a low-skill occupation had no effect on the social capital of men, it significantly increased social capital for women. On the other hand, working in a skilled manual occupation improved men's social capital while having no effect for women. This finding is possibly due to occupational segregation by gender. Low-skill service jobs are mostly filled with female workers while skilled jobs are more likely filled

with males. Thus, the gender differences for the occupation-social capital link might be due to occupational gender segregation, rather than the actual gender of a specific worker.

Education, finally, has a positive relationship on social capital. Trust, Alesina and La Ferrara's (2002) proxy for social capital, increased with the number of years of education respondents had received. The same relationship was observed when they used participation instead of trust to operationalize social capital (Alesina and La Ferrara 2000). Declines in trust noted by Putnam (2000) are also of interest to Robinson and Jackson (2001). Like Alesina and La Ferrara, these researchers found that education increased trust in individuals, an association that likely also influences social capital.

2.4 Reasons to Suspect an Intergenerational Transmission of Social Capital

Thus, residents' characteristics affect the level of social capital an individual can maintain, as do the neighborhood-level factors in the community one resides. However, the vast majority of the research on individual-level factors, as well as research on neighborhood-level influences on social capital, is based on adult data. By the time adults report about their lives in these datasets they have established a certain amount of skill based on social experiences, individual characteristics, and neighborhood residence. Furthermore, as the previous review shows, while we know a lot about both the role of neighborhood influences and personal characteristics on social capital formation we are suffering from a theoretical and empirical gap in our understanding of how social capital is formed in childhood and adolescence. This is surprising because some previous

studies have raised very good arguments that the transmission of social capital from parents to their children (hereafter also referred to as intergenerational transmission) sets children on a trajectory of social capital formation that stays with them through adulthood. As I mentioned above, racial and ethnic groups have different, for them normal, levels of social capital (Lindström 2005). Of course, some of these observations are likely due to racial and ethnic groups living under deleterious structural conditions, for example racial segregation and poverty. However, evidence based on Americans with European descent also suggests the presence of intergenerational transmission of social capital. Rice and Feldman (1997) studied the relationship between Americans' civic engagement and the level of civic engagement that is normal for their country of origin. They found that, even after several generations in the United States, individual levels of civic engagement remain highly correlated with the level that is, to this date, normal in their home country. This suggests that civic engagement, a concept closely related with social capital, is transmitted intergenerationally through the generations, both in American and in European families. If this were not the case it would be unlikely that the civic engagement of Americans with European descent and European nations would have diverged.

Thus, in order to initiate theoretical work on this gap in our understanding I will, in the following section, propose a theoretical mechanism that explains how social capital is transmitted from parents to their children. Because of the lack of empirical and theoretical work in this age-group I draw on the developmental literature and on the literature on transmission of values and culture to develop my theory.

2.5 A Theory of Social Capital Transmission

Becoming part of a social capital network and participating in it requires skill and it is likely that socialization into social capital begins early in the life of a child. Parents' own social abilities and their social network likely play vital roles in forming their children's ability to interact socially. I argue that parents, over the course of their children's development, teach the latter three important things; social skills, norms of group behavior, and values that encourage social interaction.

2.5.1 Social Skills

Social skills are likely the first component of social behavior to be learned. Similar to Goffman (1959) observation that children learn different roles by playing them, I argue that children learn behaviors that are important for social capital accumulation by observing how their parents behave when they are among different groups and imitating them. By doing so they learn what behaviors are commonly used in the circles their parents move in. Parental social capital becomes important in this step of the development both because the child has the opportunity to observe parental behavior but also because parental networks are safe social groups in which the child can start to make experiences and begin to emulate parental behavior. These groups are also safe because mistakes can be corrected and behaviors fine-tuned in them. Just like learning to understand role-taking, learning this component of social capital accumulation likely begins early in life and continues throughout a child's development. However, the complexity of the learned skills likely changes throughout the child's development.

While, early on, children strive to internalize the major skills they use their later years to refine what has been already learned and to add skills that are less obvious but more difficult to master, for example interpreting and giving non-verbal cues. Membership in groups means that individuals are able to recognize, understand, and respond to non-verbal cues (Cook 1977). Spitzberg notes that "Social skills are the essential processes through which we initiate, maintain, and manage our relationships with others" (Spitzberg 2008:21). The response is frequently non-verbal as well. Social ties that develop into romantic relationships are only one example of such non-verbal exchanges. Interpreting signs of romantic interest and reciprocating these signs is a highly delicate interaction that, without the proper signs from both sides will end in failure (Moore 1985). Furthermore, business negotiations require large amounts of non-verbal skills. Because all sides involved are trying to maximize their profit, it is vital to be able to tell how far one can pressure the other parties.

2.5.2 Group Norms

Beyond social skills, it is also necessary to understand the norms of the group in order to successfully navigate social capital networks. While the learning of behavioral skills is probably a priority in childhood, the child begins to comprehend and understand the norms of groups once it becomes reasonably proficient in the skill necessary to navigate parental networks. At this point the child may start to extend its network in both school and the neighborhood it resides in and begins to recognize that norms differ between different groups. Both parental guidance and the ability to test and learn in the safe social

network of the parents again become important for the adolescents' further development. While the learning of social norms continues I expect that there is a period of especially high levels of learning in late childhood and early adolescence.

2.5.3 Values

The third component that is, I argue, being taught by both parents and their social capital network are cultural orientations and values that favor social exchange. Since it takes a lot of skill and energy to navigate social networks it is important that parents provide adolescents with values that encourage social engagement. These values can consist of showing adolescents the things both they (the adolescents) and the parents gain from the networks the parents are involved in.

The larger network of the parents also shows adolescents that through the network everyone is gaining social and material opportunities that otherwise would not be available to anyone. I argue that through this understanding adolescents develop values that are self-transcending, teaching both empathy and what de Tocqueville called "enlightened self-interest" (De Tocqueville 2004). Thus, adolescents who go through an intergenerationally taught course on social capital may be more likely to participate but also display more empathy towards people outside their networks. Vollebergh, Iedema, and Raaijmakers (2001) have studied the intergenerational transmission of cultural orientation and find that late adolescence is the time in the development of adolescents where they internalize values and cultural orientations offered by their parents. This finding is also corroborated by Inglehart (1977; 1990).

The above theoretical model outlines a possible mechanism for the transmission of social capital from parents to children and adolescents. However, at this point in time it has not been empirically demonstrated that there is such a transmission between generations. Clearly, there is circumstantial evidence that it exists as, for example, the study conducted by Rice and Feldman (1997) suggests. Nevertheless, empirical work clearly connecting parental social capital to adolescent social capital has, to my knowledge, not been undertaken. The following empirical investigation will demonstrate that such a transmission exists. I will investigate the transmission of social capital from parents to adolescents first in the neighborhood. In this environment, it is likely that adolescents profit, at least in part, from the social network of the parents, but also from social connections they have made themselves. The parental network serves, in this environment as both a proving ground for the adolescents' skill and as a place where parents can safely encourage their children to participate in social networks if the latter are shy. Furthermore, as Coleman (1988) has argued, parental networks provide vital reinforcement for parental lessons. Parental lessons seem to stick better once they are reinforced by independent sources within the parental social capital networks. This learning effect may be relevant for social capital skills, values, and incentives, as well as other lessons.

Parental influence and parental social networks are probably mostly removed when I then investigate how parental social capital relates to adolescent social capital in a school setting. In this setting, adolescents have little outside encouragement to participate and instead make social connections of their own accord. However, because

parental surveillance is not an issue in school, adolescents may also be less restricted in whom they choose to interact with in this environment. While, in the neighborhood, parents likely attempt to help their adolescents build associations they see as beneficial, while discouraging those they see as a detriment, there are no parental restrictions on whom to interact with in school. As the 11 year old son of one of my colleagues noted when his mother refused to let him go on a date: "Mom, you're seriously hurting my social life."

Because parental attempts to keep their children safe likely limit the social mobility within the neighborhood, the same is likely not true for the school environment. As a result it is likely that the intergenerational transmission of social capital is stronger for adolescent school social capital than for adolescent social capital in the neighborhood. In the following section I will outline the data I use and the methods I intend to employ. I will then present the results of my analyses complete with a discussion of the findings.

2.6 Data and Methods

The data I am using for this study represent information provided by the sub-sample of respondents who participated in all three waves of the National Longitudinal Study of Adolescent Health (hereafter also referred to as Add Health). This dataset is well known for its high-quality data on adolescents and their families, as well as the school and neighborhood environment they live in. In the initial in-school survey, conducted in 1994-1995, all students attending each of 132 high schools and their "feeder" middle schools (grades 7 through 12) were provided with self-administered

surveys (N=90,118). Of these students a random sample of 19,000 students was selected for an in-home interview. Some populations were deliberately over-sampled in the selection of the in-home interview group and, in most cases, one of the parents was also interviewed. As part of the data collection, Add Health also collected data about the characteristics of the schools the adolescents attended and combined the residential location of the in-home sample with data from the 1990 census and other government agencies. In Wave 2, the in-home sample of students was re-interviewed, with a follow-up response rate of 88% (N=14,738). A third wave was collected in 2001 and 2002. All respondents from the Wave 1 in-home group that could still be located were re-interviewed (Wave I respondents who were outside of the country or were in the military and deployed overseas for the duration of the interviews were omitted from Wave III). The response rate for Wave 3 was 80%. The overall number of cases that participated in all three waves is N=11,621, which is also the case number in this study. Due to missingness in the dependent variables and in the geocoded neighborhood designation the actual number of cases in the following analyses is slightly less.

2.6.1 A Note About Neighborhoods

The sociological literature is full of debates about what a neighborhood really is and how researchers should best operationalize them. The best operationalization would, of course, be based on the assessment of residents. However, this is impractical because residents do not necessarily agree on the boundaries of their own neighborhood and because it is difficult to obtain data for the areas if they differ from government-

designated units of space. Consequently, many researchers rely on government-established boundaries, like for example census tracts. Since I am also limited to the data that is available from Add Health I define neighborhoods as census tracts in this study.

2.6.2 Dependent Variables

Because social capital is an abstract concept there exist as many operationalizations as there are researchers studying it. While some researchers measure social capital through participation (Alesina and La Ferrara 2000), or interpersonal trust (Alesina and La Ferrara 2000; Alesina and La Ferrara 2002; Costa and Kahn 2003b), others devise more complicated, but likely more accurate, operationalizations of social capital where this abstract concept is assessed on several different dimensions (McCulloch 2003; Paxton 1999; Paxton 2002b). I agree with the latter approach because I feel that operationalizing social capital requires a far wider variety of variables than a single proxy variable can supply. In this study I use confirmatory factor analysis in order to create a latent variable that operationalizes social capital. The specific models and factor loadings for these factors are displayed in the sections below.

Adolescent Neighborhood Social Capital

The variables that make up the Adolescent Neighborhood Social Capital factor stem from Wave 2 of Add Health. This factor consists of items asking the adolescent respondents whether they "know most of the people in their neighborhood", whether "in the past month they stopped on the street to talk to someone who lives in their

neighborhood" and whether they "are happy about living in their neighborhood."

The first item of this factor analysis gauges the familiarity of the adolescents with their fellow residents and the second assesses to what degree the adolescent respondents interact with fellow residents. The third item measures the overall integration of the adolescents' in their neighborhood. Adolescents who are better integrated in the neighborhood likely feel happier about living in it. The first two variables are measured on a dichotomous scale. The last variable represents a 5-point Likert-scale ranging from 1=not at all to 5=very much. The model is globally identified based on (Bollen 1989) three indicator rule but, since the confirmatory factor analysis for Adolescent Neighborhood Social Capital is just identified, it is impossible to calculate a goodness of fit statistic. Regression weights, standard errors, and R^2 for the resulting Adolescent Neighborhood Social Capital factor are portrayed in Table 2.1 and the model is shown in Figure 2.1. While the confirmatory factor analysis for adolescent neighborhood social capital contains items with low R^2 I consider these items instrumental for the operationalization of adolescent social capital. Whether the adolescent knows people in his or her neighborhood and has talked to them in the last month are measures of networking. Moving beyond networking to enter the realm of social capital requires that adolescents show positive emotions towards their neighborhood as well. Thus, whether the adolescent respondent is happy in the neighborhood is a vital item to include in my adolescent neighborhood social capital measure.

Adolescent School Social Capital

The variables making up the Adolescent School Social Capital factor stem from both Waves 1 and 2. In Wave 1 of Add Health researchers collected data on the extracurricular activities respondents participated in. I created two variables, measuring participation in athletically based and academically based activities by summing participation in specific activities. I then recoded the variables so that 0=does not participate, 1= participates in 1 activity, …, 5= participates in 5 or more activities. While there was a great variation in the number of offered extracurricular activities across schools, no schools offered less than 5 athletic and 5 academic extracurricular activities.

The Wave 2 variables I am using to measure Adolescent School Social Capital assess adolescents' feelings towards the community in their school. The two items I use asked respondents to what degree they agreed with the statement that they "feel that they are a part of their school," and that they are "happy to be at their school." Both items ranged from a value of 1 = "strongly disagree" to a value of 5="strongly agree."

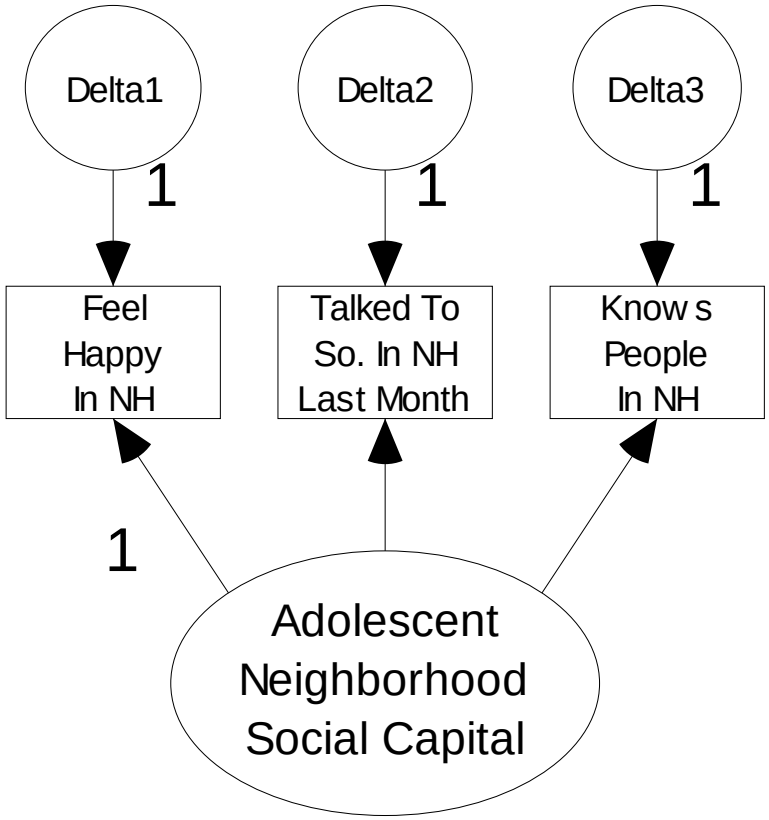

Figure 2.1 Confirmatory Factor Analysis Model for Adolescent Neighborhood Social Capital

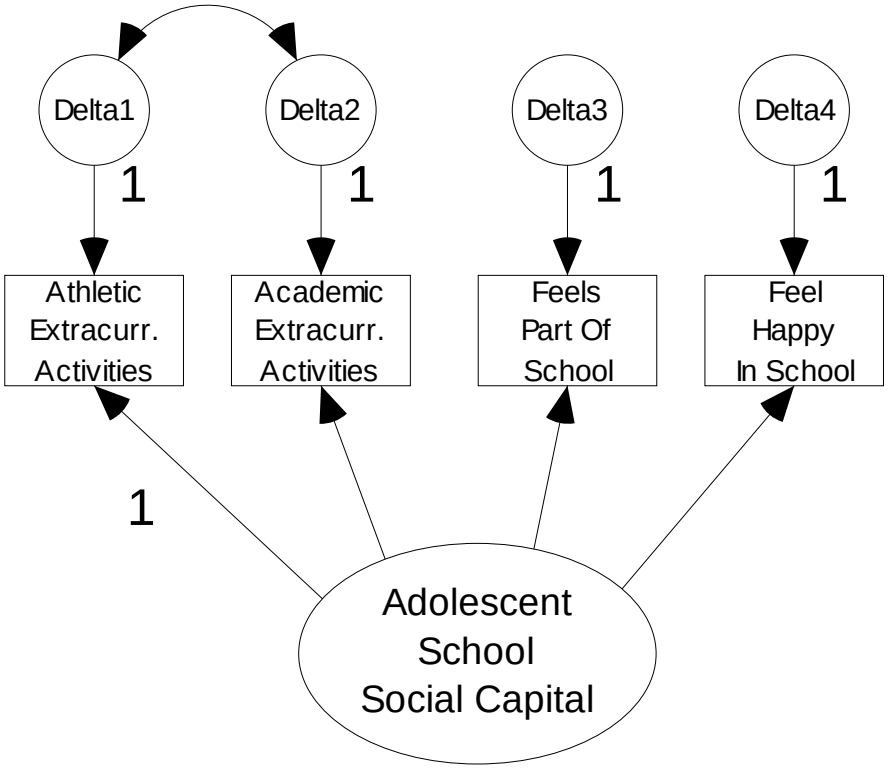

Figure 2.2 Confirmatory Factor Analysis Model for Adolescent School Social Capital

As Figure 2.2 shows I am correlating the error terms for the two extracurricular activities because it is likely that an overall tendency to participate would likely increase participation in both. The factor analysis is locally identified through AMOS. The factor analysis possesses a χ^2 value of 0.696 with df=1 and is not statistically significant at $p<0.05$. This value suggests a very good fit, which is also mirrored by both IFI and CFI at 1.0 and an RMSEA of 0.0.[6] Regression weights, standard errors, and R^2 for the resulting adolescent school social capital factor are portrayed in Table 2.1 and the model is shown in Figure 2.2. Table 2.1 suggests shows a low R^2 for both athletic and academic

[6] Both the IFI and the CFI show the best fit when the coefficient is 1. On the other hand, the RMSEA shows a better fit when the coefficient approaches 0.0.

extracurricular activities. I nevertheless include these variables in my confirmatory factor analysis because participation in extracurricular activities is an important part of school social capital. While feeling as a part of the school and being happy to be at the school are important emotional predictors of social capital, participation in extracurricular activities serves as a measure of networking and participation.

Variable	Range	Regression Weights	Std. Err.	R^2
Adolescent Neighborhood Social Capital				
Knows people in the neighborhood	0-1	1.000		0.485
Talked to someone in the neighborhood within last month	0-1	0.982***	0.056	0.344
Feels happy in the neighborhood	1-5	1.271***	0.084	0.058
Adolescent School Social Capital				
Athletic Extracurricular Activities	0-5	1.000		0.015
Academic Extracurricular Activities	0-5	0.844***	0.086	0.024
Feels as a part of school	1-5	3.990***	0.436	0.840
Feels happy at school	1-5	2.894***	0.223	0.365

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 2.1 Confirmatory Factor Analysis Results for Adolescent Neighborhood Social Capital and Adoelscent School Social Capital.

2.6.3 Independent Variables

Parental Social Capital

I am approaching the measurement of Parental Social Capital with the same method as Adolescent Social Capital. All variables that make up the Parental Social Capital factor were collected in the Wave 1 in-home sample and represent information provided by the responding parent. As the descriptive results in Table 2.3 show, the responding parents were mostly female.

Having children leads parents to change the social circles in which they moved before the first child. Taking children to activities and participating in them make parents likely to develop friendships with other parents. The first two variables I use capture the degree that the responding parent participates in a larger parental network and also the degree of intergenerational closure between adults and adolescents. Parents were asked whether they had met their child's best friend, and with how many parents of their child's friends they had talked in the last 4 weeks. The first item was scored on a dichotomous scale. The second item represents a count with 0=none, 1=one parent, through 6=6 or more parents.

In order to assess parents' participation more generally I am using questions in which they were asked about the frequency with which they attend religious service and the number of groups they participate in. Religious participation was measured on a 4-point Likert scale ranging from 1=never to 4=once a week or more. In order to obtain a measure of parents' general level of participation scale I summed individual dichotomous items in which parents were asked whether they were members of a parent/teacher organization, military veterans organization, labor union, hobby or sports group, or civics

or other social organization. The resulting index has a range from 0 to 5 denoting that they participate in none through 5 of these organizations or groups.

Reciprocity is also an important part of social capital. As theoretical work by both Bourdieu (1986) and Coleman (1988) suggests, reciprocity is one of the incentives people have to extend themselves socially in the first place. I am using the questions "If you saw a neighbor's child getting into trouble, would you tell your neighbor about it?" and "If a neighbor saw you child getting into trouble, would your neighbor tell you about it?" as a means to capture reciprocity in my Parental Social Capital factor. Both of these variables were scored on a 5-point Likert scale ranging from 1= definitely would not, to 5= definitely would.

