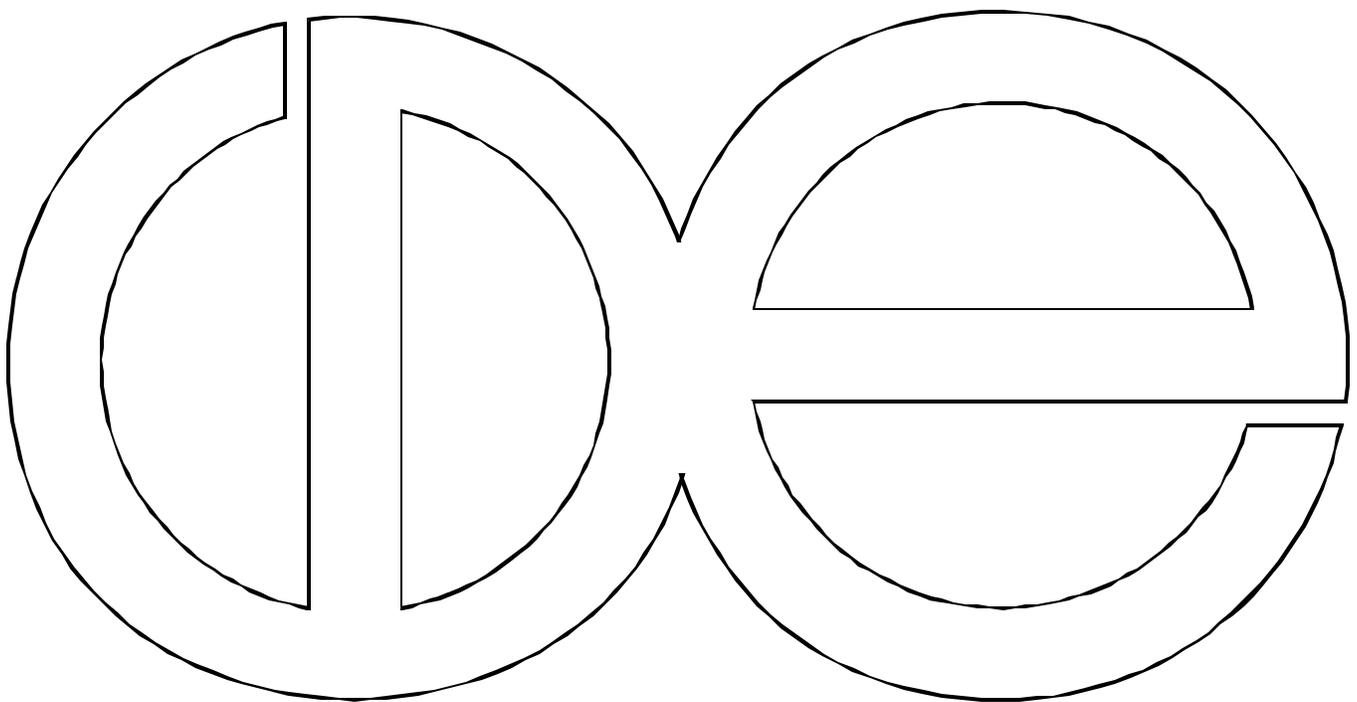


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Social Capital and School Achievement Among Adolescents

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ABSTRACT

Using two waves of the National Longitudinal Study of Adolescent Health (Add Health), I study the influence of social capital on school achievement and the decision to stay in or drop out of school. James Coleman's original concept of social capital is coupled with recent research that refines the way social capital is defined and operationalized. This results in a concept of social capital with several discrete dimensions: forms, quality, and assistance. Forms are defined as the relationships that form social capital. Assistance is what is generated by way of these relationships, and quality is a measure of their character.

Recent theoretical and empirical work on the concept of social capital suggests a number of hypotheses that I investigate in this paper. Past research on the concept of human capital indicates that money (financial capital) is often used to invest in education (human capital). My results indicate that money can also be used to invest in some forms of social capital (residential stability). My findings support recent research that suggests that the quality of social relationships and the assistance provided through them may explain part of the effects of those relationships on academic achievement among adolescents. In general, this paper finds the recent theoretical and empirical work on social capital a useful contribution to the way we view the influence of relationships and the assistance they provide on the educational achievement of adolescents.

SOCIAL CAPITAL AND SCHOOL ACHIEVEMENT AMONG ADOLESCENTS

Family income and parental education are two determinates of child wellbeing rooted in a long tradition of sociological and economic research. These resources have been titled financial and human capital respectively. James Coleman (1988) suggested a third type of capital that may have equally important effects on child wellbeing, specifically educational achievement. He introduced the concept of social capital defined as a resource inhering in the relations between and among actors. Coleman argued that resources that facilitate the wellbeing and development of children are borne of these relationships. Researchers have long recognized the importance of the presence or absence of parents in the household (family structure) as an indicator of wellbeing net of the loss of financial resources associated with the loss of a parent (See, for example; Blau and Duncan, 1967; Duncan, 1965; Mare, 1980). Coleman (1988) suggested a broader theoretical perspective within which to view the effects of family and other relationships on child wellbeing. He suggested that a connectedness between a child, her family, friends, community, and school could translate into higher academic achievement. This connectedness, a product of social relationships and social involvement, generates social capital.