Figure 2.3 shows the confirmatory factor analysis model for Parental Social Capital. The error terms of the variables assessing the involvement of parents in parental networks are correlated because they all depend on the degree of involvement in such networks. Religious attendance and general participation are correlated because, as Cornwell and Harrison (2004) show there is a negative correlation between religious membership and membership in secular organizations. I consider the two items measuring whether neighbors and parents exchange information about the misbehavior of children correlated because reciprocity, by definition, requires that it should go both ways.

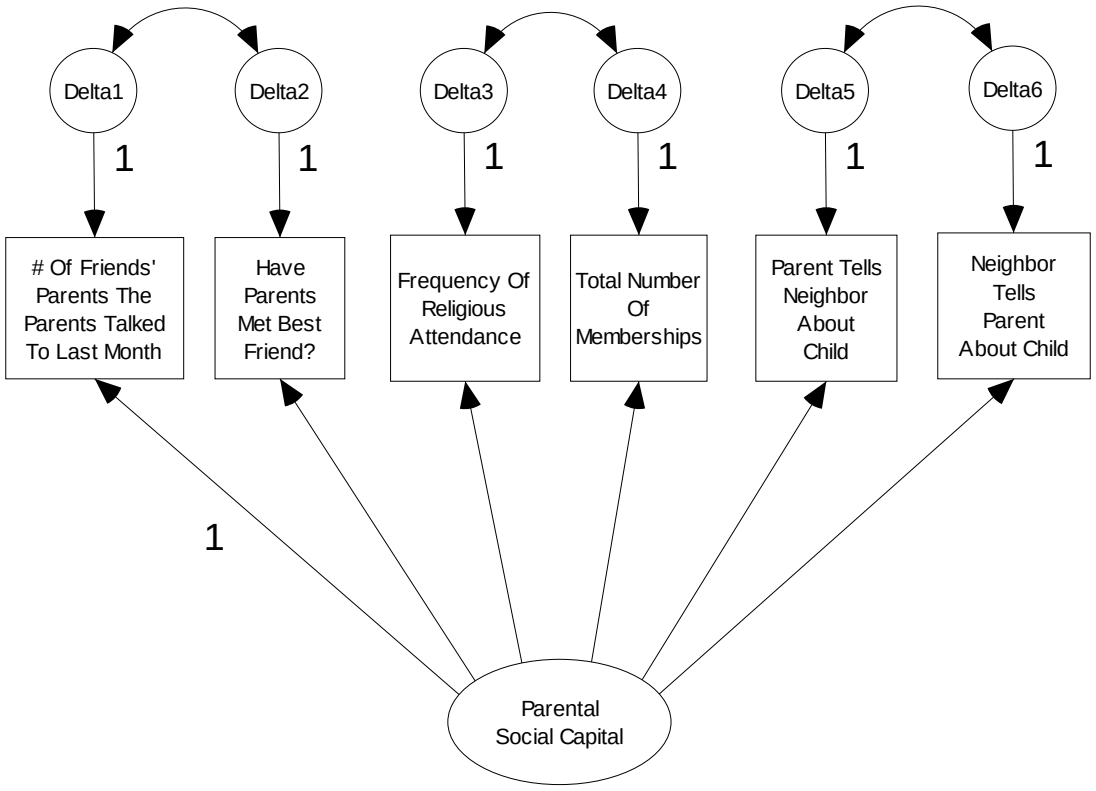

Figure 2.3 Confirmatory Factor Analysis Model for Parental Social Capital

This confirmatory factor analysis is locally identified through AMOS and yields a χ^2 of 82.57 with 16 degrees of freedom. The model is statistically significant at a $p<0.001$ level. However, because the IFI and the CFI are 0.989 and the RMSEA is 0.019 the model seems to have a moderately good fit. Table 2.2 contains the factor loadings for the parental social capital factor. Regression weights, standard errors, and R^2 for the resulting adolescent school social capital factor are portrayed in Table 2.2 and the model is shown in Figure 2.3. Four of the six items that make up parental social capital have low R^2 values. I nevertheless include them in this factor because of their theoretical significance for operationalizing parental social capital. Having met the parents of the responding adolescents bet friend is an important measure of intergenerational closure.

This concept, tying adolescent and parental generations to each other with information exchange, was already remarked on by Coleman (1988) and is an important part of parental social capital. As mentioned previously, Cornwell and Harrison (2004) show a negative relationship between religious membership and memberships in secular organizations. This means that neglecting to include a measure of religious participation would exclude individuals who choose to be active in church, rather than in other organizations. I include the frequency of religious attendance in this confirmatory factor, in spite of its low R^2, analysis in order to capture the social capital church provides for these individuals. Furthermore, I am including items measuring whether parents would tell their neighbor if the children of the latter misbehaved and whether the parents thought their parents would tell them if their child misbehaved in the confirmatory factor analysis. These items are important measures of collective efficacy and are vital for gauging the amount of reciprocity, familiarity, and trust parents encounter in their neighborhood.

	Range	Regression Weights	Std. Err.	R^2
Number of parents the respondent's parents Talked to last month	0-6	1.000		0.254
Have parents met respondent's best friend?	0-1	0.042***	0.005	0.027
Frequency of religious attendance	1-4	0.209***	0.040	0.027
Total number of memberships	0-5	0.509***	0.080	0.250
Would parents tell neighbor about child Misbehaving?	1-5	0.132***	0.019	0.018
Do parents think neighbor would tell them about respondent misbehaving?	1-5	0.125***	0.019	0.014

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 2.2 Confirmatory Factor Analysis Results for Parental Neighborhood Social Capital.

Parental, Adolescent, and Family Characteristics

In addition to Parental Social Capital I am also controlling for a number of other variables. I am controlling for a number of characteristics of the responding parent. I am including the gender of the responding parent (male=1) and his or her age in years in my analyses. Since higher levels of education have been shown to be correlated with higher levels of social capital, at least in adults, I am also controlling for the educational level of the responding parent. I am including a set of dichotomous variables for whether the parent has not completed high school, completed high school or has a GED, whether they have some college or other advanced schooling, or whether they have a college degree. Parents who have not completed high school are the reference group.

To account for individual characteristics of the adolescent respondents I include controls for their gender (male=1) and their age in years. I am also controlling for adolescents' race and ethnicity. This set of variables represents dichotomous variables that designate adolescents as white, black, Asian, Hispanic or other race (white is the reference category). Out of the total N of 11,621 respondents, 65 reported being both black and Hispanic, 40 respondents reported both Asian and Hispanic and 936 reported being of another race and Hispanic. Similarly to the White racial category, anyone who reported being Hispanic within the African American, Asian, and other racial category was designated as Hispanic to yield a mutually exclusive set of dichotomous variables for White, Black, Asian, Hispanic and Other.

Finally, I am controlling for some characteristics of the adolescents' family. I am including a set of dichotomous variables identifying families as either having two biological parents, two parents with one not being biological, a female single parent, a male single parent, or being of another type (families with two biological parents are the reference category). I am also controlling for the family income in thousands of dollars.

Neighborhood Level Variables

As my review of the literature suggests, social capital is not only affected by individual characteristics but also by characteristics of the neighborhoods that respondents reside in. This may be even more important for adolescents than for adults since they are less mobile and find it more difficult to escape detrimental neighborhood characteristics of the communities they reside in. In order to control for neighborhood-level factors that may affect adolescent social capital I am including the variables that

follow. The variables were collected with the 1990 census and, although Wave 2 was collected in 1996, these data are the most recent that were available to Add Health.

I control for the size of the population (in 1000's) of the census tract in which the adolescent respondent resides in. Since it is easier to get to know the neighborhood if it is smaller I assume that a larger population size will have a slightly deleterious effect on the development of social capital. Also, Aizlewood and Pendakur (2005) show that larger communities have a detrimental effect on interpersonal trust.

Coleman (1988) has argued that poor residents take a greater risk than their affluent counterparts when they trust others to reciprocate their aid. Consequently it is likely that a higher level of poverty in a neighborhood should be related negatively to the willingness of residents to engage in social exchange. In order to control for the economic viability of the neighborhood I am controlling for the share of the population that was living beneath the poverty line in 1989.

As a number of studies have suggested, neighborhoods with high levels of residential mobility have lower levels of social capital. This, in turn, could affect the opportunities both parents and adolescents have to establish social rapport. In order to control for the neighborhood-level of social capital I include a variable that represents the proportion of the census tract population, aged 5 and above that did not reside in the same house in 1990 as they did in 1985. A high value on this variable suggests a large turnover in the population or a boom in the size of the population, both of which should disrupt social capital networks (Freudenburg 1986; Sampson 1988; Sampson and Groves 1989).

Finally, I control for the racial and ethnic heterogeneity within the neighborhood. Studies on social participation and trust formation have suggested that increased racial heterogeneity leads to a breakdown in social capital networks because it fractures bridging networks in favor of bonding networks (Alesina and La Ferrara 2000; Alesina and La Ferrara 2002). In order to operationalize racial heterogeneity I use an index original devised by Blau (1977) and frequently used by other researchers (Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg 2003; Alesina and La Ferrara 2000; Alesina and La Ferrara 2002; Costa and Kahn 2003a; Costa and Kahn 2003b; Sampson and Groves 1989) This diversity index is calculated based on Equation 2.1 and uses the proportions of Whites, African Americans, Asians, and other races. The formula used is:

$$D_i = 1 - \sum_k p_{ki}^2$$

Equation 2.1 Diversity Index

where D_i represents the heterogeneity index for a specific census tract i, k represents the racial categories captured in the index and p_{ki} represents the proportions of the racial groups in the census tract i (Sampson and Groves 1989). Because the population that is Hispanic is not mutually exclusive from racial minorities I am controlling for ethnicity by including a variable representing the proportion of the tract population that considers itself Hispanic.

2.6.4 Analysis

Multiple Imputation

Because the number of missing cases in this analysis exceeds the limit under which imputation is not necessary I use Multiple Imputation With Deletion (MID) for this study (Allison 2002; von Hippel 2007). In MID each missing datum is calculated using regression analyses based on other variables within the model to be analyzed, including the dependent variable. However, each datum receives a number of potential values so as to make sure that the measurement in the final analysis can be adjusted for the uncertainty in the estimates. In MID the inclusion of the dependent variable is only useful because it helps maintain the relationship between the imputed independent data and the dependent variable. Imputation of the dependent variable is not useful for the analysis itself because it only introduces statistical noise that will hinder the analysis (Little 1992). MID remedies this problem by deleting imputed values in the dependent variables prior to the analysis. In order to obtain the multiple imputation dataset in STATA, I use the ICE command. I imputed the dataset for 5 cycles and then removed imputed values from the dependent variables. The individual-level analysis was performed using the MICOMBINE function in STATA, which fortunately now also allows survey correction under this command. The multi-level analysis was conducted using the multiple imputation feature of AMOS 16 and used the same imputation files as the individual-level analysis.

OLS Regression

Since both Adolescent Neighborhood Social Capital and Adolescent School Social Capital are continuous variables I am using Ordinary Least Square Regression for this analysis. My strategy is to introduce variables to the equation by topic. Model 1 will include parental characteristics and will investigate how they influence adolescents' social capital. In Model 2 characteristics of the adolescent respondents are added to the equation. Model 3, containing the variables in Model 2 as well as family-related variables, is the fully controlled model. Finally, in Model 4, I am adding to the controlled model the Parental Social Capital variable.

Because Add Health is a dataset that is stratified by schools, the usual statistical assumption that errors are uncorrelated is not valid. In order to adjust results for the clustering of adolescents in schools I am using the SURVEY command in STATA.

Hierarchical Modeling

Prior research has demonstrated that neighborhood-level effects are important for understanding individuals' social capital. Since social capital is, by definition, between individuals, its formation requires the willingness of the respondent to reach out to others, as well as a willingness of their neighbors to reciprocate the offer of sociability. This leads to the necessity of a nested model for the analyses I am undertaking. Individual actors who are attempting to accumulate social capital are immersed in neighborhoods with varying environments that may or may not foster the development of social capital.

While ordinary least squares regression is valuable for many studies this approach is not adequate when considering data where individuals are nested within larger

structures, such as communities. Standard regression assumptions of independence between the cases, as well as between error terms, are not valid for this analysis. As De Leeuw notes, "If we know that students are in the same class, then we also know that they have the same value on each of the class variables" (De Leeuw 2002). Converted to this research this means that if we know that students are in the same neighborhood, then we also know that they have the same value on each of the neighborhood variables. Thus, an adequate analysis of nested data must be able to acknowledge the structuring of cases and with it the structuring of error terms. Hierarchical modeling allows us to do just that.

2.7 Results and Discussion

2.7.1 Descriptive Results

As the descriptive statistics in Table 2.3 show, this adolescent sample is 47% male and the mean age of the adolescent respondents is 16 years of age. Sixty-one percent of the sample is white, followed by 22% African Americans. Only 16% of the respondents consider themselves Hispanic.[7] The vast majority of the responding parents are female. Only 6% of the responding parents were male. The vast majority of the responding adolescents live in nuclear families with two biological parents. However, 20.5% of adolescents live with single mothers and slightly fewer, 17.2%, live in families with one

[7] Supplementary analyses examined whether and how our sample of respondents restricted to those respondents who participated in all three waves of in-home surveys differ from a sample of Wave 1 respondents. Findings of the attrition analyses indicate that background demographic and behavioral characteristics (e.g., delinquency, violence, substance use) of our sample are not significantly different from a sample of respondents interviewed at Wave 1. However, our restricted sample does contain slightly more Non-White youth (49% compared to 47%).

non-biological parent. Compared to the relatively large number of single mother families in the sample, only 3% of the sample represent families with single fathers as head of households.

2.7.2 Multivariate Analyses

The purpose of this study is to investigate the transmission of social capital from parents to their children. I set three goals for this paper. The first is to theoretically link parental social capital to adolescent social capital. I did this in my conceptual arguments earlier in this paper. My second goal is to show empirically that adolescent social capital is not only dependent on individual characteristics but also on parents' ability to transmit to their children. My third goal is to investigate whether adolescents' characteristics, the characteristics of their parents, and that of their family have the same effects on them as researchers find when we study adult social capital.

	N	Mean	Std. Dev.	Min	Max
Social Capital					
Parental Social Capital	9774	1.465	0.605	0.186	3.769
Adolescent Neighborhood Social Capital	8416	0.463	0.194	0.024	0.648
Adolescent School Social Capital	8330	0.615	0.149	0.158	0.866
Parent Characteristics					
Parent Male	9881	0.062	0.241	0	1
Parent Age	10125	41.698	6.610	20	89
Parent Has Not Completed HS	11490	0.145	0.352	0	1
Parent HS or equivalent	11490	0.261	0.439	0	1
Parent More Than HS But Not College Degree	11490	0.258	0.438	0	1
Parent Has College Degree	11490	0.217	0.412	0	1
Adolescent Characteristics					
Adolescent Male	11490	0.469	0.499	0	1
Adolescent Age	11490	16.181	1.647	11	23
Adolescent White	11490	0.542	0.487	0	1
Adolescent Black	11490	0.211	0.412	0	1
Adolescent Asian	11490	0.067	0.257	0	1
Adolescent Hispanic	11456	0.161	0.367	0	1
Adolescent Other Race	11490	0.016	0.296	0	1

Table 2.3. Statistics of Chapter 2 Variables Prior to Multiple Imputation. (Continued)

Table 2.3 continued.

	N	Mean	Std. Dev.	Min	Max
Family Environment					
Family Income (in thousand U.S. dollars)	8936	46.609	50.318	0	999
Two Parents, Both Biological	11490	0.544	0.498	0	1
Two Parents, One Not Biological	11490	0.172	0.377	0	1
Single Mother	11490	0.205	0.403	0	1
Single Father	11490	0.028	0.165	0	1
Other Family Type	11490	0.052	0.222	0	1
Neighborhood-Level Effects					
Total Neighborhood Population (in thousands)	3648	5.174	3.132	0.01	71.87
Residential Mobility	3647	0.4619	0.129	0.13	0.97
Proportion of Population under the Poverty Line in 1989	3646	0.162	0.131	0.00	0.84
Racial Heterogeneity	3647	0.266	0.201	0.00	0.74
Proportion of Population that is Hispanic	3647	0.136	0.220	0.00	0.96

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Intergenerational Transmission of Social Capital

For the question of whether parental social capital is transmitted to adolescents the answer is an unequivocally "yes." Model 1 in Table 2.4 and 2.5 shows the effects of parental, adolescent, and family characteristics on adolescent neighborhood social capital and adolescent school social capital respectively. The significance patterns that emerge are mirrored in Model 2, suggesting that, for the most part, parental social capital has an effect that is independent of the other control variables.

In Model 2 of these tables, I then introduce parental social capital in addition to the controls in Model 1. For both adolescent neighborhood social capital and adolescent school social capital, I find that higher levels of parental social capital improve adolescent social capital. The results suggest that for every standard deviation increase in

parental social capital (hereafter referred to as PSC in equations) adolescent neighborhood social capital (hereafter referred to ANSC in equations) increases by 0.1 standard deviations (=b_2*Std. Dev.$_{PSC}$ /Std. Dev.$_{ANSC}$). Similarly, a standard deviation increase in parental social capital increases adolescent school social capital (hereafter referred to as ASSC in equations) by 0.079 standard deviations (=b_2*Std. Dev.$_{PSC}$ /Std. Dev.$_{ASSC}$). For both adolescent social capital in the neighborhood and in school, parental social capital has an unequivocally positive effect; that is, higher parental social capital improves the social capital of their adolescents in both neighborhood and school. The reason for why parental effects are larger for adolescent neighborhood social capital is likely that in this environment the variable captures both ties made between the adolescents and members of the neighborhood but also those between parents and neighbors. In the school environment, parental social capital likely functions mostly through the transmission to the child and not through direct contracts between parents and other students.

In addition to the individual-level analyses in Tables 2.4 and 2.5, the positive effect of parental social capital on adolescent social capital remains, with only minor changes in the size of the coefficients, when neighborhood-level factors are controlled in Table 2.6. The relatively small changes suggest that parental social capital affect adolescent social capital, both in the neighborhood and in school independent of any effects the neighborhood has on adolescent social capital.

The results also suggest that parental social capital influences adolescent neighborhood social capital and adolescent school social capital equally. The results in Tables 2.4 and 2.5 show relatively small differences in the size of the coefficients

between the two types of adolescent social capital. Statistical analysis verifies that the difference is not statistically significant. Thus, it is fair to say that parental social capital has the same effect on both types of adolescent social capital.

Parental, Adolescent, Family, and Neighborhood-level effects on Adolescent Neighborhood Social Capital

In order to assess how parental, adolescent, and family characteristics affect adolescent social capital without controlling for parental social capital I analyze two models. In the first model (Tables 2.4 and 2.5) I investigate the effects of parental, adolescent, and family characteristics on adolescent social capital. In Model 2, I then introduced parental social capital to investigate how controlling for this factor would influence the relationships between the former variables and adolescent social capital.

For adolescent neighborhood social capital the model with the greatest explanatory power is Model 2 (R^2_{adj}=0.0552). Adding parental social capital to this model improves the explanatory power of the models by 0.75 percentage points. The results suggest that parental education is important for adolescent neighborhood social capital. However, as opposed to research on adult social capital the results show that adolescents of more highly educated parents have slightly lower levels of social capital. Adolescents in families where the responding parent reports having completed high school are not significantly different from the reference group; adolescents in households where the parent reported not having finished high school. Adolescents from parents who have education beyond high school but who did not complete college, have a

slightly lower level of neighborhood social capital than those adolescents in the reference category. The former adolescents have, on average, 0.098 standard deviations ($=b_2/\text{Std Dev}_{ANSC}$) lower neighborhood social capital than the adolescents in the reference category. Adolescents in families where the responding parent reported having completed college have lower levels of social capital than adolescents in families where the responding parent reported not having graduated high school. Unexpectedly, these adolescents have neighborhood social capital that is 0.216 standard deviations lower ($=b_2/\text{ Std Dev}_{ANSC}$) than that of adolescents in the reference category. It is possible that the negative effects I find are due to both time constraints and associational memberships of more educated parents. These parents likely belong to groups and organizations that may not be in the neighborhood and, possibly, not appropriate for adolescents to attend (because the topics discussed do not hold adolescents' attention). In contrast, parents with lower levels of education might be more likely to associate within the neighborhood where adolescents are always present.

My analysis also shows that male adolescents have higher levels of social capital in neighborhoods than females. An increase of one year in age increases a male adolescents' neighborhood social capital by 0.136 standard deviations more ($=b_2/\text{ Std Dev}_{ANSC}$) than it does female adolescents neighborhood social capital. This finding is easy to understand when one remembers that parents usually are more protective towards their daughters than their sons. Daughters likely suffer less mobility than sons because parental protectiveness restricts their movements in the neighborhood, thus reducing their ability to make social ties in the community.