Coleman extended the concept of social capital even further by asserting that it serves as a mechanism to transmit the effects of family human capital from parents to children. Parents with high levels of human capital but low levels of interaction with their children (a source of social capital within families) have fewer opportunities to transmit their human capital to their child than families who have high levels of interaction between parent and their children. This is because human capital is transferred, at least in part, through

interaction. Thus, in Coleman's conception, the transmission of human capital from parents to children is contingent upon the level of social capital available within the family.

Teachman, Paasch, and Carver (1996), using data from the National Educational Longitudinal Survey (NELS), found some evidence that human and financial capital are more easily translated into success in school when social capital is also present.

Since Coleman's work on social capital, various studies have supported the efficacy of some dimensions of social capital as influencing high school graduation. To date, however, few analyses attempt to measure a comprehensive set of social capital indicators and their impacts on the process of school disengagement that eventuates in high school dropout. Educational research suggests that dropping out of high school is not simply an event. Rather, it is the culmination of a longer process of disengagement from school. Some conditions traditionally associated with the process of school disengagement are low academic achievement, truancy, disruptive behavior, and low educational aspirations (Jordan, Lara, and McPartland, 1996; Astone and McLanahan, 1991). Through a careful consideration of what constitutes social capital, this paper examines the impact of a larger set of social capital indicators on academic achievement, disruptive behavior, and the ultimate decision to stay in or drop out of school.

REFINING THE SOCIAL CAPITAL CONCEPT

Since Coleman's introduction of the social capital concept into mainstream sociological research, several researchers have suggested a more systematic and refined approach to conceptualizing social capital. Sandefur, Meier, and Hernandez (1999) summarize two criticisms of Coleman's initial conceptualization that consistently appear in recent work on social capital. First, what Coleman and others call social capital has long been

operationalized in research studies exploring the impact of relationships on wellbeing. Does simply naming this concept social capital elevate its importance on our social research agendas? Social capital can be used as a conceptual tool in much the same way as human capital is today. What is known as human capital today was studied as several discrete dimensions (e.g., education and training) long before it was packaged as a conceptual tool. It was the theoretical development of human capital that allowed us a new paradigm in which to view these oft-studied effects. If we hope to determine the usefulness of social capital as a conceptual tool, we must pursue its theoretical development.

The second criticism deals with the lack of distinctions used for different aspects of social capital in Coleman's initial treatment of the concept (Astone et al., 1999; Portes, 1998; Sandefur and Laumann, 1998; Teachman et al., 1996). Researchers using Coleman's approach to social capital have advocated a variety of ways to achieve conceptual clarity while retaining several different dimensions of social capital. Portes (1998) suggests a three-aspect characterization: possessors of social capital, sources of social capital, and resources available through social capital. Sandefur and Laumann (1998) recognize two distinct categories of social capital: forms and benefits. Teachman et al. (1996) list general (e.g., family structure) and specific (e.g., relationships with parents) as their distinction. Schoen et al. (1997) recognize two distinct parts – interpersonal relationships and resources individuals may use to advance their purposes. Astone et al. (1999) offer the following dimensions: forms of social capital (e.g., family structure), quality of social capital (e.g., degree of social involvement in relationships) and the resources available via a form of social capital (e.g., advice and information from parents or others).

Astone et al. (1999) also acknowledge that social capital is a characteristic of an individual that arises from his/her relationships with other people. For example, a two-parent family is not inherently preferable to a one-parent family, but two parents can provide more social support, social control, information, and greater access to resources outside the family than one parent working alone can. Beyond family structure, there are other important relationships that can generate social capital for an individual that are cited by Coleman and many of his predecessors. One indicator of another type of relationship is attendance at a school surrounded by a religious community. This may also be associated with more social control, social support, and contact with other adults. Additionally, it may provide a greater sense of involvement and community than attending most large public schools.

Neighborhood relationships can be another form of social capital which is often generated by living in one place among the same individuals for certain measure of time. Residential stability is considered a measure of neighborhood relationships.

There may also be ways that parents can invest in some forms of social capital more directly than building relationships. Sandefur et al. (1999) suggest that just as families use their income to invest in human capital for their children, they can use their wealth to invest in the social capital of their children. For example, parents can purchase and maintain a home in the same neighborhood for the duration of their child's schooling to facilitate long, stable relationships with neighbors, school teachers and friends. Although high-income families are generally more geographically mobile than low-income families, they are less mobile during critical periods in the development of their children than low-income families. Residential stability preserves the social networks, friendships, and contacts within which children and parents operate.

Given the criticisms and recent theoretical developments, it is evident that any analysis using the concept of social capital would benefit from conceptual and empirical clarity. Following Astone et al. (1999) I favor a distinction between the relationships that *form* social capital, the *quality* of these relationships, and the *assistance* that comes from being involved in these relationships. My approach is to use Coleman's original definition of social capital as inhering in the relations between actors and among actors as referring to the forms of social capital. Forms of social capital, then, are relationships. For example, a family provides one form of social capital. Other relationships such as those with people at school or in the neighborhood represent other forms of social capital.

Beyond the existence of a relationship, the quality of the relationship must be assessed. While the structure of the family (two-parent, single-parent, stepfamily) may influence the quality of parent-child relationships, quality is not determined by the structure of the family. Quality of relationships within families varies widely among two-parent families and among single-parent families.

In addition to quality, relationships also lead to assistance for children. Families can provide assistance through parental involvement in the lives of their children. Relationships with teachers can afford access to information and opportunities that enhance the educational performance of children. Relationships with friends can assist children in attaining outcomes. Adolescent friendships are among the most likely to generate negative outcomes for children. For example, belonging to a peer group that is involved in self-destructive behavior may "assist" the individual in self-destruction. The opposite is also true – friends can and do assist children to attain positive goals as well.

A final theoretical innovation was introduced by Hagan, MacMillan, and Wheaton (1996). These authors used two of Coleman's principal measures of social capital – family relationships and geographical mobility. Coleman asserted that the presence of two parents and the closeness of the relationship between parent and child would enhance the wellbeing of the child. Conversely, he argued that geographical mobility disrupted the social relationships outside the family and impaired the wellbeing of the child. Based on these assertions, Hagan and his co-authors asked if the effect of migration on the wellbeing of children might be conditioned on their family relationships. Specifically, the effects of moving might be less for children in strong families. Their results supported this proposition. They found that the harmful effects of moving were more pronounced in families with uninvolved fathers and mothers who were not supportive of their children than in families where the fathers were involved and the mothers were supportive. Tucker, Marx and Long (1998) reached a similar conclusion. Children who moved an average or above average number of times were not significantly harmed if they resided in families with both biological parents present. But for those in other types of families, mobility had adverse outcomes.

Based on these recent theoretical advances and past empirical work, I follow Astone et al. (1999) and Sandefur et al. (1999) by investigating five hypotheses that emerge. The first hypothesis will be called the investment hypothesis. This hypothesis states that the forms of social capital vary with family income. This variation occurs because families use their income to invest in social capital just as they invest in human capital (education). The second hypothesis is the quality hypothesis. The forms of social capital affect (but do not determine) the quality of social capital. For example, family structure may affect whether or

not parents are involved in their child's school. The third hypothesis is the assistance hypothesis. That is, strong and stable social capital should result in more measurable assistance relative to weak and unstable social capital. Based on this hypothesis, I expect to find that intact family structures lead to more interaction between parents and children than single-parent family structures. Thus children in these types of families have access to more assistance due to the existence of more residential family relationships. A fourth hypothesis, the outcomes hypothesis, refers to the outcomes associated with forms of social capital. It posits that the effect of a form of social capital on an outcome is due to the measured and unmeasured assistance received via that form of social capital. For example, the impact of moving frequently on dropping out of school is in part due to the reduced contact between parents and schools associated with frequent moves. The final hypothesis considers the conditional effects proposed by Hagan et al. (1996). Recall that this research examines the ways in which the effects of forms of social capital may be conditional on the strength of the family. This hypothesis asserts that strong families can make another form of social capital less important – this proposes an interaction effect between family structure and other social capital forms, specifically residential mobility.

DATA AND MEASURES: FORMS, QUALITY, AND ASSISTANCE

I use data from the National Longitudinal Study of Adolescent Health (Add Health) to examine the effects of social capital on school disengagement as well as the decision to stay in or drop out of high school. The Add Health data is particularly well suited to the analysis of social capital effects since its research design was predicated on the idea that social environments, from family to community, affect differential outcomes of adolescents

(Bearman, Jones, and Udry 1997). It includes data from adolescents and their parents in grades 7 through 12 in 1995 (time one). Approximately one year later those who were in grades 7 through 11 at time one were re-interviewed. Time one 12th graders were not re-interviewed. Among time one 7th through 11th graders, 87 percent participated in the time two interview. Add Health is a school-based cluster sample that produced approximately 12,000 core respondents to an in-home interview in 1995 (Bearman et al., 1997). After dropping cases where the respondent was a 12th grader at time one (and thus not re-interviewed) and cases with missing values on several independent variables my sample consists of approximately 9000 cases.¹ I use time one data (1995) to measure the social capital indicators and the control variables and time two data (1996) to examine the outcome variables of academic achievement, disruptive behavior, and dropping out of high school.²

Forms. The forms of social capital used for this analysis will be family structure, attendance at a religious school, and residential stability. As noted earlier, an abundance of research supports a link between family structure and academic achievement. Family structure figures prominently in Coleman's concept of social capital as well. He argued that the absence of a parent in the family creates a structural deficiency that results in less social capital for children. Researchers have consistently found that single parents monitor less and exert fewer controls on their children than married parents (Amato, 1987; Astone and McLanahan, 1991; Dornbusch et al., 1987; Furstenberg and Nord, 1985). Moreover, the

¹ I dropped cases that had item non-response on independent variables except those with non-response on income or parents' education. The number of cases with missing values on these variables was too high to exclude without biasing the sample. For these three variables, mean substitution was used to allow for their inclusion.

² Because of the short amount of time between wave one and wave two (it could be as short as 9 months), I do not control for the outcome variables measured at time one. Thus the analysis is not truly longitudinal, but still benefits from the temporal ordering of important covariates measured at time one and dependent variables measured at time two. Future waves of data will allow for a true longitudinal analysis.

addition of a replacement parent into a single parent family does not ensure protection from the negative effects of single parent families. Astone and McLanahan (1991) find that children in stepparent families experience many of the same negative consequences in terms of educational attainment as children in single parent families.