Increasing age reduces the level of adolescent neighborhood social capital. For every year an adolescent ages, their neighborhood social capital declines by approximately 0.062 standard deviations (=b_2/ Std Dev_{ANSC}). The cause for this relationship is likely that at the age I am examining, adolescents in this study are becoming increasingly mobile. The descriptive results show that the adolescent respondent's mean age at Wave 2 is 16 years old, the time when many of them obtain their drivers license. Time-use research on adolescents has revealed that this is the time when adolescents become more mobile, taking jobs and spending increasing amounts away from their family (Clifton 2003). Thus, their increased physical mobility helps them move their social capital network outside the neighborhood.

Adolescents' race is also an important predictor of their neighborhood social capital. Interestingly, African American adolescents report higher levels of neighborhood social capital compared to their white counterparts. Also counterintuitive is that Asian adolescents seem to suffer from lower levels of social capital in the neighborhood. While African American adolescents have neighborhood social capital that is 0.161 standard deviations (=b_2/ Std Dev_{ANSC}) higher than that of white adolescents, Asian adolescents have neighborhood social capital that is almost half a standard deviation (=b_2/ Std Dev_{ANSC}) lower than that of white adolescents. It is possible that African American adolescents profit from higher overall neighborhood social capital brought on by segregation-induced racially homogeneous neighborhoods. Except for some special locations where large Asian ethnic enclaves exist, Asian adolescents do not, generally, grow up in racially homogeneous neighborhoods and are, instead, most often in the minority. Considering the fact that Asians are, in most cities, a numerically small

minority, and that previous research has linked racial heterogeneity to lower levels of participation, it is not surprising that Asian adolescents growing up in such neighborhoods have lower levels of social capital (Alesina and La Ferrara 2000). Being Hispanic has no effect on adolescent social capital in the neighborhood.

Family income has a positive and statistically significant effect on adolescent neighborhood social capital. However, the size of the coefficient is very small, adolescent neighborhood social capital only increases 0.0002 standard deviations (0.00004/ Std Dev_{ANSC}) for every $1000 increase in family income. My results suggest that family structure is important for understanding adolescent neighborhood social capital. Compared to adolescents who live in traditional families with two biological parents (reference category), adolescents who live in any other type of family have significantly lower levels of neighborhood social capital. Compared to the reference category, the neighborhood social capital of adolescents in families with two parents in which one is not biological is 0.141 standard deviations (-0.027/ Std Dev_{ANSC}) lower. Similarly, adolescents in families with only one parent have neighborhood social capital that is on average 0.119 standard deviations (-0.023/ Std Dev_{ANSC}) lower of the present parent is female and 0.125 standard deviations (-0.024/ Std Dev_{ANSC}) lower if the parent is male.

	Model 1		Model 2		Std. Model 2 [a]
	b	Std. E.	b	Std. E.	b
Parental Social Capital	---	---	0.032***	0.003	*0.100*
Parent Male	-0.010	0.010	-0.012	0.010	---
Parent Age	0.000	0.000	0.000	0.000	---
Parent HS or equivalent	0.010	0.006	0.007	0.006	---
Parent More Than HS But Not College Degree	-0.011[†]	0.006	-0.019**	0.006	-0.098
Parent Has College Degree	-0.027***	0.006	-0.042***	0.006	-0.216
Adolescent Male	0.027***	0.004	0.026***	0.004	0.136
Adolescent Age	-0.013***	0.002	-0.012***	0.002	-0.062
Adolescent Black (White Is Reference)	0.030***	0.007	0.031***	0.008	0.161
Adolescent Asian (White Is Reference)	-0.090***	0.017	-0.083***	0.016	-0.428
Adolescent Hispanic	-0.032	0.017	-0.027	0.016	---
Adolescent Other Race (White Is Reference)	0.002	0.013	0.004	0.013	---
Family Income	0.000*	0.000	0.000**	0.000	*0.0002*
Two Parents, One Not Biological (Two Bio Parents is reference)	-0.032***	0.006	-0.027***	0.006	-0.141
Single Mother (Two Bio Parents is reference)	-0.027***	0.005	-0.023***	0.005	-0.119
Single Father (Two Bio Parents is reference)	-0.032**	0.012	-0.024*	0.012	-0.125
Other Family Type (Two Bio Parents is reference)	-0.025**	0.008	-0.024*	0.009	-0.124
Constant	0.686***	0.027	0.632***	0.027	
R^2_{adj}	0.0475		0.0552		
N	8416		8416		

*≤.05 **≤.01 ***≤.001 (two-tailed)

[†]≤.05 (one-tailed)

[a] Italicized values are standardized to one standard deviation change in the independent variable. The other values are standardized to a one unit change in the independent variable.

Table 2.4 Unstandardized Coefficients for the Regression of Adolescent Neighborhood Social Capital On Parental Social Capital

	Model 1		Model 2		Std. Model 2 [a]
	b	Std. E.	b	Std. E.	b
Parental Social Capital	---	---	0.029***	0.004	*0.079*
Parent Male	0.000	0.009	-0.001	0.009	---
Parent Age	0.000	0.000	0.000	0.000	---
Parent HS or equivalent	0.008	0.005	0.006	0.005	---
Parent More Than HS But Not College Degree	0.006	0.005	0.000	0.005	---
Parent Has College Degree	0.015*	0.006	0.002	0.006	---
Adolescent Male	0.004	0.004	0.004	0.004	---
Adolescent Age	-0.009***	0.001	-0.008***	0.001	*-0.053*
Adolescent Black (White Is Reference)	-0.001	0.007	0.000	0.007	---
Adolescent Asian (White Is Reference)	-0.008	0.007	-0.001	0.007	---
Adolescent Hispanic	-0.002	0.007	0.003	0.007	---
Adolescent Other Race (White Is Reference)	-0.020**	0.007	-0.017*	0.007	-0.078
Family Income	0.000	0.000	0.000	0.000	---
Two Parents, One Not Biological (Two Bio Parents is reference)	-0.018***	0.006	-0.015**	0.005	-0.067
Single Mother (Two Bio Parents is reference)	-0.021***	0.005	-0.018***	0.005	-0.080
Single Father (Two Bio Parents is reference)	-0.011	0.012	-0.004	0.012	---
Other Family Type (Two Bio Parents is reference)	-0.014	0.008	-0.012	0.009	---
Constant	0.744***	0.022	0.695***	0.023	
R^2_{adj}	0.0167		0.0277		
N	8330		8330		

*≤.05 **≤.01 ***≤.001 (two-tailed)

[a] Italicized values are standardized to one standard deviation change in the independent variable. The other values are standardized to a one unit change in the independent variable.

Table 2.5 Unstandardized Coefficients for the Regression of Adolescent School Social Capital On Parental Social Capital

Individual characteristics, as well as characteristics of the families adolescents are raised in are important factors in understanding their social capital. However, both individuals and families reside in larger communities whose characteristics influence both the freedoms parents allow their adolescents to have and the opportunities the latter have to connect socially with other residents. In order to account for differences in the characteristics of the neighborhoods adolescents reside in I am replicating the analyses in Table 2.4 and Table 2.5 using a hierarchical modeling strategy.

The neighborhood-level analysis shows that the patterns observed in the individual-level analyses are, with few exceptions, extremely similar. Upon controlling for neighborhood level characteristics the negative effect of living with a parent who has more than high school education, but who did not graduate from college, disappears. Upon further examination I found that controlling for the percentage of the census tract population that was below the poverty level in 1989 is responsible for this change. Furthermore, the effect of being African American on adolescent neighborhood social capital is reduced by approximately half as soon as residential mobility, racial heterogeneity, and population poverty in 1989 are controlled.

As expected, the multi-level analysis also shows that adolescent neighborhood social capital is influenced by characteristics of the neighborhood adolescents reside in. Both the proportion of Hispanic residents and residential mobility reduce adolescents' neighborhood social capital. For every one standard deviation increase in the proportion of Hispanics within the census tract, adolescent neighborhood social capital in this census tract drops by 0.003 standard deviations (-0.073*Std. $Dev._{Prop.\ Hisp.}$ / Std Dev_{ANSC}).

Similarly, if we compare two adolescents living in census tracts that differ in residential mobility by one standard deviation, the adolescent in the higher mobility census tract will, on average, have 0.122 standard deviations (-0.184*Std. $Dev._{Res.\ Mob.}$ / Std Dev_{ANSC}) lower neighborhood social capital. The effects of both variables on adolescent neighborhood social capital are in line with previous research.

	Adolescent Neighborhood Social Capital		Adolescent School Social Capital	
	b	*Std. Err.*	*b*	*Std. Err.*
Individual-Level Variables				
Parental Social Capital	0.026***	0.004	0.028***	0.003
Parent Male	-0.005	0.008	-0.000	0.000
Parent Age	-0.000	0.000	0.002	0.007
Parent HS or equivalent	0.008	0.005	0.007	0.006
Parent More Than HS But Not College Degree	-0.010	0.006	0.003	0.005
Parent Has College Degree	-0.029***	0.006	0.005	0.006
Adolescent Male	0.026***	0.004	0.004	0.003
Adolescent Age	-0.011***	0.001	-0.008***	0.001
Adolescent Black (White Is Reference)	0.014*	0.006	0.002	0.005
Adolescent Asian (White Is Reference)	-0.077***	0.010	0.007	0.007
Adolescent Hispanic (White is Reference)	-0.001	0.007	-0.003	0.006
Adolescent Other Race (White Is Reference)	-0.002	0.017	-0.023	0.016
Family Income (in $1000)	-0.000	0.000	-0.000	0.000
Two Parents, One Not Biological (Two Bio Parents is reference)	-0.023***	0.005	-0.013**	0.005
Single Mother (Two Bio Parents is reference)	-0.020***	0.005	-0.018***	0.005
Single Father (Two Bio Parents is reference)	-0.024	0.012	-0.004	0.012
Other Family Type (Two Bio Parents is reference)	-0.021	0.014	0.010	0.015

Table 2.6 Unstandardized Hierarchical Modeling Results for Adolescent Neighborhood and School Social Capital (Continued)

Table 2.6 Continued

	Adolescent Neighborhood Social Capital		Adolescent School Social Capital	
	b	*Std. Err.*	*b*	*Std. Err.*
Neighborhood-Level Variables				
Total Neighborhood Population	-0.000	0.000	-0.001	0.001
Proportion of Population that is Hispanic	-0.073***	0.015	0.020	0.013
Proportion of Population under the Poverty Line in 1989	0.081***	0.021	0.039*	0.017
Residential Mobility	-0.184***	0.020	-0.047**	0.016
Census Tract Racial Heterogeneity	0.038**	0.013	-0.026**	0.010
$N_{level\ 1}$	8416		8330	
$N_{level\ 2}$	3091		3091	

*≤.05 **≤.01 ***≤.001 (two-tailed)

A more unusual effect is that the proportion of residents who lived under the poverty line in 1989 is related positively to adolescent neighborhood social capital. Adolescents who live in a census tract that is one standard deviation above the mean on this variable has, on average, a 0.054 standard deviations (0.081*Std. $Dev._{Pov.}$ / Std Dev_{ANSC}) higher level of neighborhood social capital than an adolescent who lives in a community that is at the poverty mean in the sample. A possible explanation for this effect may be a non-linear effect of poverty on social capital. While it is true, as Coleman (1988) notes, that in poorer neighborhoods trusting others is riskier, and that this lowers social capital, it may also be true that there is a certain level of poverty under which one cannot survive any longer without a network of friends to ease particularly dire times. Thus, it is possible that, in this instance, poverty improves social capital, rather than to reduce it.

Also counterintuitive is the finding that racial heterogeneity has a positive effect on adolescent neighborhood social capital. A one standard deviation increase in racial heterogeneity is predicted to improve an adolescents' neighborhood social capital in this census tract by 0.04 standard deviations (0.038*Std. Dev.het. / Std Dev_{ANSC}). It is possible that the small but statistically significant positive relationship between neighborhood racial heterogeneity and adolescent neighborhood social capital suggests that adolescents are less prone to homophily than adults. Just like children in kindergarten play with friends of any race or ethnicity, adolescents may not find race or ethnicity reason enough not to be friends with them in the neighborhood.

Parental, Adolescent, Family, and Neighborhood-level effects on Adolescent School Social Capital

In the analysis of adolescent school social capital, Model 2 is, with an R^2_{adj} of 0.0277, more parsimonious than Model 1. Adding parental social capital to the variables in Model 1 affects the significance patterns very little. As opposed to the models for adolescent neighborhood social capital, adolescents in families with a parent who graduated from college have slightly higher school social capital in Model 1. However, inclusion of parental social capital removes this effect as soon as parental social capital is controlled. The fact that parental education is not a statistically significant predictor of adolescent school social capital speaks to schools' ability to equalize the playing field in terms of social capital creation. Without parental prodding and ties influencing adolescents social capital accumulation they are free to develop social ties of their own choosing.

Also interesting is the fact that there is no gender effect on adolescent school social capital. Whereas male adolescents had higher levels of adolescent neighborhood social capital, the same is not true at school. In school the protective nature of parents falls away and allows adolescent females to be as social and as successful in the development of their social capital as adolescent males.

An effect that remains even in schools is the deleterious effect of age on adolescent school social capital. Similar to the results for adolescent neighborhood social capital, increasing age decreases adolescent school social capital by, on average, 0.053 standard deviations (-0.008/ Std Dev_{ASSC}) for each year the adolescent's age increases. Nevertheless, while increasing age has a statistically significant effect on adolescent social capital for both the neighborhood and the school, it does have a smaller effect in school. The reason for the negative relationship between age and adolescent social capital is, as previously noted, likely that older adolescents begin to be more mobile (Clifton 2003). In the school environment this means that these students might choose to trade participation in intramural activities with part-time employment or other activities.

The only other predictor of adolescent school social capital is family structure. Similarly to the findings for adolescent neighborhood social capital, adolescents who grow up in families in which one parent is not biological have, on average, 0.1 standard deviation lower school social capital than the reference group (adolescents in families with two biological parents). The same is true for adolescents who grow up in families with a single female parent. These adolescents have, on average, 0.12 standard deviations lower school social capital compared to the reference group. Interestingly

enough, the same patterns is not repeated for adolescents in families in which the single parent is a father. However, because the number of families with a single father as head of household is very low, approximately 3%, this result is not particularly telling.

The consistent finding that adolescents who grow up in families with one non-biological parent and adolescent who grow up in a single-parent household is likely due to either low social capital by the parent or inefficient intergenerational transmission of social capital. In families with a non-biological parent the situation likely was one where the biological parent was a single parent for some time before the non-biological parent filled up the position of the second parent. Thus, during this time the social capital of the biological parent, and their ability to transmit it, is reduced, which might, during the important developmental phase of the adolescent have a noticeable effect.

The analyses in Table 2.6 also show that neighborhood-level variables have an effect on adolescent school social capital. Again, the level of poverty in the neighborhood in 1989 is a significant positive predictor of adolescent school social capital. Every one standard deviation increase in the proportion of residents who were under the poverty line in 1989 increased the mean adolescent school social capital of adolescents in this community by 0.034 standard deviations (0.039*Std. $Dev._{Pov}$/Std. $Dev._{ASSC}$). This is a far smaller effect than the one community poverty has a adolescent neighborhood social capital and, if concentrated poverty does indeed improve community solidarity, it is possible that this solidarity shows up in school where adolescents from very poor neighborhood might be ostracized.

Residential mobility in the neighborhood also has a negative effect on adolescent

school social capital but it is, again, far weaker than it was in the analysis on adolescent neighborhood social capital. Nevertheless, high levels of residential mobility in a neighborhood may also affect student mobility in the local school system. A rapidly changing student population should, for the purpose of making social ties, have the same effect in the school as it does for both parents and adolescents in the neighborhood.

Finally, census tract heterogeneity has a negative relationship with adolescent school social capital. Increasing census tract racial heterogeneity reduces adolescent social capital in school. For every standard deviation increase in census tract racial heterogeneity, adolescent school social capital of students who reside in the tract is reduced by 0.035 standard deviations (-0.026*Std. $Dev._{het}$/$Std.Dev._{ASSC}$).

2.8 Conclusion

It is the declared purpose of this manuscript to investigate the formation of social capital through adolescence and to investigate this process empirically. While a large number of papers have been written on the effects of both neighborhood and individual characteristics on adult social capital, little is known about how social capital develops in adolescents.

My research suggests that intergenerational transmission is an important part of developing social capital for adolescents. The association between parental and adolescent social capital remains a robust effect in spite of a number of controls for parental, adolescent, and family characteristics. Furthermore, relationships between individual characteristics and social capital that have previously been shown for adults

differ somewhat from those of adolescents; presumable because of the different structural spheres adolescents and adults grow up in.

For parental education, I find that adolescents with parents with higher levels of education have lower levels of adolescent neighborhood social capital. Compared to the finding that more educated adults have higher levels of social capital, it appears that, although more educated adults have higher levels of social capital, their children have lower levels of it, at least in the neighborhood. In a school environment, on the other hand, parental education appears to be irrelevant. A plausible explanation for this pattern may be sought in characteristics of the parental network, rather than in their inability to convey social capital accumulating behavior. Adolescents of educated parents have few problems joining and moving in social networks in school, as parental education is irrelevant for the development of their social capital when parental social capital is controlled. There are several potential reasons that can explain why adolescents from more highly educated parents show lower levels of neighborhood social capital. First, while more highly educated parents participate more and have higher levels of social capital their network may be more widely distributed than that of lower education parents. Crutchfield (1989) has argued that workers in low skill service sector job (i.e. those workers who are likely less educated) frequently live in the same neighborhoods. Second, because more highly educated parents may find it easier to afford a babysitter when they attend organizational meetings, parties, and other events, even if these occur in the neighborhood and involve neighborhood acquaintances of their parents. This results in the exclusion of the adolescents from their parents' social capital networks and allows

them access friends of the latter only tangentially. Third, more highly educated parents' activities within organizations might be too sophisticated to allow for children to accompany them. Parents might, for example, belong to an astronomy club, which would not easily allow for children, or even adolescents, to accompany them.[8] These three potential reasons for the lower neighborhood social capital of adolescents from more educated families could arguably act concurrently while schools act as an equalizer.

In sum, it is possible that the reason for the negative coefficient in the adolescent neighborhood social capital equation is due to parental networks being more likely outside the neighborhood or of a type that does not lend itself easily to the inclusion of children.

Also somewhat contradictory to previous research is the finding that adolescent girls have lower levels of social capital than adolescent boys. As research on adults shows, women usually have higher levels of social capital than men. The reason for this discordance may be that parents are more protective of girls than they are of boys, which would restrict the former from participating in the neighborhood fully. This possibility is, again, supported by the finding that gender is only a significant predictor in the neighborhood social capital model, but not in school. Parents are likely restricting the movement of girls in the neighborhood but do not have the ability to do so in school, where the girls can take full advantage of their social capital accumulating skills.

[8] Note, I am not arguing that more educated parents are more sophisticated in their hobbies than parents with fewer years of education. However, the former are more likely able to afford the expensive equipment that many sophisticated hobbies require. Thus, the income high levels of education provide can potentially establish an educational stratification within group memberships, as Li, Savage, and Pickles (2003) suggest.

Another unexpected finding is the negative effect of age on adolescent social capital in the neighborhood compared to no effect on school social capital. Our general understanding of the age-social capital curve would suggest that adolescent social capital increases with advancing age. Again it is likely that the cause for the negative relationship between age and adolescent neighborhood social capital is due to an unobserved factor in adolescent's neighborhood life. In this case, it is likely that the negative coefficient captures adolescents' greater mobility with advancing age. School represents a stable environment in this time of increased mobility, which is why the age-social capital coefficient for the school environment is not statistically significant.

Race, finally, also shows unexpected patterns for Black and Asian adolescents. In their neighborhoods, and compared to Whites, African American adolescents profit from higher levels of social capital. Asians, on the other hand have, compared to white adolescents, have significantly lower levels of social capital where they live. Again, schools appear to act as the great equalizer here. Race is neither a significant predictor of adolescent school social capital for African Americans, nor for Asians.

In the present research I propose a model for the development of social capital throughout childhood and adolescence. In this model the role of parents and their social network is a vital part of the socialization process and the efficiency of this process is an important determinant of the level of social capital a given respondent adolescent has in early adulthood. The present study also demonstrates empirically that the intergenerational transmission of social capital from parents to their children is an effect that exists beyond parental, adolescent and family characteristics. However, while

intergenerational transmission is important for school and neighborhood social capital, my research also suggests that context is important for understanding social capital formation. In the neighborhood, adolescent social capital formation occurs within the confines of parental control, the auspices of the parents' network, and under the influence of neighborhood-level factors. In contrast to that, school social capital formation occurs in a more standardized setting, where parental influence is weaker and adolescents can make autonomous decisions regarding their social network. Nevertheless, the fact that adolescent school social capital forms in an environment that, by definition, fosters pro-social values and involves adolescents in structured activities likely leads to form of social capital that is qualitatively different from adolescent neighborhood social capital. In the neighborhood, adolescent social capital develops in an unstructured environment and adolescent culture is far more likely to play a role in this environment. As I will show in Chapter 3, this has important consequences for the relationship of the different forms of social capital on delinquency.