Family structure is measured at the time of the first interview by a household roster section of the questionnaire. Thus, it is really a measure of residential family structure, not legal family structure. The family structure variables are two parent family (respondent lives with both natural parents); stepparent family (respondent lives with one natural parent and a stepparent); single-parent family (respondent lives with only one natural parent); and other family structure (respondent lives in some other family or residential form).³ Dichotomous variables indicate whether or not a respondent reported each of the family structures in wave one. Table 1 shows descriptive statistics for selected variables in the analysis. Adolescents from two-parent families account for over half of all respondents. Thirteen percent of all respondents are from stepparent families, 26 percent live in single parent families, and 5 percent are from other family types.

Religious school attendance is another form of social capital considered in this analysis. The relationships generated in a parochial school are often more dense than those among children and between children and teachers and parents at larger public schools. Not

³ I considered including variables to represent changes in family structure between time one and time two (change from a single parent to a two parent family and change from a two parent to a single parent family). There were too few respondents that had experienced one of these changes to use them in the analysis (2.7 and 2.8 percent, respectively). Additionally, I considered a measure indicating any kind of residential family change. The source of most of the change is from an intact, step or single parent family into the “other” family type category. This type of change is ambiguous as it could be the respondent moving out of a parental family type to live with a spouse, partner, sibling, grandparent, or other relative or non-relative. Because of this ambiguity, a measure indicating family change is not included in the analysis.

only are most parochial schools smaller which allows for a tighter community, they also often mix family life with school life by maintaining a similar community for school, church, and social activities. Religiously affiliated schools are often characterized by linking multiple domains of a child's life.

Whether or not a student attends a parochial school is measured from school administrator responses to questions about school type. Schools who indicated they are any of the following school types were considered to be religiously affiliated: catholic diocesan, catholic parish, catholic religious order, and other private with religious affiliation. Table 1 reports that about 2 percent of all respondents attended a parochial school.

Residential stability is the last form of social capital considered in this analysis. Research reported in the last decade consistently finds that frequent moving has a negative effect on grade advancement, behavior, and educational achievement (see Hagan et al., 1996 for a review). Coleman also recognized the importance of residential stability in his development of social capital theory. He suggests that moving diminishes the social capital available to a child by disrupting several networks of parents and children. By moving often, parents are less likely to have relationships with teachers or with other parents and children are less likely to have relationships with friends, teachers, and other adults in the community. Coleman's (1988) own analysis of school completion finds frequency of moves to have the strongest overall effect on dropping out of school.

While Add Health does not contain an ideal measure of residential mobility, a combination of two variables creates an adequate indicator. The first variable is available in the wave one student interview, and it asks the student if he/she lives in the same house or apartment building where he/she lived in January 1990 (approximately five years before the

interview). The second measure comes in the wave two student interview and it asks how many times the child has moved since the time of the last interview (approximately one year earlier). I have created a series of dichotomous variables from these two questions – no moves, some moves, and frequent moves. Those who didn't move in the five years prior to wave one *and* didn't move between waves one and two were categorized as “no moves.” Those who either moved in the five years prior to the wave one but didn't move between waves one and two *or* didn't move in the five years prior to wave one but moved once between waves one and two were classified as “some moves.” Finally, respondents who either moved in the five years prior to wave one and moved between waves *or* those who didn't move in the five years prior to wave one but moved multiple times between the waves were considered “frequent movers.” Table 1 shows that almost 40 percent of students were non-movers, 56 percent were some movers, and just over 5 percent were frequent movers.

There are some potential problems with this measure of residential stability. First, the question which asks about whether or not a respondent lives in the same house as he/she did five years ago does not allow them to specify the number of times the respondent has moved in the course of the five year period. The definitions I create for this analysis assume that respondents who move in the five years prior to wave one have only moved once in those five years. Therefore, I may be underestimating their mobility. In addition, estimating the effects of moves within the last six years might generate overestimates to the extent that those moving multiple times during that time are more likely to come from families that have also moved more in preceding years. To the extent that this has happened, the effects of moving reported in this analysis may result, on average, from multiple moves some of which

may have occurred more than six years before. Thus, my reported effects of moves are likely to overstate the actual detrimental effect of just one or two moves.

Potential period effects may also confound the estimates of mobility effects. Moving during junior high or high school can be particularly difficult for children who are establishing an identity for themselves and among their peers. The effects of moving, and especially repeated moves, may be more severe during this period of a child's life than the effects of moving when a child is in the primary grades. There is also the potential for confounding between moving between waves and being re-interviewed although Add Health administrators feel that the risk of this type of confounding is minimal.⁴

A final disadvantage to using this indicator of residential mobility is that it measures moves, not school changes. While social capital is undoubtedly diminished when neighborhood ties are broken because of a move, the additional social capital forfeited by changing schools in the course of a move is likely to have an effect of an even greater magnitude. Despite the deficiencies of this measure of residential stability, it still captures important effects of moving during adolescence on educational outcomes. Additionally, it uses information about a total of 6 years – years in which respondents would have been in grades 2 through 12 which are important years for child and adolescent development. This measure of residential stability, even with all of its constraints, is better than none at all.

⁴ According to administrators of Add Health, the field interviewers were working from respondents' home addresses at time one and followed standard locating procedures such as talking to neighbors, contacting directory assistance, and obtaining change of address notifications. According to the field interviewer manual, the field managers had access to other locating resources but they were not specified in the manual (Bearman et al., 1997). If a respondent had moved and was willing to participate, then reasonable attempts were made to interview him or her.