CHAPTER 3

THE INTERGENERATIONAL TRANSMISSION OF SOCIAL CAPITAL AND ITS EFFECTS ON ADOLESCENT VIOLENCE AND PROPERTY OFFENDING.

In Chapter 2 I demonstrated that the intergenerational transmission of social capital is an important source of variation in the social capital of adolescents. Parental social capital remained a strong positive and statistically significant effect on adolescent social capital even after parental, adolescent, family, and neighborhood factors were controlled. I have argued that understanding this transmission is important because social capital likely has a cumulative effect that can help direct adolescents' future by opening doors that would otherwise remain shut, and by guiding their behavior in adolescence and beyond. Concerning the latter, social capital has been successfully linked to reductions in individuals' delinquency and to declining offending throughout communities.

Over the past few decades research has established that neighborhood acquaintances and friendship networks are effective means of controlling neighborhood crime (Bursik 1988; Bursik 1999; Bursik and Grasmick 1993; Bursik and Webb 1982;

Hunter 1985; Sampson 1985; Sampson 1988; Sampson and Groves 1989; Sampson, Morenoff, and Earls 1999; Sampson, Raudenbush, and Earls 1997). Social ties accomplish this on several different levels. Informally, friendship networks allow residents to put pressure on would-be offenders to not offend (Bursik and Grasmick 1993). Would-be offenders are encouraged to conform because they are hesitant to lose the respect and friendship of their fellow residents. On the parochial level, the larger network of residents and integrated local social institutions, are able to socially control residents even if they are not friends or only know each other superficially (Bellair 1997; Bursik and Grasmick 1993; Hunter 1985). On the public level, finally, neighborhoods with high levels of social capital are able to petition government offices for resources that will reduce the crime in their neighborhoods, or to keep undesirable institutions out of their community (Bursik and Grasmick 1993; Logan and Molotch 2007). Such communities are able to forestall the closing of firehouses and police stations or to convince local police to step up patrols in their area, should the need arise.

However, in the current discussion of social capital effects on crime one type of resident has received a rather one-sided treatment: the adolescent. Adolescents are, in the current literature on social disorganization, largely viewed as recipients of social control, while adults use their social networks to control the former. Neighbors help parents to maintain supervision over adolescents and discipline them, should the need arise. In neighborhoods where adult social capital networks are weak or non-existent, unsupervised gangs of teenagers are likely to commit crimes in the neighborhood (Sampson and Groves 1989; Sampson, Morenoff, and Earls 1999).

But what about the social capital that adolescents themselves possess? While they are not yet able to act completely independently from their parents, adolescents nevertheless are not entirely without agency. And just like adults, adolescents form social capital networks that extend far beyond the immediate peer group that criminologists have viewed as a source of delinquency (Warr 1993; Warr and Stafford 1991; Wright and Cullen 2004).

Could adolescents' social capital reduce their offending? As my research in the previous chapter demonstrates, parents' social capital is associated with adolescent social capital, suggesting an intergenerational transmission of social capital. In general, parents with higher levels of social capital produce children with higher levels of social capital. Could it be that, by transmitting social capital to their children, parents can help reduce the offending of their offspring, independently of parental and neighbor surveillance?

Sampson and Groves (1989) point out that much delinquency occurs in the company of peers. Shaw and McKay (1942) emphasize that delinquency appears to occur in the company of other adolescents and much research on peer effects has shown that peer delinquency is an important predictor of the delinquency of a given respondent (Agnew and Petersen 1989; Haynie 2001; Haynie 2003; Osgood and Anderson 2004; Warr 1993; Warr and Stafford 1991; Wright and Cullen 2004). Since peer groups are a part of an adolescent's social capital network, but by no means the only or even the most relevant part of it, larger networks make it likely that adolescents with higher levels of social capital are more peripheral to delinquent peer groups. Haynie (2001) has shown that a more peripheral position in a peer group acts to reduce the peer - delinquency relationship.

In this study, I examine how parental transmission of social capital to their adolescents relates to the offending of the latter. I investigate this question in the neighborhood, where parents' networks potentially have social control over adolescents, and in the school environment, where adolescents generate their own social networks, independently of their parents.

3.1 The Role of Social Capital in The Prevention of Crime

Within criminology, interest in social capital began with Shaw and McKay's (1942) findings that levels of delinquency in Chicago neighborhoods appeared to be independent of the residents who lived in them. By tracking the population turnover of several ethnic groups over time and combining these data with police records of crime, Shaw and McKay upset the contemporary notion that crime and delinquency were innate in the individual, especially for groups that immigrated recently into the U.S. The authors instead showed that while, over decades, several different immigrant groups moved through the neighborhoods, rates of delinquency remained surprisingly constant. This finding suggested that there was something criminogenic about the observed neighborhood, rather than the people who lived in them (Shaw and McKay 1942).

Following the publication of these results, criminologists were hard pressed to find theoretical explanations that placed the cause of crime in neighborhoods but which were external to individuals. Social capital fits the bill and has been the factor criminologists have used to tie neighborhood characteristics to neighborhood-levels of crime. Scholars have argued that the residents' ability to exert social control over both

locals and strangers is tied to the existence of neighborhood friendship and acquaintanceship networks. Residents need to know who is living in the neighborhood and which child belongs to which set of parents (Sampson, Morenoff, and Earls 1999). Correcting other parents' children, or reporting their behavior to their parents, also requires a certain familiarity with the latter because it assumes agreement over norms in the community (Sampson, Morenoff, and Earls 1999, Beyerlein and Hipp 2005). Thus, personal social networks increase the cohesiveness of the neighborhood and serve to establish the ability to extend the reach of parental social control using other residents as their agents (Sampson 1988; Sampson and Groves 1989)

In addition to this informal social control over the neighborhood, social capital networks are also essential for residents' ability to organize on what Bursik and Grasmick (1993), based on work by Hunter (1985), call the parochial and public level. The parochial level "represents the effects of the broader local interpersonal networks and the interlocking of local institutions, such as stores, schools, churches, and voluntary organizations" (Bursik and Grasmick 1993:17). Thus, social institutions in the neighborhood enable residents who have no sentimental connection to each other (i.e. are not friends) to interact and establish rapport.

On the public level, social capital networks established through both the informal and parochial-level can then be used to pursue resources from city or state governments (Bursik and Grasmick 1993). Residents might be able to petition the city for a larger police presence or for more effective enforcement strategies. They are able to keep undesirable institutions, such as bars, halfway houses, and shelters, out of the

neighborhood. Presenting a joint front to government officials also makes it possible for residents to obtain monetary and non-monetary goods from outside sources.

Based on the informal level of social organization Sampson, Raudenbush, and Earls (1997) recently extended social capital theory to describe what they have termed collective efficacy. According to these authors, collective efficacy is the application of social capital network resources to a specific goal that is shared by the entirety of the neighborhood. In their original conception of this collective efficacy, Sampson, Raudenbush, and Earls (1997) investigated the effect of collective efficacy on violence in neighborhoods and found substantially lower levels of violence in those neighborhoods with higher levels of collective efficacy. In a follow-up study, Sampson, Morenoff, and Earls (1999) investigated the effects of collective efficacy, based, in part, on the shared expectation of informal social control and observation of children. They show that higher levels of collective efficacy resulted in a higher level of social control for children, which kept the latter from offending and from being the victim of a crime.

Thus, social capital in a neighborhood has the possibility to affect offending on a number of different levels. What, then, affects the formation of social capital in neighborhoods? The results Shaw and McKay (1942) presented in their work suggest that there was a lack of social capital in many of the neighborhoods they studied, so what led to this lack of social capital? One factor that Shaw and McKay themselves noted is the importance of racial heterogeneity. The authors noted that the relative share of African American families showed a relationship to patterns of delinquency. However, Shaw and McKay also cautioned their readers to not commit the ecological fallacy. They

argued that their results did not necessarily suggest that African Americans' offending explained their patterns.

Follow-up research has suggested that population heterogeneity in race, ethnicity, and religious membership reduces the level of social capital in a neighborhood and, through this deleterious effect, increases the level of offending in neighborhoods (Alesina and La Ferrara 2000; Alesina and La Ferrara 2002; Beyerlein and Hipp 2005; Costa and Kahn 2003a). Research outside of criminology provides further evidence for this association. Since members of racial and ethnic groups tend to prefer association with members of their own group, rather than members of other groups (Blau 1977; McPherson, Lovin-Smith, and Cook 2001), population heterogeneity can lead to what, in the social capital literature is referred to as social bonding networks (Putnam 2000). These networks are usually small, very homogeneous in their makeup, and rarely linked to groups unlike them. From a social capital perspective this type group is countered by the more desirable bridging network. Bridging networks are usually much larger and, because they are linked to other groups, making them more heterogeneous. Thus, it is likely that racial and ethnic heterogeneity has a deleterious effect on the overall social capital of neighborhoods because it breaks down the larger, more desirable, bridging network into smaller networks that do not interact with each other.

While race and ethnicity has been the most prominent source of heterogeneity in criminological research, the argument can be extended to other sources of heterogeneity as well. Beyerlein and Hipp (2005), for example used a division between religious groups to argue that religious heterogeneity led to increased rates of offending. Their

argument was, in part, based on ethnographic work by Wuthnow (1999) who found that evangelical Christian churches required large amounts of volunteering from their members so that members of these churches had no time to extend ties to individuals who were not part of evangelical church groups. However, research on social network suggests that members of non-evangelical churches are also less networked compared to individuals who are members of non-religious organizations (Cornwell and Harrison 2004).

The stability of a neighborhood is, arguably, the most important factor for the formation of social capital. Criminologists have argued that residential mobility disrupts social capital networks and, through this disruption, lowers residents' ability to socially control their community. Freudenburg (1986) studied a boomtown, where a considerable influx in the number of residents disrupted the social network of the formerly small town. He found that residents of this new boomtown had to contend with considerably higher levels of victimizations than his comparison towns.

Similarly, Sampson (1988) found that residential mobility, the tendency of residents to stay relatively briefly in a neighborhood before moving out, led to decreases in overall friendship ties in the affected neighborhoods. In a subsequent paper Sampson and Groves (1989) demonstrated that this residential mobility, together with family dysfunction and racial / ethnic heterogeneity lowered the friendship ties and social organization of the neighborhood. The result was an elevated level of crime, brought on by lax informal social control and the presence of unsupervised groups of teenagers.

Family dysfunction, often operationalized through the share of families with

single parent heads of households, reduce social capital through the same effect as mobility, by reducing the level of friendship ties in the neighborhood. Single parents have to do the work that, in two-parent families, is divided up between two adults (Sampson and Groves 1989). The single parent is, therefore, more likely busy with either work or other obligations and finds it more difficult to socialize and create ties with neighbors. The result is that single parents themselves have lower levels of social capital. For areas with a higher share of such households this means that friendship and acquaintanceship networks that are less dense than those of communities with a smaller share of these families.

The social network of parents in the neighborhood is especially important because criminologists have made the argument that a considerable amount of neighborhood crime is committed by adolescents who reside in the neighborhood (Sampson and Groves 1989). That delinquency represents a proportion of the crime measured in neighborhoods is not surprising. In his study of the Saints and the Roughnecks, Chambliss showed that both groups were responsible for quite some crime, although the Saints were able to take their offending outside of their neighborhood while the Roughnecks did not have this freedom (Chambliss 1999). Similarly, a considerable share of motor vehicle theft is closely tied to the adolescent population of neighborhoods. In the year 1999, individuals between the ages of 12 and 17 committed 3720 motor vehicle thefts, representing 40% of all motor vehicle thefts for that year (Federal Bureau of Investigation 2000).

However, while neither surprising, nor new, the recognition that adolescents represent an important source of crime does transfer the necessary focus of social control

from outsiders to local adolescents. Sampson and Groves (1989) argue that delinquency becomes an important fraction of the overall level of crime when a lack of parental social control, supported through an ineffective or absent neighborhood social capital system, allows adolescent gangs to form.

This suggests that adolescents have social capital in the form of peer networks. Criminologists have paid a lot of attention to peer effects and have demonstrated that peers have great power over the delinquency of adolescents (Agnew and Petersen 1989; Haynie 2001; Haynie 2003; Warr 1993; Warr and Stafford 1991; Wright and Cullen 2004). However, I will demonstrate in the next section, peer groups only represent one piece of an adolescents' social capital network, so that the reliance on peers may not present the entire picture.

3.2 Adolescent Social Capital Networks Versus Peer Networks

While adolescent social capital has not featured very prominently in the study of crime, adolescents' peer networks have received considerable attention. The relationship between peer delinquency and the likelihood of offending is, after the age-crime curve, likely one of the most well established findings of criminology. Shaw and McKay (1942) already noted that approximately 80% of the delinquents whose records they examined committed their criminal acts in the presence of peers. But adolescent peer groups are not the same as their social capital network. The recognition of this fact has come in steps. For a long time the literature treated adolescents as if they belonged to only one peer group that could then be analyzed for its effects on delinquency (Akers, Krohn,

Lanza-Kaduce, and Radosevich 1979; Elliott and Menard 1996). More recently, Haynie (2001) argued that adolescents move within a whole host of different peer groups so that the analysis of a single group does not provide the whole picture. Haynie, therefore, investigated how the position of an adolescent within a peer network affects their offending patterns and showed that the postulated peer-delinquency relationship increased as a respondent's centrality within the peer groups increased. Furthermore, a large number of studies show that the relationship weakens considerably with a reduction in the density of the network (Agnew and Petersen 1989; Haynie 2001; Haynie 2003; Warr 1993; Warr and Stafford 1991; Wright and Cullen 2004). However, even Haynie's (2001) study does not fully capture the reach of an adolescent's social capital networks, nor was it meant to. As Anderson (2000) points out, adolescent social capital is generated in a network of parents and neighbors, as well as peers. But adolescent social capital networks are likely even larger than Anderson suggests. Since adolescents not only move in their neighborhood but also spend a considerable part of their day in school their network likely also includes peers who they do not encounter in their neighborhood: teachers, school administrators, other school staff, and not to forget, police officers who specialize in school safety (Kupchik 2007).

In Chapter 2 I demonstrated that parents provide a vital service to their children by teaching them the necessary knowledge to develop their own social capital network. I have shown that parents' social capital is positively related to adolescents' social capital in both the neighborhood, where parents have influence over their actions, and in school, where adolescents can make their own decisions concerning their networks.

For understanding how adolescent social capital, once established, affects adolescent delinquency, we can draw from findings in the previous literature. Theoretical work within the social disorganization framework would suggest that increased levels of social capital should decrease adolescents' offending because a stronger inclusion in networks increases other individuals' social control over the adolescent. This argument has, as previously noted, usually referred to adults socially controlling adolescents, but the same argument can easily be extended to adolescents' social control over each other. Similarly, the argument also fits other adults who might be linked to adolescents through friendship ties that are outside their parents' networks.

However, recent work inserts a stumbling block into this theoretical model by suggesting that the outcome of social capital is contingent on the context in which it occurs. Pattillo-McCoy (1999), for example, investigated a black middle-class neighborhood in Chicago in which a local gang has strong kinship ties to the residents of the community. In a classical interpretation of social control, the kinship ties in this neighborhood should allow residents to informally control the behavior of gang members because the latter should be apprehensive about losing the affection of their families and friends. That this theoretical model is correct in many instances seems clear.

Criminological research has shown that social capital can have this protective effect and even Coleman (1988) notes that social capital ties based on religion and kinship ensures that diamond marketers interact without deceit and without much paper work. However, in the neighborhood that Mary Pattillo-McCoy describes the same social ties do not have the same protective effect. Rather, the social capital that kinship ties

grant the gang members in this neighborhood protect them from formal social control as residents are hesitant to call police on a friend's son or daughter. Thus, in this case social capital serves as a protective factor for the offenders, rather than for the residents of the neighborhood (Pattillo-McCoy 1999).[9] The finding that social capital is dependent on the context in which it occurs was also demonstrated empirically by Browning, Feinberg, and Dietz (2004).

Thus, the relationship between adolescent social capital and delinquency will differ greatly depending on the context in which it occurs. In the school environment structured activities are common. Furthermore, having a high level of social capital in school requires the adolescents to conform to a system of values that fit into the realm of the school. This includes, but is not limited to a certain level of respect for both students and adults within the school, behavior that does not disrupt the educational mission of the school and voluntary participation in structured extracurricular activities that the school offers.

Because of the environmental context in which adolescent school social capital develops I expect that the school context will reduce adolescent violence and property offending. As Marjoribanks (1997) has noted, in general, adolescents with high levels of social capital have higher educational aspirations than their low social capital counterparts. These higher aspirations likely act as a source of social control because these adolescents do not want to fall into disfavor with school administrators who, to

[9] It is true that the social capital between gang members and residents also benefits the residents in that the gang sells its drugs exclusively outside the neighborhood and keeps the community clear of crime. Furthermore, the gang has acted as security for neighborhood activities in which the residents could not obtain security from local police. Nevertheless, the protective effect for residents is here mainly based on the voluntary restrictions the gang puts on itself, not on social control exerted by the residents.

some degree, have control over the opportunities within the school. These students are also likely more serious about school work and school related activities, giving them less opportunity to offend. In terms of routine activities theory this means that adolescents are both less likely to be victims and offenders, because of their time constraints (Cohen and Felson 1979). At the same time, extracurricular activities and the structured nature of school supplies guardians who also inhibit delinquency.

However, while high levels of school social capital should reduce adolescents offending it does not follow that the same is true in the neighborhood. High levels of social capital in the neighborhood environment are less easily constrained by parental and neighborhood values, especially at a time when adolescents become increasingly mobile and can take their neighborhood social capital to other places to offend. Furthermore, I would argue that, unlike the school environment and independent of the level of surveillance in the neighborhood, adolescents can always find places where they can offend. Neighborhoods can be a large geographical areas and offending can take place in areas that are on the outskirts of parental supervision. Neighborhood social capital develops in a location that may not have a clearly defined value system and a larger geographical locale where adolescents cannot always be observed. This in turn may lead to unstructured activities and raise the probability that higher levels of adolescent neighborhood social capital will increase delinquency for adolescents.

These theoretical predictions lead to a paradoxical situation where the same individuals, adolescents who learned how to develop high levels of social capital from their parents are, at the same time more and less likely to offend. However, this pattern is

not as unheard of as it may at first seem. Chambliss' (1999) ethnographic study of the Saints and the Roughnecks has shown this pattern in the groups he referred to as the Saints.

Chambliss reports that the Saints were good students, overall liked, and thought of highly by school administrators and teachers. While they had ingenious ways of removing themselves from the school in order to enjoy themselves they took great caution to retain their reputation as "good kids." For their offending, this meant that they often traveled outside their own neighborhood, where both police officers and parents were less likely to know them (in contrast to officers and parents in their neighborhood).

Of course, the Saints are likely an extreme example. They were special in that they came from especially good families and all went to the same school. Also, their skill in eluding detection for their offending was highly creative, far more so than I would expect from the average adolescent. Nevertheless, their behavior does fit the above hypothesized relationships, which, I argue, occur to a lesser extent in the lives of many adolescents. In this study, I investigate the relationship between adolescent social capital and delinquency for two different social environments: the neighborhood and the school.

3.3 Data and Methods

The following analyses are based on data on from a large nationally representative sample of adolescents, the National Longitudinal Study of Adolescent Health (hereafter also referred to as Add Health). This dataset is well known for its high-quality data on adolescents, their families, the schools they attend and the neighborhood environments

they live in. In the initial in-school survey, conducted in 1994-1995, all students attending each of 132 high schools and their "feeder" middle schools (grades 7 through 12) were provided with self-administered surveys (N=90,118). Of these students a random sample of 19,000 students was selected for an in-home interview. Some populations were deliberately over-sampled in the selection of the in-home interview group and, in most cases, one of the parents was also interviewed. As part of the data collection Add Health also collected data about the characteristics of the schools the adolescents attended and combined the residential location of the in-home sample with data from the 1990 census and other government agencies. In Wave 2 the in-home sample of students was re-interviewed, with a follow-up response rate of 88% (N=14,738). A third wave was collected in 2001 and 2002, in which all respondents from the Wave 1 in-home group that could still be located were re-interviewed (Wave I respondents who were outside of the country or were in the military and deployed overseas for the duration of the interviews were omitted from Wave III). The response rate for Wave 3 was 80%. The overall number of cases that participated in all three waves is N=11,621. The data I am using for this study represent information provided by the sub-sample of respondents who participated in all three waves of the survey.