Although Coleman proposed the number of siblings as a measure of social capital, it is introduced only as a control variable here. Coleman viewed siblings as competitors for the time and attention of parents, but other research suggests that more siblings are often associated with more parental involvement. This research proposes that parents with many children are selected for their enjoyment of children and preference for child-oriented activities (Hoffman and Manis, 1979). Thus, the effect of number of siblings is unclear. Its inclusion as a control variable may hint at the nature of its effects on adolescent academic achievement.

Insert Table 1 about here.

Quality. The indicators of quality used for this analysis will be intergenerational closure, extracurricular activity participation, and parental involvement in school. Intergenerational closure is defined as whether or not parents know the parents of their children's friends (Coleman, 1988; Carbonaro, 1998; Teachman et al., 1996). According to Coleman (1988), "the consequence of this closure is . . . a set of effective sanctions that can monitor and guide behavior." (pp. S107) One could argue that it is a form of social capital, but others view it as a measure of the quality of social capital because it is an indicator of the integration of the adolescent and his/her parents into the community. Knowing the parents of your child's friends generates a consistent set of rules and expectations for a child inside as well as outside the home. This consistency is especially important during adolescence, a developmental stage psychologists characterize as a period when children transfer much of their emotional attachment from their family to their peers.

Intergenerational closure is measured in wave one by a question asked of parents regarding their interaction with the parents of their child's friends. The question asks, "How

many parents of [your child]’s friends have you talked to in the last four weeks?” Responses range from 0 to 6 or more. Table 1 reports a mean response of 2.215. Unlike measures of intergenerational closure used in other analyses (Teachman et al., 1996; Carbonaro, 1998), this measure taps actual interaction between parents. Other measures of closure are more general and ask only about knowing other parents. The specificity of the intergenerational closure measure used in this analysis is an improvement over other indicators.

Parental engagement in a second domain, school, can be an equally important indicator of integration into the community. A number of studies have examined parents’ interactions with their child’s school (attending school events, conferences, PTO meetings, or volunteering at the school) and found a positive relationship with achievement (Bogenscheider, 1997; Ho and Willms, 1996; Teachman et al., 1996). Links between family and school provide a consistent set of expectations for adolescents.

Parent-school interaction is measured by a single indicator of whether or not the parent is involved in a Parent-Teacher Organization (PTO) at school.⁵ While membership in a PTO does not necessarily mean direct involvement, it does indicate some level of parental commitment to the school. Parent-school interaction is measured as a dichotomous variable with “1” indicating involvement. Table 1 reports that approximately 34 percent of the parent respondents indicated that they are involved in a PTO.

The final measure of quality considered in this analysis is extracurricular activity participation. Again, this measure represents integration in the community, but it also offers

⁵ Other parent-school involvement variables that would have been useful for this analysis do not have enough cases for inclusion. This is because the interview design first asked parents if their child was currently in school. Those who were interviewed in the summer months were coded “no” and skipped out of a short series of questions about recent involvement in school. These “skipped” respondents constitute approximately half of the sample.

a glimpse at the type of social networks a child is involved in at school. While some negative activities have been associated with particular groups of extracurricular activity participants (e.g., binge drinking among high school football players), the majority of social experiences associated with extracurricular activities are positive. Children who feel that they have a purpose or role in their school are more likely to succeed academically. Jordan et al. (1996) assert that alienation and disengagement from school are factors that cause students to exert less academic effort which can be a precursor to dropout. Extracurricular activity participation is a common way for adolescents to become positively engaged in their school outside of the structured academic curriculum. Recent research finds that participation in extracurricular activities significantly reduces a student's likelihood of dropping out of school (McNeal, 1995; Mahoney and Cairns, 1997).

Extracurricular activity participation is measured by student responses to the question of whether or not they participate in any of a number of listed extracurricular activities. Their responses are dichotomized into "1" for participation in at least one activity and "0" for no participation.⁶ Approximately 60 percent of respondents participated in at least one extracurricular activity at the time of the first interview.

Assistance. Two indicators represent assistance generated through social relationships – parent-child interaction and student-teacher relationship. By interacting with their children, parents can provide assistance in the form of advice and information. A strong, communicative relationship between parents and their children is a conduit for transfers of information and advice. The importance of this interaction is so profound that Coleman

⁶ Other conceptualizations of extracurricular activity participation such as number and type of activities were considered. Because I am interested in simply measuring involvement and integration in the community a simple measure indicating whether or not he/she participated in any extracurricular activities is sufficient.

suggested without it the benefits of human capital – parental education, would be lost or greatly reduced. According to Coleman (1988), “. . . if the human capital possessed by parents is not complemented by social capital embodied in family relations, it is irrelevant to the child’s educational growth that the parent has a great deal, or a small amount of human capital.” (pp. S110) Several other researchers have examined measures of parent-child interaction and found a positive relationship to child wellbeing (Thomson, Hanson, and McLanahan, 1994; McLanahan and Sandefur, 1994; Marmer and Harris, 1998; Furstenberg and Hughes, 1995). Teachman et al. (1996) find that parents who interact with their children have children who are more likely to avoid one educational setback – dropping out of school – than children who have little or no meaningful interaction with their parents. In this analysis, parent-child interaction is treated as an indicator of assistance that in turn facilitates academic achievement.