3.3.1 Dependent Variables

The two dependent variables for this study represent indices of violent and property offending based on self-reported data in Wave 2 of Add Health. I differentiate between violent and property offending because these crimes follow separate etiologies. Violent crime, as a rule, most often occurs between individuals who know each other and

have some social connection. Property, on the other hand, occurs mostly in the absence of the victims and, frequently, involves victims that are not known to the offenders. This means that the location where delinquency occurs varies for violent and property crime. I expect that violence will occur mostly in the neighborhood where adolescents will fight either with members of their own social capital network or members of another, hostile group. Property crime, I argue, will more likely occur outside of the neighborhood where adolescents are neither known to residents nor to local police.

The violence index consists of items asking adolescents how often, in the 12 months prior to the collection of the data, they used or threatened to use a weapon to get something from someone, took part in a fight where a group of their friends was against another group, pulled a knife or gun on someone, shot or stabbed someone, got into a serious physical fight, used a weapon in a fight, and hurt someone badly enough to need bandages or care from a doctor or nurse. Since not all items were on the same categorical scale I recoded the items so that 0 represents that an adolescent has not engaged in the specific activity in the past 12 months and 1 to designate that they did. I then summed the items to create the violence index ranging from 0 to 7. The Cronbach's α for this index is 0.737.

The adolescent property offending index was created in the same fashion as the violence index. Adolescents were asked how often, in the 12 month period prior to the collection of the data, they had painted graffiti or signs on someone else's property or in a public place, deliberately damaged property that didn't belong to them, driven a car without its owner's permission, stole something worth more than $50, stolen something

worth less than $50, and entered a house or building to steal something. As with the violence index the items were also recoded so that 0 represented that the respondents had not engaged in the act; a value of 1 meant that they did engage in a behavior. The property offending index has a Cronbach's α of 0.673 and ranges from 0 to 6. Descriptive statistics for the dependent variables are displayed in Table 3.1.

3.3.2 Independent Variables

Parental Social Capital

For this study I am using the same measure of Parental Social Capital that I applied in Chapter 2. All variables that make up the parental social capital factor were collected in the Wave 1 in-home interview and represent information provided by the responding parent. The factor analysis the yielded the variable used items that pertained to intergenerational closure (whether parents know their child's best friend and how many of their child's friends' parents they had spoken in the four weeks prior to the collection of the data), parental participation (how many organizations they belonged to and how often they attended religious service) and collective efficacy (would they tell a neighbor if the child of the latter had gotten into trouble and do they think their neighbor would tell them if the shoe were on the other foot). For a more detailed description of this variable, as well as factor regression weights and diagrams see Figure 2.3 and Table 2.2 in Chapter 2.

Adolescent Neighborhood and Adolescent School Social Capital

The variables that make up adolescent neighborhood social capital stem from Wave 2 of Add Health, the variables making up the factor for adolescent school social capital stem from both Waves 1 and 2. Again I am utilizing the same variables I employed in Chapter 2, except that in this last chapter they served as dependent variables. The variables that are part of adolescent neighborhood social capital asked adolescents whether they "know most of the people in their neighborhood", whether "in the past month they stopped on the street to talk to someone who lives in their neighborhood" and whether they "are happy about living in their neighborhood." In order to create the factor for adolescent school social capital I created two variables, measuring participation in athletically based and academically based activities. I also employed two measures that operationalize how adolescents feel about their school. The two items I use asked respondents to what degree they "feel that they are a part of their school," and whether they are "happy to be at their school." A more specific description, including diagrams, factor loadings and model fit, can be found in Figures 2.1 and 2.2, as well as Table 2.1 in Chapter 2.

Parental, Adolescent, and Family Characteristics

In addition to Parental Social Capital I am also controlling for a number of other variables. I am controlling for a number of characteristics of the responding parent. I am including the gender of the responding parent (male=1) and his or her age in years. Since higher levels of education have been shown to be correlated with higher levels of social

capital I am including a set of dichotomous variables for the educational level of the responding parent. These variables indicate whether the parent has not completed high school, completed high school or has a GED, whether they have some college or other advanced schooling, or whether they have a college degree. Parents who have not completed high school are the reference group.

Variables that are controlling for the individual characteristics of the adolescent include their gender (male=1) and their age in years. I am also controlling for adolescents' race and ethnicity. I am including a set of dichotomous variables for race, controlling for white, black, Asian, or other race (white is the reference category). I am also including a variable for adolescents' Hispanic heritage through a dichotomous variable. Finally, I am controlling for some characteristics of the adolescents' family. I am including a set of dichotomous variables identifying families as either having two biological parents, two parents with one not being biological, a female single parent, a male single parent, or being of another type (families with two biological parents are the reference category). I am also controlling for the family income in thousands of dollars.

Previous Adolescent Offending

Previous offending may have deleterious effects on adolescent social capital. Some adolescents and adults might be inclined to avoid contact with known delinquents. I am controlling for previous violent offending through the inclusion of an index that is similar to the dependent variable for violent offending but is measured at Wave 1. Adolescents were asked how often, in the 12 months prior to the collection of the data in

Wave 1, they robbed somebody, participated in a group fight, pulled a weapon on somebody, stabbed or shot somebody, and how often they hurt somebody badly enough to need bandages or the attention of a doctor or nurse. A minor difference between the dependent variable for violent offending at Wave 2 and this variable is that the item asking how often an adolescent used a weapon in a fight was not asked in Wave 1. The individual items were originally scaled so that 0 meant that an adolescent had never participated in an act and 3 that they had participated 5 or more times. In order to create the index I recoded them to a dichotomous variable and summed the items. The range of this variable, as Table 2.3 shows, is 0 to 5.

The previous property offending index is created in a similar way and uses Wave 1 variables. The items used in this index asked adolescents how often, in the 12 months prior to the collection of the data, they painted graffiti on someone else's property or in a public place, stole something worth more than $50, stole something worth less than $50, deliberately damaged someone else's property, committed a burglary, and stole a car. The property items originally had the same range as the violence measures in the previous index and were also recoded to dichotomous variables and then summed to create the index.

Because adolescents' peers are in a prime position to lead respondents to become delinquent, I am controlling for the offending of the respondent's peers. For this variable I am employing a network measure that Add Health researchers calculated using the network data and the in-school survey collected in Wave 1. The in-school survey asked all adolescents who responded how often they got into a physical fight in the last year.

Based on the responses to this question and the adolescents' assessment of which other students were their best friends the Add Health researchers developed a mean value for a number of items, including peer fighting. This mean value serves, in my study as a control for the peer effect.

Neighborhood Level Variables

As my review of the literature suggests, crime and delinquency are not only affected by individual characteristics but also by characteristics of the neighborhoods that respondents reside in. Neighborhood social capital plays, in this case, a mediating role between neighborhood characteristics and delinquency. This may be even more important for adolescents than for adults since they are less mobile and find it more difficult to escape detrimental neighborhood characteristics of the communities they reside in. In order to control for neighborhood-level factors that may affect adolescent delinquency by affecting neighborhood social capital I am including the variables that follow. The variables were collected with the 1990 census and, although Wave 2 was collected in 1996, these data are the most recent that were available to Add Health.

I am controlling for the size of the population (in 1000's) of the census tract in which the adolescent respondent resides in. Since it is easier to get to know the neighborhood if it is smaller I assume that a larger population size will have a slightly deleterious effect on the development of social capital. Also, as Aizlewood and Pendakur (2005) show, larger communities have a detrimental effect on interpersonal trust.

Coleman (1988) has argued that poor residents take a greater risk than their

affluent counterparts when they trust others to reciprocate their aid. Consequently it is likely that a higher level of poverty in a neighborhood should be related negatively to the willingness of residents to engage in social exchange. In order to control for the economic viability of the neighborhood I am controlling for the share of the population that was living beneath the poverty line in 1989.

As a number of studies have suggested, neighborhoods with high levels of residential mobility have lower levels of social capital. This, in turn, could affect the opportunities both parents and adolescents have to establish social rapport. In order to control for the neighborhood-level of social capital I am including a variable that represents the proportion of the census tract population, aged 5 and above, that did not reside in the same house in 1990 as they did in 1985. A high value on this variable suggests a large turnover in the population or a boom in the size of the population, both of which should disrupt social capital networks (Freudenburg 1986; Sampson 1988; Sampson and Groves 1989).

Finally, I am also controlling for the racial and ethnic heterogeneity within the neighborhood. Studies on social participation and trust formation have suggested that increased racial heterogeneity leads to a breakdown in social capital networks because it fractures bridging networks in favor of bonding networks (Alesina and La Ferrara 2000; Alesina and La Ferrara 2002). In order to operationalize racial heterogeneity I use an index original devised by Blau (1977) and more recently applied by other researchers (Alesina et al. 2003; Alesina and La Ferrara 2000; Alesina and La Ferrara 2002; Costa and Kahn 2003a; Costa and Kahn 2003b; Sampson and Groves 1989). The formula used

is the same as I previously outlined in equation 2.1 in Chapter 2.

3.3.3 Analysis

Multiple Imputation

Because the number of missing cases in some of the variables for this analysis exceeds the limit under which imputation is not necessary (Allison 2002) I have decided to use Multiple Imputation With Deletion (MID) for this research. In MID each missing datum is calculated using regression analyses based on other variables within the dataset, including the dependent variable. However, each datum receives a number of potential values so as to make sure that the measurement in the final analysis can be adjusted for the uncertainty in the estimates. Since imputation of the dependent variable is not useful, it creates more statistical noise but does not improve the quality of the results (Little 1992), MID uses the dependent variables complete with missing data, rather than the imputed variable. I imputed the dataset for 5 cycles and then removed imputed values from the dependent variables. The following analysis was then performed using HLM.

Hierarchical Modeling

Prior research has demonstrated that neighborhood-level effects are important for understanding individuals' social capital. Since social capital is, by definition, between individuals, its formation requires the willingness of the respondent to reach out to others, as well as a willingness of their neighbors to reciprocate the offer of sociability. This leads to the necessity of a nested model for the analyses I am undertaking. Individual

actors who are attempting to accumulate social capital are immersed in neighborhoods with varying environments that may or may not foster the development of social capital.

While ordinary least squares regression is valuable for many studies this approach is not adequate when considering data where individuals are nested within larger structures, such as communities. Standard regression assumptions of independence between the cases, as well as between error terms, are not valid for this analysis. As De Leeuw notes: "If we know that students are in the same class, then we also know that they have the same value on each of the class variables" (De Leeuw 2002). Thus, an adequate analysis of nested data must be able to acknowledge the structuring of cases and with it the structuring of error terms. Hierarchical modeling allows us to do just that.

The dependent variables in this study represent counts of the number of different unlawful activities adolescent engaged in within the 12 months prior to the collection of the data in Wave 2. This type of data requires a special analysis technique. Furthermore, because both violent offending and property offending are very heavily skewed (the vast majority of adolescents report not having committed either violent or property crimes in the 12 month period prior to the collection of the data) the analysis technique I use must be able to account for this characteristic of the data. I am using negative binomial regression in HLM in order to analyze the data in a satisfactory manner.

In the following analyses Model 1 will contain parental social capital, as well as adolescent neighborhood and school social capital. By introducing the characteristics of the responding parent and the adolescent respondent in Model 2 I will then be able to judge to what extent parental and adolescent characteristics mediate the relationship

between the different forms of social capital and delinquency. Model 3 additionally adds characteristics of the family to the equation in an attempt to further separate factors in the environment of the adolescent from the effect social capital has on his or her offending. Model 4 finally controls for neighborhood-level variables in addition to the variables in Model 3. As previous research in criminology has shown, neighborhoods have a considerable impact both on the ability to form social capital and on the opportunities to offend.

Models 5 and 6, finally, are intended to provide a realistic measure of the relationships between adolescent social capital and delinquency. Model 6 represents controls as they are common in longitudinal studies. In addition to the variables in Model 4 this model controls for both the mean value of peer fighting, which in this analysis serves as a measure of peer delinquency, and the adolescent respondents self-reported offending at Wave 1. However, as Haynie and Osgood (2006) point out, controlling for preexisting offending at Wave 1 may serve as too strong of a control and remove much of the variation in offending behavior. In essence it removes any immediate effects of social capital on adolescent delinquency and only leaves those that are lagged between Waves 1 and Wave 2. Only those effects of adolescent social capital on delinquency that have a 1-year lag (the time period between Waves 1 and 2) are predicted through this kind of model. In order to more realistically investigate the relationship between adolescent social capital and delinquency I am, in Model 5, also estimating an equation in which peer effects are controlled for while previous offending is not controlled. The actual value of the relationship between adolescent social capital and offending should lie

somewhere between these two extremes (Haynie and Osgood 2006)

3.4 Results and Discussion

3.4.1 Descriptive Statistics

As expected, only a very small minority of respondents offended in Wave 2. The skewed nature of the dependent variables is demonstrated by low means for both violent offending and property offending (0.535 and 0.515 on a range of 0 to 6 respectively). The relatively large standard deviations suggest over dispersion.

Hierachical Modeling Results

Violent Offending

Analysis of the one way ancova with random effects shows that there is indeed a statistically significantly variation in violent delinquency across the neighborhood-level units ($p \leq .000$). In Model 1, parental social capital, adolescent neighborhood social capital, and adolescent school social capital are all statistically significant predictors of adolescent violent offending. However, while both parental social capital and adolescent school capital reduce an adolescent's offending, adolescent neighborhood increases it. When I control for parental and adolescent characteristics in Model 2 the relationship between parental social capital and adolescent violent offending disappears. This is most likely due to the fact that most of the newly added variables are predictors of parental social capital (see Appendix 1 for this analysis). Model 2 also shows a considerable reduction in the size of the coefficient of adolescent neighborhood social capital.

Whereas adolescent neighborhood social capital increased the number of violent offenses by 17% in Model 1 (=(exp(b_1*Std. Dev.$_{ANSC}$), the relationship is, with a size of 11.7% much smaller in Model 2 (=(exp(b_2*Std. Dev.$_{ANSC}$). However, since both adolescent social capital types show significant relationships to violence and Chapter 2 showed that parents transmit social capital and social capital accumulating behaviors to their children the results suggest that parents affect their children's violent delinquency indirectly through the social capital of the latter. Still, the insignificant results for parental social capital are somewhat surprising if I consider that the social capital literature suggests strongly that parental social capital has a direct protective effect on adolescent violence by extending parental surveillance in the community (Sampson, Raudenbush, and Earls 1997).

In Model 3 I am controlling for family structure and the annual family in come in addition to the variables in Model 2. Model 4 additionally adds neighborhood-level factors that may affect violent behavior. Neither of these variables appreciably changes the size of the relationships between adolescent social capital and violence.

A considerable change in the coefficients of adolescent neighborhood social capital and adolescent school social capital does not happen until I am also controlling for the preexisting violence in Wave 1. The change occurs between Model 5, where I am controlling for peer fighting, and Model 6, where I am additionally controlling for the respondents reported violence at Wave 1. As I noted previously, controlling for the latter variable represents the most extreme type of control and may result in too conservative estimates. The real effects of adolescent social capital on violence will probably lie

between the coefficient in Model 5 and the coefficient in Model 6. In Model 5 the results suggest that a one standard deviation increase in adolescent neighborhood social capital increases adolescent violent offending by 11.5% (=(exp(b_5*Std. Dev.$_{ANSC}$)). The same increase in adolescent school social capital decreases violence by 12.9% (=(exp(b_5*Std. Dev.$_{ASSC}$)). Controlling for previous offending in Model 6 reduces these coefficients to an increase in violence of 6.4%/standard deviation for adolescent neighborhood social capital and a reduction of violence of 5.4%/standard deviation for adolescent school social capital. Thus, adolescent neighborhood and school social capital both remain statistically significant predictors of adolescent violence, with a one standard deviation increase in adolescent neighborhood social capital increasing violence between 6.4% and 11.5% and a one standard deviation increase in adolescent school social capital reducing violence between 5.4% and 12.9%.

The diametrically opposed directionality of the coefficients supports my arguments that school social capital and neighborhood social capital develop in two very different environments, the rules of which must be considered when predicting the outcomes of social capital - violence relationships. The protective effect of adolescent school social capital is likely due to the value system that is normative in the school environment and the structured nature of all school related activities. The vulnerability-causing effect of adolescent neighborhood social capital is likely due to the relatively unstructured nature of activities in the neighborhood. Note that, while parental social capital is not significant, most likely because parental and adolescent characteristics predict it, it is nevertheless controlled so that the coefficients for both adolescent

	N	Mean	Std. Dev.	Minimum	Maximum
Dependent Variables					
Violent Offending Wave 2	11418	0.381	0.893	0	7
Property Offending Wave 2	11418	0.514	1.022	0	6
Social Capital					
Parental Social Capital	9774	1.465	0.605	0.186	3.769
Adolescent Neighborhood Social Capital	11469	0.463	0.194	0.024	0.648
Adolescent School Social Capital	8330	0.615	0.149	0.158	0.866
Parent Characteristics					
Parent Male	9881	0.062	0.241	0	1
Parent Age	10125	41.698	6.610	20	89
Parent Has Not Completed HS	11490	0.145	0.352	0	1
Parent HS or equivalent	11490	0.261	0.439	0	1
Parent More Than HS But Not College Degree	11490	0.258	0.438	0	1
Parent Has College Degree	11490	0.217	0.412	0	1
Adolescent Characteristics					
Adolescent Male	11490	0.469	0.499	0	1
Adolescent Age	11490	16.181	1.647	11	23
Adolescent White	11490	0.611	0.487	0	1
Adolescent Black	11490	0.217	0.412	0	1
Adolescent Asian	11490	0.071	0.257	0	1
Adolescent Other Race	11490	0.097	0.296	0	1
Adolescent Hispanic	11456	0.161	0.367	0	1
Violent Offending (Wave 1)	11384	0.486	0.889	0	5
Property Offending (Wave 1)	11384	0.689	1.163	0	6
Peer Fighting (Mean) (Wave 1)	7109	0.714	0.681	0	4

Table 3.1 Descriptive Statistics of Chapter 3 Variables Prior to Multiple Imputation. (Continued)

Table 3.1 Continued

	N	Mean	Std. Dev.	Minimum	Maximum
Family Environment					
Family Income	8936	46.609	50.318	0	999
Two Parents, Both Biological	11490	0.544	0.498	0	1
Two Parents, One Not Biological	11490	0.172	0.377	0	1
Single Mother	11490	0.205	0.403	0	1
Single Father	11490	0.028	0.165	0	1
Other Family Type	11490	0.052	0.222	0	1
Neighborhood-Level Effects					
Total Neighborhood Population (in 1000's)	3648	5.174	3.132	0.008	71.872
Proportion Hispanic	3647	0.136	0.220	0	0.963
Residential Mobility	3646	0.483	0.139	0.098	1
Racial Heterogeneity	3647	0.266	0.205	0	0.744
Proportion of Population Below Poverty Line in 1989	3646	0.162	0.130	0	0.835

neighborhood and adolescent school social capital are net of whatever effects parental social capital has on violence.

One possibility is that many high social capital adolescents engage in a form of code switching, as observed by Anderson (2000). These adolescents use the social capital skills they learned from their parents to make ties in school, where their social capital allows them to excel academically. They then use the same intergenerational transmission of social capital that favors them in school in the neighborhood to develop ties that are less conducive to pro-social behavior.

As expected, adolescents' individual characteristics have a consistent relationship with violence. Again, controlling for previous violence allows us to place the coefficients into a range of possible values. As expected, parental age appears to be

unassociated with adolescent violence. While it is statistically significant in Model 5 it is borderline and is rendered insignificant when previous offending is controlled in model 6.

Consistent with prior research is evidence that males commit between 62% (=exp(b_6)) and 109% (=exp(b_5)) more violence compared to females. As in Chapter 2, age is a protective factor for violent offending. Each year that an adolescent ages it decreases their violence by between 3.5% (=exp(b_5)) and 6.5% (=exp(b_6)). In terms of race, the only two significant effects are for African Americans and Hispanics. Black adolescents commit, all else being the same, between 23.5% (=exp(b_6)) and 31% (=exp(b_5)) more violent crime than Whites. Hispanics also commit more violence than whites (Model 5) but this coefficient is rendered insignificant in Model 6. Adolescent Asians are not significantly different from whites in their violent offending.

As expected, previous violent offending has a strong positive affect on offending at Wave 2. Also in line with the literature on delinquent peers is the strong association between peer violence and respondents' own involvement in violent behavior.

Not unexpectedly, family structure is associated with violence at Wave 2. Both adolescents who live with a single father and those who live with a single mother commit significantly more violent crime compared to adolescents who live in a family with two biological parents. Adolescents who live with their mother commit between 12% (=exp(b6)) and 29% (=exp(b_5)) more violence and adolescents who live with their father commit between 56% (=exp(b_6)) and 63% (=exp(b_5)) more violence compared to the reference category. The large difference in the size of the effects between adolescents in these two types of household is possibly due to fathers being less averse to violence as it

is a more important part of affirming masculinity.

The only neighborhood-level variable that has a significant effect on violence at Wave 2 is racial heterogeneity. My results show that adolescents in neighborhoods that are one standard deviation above the mean in racial heterogeneity engage in between 6% (=exp(b_6*Std. Dev.$_{Het}$)) and 11.4% (=exp(b_6*Std. Dev.$_{Het}$)) more violence as compared to adolescents who live in a neighborhood that is at the mean in racial heterogeneity. This finding is in line with previous literature on the effects of community heterogeneity (Beyerlein and Hipp 2005; Shaw and McKay 1942).

Adolescent Property Offending

Beginning with the analysis of Model 1 in Table 3.3, it appears that neither parental social capital nor adolescent neighborhood social capital has an effect on adolescents' property offending. However, school social capital has a relatively strong protective effect which does not change when parental, adolescent, family, and neighborhood-level factors are controlled (Model 4). This effect is, however, extinguished upon controlling for respondents' property offending at Wave 1 (Model 6). Thus, while parental social capital and adolescent neighborhood social capital seem to have no effect on property offending, adolescent school social capital seems to reduce property offending between 11.3% per standard deviation (exp(b_5*Std. Dev.$_{ASSC}$)) in Model 5 and 0% in Model 6.

Thus, while the relationship between adolescent school social capital and property offending follows the hypothesized direction, adolescent neighborhood social capital

	Model 1		Model 2	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.113 **	(0.040)	-0.041	(0.044)
Adolescent Neighborhood Social Capital	0.827 ***	(0.113)	0.571 ***	(0.117)
Adolescent School Social Capital	-1.017 ***	(0.111)	-1.021 ***	(0.117)
Parental Characteristics				
Parent Male	---	---	0.177 *	(0.075)
Parental Age	---	---	-0.009 *	(0.004)
Parent High School or GED	---	---	-0.074	(0.058)
Parent Post High School Education	---	---	-0.018	(0.060)
Parent Graduated College	---	---	-0.182 **	(0.070)
Adolescent Characteristics				
Adolescent Male	---	---	0.761 ***	(0.040)
Adolescent Age	---	---	-0.051 ***	(0.012)
Adolescent Black (white is reference)	---	---	0.445 ***	(0.053)
Adolescent Asian (white is reference)	---	---	0.056	(0.085)
Adolescent Hispanic (white is reference)	---	---	0.242***	(0.069)
Adolescent Other Race (white is reference)	---	---	0.295***	(0.079)
Offending Variables				
Violence at Wave 1	---	---	---	---
Peer Fighting	---	---	---	---
Family Characteristics				
Family Income (in $1000)	---	---	---	---
Two Parents, One Not Biological	---	---	---	---
Single Female Parent	---	---	---	---
Single Mal Parent	---	---	---	---
Other Family Type	---	---	---	---
Neighborhood-Level Variables				
Total Census Tract Population (in 1000's)	---	---	---	---
Residential Mobility	---	---	---	---
Racial Heterogeneity	---	---	---	---
Proportion of the Population that is Hispanic	---	---	---	---
Proportion of Population that was below poverty line in 1989	---	---	---	---
Constant	-0.975 *	(0.0229)	-1.098***	(0.023)
N	11488		11488	

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 3.2 Unstandardized Coefficients of the Analysis of Violent Offending on Parental and Adolescent Social Capital and Neighborhood-Level Variables. (Continued)

Table 3.2 -Continued

	Model 3		Model 4	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.006	(0.043)	-0.009	(0.043)
Adolescent Neighborhood Social Capital	0.588 ***	(0.118)	0.577 ***	(0.118)
Adolescent School Social Capital	-0.993 ***	(0.117)	-0.984 ***	(0.117)
Parental Characteristics				
Parent Male	0.095	(0.085)	0.095	(0.086)
Parental Age	-0.010 *	(0.004)	-0.010 *	(0.004)
Parent High School or GED	0.093	(0.057)	0.100	(0.057)
Parent Post High School Education	-0.003	(0.059)	0.010	(0.060)
Parent Graduated College	-0.131	(0.073)	-0.122	(0.073)
Adolescent Characteristics				
Adolescent Male	0.770 ***	(0.041)	0.770 ***	(0.041)
Adolescent Age	-0.055***	(0.012)	-0.054 ***	(0.012)
Adolescent Black (white is reference)	0.352 ***	(0.056)	0.276 ***	(0.064)
Adolescent Asian (white is reference)	0.092	(0.086)	0.003	(0.086)
Adolescent Hispanic (white is reference)	0.293 ***	(0.078)	0.231 **	(0.074)
Adolescent Other Race (white is reference)	0.554 *	(0.226)	0.249 **	(0.078)
Offending Variables				
Violence at Wave 1	---	---	---	---
Peer Fighting	---	---	---	---
Family Characteristics				
Family Income (in $1000)	-0.001	(0.001)	-0.001	(0.001)
Two Parents, One Not Biological	0.196***	(0.055)	0.196 ***	(0.057)
Single Female Parent	0.266***	(0.056)	0.263 ***	(0.058)
Single Male Parent	0.500***	(0.119)	0.498 ***	(0.115)
Other Family Type	0.465***	(0.090)	0.458 ***	(0.089)
Neighborhood-Level Variables				
Total Census Tract Population (in 1000's)	---	---	0.002	(0.007)
Residential Mobility	---	---	0.001	(0.197)
Racial Heterogeneity	---	---	0.552***	(0.124)
Proportion of the Population that is Hispanic	---	---	-0.257	(0.143)
Proportion of Population that was below poverty line in 1989	---	---	0.008	(0.195)
Constant	1.114***	(0.024)	-1.116***	(0.024)
$N_{level\ 1}$	11418		11418	
$N_{level\ 2}$			3091	

*≤.05 **≤.01 ***≤.001 (two-tailed)

(Continued)

Table 3.2 -Continued.

	Model 5		Model 6	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.000	(0.043)	-0.023	(0.036)
Adolescent Neighborhood Social Capital	0.563 ***	(0.117)	0.320 **	(0.110)
Adolescent School Social Capital	-0.928 ***	(0.116)	-0.376 **	(0.107)
Parental Characteristics				
Parent Male	0.101	(0.084)	0.105	(0.073)
Parental Age	-0.010**	(0.004)	-0.005	(0.003)
Parent High School or GED	0.087	(0.057)	0.030	(0.053)
Parent Post High School Education	-0.007	(0.060)	-0.052	(0.055)
Parent Graduated College	-0.106	(0.073)	-0.113	(0.067)
Adolescent Characteristics				
Adolescent Male	0.738 ***	(0.041)	0.482 ***	(0.043)
Adolescent Age	-0.036 **	(0.013)	-0.066 ***	(0.013)
Adolescent Black	0.271 ***	(0.063)	0.211 ***	(0.059)
Adolescent Asian	0.039	(0.085)	-0.092	(0.082)
Adolescent Hispanic	0.227 **	(0.075)	0.109	(0.073)
Adolescent Other Race	0.254 **	(0.079)	0.139	(0.080)
Offending Variables				
Violence at Wave 1	---		0.594 ***	(0.015)
Peer Fighting	0.232 ***	(0.038)	0.121 *	(0.042)
Family Characteristics				
Family Income (in $1000)	-0.001	(0.001)	-0.001	(0.000)
Two Parents, One Not Biological	0.189 ***	(0.056)	0.083	(0.055)
Single Female Parent	0.255 ***	(0.056)	0.112 *	(0.052)
Single Male Parent	0.488 ***	(0.120)	0.443 ***	(0.106)
Other Family Type	0.445 ***	(0.090)	0.298 ***	(0.088)
Neighborhood-Level Variables				
Total Census Tract Population (in 1000's)	0.001	0.006	0.005	0.006
Residential Mobility	-0.032	0.196	-0.038	0.172
Racial Heterogeneity	0.525***	0.124	0.263*	0.113
Proportion of the Population that is Hispanic	-0.219	0.143	-0.024	0.135
Proportion of Population that was below poverty line in 1989	-0.033	0.193	-0.033	0.180
Constant	-1.132***	(0.024)	-1.314***	(0.023)
N	11488		11488	

*≤.05 **≤.01 ***≤.001 (two-tailed)

does not. It is possible that adolescents' mobility explains why neighborhood social capital has no effect on adolescent property crime. While in the case of violence, confrontation likely occurs with other youths in the neighborhood, and is thus intimately linked to the adolescent's social capital. The community the respondent lives in is less important for property crime. This pattern has also been observed in "The Saints and the Roughnecks" (Chambliss 1999). The saints used their access to cars to travel to different locations where they could commit property crime without fear of being recognized so that their social capital in the neighborhood had no affect on their property offending.

My results do suggest that parental age and educational levels are related to adolescent property offending. While there is no statistically significant effect on property offending in Model 6, where previous offending is controlled, every additional year in the age of the responding parent does increase the amount of property offending by between 0% (the variable is not significant in Model 6) and 19% (=exp(b_5)). It is possible that older parents find it more difficult to keep track of their adolescents. As parents age and they encounter more physical maladies it may restrict their own mobility, making it easier for adolescents to use their own increasing mobility to offend. Furthermore, adolescents of parents who have more education than high school but who did not graduate from college seem to commit between 10% (=exp(b_6)) and 19% (=exp(b_5)) more property crime than adolescents of parents who did not graduate high school.

As expected, male adolescents are between 29% (=exp(b_6)) and 59% (=exp(b_5)) more active in property offending compared to female adolescents. Age continues to be

associated with a reduction in the amount of property crime similar to violent offending. For every year an adolescent ages they, on average, commit 10% (=exp(b_5)) fewer property crimes. Controlling for preexisting offending in Wave 1 does not appreciably change the coefficient between Models 5 and 6.

Both African Americans and Hispanic youth have significantly lower likelihoods of engaging in property crimes than whites. African Americans commit between 0% (controlling for preexisting offending extinguishes the significance of the coefficient in Model 6) and 20% (=exp(b_5)) less property crime than Whites. Hispanic adolescents, on the other hand, commit more crime than white adolescents. Again, the coefficient is not statistically significant for Model 6, so that they commit between 0% and 16% (=exp(b_5)).

As expected, both previous property offending at Wave 1 and peer delinquency at Wave 1 are significantly related to property offending at Wave 2. For every additional act of property offending a respondent reports participating in Wave 1, their Wave 2 property offending increased by 57% (=exp(b*Std. Dev $_{PropW1}$)). Similar, for every one standard deviation increase in the mean of fighting in their designated peer group at Wave 1, respondents' property offending increases by between 6% (=exp(b_6*Std. Dev $_{Peer\ Fighting}$)) and 8% (=exp(b_5*Std. Dev $_{Peer\ Fighting}$)).

As opposed to the analysis on violent offending, family structure has little effect on property offending. Only adolescents with a single male parent had 0% (coefficient not significant in Model 6) to 14% higher level of property offending than adolescents who live in a family with two biological parents.

	Model 1		Model 2	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.000	(0.030)	-0.041	(0.034)
Adolescent Neighborhood Social Capital	0.125	(0.093)	0.017	(0.095)
Adolescent School Social Capital	-0.724***	(0.094)	-0.782***	(0.092)
Parental Characteristics				
Parent Male	---	---	0.204**	(0.661)
Parental Age	---	---	0.000	(0.003)
Parent High School or GED	---	---	0.075	(0.054)
Parent Post High School Education	---	---	0.196***	(0.053)
Parent Graduated College	---	---	0.127*	(0.0600
Adolescent Characteristics				
Adolescent Male	---	---	0.485***	(0.037)
Adolescent Age	---	---	-0.115***	(0.011)
Adolescent Black (white is reference)	---	---	-0.233***	(0.052)
Adolescent Asian (white is reference)	---	---	0.017	(0.073)
Adolescent Hispanic (white is reference)	---	---	0.188**	(0.061)
Adolescent Other Race (white is reference)	---	---	0.077	(0.077)
Offending Variables				
Violence at Wave 1	---	---	---	---
Peer Fighting	---	---	---	---
Family Characteristics				
Family Income (in $1000)	---	---	---	---
Two Parents, One Not Biological	---	---	---	---
Single Female Parent	---	---	---	---
Single Mal Parent	---	---	---	---
Other Family Type	---	---	---	---
Neighborhood-Level Variables				
Total Census Tract Population (in 1000's)	---	---	---	---
Residential Mobility	---	---	---	---
Racial Heterogeneity	---	---	---	---
Proportion of the Population that is Hispanic	---	---	---	---
Proportion of Population that was below poverty line in 1989	---	---	---	---
Constant	-0.680***	(0.020)	-0.745***	(0.020)
$N_{level\ 1}$	11488		11488	
$N_{level\ 2}$	---		---	

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 3.3 Unstandardized Coefficients of the Analysis of Property Offending on Parental and Adolescent Social Capital and Neighborhood-Level Variables. (Continued)

Table 3.3 -Continued.

	Model 3		Model 4	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.033	(0.035)	-0.039	(0.035)
Adolescent Neighborhood Social Capital	0.030	(0.096)	0.060	(0.095)
Adolescent School Social Capital	-0.771***	(0.093)	-0.760***	(0.093)
Parental Characteristics				
Parent Male	0.186**	(0.072)	0.177*	(0.071)
Parental Age	0.001	(0.003)	0.000	(0.003)
Parent High School or GED	0.076	(0.054)	0.070	(0.055)
Parent Post High School Education	0.193***	(0.053)	0.173**	(0.054)
Parent Graduated College	0.126*	(0.059)	0.104	(0.060)
Adolescent Characteristics				
Adolescent Male	0.487***	(0.037)	0.486***	(0.037)
Adolescent Age	-0.116***	(0.011)	-0.115*	(0.011)
Adolescent Black (white is reference)	-0.258***	(0.054)	-0.217***	(0.060)
Adolescent Asian (white is reference)	0.034	(0.073)	-0.052***	(0.074)
Adolescent Hispanic (white is reference)	0.188**	(0.061)	0.151	(0.068)
Adolescent Other Race (white is reference)	0.079	(0.077)	0.057	(0.078)
Offending Variables				
Violence at Wave 1	---	---	---	---
Peer Fighting	---	---	---	---
Family Characteristics				
Family Income (in $1000)	0.000	(0.000)	0.000	(0.000)
Two Parents, One Not Biological	0.089	(0.046)	0.087	(0.049)
Single Female Parent	0.109*	(0.048)	0.116*	(0.046)
Single Male Parent	0.128	(0.115)	0.132	(0.114)
Other Family Type	0.095	(0.088)	0.101	(0.088)
Neighborhood-Level Variables	---	---		
Total Census Tract Population (in 1000's)	---	---	-0.001	(0.005)
Residential Mobility	---	---	0.368*	(0.163)
Racial Heterogeneity	---	---	0.330**	(0.114)
Proportion of the Population that is Hispanic	---	---	0.013	(0.120)
Proportion of Population that was below poverty line in 1989	---	---	-0.893***	(0.198)
Constant	-0.747***	(0.020)	-0.754	(0.021)
$N_{level\ 1}$	11488		11488	
$N_{level\ 2}$	---		3091	

*≤.05 **≤.01 ***≤.001 (two-tailed)

(Continued)

Table 3.3 -Continued.

	Model 5		Model 6	
Social Capital	b	Std. E.	b	Std. E.
Parental Social Capital	-0.032	(0.034)	-0.021	(0.033)
Adolescent Neighborhood Social Capital	0.044	(0.095)	-0.059	(0.083)
Adolescent School Social Capital	-0.721***	(0.092)	-0.110	(0.080)
Parental Characteristics				
Parent Male	0.179*	(0.071)	0.118	(0.065)
Parental Age	0.000	(0.003)	0.001	(0.003)
Parent High School or GED	0.063	(0.054)	0.0263	(0.050)
Parent Post High School Education	0.172**	(0.053)	0.096*	(0.049)
Parent Graduated College	0.115	(0.060)	0.026	(0.055)
Adolescent Characteristics				
Adolescent Male	0.464***	(0.038)	0.255***	(0.036)
Adolescent Age	-0.103***	(0.011)	-0.112***	(0.011)
Adolescent Black	-0.223***	(0.060)	-0.089	(0.056)
Adolescent Asian	-0.027	(0.073)	-0.053	(0.067)
Adolescent Hispanic	0.151*	(0.067)	0.085	(0.060)
Adolescent Other Race	0.060	(0.078)	-0.055	(0.073)
Offending Variables				
Violence at Wave 1	---		0.449***	(0.010)
Peer Fighting	0.166***	(0.031)	0.082*	(0.035)
Family Characteristics				
Family Income (in $1000)	0.000	(0.000)	0.000	(0.000)
Two Parents, One Not Biological	0.081	(0.049)	0.031	(0.047)
Single Female Parent	0.111	(0.046)	-0.008	(0.043)
Single Male Parent	0.129*	(0.115)	0.067	(0.096)
Other Family Type	0.091	(0.088)	-0.027	(0.082)
Neighborhood-Level Variables				
Total Census Tract Population (in 1000's)	-0.001	(0.005)	0.001	(0.005)
Residential Mobility	0.353*	(0.162)	0.155	(0.142)
Racial Heterogeneity	0.310**	(0.114)	0.045	(0.106)
Proportion of the Population that is Hispanic	0.038	(0.121)	0.131	(0.116)
Proportion of Population that was below poverty line in 1989	-0.917***	(0.196)	-0.513**	(0.181)
Constant	-0.762***	(0.021)	-0.933***	(0.022)
$N_{level\ 1}$	11488		11488	
$N_{level\ 2}$	3091		3091	

*≤.05 **≤.01 ***≤.001 (two-tailed)

However, while family structure has little effect on adolescent property delinquency, neighborhood-level factors have a greater influence on it. In line with social disorganization research is the finding that both residential mobility and racial heterogeneity increase adolescent property offending. In communities in which residential mobility is one standard deviation above the mean, adolescents have, on average, between 0% (Model 6 coefficient is not statistically significant) and 5% (=exp(b_5*Std. Dev $_{Res.Mob.}$)) higher levels of property crime than in communities that are at the mean. Racial heterogeneity is a similar case. In neighborhoods that are one standard deviation above the mean, adolescents commit, on average, between 0% (Model 6 coefficient is not statistically significant) and 6.5% (=exp(b_5*Std. Dev $_{Het}$)) more property crime.

Community poverty appears to be a clearer and stronger factor for adolescent property offending at Wave 2. Adolescent who live in a census tract that is one standard deviation above the mean in poverty in 1989 report between 6% (=exp(b_6*Std. Dev $_{Pov}$)) and 11% (=exp(b_5*Std. Dev $_{Pov}$)) less property offending compared to adolescents who lived in a census tract that was at the mean. This result seems counterintuitive at first but can be explained through the routine activities perspective (Cohen and Felson 1979). Communities with higher levels of poverty likely show a higher level of target hardening, making it far more difficult to vandalize or steal property.

Spending time away from home frequently requires money. One needs to buy transportation, spends money here or there and then requires transportation back to the neighborhood. Thus, one way to conserve money is to stay at home. This in turn reduces

the likelihood that ones property gets stolen or damaged, as property theft and vandalism usually does not occur in the presence of the property owner. The owner's presence therefore hardens his or her property against theft and damage.

3.5 Conclusion

This study investigated the role of intergenerational transmission of social capital and its effect on delinquency. My results suggest that the intergenerational transmission of social capital, mediated through neighborhood and school contexts, leads to diametrically opposed outcomes for violence. While adolescents' high levels of neighborhood social capital increase their violence, high levels of social capital in school reduce this violence. The reason for these starkly diverging effects likely lies in the different environments in which neighborhood social capital and school social capital exist. While the neighborhood is largely unstructured and parents cannot maintain oversight of their children all the time, the school environment is far more structured and designed to facilitate pro-social values. In order to exist in both environments, adolescents likely engage in some form of code switching in which their behavior is adapted to the specific context in which the adolescents are situated at the time.

It is likely that behavior and social capital are reinforcing each other. An adolescent without high levels of social capital would be unlikely to be counted on to participate in a fight against a rival teen group. On the other hand, in order to maintain social capital in the neighborhood, an adolescent may have no choice but to participate in such a fight as his friends would, otherwise, reconsider the adolescents' position in the neighborhood. The same reinforcement likely occurs in school. Adolescents with low

levels of school social capital with administrators, teachers, coaches, and other students may be less likely to be chosen for participation in extramural activities, as well as important positions in clubs like, for example, the school newspaper. However, the opposite is also true. Without gaining and maintaining social capital by participating and holding positions in school-related activities, adolescents' school social capital may soon decline.

My research suggests that only adolescent school social capital reduces property offending. Adolescent neighborhood social capital has no significant effect on property offending. I argue that the cause for this pattern is a result of the mobility of adolescents and the tendency of property offenders to be active where they are not known. School social capital reduced property crime by removing the opportunity from potential offender as the latter are engaged in school activities. Because adolescents with higher levels of social capital are also more ambitious in school (Glanville, Sikkink, and Hernandez 2008; Marjoribanks 1997) it is likely that they will be more conscientious in doing homework and participating in school activities.