Parent-child interaction is measured as a continuous variable. It is a summary measure calculated from student responses to four sections of the questionnaire. Each section asks the same nine questions about interaction with reference to a different parent – residential mother, residential father, non-residential mother, and non-residential father. The questions ask whether or not the respondent has done each of the following with each parental figure (if they have that parent) – gone shopping, played a sport, gone to a religious service or church-related event, talked about someone the child is dating or a party he/she went to, went to a movie or performance, talked about personal problems of the child, talked about school work or grades, worked on school projects, and talked about other things the child is doing at school. A “1” indicates that the parent and child have shared the activity

and a “0” indicates that they have not. All of the responses are summed for the final indicator of interaction (range 0-36).

Another way to construct this variable would be to divide the summed response by the number of parental figures the child possesses. This would focus on the average amount of interaction given by parents in each family structure. Using information about interaction with all possible parents (residential and non-residential) as I have in this analysis focuses on the total amount of interaction received by the child rather than the average amount given by a parent.⁷ All of this interaction can serve as assistance for children. One limitation of this measure is that the questions only ask if the parent and child have shared the interaction over the past four weeks, not the number of times they have shared the activity over that time period. For example, a father who plays catch with his daughter every day after school will score the same on this item as a parent who played catch with their child just once in the past month. Another limitation is that this measure does not specify if the interaction was a one-on-one interaction or if the interaction was divided amongst others as well (siblings, friends, etc). Still, the measure captures a range of possible parent-child interactions. Table 1 indicates that mean interaction score is 6.348.

Another source of assistance for children are teachers. Teachers may provide even more assistance than parents in terms of academic achievement since this is their primary relationship with students. Good relationships between teachers and students facilitate the transfer of valuable information regarding educational opportunities, scholarships, etc.

⁷ By definition, those in stepfamilies or other family structures have the potential for more total interaction with parental figures simply because they have more parental figures with whom they can interact. Analysis using an average interaction per parent finds that parents in two-biological parent families interact more than a single parent or parents in a stepfamily. But by recognizing all parents, we get a measure of how much interaction a child gets rather than how much each parent gives.

The student-teacher relationship composite score is calculated from responses to three questions in each of two waves. This is the only benefit that is measured, in part, at time two. The questions ask how well students get along with their teachers, how much they agree that their teachers treat students fairly, and how much they feel their teachers care about them. The responses are standardized and summed for a composite measure of the student-teacher relationship. Those with missing values are coded to zero (the mean for a standardized variable).

Dependent Variables

All of the dependent variables are measured at time two. Academic achievement is measured by grade point average (GPA). Educators argue that grades are a better predictor of student progress than achievement test scores because grades also represent teachers' assessments of students' problem solving processes and adaptability to the learning environment (Dornbusch et al., 1987). Because the Add Health data includes only self-reports of grades, GPA is calculated from student reports of their grades in each of four subjects (English, Mathematics, Science, and History/Social Studies) during the latest grading period. Researchers have found high correlations between grades reported by students and those recorded by schools. Dornbusch and his colleagues (1987) found the correlation between self-reported and actual grades to be .75. Other studies cite correlations as high as .80 (Bogenschneider, 1997). The values of grades in the four subjects are summed and divided by four or the appropriate value indicating the number of these four subjects studied by the respondent. For example, if a respondent was enrolled in English, Math, and Science, but not History, their summed value would be divided by three rather than four. The maximum value for GPA is 4.0 while the minimum is 1.0. This is a slight deviation

from standard scales of GPA that have a minimum score of zero. This is because grades of “D or lower” were coded as a “1” rather than disaggregating the “D’s from the “F’s” and coding “F’s” to “0” as would be done in traditional grade point average calculations. This may cause a very slight upward bias in GPA. This outcome is treated as a continuous variable. Table 1 shows that the average GPA is 2.832

Disruptive behavior is indicated by whether or not the student has been suspended from school in the past year and is treated as a dichotomous variable with “1” indicating the student has served suspension and “0” indicating he/she has not been suspended.⁸ Table 1 indicates that 11 percent of students were suspended from school in the past year.

Dropping out of high school is measured in a straightforward manner indicating if students dropped out since their wave one interview.⁹ It is also treated as a dichotomous variable with “1” indicating dropout status and “0” indicating school continuation. Because respondents who were in 12th grade in 1995 were not re-interviewed in 1996, dropout status is determined only for those who were in 7th through 11th grade in 1995. Table 1 reports that approximately 3 percent of all respondents dropped out of school.

One point should be noted about this measure of high school drop out. Because those in 12th grade at time one are not re-interviewed at time two, the sample is selected for those who are in school at the time of the first interview and does not include those who have

⁸ In addition to other controls, I also control for grade in my models of suspension and dropping out because the distribution of these events by grade shows that they are subject to some degree of grade-specificity.

⁹ There are some possible problems of confounding between dropping out of school and being re-interviewed. According to administrators of Add Health, the field interviewers were working from a Wave I home address and followed standard locating procedures such as talking to neighbors, contacting directory assistance, and obtaining change of address notifications. Because locators were based on home addresses, dropouts did not present any special problems.

dropped out at earlier grades. This suggests that the sample, at least those in the higher grades, is selected for having resisted dropping out of school thus far.