While the patterns I find seem paradoxical at first sight they have, to some degree been described previously. Chambliss (1999) ethnographic study of the saints and the roughnecks shows patterns within the saints that are mirrored in my findings, although the saints were clearly more extreme than most adolescents likely are. The saints were truant but very careful to maintain the respect of school authorities. They removed themselves from the neighborhood in which they resided in order to offend because both parents and local police knew them as "good kids." Thus, my research provides a consistent pattern that is comparable to the one the Saint's displayed.

In the following chapter I investigate what effect adolescent social capital (in both neighborhood and school) has on offending in the long run. Adolescence is a quickly changing period in the lives of individuals. Roles and rules adolescents live by, including their dependence on their parents, change relatively quickly. Early adulthood introduces them to a new period of their lives that comes with new expectations, such as those that reinforce pro-social behavior and obedience; values that reflect the school environment they just left. We will see whether adolescents find use for the experiences they made when developing school social capital, and their experiences with offending in young adulthood.

CHAPTER 4 -

THE EFFECTS OF ADOLESCENT SOCIAL CAPITAL ON OFFENDING IN EARLY ADULTHOOD

4.1 The Story So Far

The previous chapter suggests that adolescent social capital has an important relationship to delinquency, even if the effects of adolescent social capital in the neighborhood and in school are opposed when it comes to understanding participation in violent offending. Adolescent social capital in the neighborhood increases adolescents' offending while, at the same time, high social capital in school decreases it. This leads to the question of whether adolescent social capital continues to be associated with offending in later life. Upon entering adulthood, most adolescents will leave school to enter either college or the work force. This means that many adolescents will, in early adulthood, remove themselves from the neighborhoods they grew up in order to establish their own households in other locations. Nevertheless, the social capital that adolescents learned from their parents stays with them as they generate new social capital with new

colleagues and friends and learn more about social capital accumulation. I suspect that the intergenerational transmission of social capital likely has a cumulative effect and adolescents build upon the original lessons their parents taught them for the rest of their lives. Because of the cumulative effect of social capital, adolescent social capital likely has an effect that can be traced far beyond adolescence, into early adolescence and possibly beyond.

But how does adolescent social capital affect offending in early adulthood? While the outcomes of adolescent social capital in neighborhood and school have differing effects on delinquency, adulthood comes with new challenges, roles, and expectations. I expect that, because schools force adolescents to found their social networks in the foreground of a socially structured environment that promotes pro-social behavior, just as society does, adolescents' experiences in developing school social capital will be more important in early adulthood. Consequently, I expect that the violence inducing effect of social capital in the neighborhood will end with the entry into early adulthood. Meanwhile, adolescent school social capital will continue to be an essential protective influence during this new life stage.

4.2 Social Capital and Its Effects on Offending Across the Life Course

Over the past few decades much research has been interested in elucidating the ways in which offending changes over the life course (Bersani, Chapple, and Bersani 2007; Boutwell, Beaver, and Boutwell 2008; Dobash, Dobash, Cavanagh, Smith, Medina-Ariza, and Dobash 2007; Giordano, Longmore, Schroeder, Seffrin, and Giordano

2008; McGloin, Sullivan, Piquero, Bacon, and McGloin 2008; Sampson and Laub 2002; Sampson, Laub, and Wimner 2006). One of the most agreed-upon finding within criminology is that offending peaks in late adolescence and then declines (Elder 1974; Gottfredson and Hirschi 1986; Sampson and Laub 2001). The prevalence of offending in adolescence is so great that some researchers consider adolescents who do not offend during this time as abnormal (Sampson and Laub 2001). Nevertheless, researchers have also argued for continuity in offending. Research using respondents with criminal backgrounds (for example incarcerated adults) showed that the vast majority of these offenders were also active throughout childhood and adolescence, suggesting to researchers that early offending led to patterns of life-long offending (Caspi, Elder, and Herbener 1990; Huesman, Eron, Lefkowitz, and Walder 1984). Only comparatively recently Sampson and his colleagues unpacked the Pandora's box of life-course criminality and showed that both continuity and change are common themes within this paradigm (Sampson and Laub 2001).

According to Sampson and Laub (2001) there is indeed a small group of individuals who offend early on and continue to do so for the rest of their life. This group is likely the same that Moffitt (1993) calls life-course persistent offenders. This group consists of individuals who suffer, so Moffit argues, from a, difficult to discern, neurological deficit. This deficit is present at birth and can be exacerbated through bad parenting. The consequence of this deficit is offending that starts early in the life course and continues through all stages of life. Members of this group are the ones who most likely were recruited in studies that attempted to show a relationship between early offending and later crime.

The far larger group that is responsible for considerable change in offending across the life course is only offending for a comparatively brief period of time during adolescence. These adolescence-limited offenders offend briefly most likely due to a temporary immaturity that disappears with increasing age. Moffitt (1993) also argues that their offending is an attempt to fit in with the more criminal life-course persistent offenders that, at least in the high school years, may seem "cool." Thus, adolescents who are not part of the life-course persistent class of offenders are less likely to offend later on in life.[10]

One explanation for this change in offending, and one that is greatly affected by social capital, is the concept that individuals travel on trajectories that are connected by transition points. Trajectories "refer to long-term patterns and sequences of behavior. Transitions are marked by specific life events (e.g. first job or first marriage) that are embedded in trajectories and evolve over shorter time spans" (Sampson and Laub 2001). Thus, relatively swift changes in the circumstances within an individual's life can shift behavior from a previous trajectory that included offending to a new one in which offending disappears.

Having higher levels of social capital available increases the probability that an adolescent will encounter new transition points in the lives of adolescents, transition points that then direct them onto a new trajectory. Social capital can increase the likelihood that an adult will get a good job. For many good jobs who you know is just as,

[10] However, Nagin, David S., David P. Farrington, and Terrie E. Moffitt. (1995) note that in comparison to those who never offended adolescent-limited offenders drank more and also used drugs more, even into adulthood.

if not more, important than formal job searching and participation in online job search websites (Try 2005). Better jobs reduce the likelihood of offending by increasing the worker's stake in conformity (Crutchfield 1989). It also changes the social network of the worker in favor of colleagues who share the stake in conformity.

Social capital also makes it likely that an adolescent will encounter a romantic partner. Living arrangements also rapidly change behavior patterns for early adults. Warr (2002) shows the number of evenings an individual spends with friends each week varies greatly with whom he or she lives. Of all living arrangement categories presented, Warr shows that young adults who lived with a spouse spent the fewest nights (per week) with friends (Warr 2002). This shows that, upon forming a romantic bond, the social capital networks of married individuals change greatly, potentially removing previous offenders from bad company, and with that, from crime. This change in routine behaviors makes it less likely that the married adolescent gets into trouble, both as victim and offender.

It is likely that both neighborhood and school social capital both increase the likelihood of encountering new transition points and trajectories. However, what the two different types of social capital may differ in is the types of transition points and trajectories they attract.

As the results of Chapter 3 show, adolescent neighborhood social capital increases adolescents violent offending, while school social capital decreases both violence and property offending. As I mentioned earlier, both high levels of neighborhood and school social capital should increase the likelihood that a transition point is encountered that

leads to a change in the future trajectory of an adolescents' life. However, the type of this trajectory probably again differs with the context in which adolescent social capital occurs.

Adolescent neighborhood social capital is built in an environment in which unstructured activities are common. In Chapter 3 I argued that this is one of the major reasons for the positive relationship between this type of social capital and offending. In contrast, school social capital is built in an environment where mainstream values predominate and structured activities are the norm. Indeed, preparation of adolescents to become productive adult member of society is one of the purposes for schooling.

Thus, it appears that the degree to which adolescent social capital is beneficial to maturing adolescents depends, in part, on the social environment they enter in adulthood. Adolescent school social capital serves as a platform that helps adolescents encounter transitions points and develop trajectories that improve their opportunities in adult life within mainstream society. School social capital formation serves, in this case, as an early proving ground where adolescents learn how to develop social ties in locations in which mainstream social norms are important for success. Thus, high school social capital should lead to a higher likelihood of adolescents encountering trajectories that lead them away from offending and towards normative behavior that requires a structured life before entering early adulthood.

The opposite is true for adolescents who grow up in locations that make it difficult for adolescents to enter mainstream society, for example neighborhoods that suffer from racial or ethnic segregation and communities that suffer from high levels of

poverty. In these locations the skills that allowed adolescents to build high levels of social capital in an environment that is unstructured may help them encounter transition points and trajectories that will lead them further along the road to offending. However, I would argue that this is a case that is not a factor for most adolescents. Only adolescents in communities that are cut off from mainstream values will find it useful to use the skills they learned during their development of adolescent neighborhood social capital.

It is also important to note that the effects I theorize about above are not immediate. It takes time for a social capital network to change and transition points and trajectories are thusly not immediate either. This is especially the case during early adulthood when the transition from adolescent to adult introduces many important changes and uncertainties in the lives of adolescents. At this time, adolescents graduate from school and are first experiencing the expectations of adulthood in full force. Because this is a time of great uncertainties, I suggest that social capital networks developed during adolescence will not change greatly in this period. With the uncertainty of new roles, expectations and an uncertain future most adolescents are likely grateful to have established social networks to provide them with valuable emotional support. Thus, while contacts with peripheral members of the adolescent's social capital networks (both neighborhood and school) likely disappear I suggest that the core of the social capital network, including both other youths and adults, will remain comparatively stable during this time of uncertainty.

Similarly, because this time of transition poses never before encountered changes, it is likely that the social capital of the parents will reemerge as an important source of support.

Thus, I argue that during the transition from adolescence to adulthood the social capital networks of adolescents will remain comparatively stagnant as compared to later times when an adult lifestyle has been established. For the prediction of adult offending this suggests for the most part continuity; i.e. a continuation of the effects from adolescence into early adult life. For violent offending, I expect to find that adolescent neighborhood social capital still increases violent offending, while adolescent school social capital should still reduce it. For property offending, I suspect that neighborhood social capital will have no effect while adolescent school social capital likely has negative effect. Furthermore, since parental social capital should, in this stage of the life course, serve as an important source of potential jobs and future opportunities, it is likely that parental social capital will again reemerge as a factor that reduces respondents' offending.

4.3 Data and Methods

The following analyses are based on the three available waves of data from The National Longitudinal Study of Adolescent Health (hereafter also referred to as Add Health). This dataset is well known for its high-quality data on adolescents, their families, the schools they attend and the neighborhood environments they live in. In the initial in-school survey, conducted in 1994-1995, all students attending each of 132 high schools and their "feeder" middle schools (grades 7 through 12) were provided with self-administered surveys (N=90,118). Of these students a random sample of 19,000 students was selected for an in-home interview. Some populations were deliberately over-

sampled in the selection of the in-home interview group and, in most cases; one of the parents was also interviewed. As part of the data collection Add Health also collected data about the characteristics of the schools the adolescents attended and combined the residential location of the in-home sample with data from the 1990 census and other government agencies. Wave 2 of the data was collected in 1996. In this wave the in-home sample of students was re-interviewed, with a follow-up response rate of 88% (N=14,738). A third wave was collected in 2001 and 2002, in which all respondents from the Wave 1 in-home group that could still be located were re-interviewed (Wave I respondents who were outside of the country or were in the military and deployed overseas for the duration of the interviews were omitted from Wave III). The response rate for Wave 3 was 80%. The overall number of cases that participated in all three waves is N=11,621. The data I am using for this study represent information provided by the sub-sample of respondents who participated in all three waves of the survey. Unfortunately the third wave of Add Health does not provide neighborhood-level data for the respondents so that a multi-level study is impossible to conduct.

4.3.1 Dependent Variables

The two dependent variables in this study represent counts of violent and property offending in the third wave of Add Health. Violent offending at Wave 3 is an index that contains questions as to how often respondents had, within 12 months of the data collection, used or threaten to use a weapon to get something from someone, took part in a fight where a group of their friends was against another group, pulled a knife or gun on someone, shot or stabbed someone, used a weapon in a fight, and hurt someone badly

enough to need bandages or care from a doctor or nurse. The original scales were recoded so that a value of 0 means that the adolescents did not engaged in a specific activity and a value of 1 means that they engaged in an activity at least once. The recoded variables were then summed into the violence index that has a range of 0 to 6.

The property offending index for Wave 3 was created in an equivalent manner. Respondents were asked how often, in the 12 months prior to the collection of the data, they deliberately damage property that didn't belong to them, stole something worth more than $50, stole something worth less than $50, went into a house or building to steal something, committed credit card fraud, committed check fraud, or dealt or stored stolen property (i.e. acted as a fence). Again I recoded the variables so that 0 means that the respondents had never engaged in a behavior and 1 that they engaged in it at least once. I then summed the variables so that the resulting property offending index has a range of 0 through 7.

4.3.2 Independent Variables

Parental Social Capital

For this study I am using the same measure of Parental Social Capital that I applied in Chapter 2. All variables that make up the parental social capital factor were collected in the Wave 1 in-home interview and represent information provided by the responding parent. The factor analysis the yielded the variable used items that pertained to intergenerational closure (whether parents know their child's best friend and how many of their child's friends' parents they had spoken in the four weeks prior to the collection of the data), parental participation (how many organizations they belonged to

and how often they attended religious service) and collective efficacy (would they tell a neighbor if the child of the latter had gotten into trouble and do they think their neighbor would tell them if the shoe were on the other foot). For a more detailed description of this variable, as well as factor loadings and diagrams see Figure 2.3 and Table 2.2 in Chapter 2.

Adolescent Neighborhood and Adolescent School Social Capital

The variables that make up adolescent neighborhood social capital stem from Wave 2 of Add Health, the variables making up the factor for adolescent school social capital stem from both Waves 1 and 2. Again I am utilizing the same variables I employed in Chapter 2, except that in this last chapter they served as dependent variables. The variables that are part of adolescent neighborhood social capital asked adolescents whether they "know most of the people in their neighborhood", whether "in the past month they stopped on the street to talk to someone who lives in their neighborhood" and whether they "are happy about living in their neighborhood." In order to create the factor for adolescent school social capital I created two variables, measuring participation in athletically based and academically based activities. I also employed two measures that operationalize how adolescents feel about their school. The two items I use asked respondents to what degree they "feel that they are a part of their school," and whether they are "happy to be at their school." A more specific description, including diagrams, factor loadings and model fit, can be found in Figures 2.1 and 2.2, as well as Table 2.1 in Chapter 2.

Parental, Adolescent, and Family Characteristics

In addition to Parental Social Capital I am also controlling for a number of other variables. I am controlling for a number of characteristics of the responding parent. I am including the gender of the responding parent (male=1) and his or her age in years. Since higher levels of education have been shown to be correlated with higher levels of social capital I am including a set of dichotomous variables for the educational level of the responding parent. These variables indicate whether the parent has not completed high school, completed high school or has a GED, whether they have some college or other advanced schooling, or whether they have a college degree. Parents who have not completed high school are the reference group.

Variables that are controlling for the individual characteristics of the adolescent include their gender (male=1) and their age in years. I am also controlling for adolescents' race and ethnicity. I am including a set of dichotomous variables for race, controlling for white, black, Asian, or other race (white is the reference category). I am also including a variable for adolescents' Hispanic heritage through a dichotomous variable. Finally, I am controlling for some characteristics of the adolescents' family. I am including a set of dichotomous variables identifying families as either having two biological parents, two parents with one not being biological, a female single parent, a male single parent, or being of another type (families with two biological parents are the reference category). I am also controlling for the family income in thousands of dollars.

	N	Mean	Std. Dev.	Minimum	Maximum
Dependent Variables					
Violent Offending (Wave 3)	11242	0.201	0.614	0	6
Property Offending (Wave 3)	11319	0.318	0.823	0	7
Social Capital					
Parental Social Capital	9774	1.465	0.605	0.186	3.769
Adolescent Neighborhood Social Capital	11469	0.463	0.194	0.024	0.648
Adolescent School Social Capital	8330	0.615	0.149	0.158	0.866
Parent Characteristics					
Parent Male	9881	0.060	0.241	0	1
Parent Age	10125	41.70	6.610	20	89
Parent Has Not Completed HS	11490	0.145	0.352	0	1
Parent HS or equivalent	11490	0.261	0.439	0	1
Parent More Than HS But Not College Degree	11490	0.258	0.438	0	1
Parent Has College Degree	11490	0.217	0.412	0	1
Adolescent Characteristics					
Adolescent Male	11490	0.469	0.499	0	1
Adolescent Age	11490	16.181	1.647	11	23
Adolescent White	11490	0.611	0.487	0	1
Adolescent Black	11490	0.217	0.412	0	1
Adolescent Asian	11490	0.071	0.257	0	1
Adolescent Hispanic	11456	0.161	0.367	0	1
Adolescent Other Race	11490	0.097	0.296	0	1
Previous Offending Measures					
Peer Fighting (Mean)	7109	0.714	0.681	0	4
Violent Offending in Wave 2	11418	0.381	0.893	0	6
Property Offending in Wave 2	11418	0.514	1.022	0	6

Table 4.1 Descriptive Statistics of Chapter 4 Variables Prior to Multiple Imputation.

(Continued)

Table 4.1 - Continued.

	N	Mean	Std. Dev.	Minimum	Maximum
Family Environment					
Family Income (in $1000)	8936	46.609	50.318	0	999
Two Parents, Both Biological	11490	0.544	0.498	0	1
Two Parents, One Not Biological	11490	0.172	0.377	0	1
Single Mother	11490	0.205	0.403	0	1
Single Father	11490	0.028	0.165	0	1
Other Family Type	11490	0.052	0.222	0	1

Previous Adolescent Offending

Previous offending may have deleterious effects on adolescent social capital. Some adolescents and adults might be inclined to avoid contact with known delinquents, which would affect the ability of the delinquent to form social capital. I am controlling for previous violent offending through the inclusion of three dichotomous variables. The previous adolescent offending measure for violence is coded as 1 if adolescents reported that they had done either of the following acts in the 12 months prior to the collection of the data: they robbed somebody, participated in a group fight, pulled a weapon on somebody, stabbed or shot somebody, and how often they hurt somebody badly enough to need bandages or the attention of a doctor or nurse.

A code of 1 in previous property offending was assigned to any adolescent who reported that they, in the 12 months prior to the collection of the data in Wave 1, painted graffiti on someone else's property or in a public place, stole something worth more than $50, stole something worth less than $50, deliberately damaged someone else's property, committed a burglary, or stole a car.

Finally in order to control for preexisting offending in the equation predicting continuity in any form of crime I also created a dichotomous variable that I coded 1 if adolescents reported having committed any of the above violent or property crimes in the 12 months prior to the collection of the data.

Because adolescents' peers are in a prime position to lead respondents to become delinquent, I am controlling for the offending of the respondent's peers. For this variable I am employing a network measure that Add Health researchers calculated using the network data and the in-school survey collected in Wave 1. The in-school survey asked all adolescents who responded how often they got into a physical fight in the last year. Based on the responses to this question and the adolescents' assessment of which other students were their best friends the Add Health researchers developed a mean value for a number of items, including peer fighting. This mean value serves, in my study as a control for the peer effect.

4.3.3 Analysis

Multiple Imputation

Because the number of missing cases in some of the variables for this analysis exceeds the limit under which imputation is not necessary (Allison 2002) I have decided to use Multiple Imputation With Deletion (MID) for this research. In MID each missing datum is calculated using regression analyses based on other variables within the dataset, including the dependent variable. However, each datum receives a number of potential values so as to make sure that the measurement in the final analysis can be adjusted for

the uncertainty in the estimates. Since imputation of the dependent variable is not useful, it creates more statistical noise but does not improve the quality of the results (Little 1992), MID uses the dependent variables complete with missing data, rather than the imputed variable. I imputed the dataset for 5 cycles and then removed imputed values from the dependent variables. The analysis uses logistic regression with a survey correction.

Negative Binomial Regression

The dependent variables in this study represent counts of the number of different unlawful activities the respondents report engaging in within the 12 months prior to the collection of the data in Wave 3. This type of data requires a special analysis technique because both violent offending and property offending are very heavily skewed (the vast majority of respondents report not having committed either violent or property crimes in the 12 month period prior to the collection of the data) the analysis technique I use must be able to account for this characteristic of the data. I am using negative binomial regression in STATA in order to analyze the data in a satisfactory manner.

Models 1 and 2 of this analysis are equivalent to Models 5 and 6 in Chapter 4. Model 2 represents controls for parental and adolescent characteristics and the family structure and income of the respondents, as well as controls for both peer delinquency in Wave 1 and previous offending in Wave 2. However, Haynie and Osgood (2006) point out, controlling for preexisting offending at Wave 2 may serve as too strong of a control. As in Chapter 4, controlling for previous offending, this time in Wave 2, in essence removes any immediate effects of social capital on adolescent delinquency and only

leaves those that are lagged between Waves 2 and Wave 3. Only those effects of adolescent social capital on delinquency that have a lagged effect (the time period between Waves 2 and 3) are predicted through this kind of model. In order to more realistically investigate the relationship between adolescent social capital and delinquency I am, in Model 1, also estimating an equation in which peer effects are controlled while previous offending is not. The actual value of relationship between adolescent social capital and offending should lie somewhere between these two extremes (Haynie and Osgood 2006)

4.4 Results and Discussion

4.4.1 Multivariate Analysis

The analysis in Chapter 3 suggests that parental social capital has an indirect effect on violent offending, both through adolescent neighborhood social capital and through adolescent school social capital. However, the directions of these effects are diametrically opposed. While intergenerational transmission of social capital increases violence through adolescent neighborhood social capital, it decreases the same violence through adolescent school social capital. Property offending was affected by parental social capital only through its effect on adolescent school social capital. While, according to the results in Chapter 2, parental social capital does increase the neighborhood social capital of adolescents, the latter had no direct effect on property crime.

Going beyond the effects of adolescence, where the vast majority of adolescents

offend, I have argued that the transitional period between adolescence and adulthood will not see large changes in social capital networks. Because of the uncertainty of this stage in the life course, respondents require a source of social and emotional support so that they will be hesitant to turn their backs on the social capital networks they established during adolescent. For our understanding of crime this means that we will likely discover continuity between adolescent patterns of offending and offending in early adulthood.

Indeed, continuity is what we find during this time. The diametrically opposed effects of adolescent neighborhood- and adolescent school social capital on violence are mirrored in the current results in Tables 4.2 and 4.3. While a more detailed comparison is impossible, due to neighborhood-level data not being available for Wave 3 of Add Health, we nevertheless see the same patterns we observed before. While adolescent neighborhood social capital still has a positive relationship with violence in early adulthood, a one standard deviation increase in adolescent neighborhood social capital increases violence by between 8.6% (=exp(b_1*Std. Dev.$_{ANSC}$)) in Model 2 and 9.3% (=exp(b_2*Std. Dev.$_{ANSC}$)) in Model 1. The same increase in adolescent school social capital has a protective effect of between 0% (the coefficient in Model 2 is not statistically significant) and 6.5% (exp(=b_1*Std. Dev.$_{ASSC}$)) in Model 1. Parental social capital does, as I proposed, have a small but significant effect on violence. However, contrary to my expectations this effect actually increases the amount of violent offending the respondent reports. Respondents whose responding parent had a one standard deviation higher level of social capital reported committing between 0% (the coefficient is not statistically significant in Model 2) and 2% (exp(=b_1*Std. Dev.$_{ParSC}$))more violent

crime. However, the statistical significance of this variable in Model 1 is very close to the 95% level so that the effect is most likely due to my large sample size.

The patterns for offending in adolescence are also mirrored for property offending. The results for Chapter 3 suggest that adolescent neighborhood social capital do not predict property offending, while adolescent school social capital had a protective effect on it. The results for early adulthood show the same patterns. Adolescent neighborhood social capital has no effect on property offending. Adolescent school social capital, on the other hand, has a protective effect that reduces the respondent's property offending by between 5.7% (=exp(b_2*Std. Dev.$_{ASSC}$)) in Model 2 and 7.8% (=exp(b_1*Std. Dev.$_{ASSC}$)) (in Model 1) per standard deviation increase in school social capital. In this analysis parental social capital remains non-significant.

Interestingly, parental education, at least parents having a college degree, has a negative effect on violence but a positive effect on property crime in early adulthood. Young adults who grew up in a family with a parent who had completed a college degree committed, on average 23% ((=exp(b_1)) or (=exp(b_2))) less violence but between 24.5% (=exp(b_2)) and 25.8% (exp(b_1)) more property crime than adolescents who grew up in families where the responding parent did not complete high school.

Adolescent characteristics that are consistent predictors of early adulthood violence and property offending are age, gender, and race. The results show that males, in early adulthood, commit between 3.8 (=exp(b_2)) and 4.3 (=exp(b_1))as much violent

	Model 1		Model 2	
Social Capital Variables	b	Std. E.	b	Std. E.
Parental Social Capital	0.111*	(0.054)	0.086	(0.057)
Adolescent Neighborhood Social Captial	0.461**	(0.169)	0.427**	(0.157)
Adolescent School Social Capital	-0.454***	(0.134)	-0.259	(0.144)
Parental Characteristics				
Parent Male	-0.180	(0.152)	-0.205	(0.130)
Parent Age	-0.006	(0.005)	-0.002	(0.005)
Parent HS or equivalent	-0.031	(0.090)	-0.062	(0.083)
Parent More Than HS But Not College Degree	0.021	(0.086)	0.002	(0.085)
Parent Has College Degree	-0.270**	(0.095)	-0.273**	(0.101)
Adolescent Characteristics				
Adolescent Male	1.463***	(0.078)	1.330***	(0.062)
Adolescent Age	-0.090	(0.026)	-0.095***	(0.019)
Adolescent Black (White Is Reference)	0.492***	(0.080)	0.384***	(0.071)
Adolescent Asian (White Is Reference)	0.004	(0.138)	-0.033	(0.125)
Adolescent Hispanic (White is Reference)	0.100	(0.093)	0.005	(0.099)
Adolescent Other Race (White Is Reference)	0.240	(0.128)	0.159	(0.116)
Violent Offending at Wave 2			0.412***	(0.025)
Peer Fighting (mean) at Wave 1	0.129	(0.071)	0.064	(0.063)
Family Characteristics				
Family Income	-0.002	(0.001)	-0.001	(0.001)
Two Parents, One Not Biological (Two Bio Parents is reference)	0.168*	(0.078)	0.133	(0.078)
Single Mother (Two Bio Parents is reference)	0.110	(0.073)	0.074	(0.078)
Single Father (Two Bio Parents is reference)	0.221	(0.238)	-0.011	(0.194)
Other Family Type (Two Bio Parents is reference)	0.417*	(0.201)	0.332	(0.169)
Intercept	-1.058*	(0.417)	-1.290	(0.377)
N	11242		11424	

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 4.2 Unstandardized coefficients of the negative binomial regression for violent offending in early adulthood.

	Model 1		Model 2	
Social Capital Variables	b	Std. E.	b	Std. E.
Parental Social Capital	0.047	(0.049)	0.059	(0.049)
Adolescent Neighborhood Social Captial	-0.055	(0.131)	-0.047	(0.128)
Adolescent School Social Capital	-0.545***	(0.135)	-0.392**	(0.124)
Parental Characteristics				
Parent Male	-0.178	(0.106)	-0.220*	(0.106)
Parent Age	-0.001	(0.004)	-0.001	(0.004)
Parent HS or equivalent	0.014	(0.072)	0.019	(0.072)
Parent More Than HS But Not College Degree	0.135	(0.072)	0.119	(0.072)
Parent Has College Degree	0.230**	(0.081)	0.219**	(0.081)
Adolescent Characteristics				
Adolescent Male	0.874***	(0.050)	0.776***	(0.049)
Adolescent Age	-0.169***	(0.016)	-0.152***	(0.016)
Adolescent Black (White Is Reference)	0.126	(0.064)	0.200**	(0.063)
Adolescent Asian (White Is Reference)	0.104	(0.098)	0.158	(0.096)
Adolescent Hispanic (White of Reference)	-0.007	(0.085)	0.002	(0.084)
Adolescent Other Race (White Is Reference)	0.153	(0.103)	0.086	(0.102)
Property Offending at Wave 2			0.328***	(0.021)
Peer Fighting (mean) at Wave 1	-0.026	(0.057)	-0.050	(0.059)
Family Characteristics				
Family Income	0.001	(0.001)	0.001	(0.001)
Two Parents, One Not Biological (Two Bio Parents is reference)	0.093	(0.069)	0.092	(0.068)
Single Mother (Two Bio Parents is reference)	0.084	(0.068)	0.055	(0.066)
Single Father (Two Bio Parents is reference)	0.218	(0.161)	0.236	(0.158)
Other Family Type (Two Bio Parents is reference)	0.199	(0.229)	0.194	(0.182)
Intercept	1.307***	(0.354)	0.703*	(0.344)
N	11242		11424	

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table 4.3 Unstandardized coefficients of the negative binomial regression for property offending in early adulthood.

crime as females. The former also commit between 2.2 and 2.4 times as much property crime as their female counterparts.

Age has a consistently protective effect on both types of crime in early adulthood. Each one year increase in age decreases violence by between 0% (coefficient not significant in Model 1) and 0.7% (=exp(b_2)) and property crime by between 14.1% (=exp(b_2)) and 15.5% (=exp(b_1)). In terms of racial dynamics, young adults who are African American commit between 46.8% (=exp(b_2)) and 63.6% (=exp(b_1)) more violent crime and between 0% (coefficient in Model 1 is not statistically significant) and 22% (exp(b_2)) more property crime compared to Whites.

Interestingly, having been raised by a single parent, while being an important predictor of both intergenerational social capital transmission in Chapter 2 and delinquency in Chapter 3 does not appear to have a long-term effect on adolescents' offending in early adulthood. Surprisingly, adolescents who grew up in a family with one non-biological parents continue to commit between 0% (coefficient in Model 2 is not statistically significant) and 18.3% (exp(b_1))more violent crime than adolescents who were raised in families with two biological parents. However, this last relationship has to, again, be seen in the context. The statistically significance of the coefficient in Model 1 is very close to the 95% limit so that this effect is likely due to my large sample size.

4.5 Conclusion

My results show that both individual characteristics and previous offending have significant effects on both violent and property offending in early adulthood. This

finding suggests that, while the possibility that social capital makes respondents more likely to encounter transition points that lead them away from offending, early adulthood is likely not the time when this happens.

Rather in early adulthood adolescents find themselves in a stage in their life course that is often dominated with uncertainty and extremely rapid changing roles and expectations. I have argued that in this period adolescents prefer to maintain the social capital networks they have developed, and on which they can fall back on for support. My results suggest that this is the case. With the same social capital networks come the same patterns of offending. My results show that the patterns noticeable in adolescence are mirrored in offending in early adulthood.

Surprisingly, parental social capital does not seem to have a direct effect on respondents' offending in early adulthood. While I suspected that parental social networks would be useful for respondents job searches of college plans they do not seem to be a factor in reducing offending in early adulthood.

Furthermore, changing social capital networks in which previous friendships become more peripheral in favor of new relationships, both romantic and platonic; likely occur over a longer period of time after respondents have established adult lifestyles and reduced the uncertainty for their future.

CHAPTER 5

SUMMARY AND CONCLUSIONS

5.1 Conclusions of This Dissertation

A growing body of research over the past few decades has applied the concept of social capital to the study of social life. Building on theoretical research by Bourdieu (1986), Coleman (1988) and others, researchers have made great strides in understanding social processes by employing social capital to questions such as health, democracy, neighborhood life, and crime. However, apart from a notable interest in adolescent social capital within education, little research has focused on the development and consequences of adolescent social capital.

In criminology social capital has often served as mechanisms that retard crime. While theorists have proposed that social capital can reduce crime in neighborhoods on three different levels, the public, parochial, and private levels, the latter has arguably been of most interest to researchers. However, while the adolescent population that resides in the neighborhood has been part of the mechanism with which social capital

controls crime on the private level, they have mostly served as a population that is to be controlled. Adolescents have not been viewed as exercising social control or having social capital.

The theoretical and empirical work in this dissertation changes this outlook. I began my work by first asking how adults obtain their social capital. While it is clear that adults add to and adapt their social capital every day of their lives, it is just as clear that the accumulation of social capital does not begin out of a social void. Rather, it is likely that family, and especially parents play a vital role in both the passing on of social capital accumulating behavior and social capital itself. The latter occurs through the inclusion of adolescents in already existing family and parental social circles.

Because the dearth of research on adolescent social capital also meant that there is no theoretical work that could explain how the intergenerational transmission of social capital from parents to children occurs, my first task was to establish a theoretical model that can explain this transmission. Basing my theoretical work loosely on Sutherlands (1947) and Akers (1998; Akers, Krohn, Lanza-Kaduce, and Radosevich 1979) learning theory, I argue that parents transmit both behaviors and the social interpretations of these behaviors to their children. They also immerse children in parental social capital networks so that the former are able to practice their newly emerging skills while still being able to be corrected should go something wrong.

Because the lack of research on adolescent social capital accumulation also means that it has not been shown that the intergenerational transmission I theorize about can be shown to occur empirically, I address this in Chapter 2 of this dissertation. I use

longitudinal data from the National Longitudinal Study of Adolescent Health to demonstrate that parental social capital is significantly and positively related to adolescents' social capital. This suggests that children in households were parents maintain higher levels of social capital also have higher levels of social capital. I showed this to be true in the neighborhood, where adolescents are, at least partly, immersed in the friendship networks of their parents but also in the school, where parental influences beyond socialization are likely much more subdued.

While both the theoretical mechanism and the results of my research in Chapter 2 are likely of significance for our understanding of adolescent social capital in a whole host of different social environment, my focus is on the meaning of adolescent social capital on crime and delinquency.

In Chapter 3 I ask how adolescent social capital, once parental transmission has helped establish it, relates to the offending behavior of adolescents for both violence and property crime. In this chapter, I tie the theoretical tenets of both social disorganization theory and collective efficacy research (Sampson and Groves 1989; Sampson, Morenoff, and Earls 1999; Sampson, Raudenbush, and Earls 1997) to more recent insights that suggest that the results of social capital are highly dependent on the context in which it occurs (Browning, Feinberg, and Dietz 2004; Pattillo-McCoy 1999). Because the neighborhood and school represent two environments in which the accumulation of social capital occurs under very different contexts, the school being more structured and, by definition, pro-social, I hypothesized that the relationships between the two types of social capital would be diametrically opposed. My results largely supported this view.

Neighborhood social capital, being borne from unstructured socializing among adolescents, as well as adult influences, is positively related to violence but does not seem to affect adolescents' property offending. Adolescent school social capital, on the other hand, developing within the context of structured school activities and unequivocally pro-social values, has a protective effect for both violence and for property offending. Because my equations control for parental social capital, parental and adolescent characteristics, family characteristics and neighborhood-level factors, my results suggest both that parental social capital affects adolescents delinquency largely indirectly through the intergenerational transmission of social capital and that adolescents' social capital does have considerable importance for delinquency even when other important variables have been controlled.

But adolescent social capital not only affects offending during adolescence, it has continuing influence over adolescents' offending years later, as they enter adulthood. In Chapter 4, I argue that life-course criminology has it right when it argues that both desistance and continuity occur in the lives of previous offenders. My research shows that adolescent social capital has a continuing effect on offending in early adulthood. For both violence and property crime, adolescent neighborhood social capital and adolescent school social capital maintain their requisite effects into early adulthood. One potential reason is possibly that even after graduation from school and/or moving out of the neighborhood the respondents likely maintain a smaller version of the neighborhood and school social capital networks, social ties that continue to maintain the same relationships to offending as they had in adolescence.

Nevertheless, it is likely that the early parental transmission of social capital, over longer periods of time, causes respondents social capital to change fundamentally; in most cases this change will make it more likely that adolescents will encounter new transition points that will lead to new trajectories that increasingly lead them away from crime. However, these changes in social capital networks likely do not occur until after the adolescent feels comfortable in the role of an adult. This means that certain loose ends that represent uncertainty must be tied up before changes in the social networks will occur. For the duration of this important transition in the life course of the adolescent they retain their social networks because the latter serve as a source of social support in this, often frighteningly new, time. My research suggests that the continuity in adolescent networks reaches into early adulthood and leads respondents to mirror, during this new stage, the offending patterns of adolescence. The reduction in crime that is due to changing social capital networks and newly encountered transitions does, for most adolescents, likely not manifest until after the transition into adulthood has been completed.

5.2 Limitations

Just like any other study, this research is subject to some limitations. While the National Longitudinal Study of Adolescent Health provides important details on the lives of adolescents and their parents and friends at three different times, the dataset was not created with social capital in mind. While the data do contain items that serve to operationalize social capital, other datasets that contain better measures of social capital

should be used to replicate my research.

My measure for adolescent neighborhood social capital, while containing some general measures of social capital, makes it difficult to discern the specific context in which adolescents neighborhood social capital exists. While the items that make up adolescent school social capital require adolescents with high scores on this measure to represent pro-social values, the general nature of the neighborhood social capital measure makes it impossible to tell what the norm and values in the neighborhoods the adolescents reside in are. Future studies should investigate how the negative relationship between adolescent neighborhood social capital and violent offending in adolescence are influenced by the overall values and the specific contacts adolescents have in the neighborhood.

Add Health also does not provide neighborhood level data on the new neighborhoods the adolescents moved to as they entered adulthood. Because of this unavailability of community-level data I am unable to control for potential factors in the environment that might influence respondent criminality at Wave 3.

Furthermore, the vast majority of respondents in my sample were at a stage of their lives where they were comparatively mobile, having transportation available themselves or friends who did. This mobility may influence the role parental social capital plays in the offending patterns at Wave 2. It is likely that parental social capital would have the more classical social control function that social disorganization attributes to it, if the adolescents had been relegated to spending more time in the neighborhood. Again, a dataset with a younger adolescent sample could serve greatly in

clarifying the role of parental social capital when adolescents are less mobile.

5.3 Future Directions of This Research

As most scientific research does, my study leads to more questions than it answered; questions that will need to be addressed in the future. I have demonstrated a potential link between parental and adolescent social capital, suggesting that adolescents learn social capital accumulating behavior from their parents. Unfortunately I was not able to differentiate between inborn sociability, if there is such a thing, and parental transmission of social capital. Early parental interactions with their infants likely already affects the latter's sociability. Nevertheless, it is likely that some individuals are simply intrinsically more social than others. Studies involving twins reared in foster care might be able to differentiate this inborn tendency to socialize from social learning through parental influences.

Future research should also address the opposing effects of adolescent neighborhood social capital and adolescent school social capital on violence more closely. It will be important to investigate whether the positive relationship between adolescent neighborhood social capital and violence is entirely due to the more informal nature of the neighborhood or whether there are other factors that influence this association.

In order to better understand how adolescent social capital affects the success of adolescents in adulthood it will be vital to study how adolescent neighborhood and adolescent school social capital benefit adolescents in different lifestyles. It is possible

that, while school social capital is more valuable for adolescents who are able to enter mainstream society, adolescent neighborhood social capital will be beneficial for survival in communities that suffer from high poverty, segregation, and social isolation from the mainstream.

Some of the results in my study are thought provoking and need further research. I show that adolescents in households with parents who graduated from college have lower levels of neighborhood social capital than adolescents whose parents did not graduate high school. In the school environment these adolescents do not seem to suffer from this lower social capital. Future studies should investigate what behaviors college graduate parents display that reduce their adolescents' social capital in the neighborhood.

The finding that adolescent social capital is an important predictor of offending in early adulthood suggests that the respondents' adolescent social capital networks remains with them during this transitional period. I have suggested that the network will begin to change once respondents feel that their new independent adult life has stabilized. At this point their networks will likely become more permeable for new associates, while previous members lose significance or even disappear entirely. I have argued that from this point on the offending of the respondents will change when compared to adolescence. Future research should investigate the specifics of this shift in adolescents' social capital network and how it affects offending in early adulthood.

Lastly, future studies should investigate the possibility that both the intergenerational transmission of social capital and the association between adolescent social capital and offending differs between urban and suburban environments. The

structural differences between these environments, combined with the social characteristics of their residents could lead to important differences both in how adolescents learn social capital accumulating behaviors and how they apply it in their neighborhoods.

APPENDIX A

DETERMINANTS OF PARENTAL SOCIAL CAPITAL

	b	Std. E.
Parental Characteristics		
Parent Male	0.041	(0.027)
Parental Age	0.003***	(0.001)
Parent High School or GED	0.121**	(0.027)
Parent Post High School Education	0.272***	(0.030)
Parent Graduated College	0.505***	(0.030)
Adolescent Characteristics		
Adolescent Male	0.001	(0.011)
Adolescent Age	-0.032***	(0.003)
Adolescent Black	-0.029	(0.019)
Adolescent Asian	-0.216***	(0.030)
Adolescent Hispanic	-0.091***	(0.022)
Adolescent Other Race	-0.073**	(0.025)
Family Characteristics		
Family Income (in $1000)	0.001***	(0.000)
Two Parents, One Not Biological	-0.111***	(0.015)
Single Female Parent	-0.093***	(0.015)
Single Male Parent	-0.191***	(0.039)
Other Family Type	-0.128***	(0.030)
Neighborhood-Level Variables		
Total Census Tract Population (in 1000's)	-0.0020	(0.002)
Residential Mobility	-0.144*	(0.042)
Racial Heterogeneity	0.081*	(0.040)
Proportion of the Population that is Hispanic	-0.172***	(0.042)
Proportion of Population that was below poverty line in 1989	-0.199**	(0.063)
Constant	1.429***	(0.009)
N	11488	

*≤.05 **≤.01 ***≤.001 (two-tailed)

Table A.1 Determinants of Parental Social Capital

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