Control Variables

Control variables are included to account for important influences that have been established in other research studies. The control variables include the financial capital measure of parental income (log of income), the human capital measures of mother's and father's education (in years),¹⁰ number of siblings (includes full-, half-, step, adoptive and foster siblings), place of residence (urban, rural, suburban), and the respondent's gender and race. When examining suspension from school and dropping out of high school, grade is also used as a control variable.

Several independent variables used in this analysis have missing data. Among the variables with enough missing data to cause concern are parental income, father's education, mother's education, parent-school interaction, and intergenerational closure. All of these variables are from the parent questionnaire which had a lower response rate than the student questionnaire. This may be one explanation for the higher levels of missing data. The variables of income and education are likely suspects for missing data in many social research studies. The results reported in this paper use mean substitution for variables with high number of missing values. Cases with missing data on other independent variables (where these variables have overall low levels of missing data) are simply dropped from the analysis. This accounts for less than 5 percent of the original sample.

¹⁰ Parental education refers to the parental figures living with the child (biological or not) unless one does not exist. If this is the case, the biological parent's educational attainment is used. For example, for single-mother families, the child's biological father's education would be represented for "father's education," but if a once single mother is now married, the stepfather's education will be used to represent "father's education."

HYPOTHESES

Organizing social capital into forms, quality and assistance provides a clean concept with which to formulate the hypotheses about the effects of social capital on adolescent academic achievement. Now that I have identified the indicators of the three dimensions of social capital to be used in this analysis, understanding of the hypothesis can be enhanced by diagrams. Figure 1 illustrates the investment hypothesis, Figure 2 shows the quality hypothesis, Figure 3 is the assistance hypothesis and Figure 4 is the outcomes hypothesis.

Figure 1: Investment Hypothesis: Families use their income to invest in the social capital of their children.

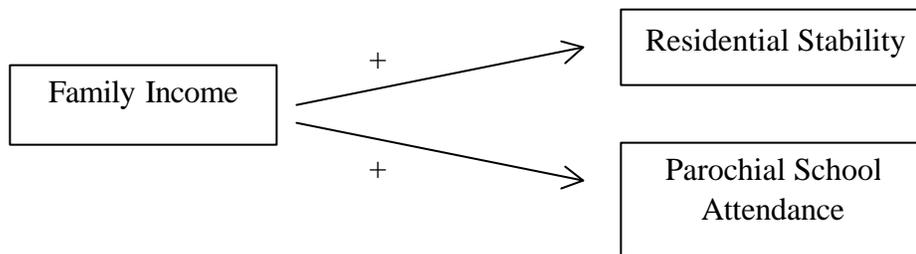


Figure 2: Quality Hypothesis: The quality of social capital will vary with the forms of social capital.

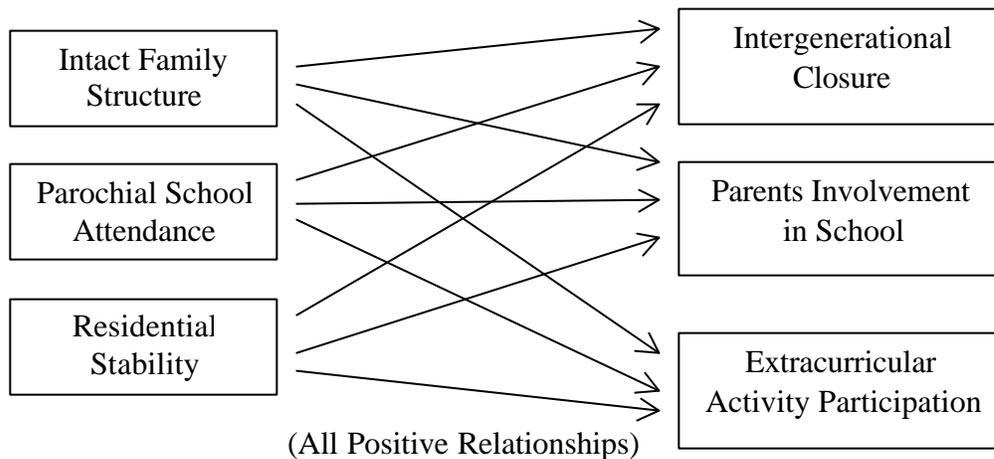


Figure 3: Assistance Hypothesis: Strong and stable social capital should result in more measurable assistance relative to weak and unstable social capital

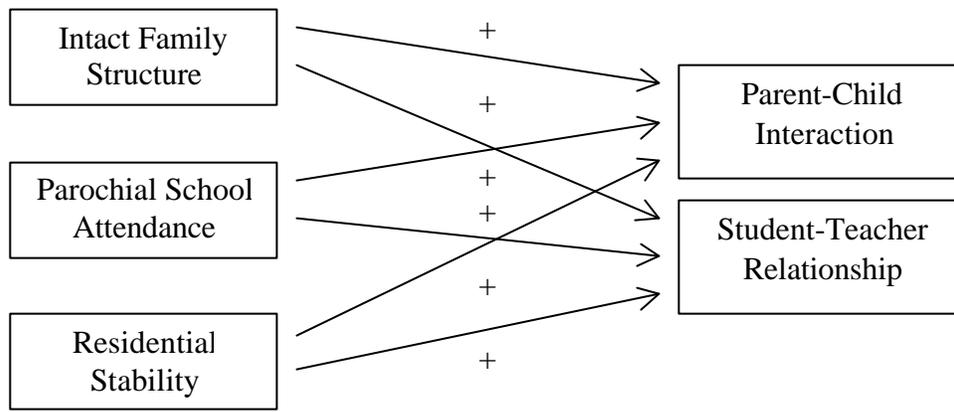
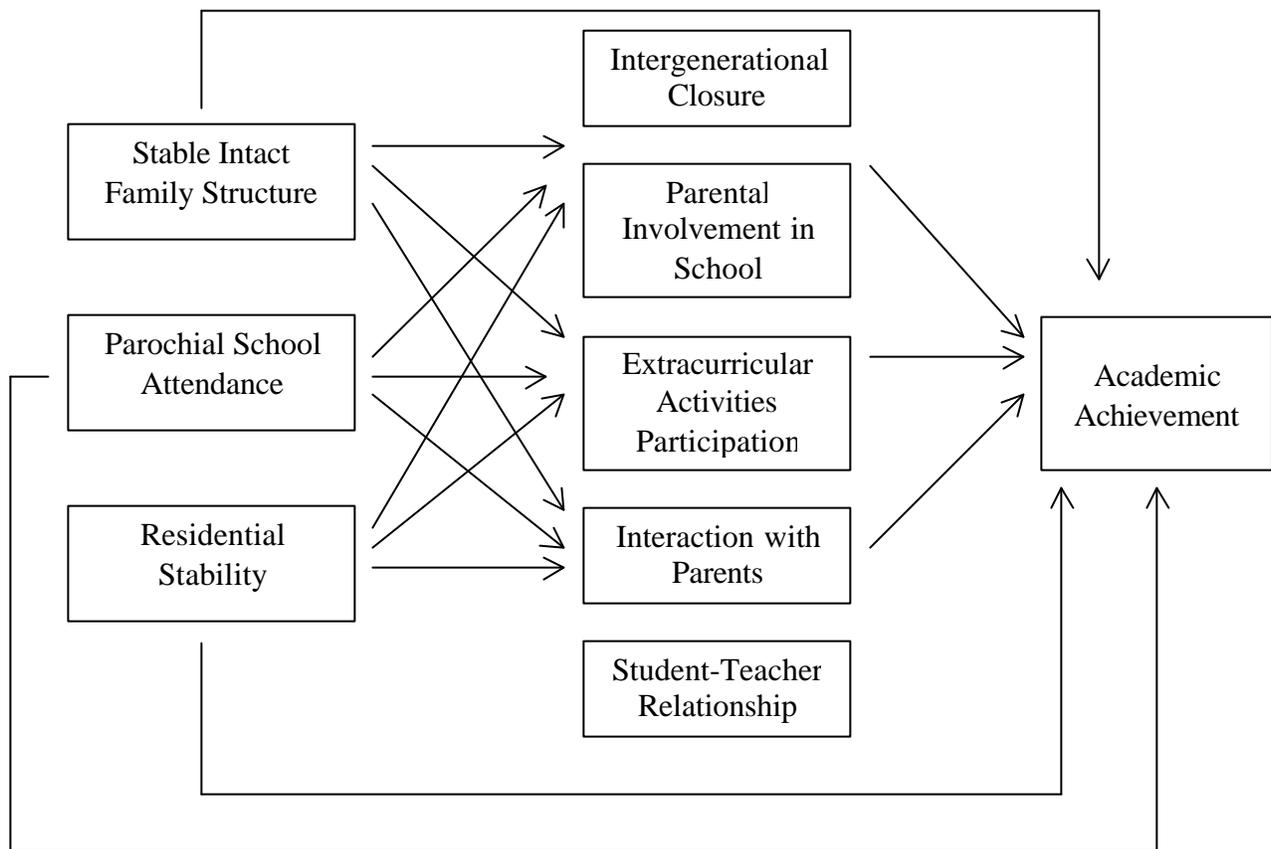


Figure 4: Outcomes Hypothesis: The effect of a form of social capital is due to the measured and unmeasured quality of the relationships in that form of social capital and the assistance provided via that form of social capital.



RESULTS

Investment Hypothesis

Recall that the investment hypothesis states that families use their income to invest in the social capital of their children. Parochial school attendance and residential stability are the two forms of social capital in the analysis in which families can invest. Table 2 reports the results of estimating models in which parochial school attendance (Column 1) and frequent moves (Column 2) are the dependent variables. These models are estimated using logistic regression. No parochial school attendance and non-frequent movers serve as the reference category for each variable respectively.

Insert Table 2 about here.

The results show that family structure affects both parochial school attendance and residential stability. Single parent and other family types are less likely to send their adolescents to parochial schools, and all non-intact family types are more likely to move frequently than intact, two-parent families. Additionally, increased family income decreases the probability of making frequent moves, but does not show a significant effect on parochial school attendance. These results are consistent with the view that families use their income to invest in residential stability, but they are inconsistent with views that families use income to invest in parochial school attendance. It seems as if those parents use their education rather than income to invest in parochial school attendance. As father's education increases, so does the likelihood of parochial school attendance. There is no significant relationship between parental education and frequent moves.

The Quality Hypothesis

The quality hypothesis states that the quality of social capital will vary with the strength and stability of the forms of social capital. The three measures of quality of social capital are intergenerational closure, parental involvement in school, and extracurricular activity participation. All three are indicators of the family's or student's integration into the community. Table 3 contains the results of estimating two ordinary least squares regression models in which intergenerational closure is the dependent variable. Model 1 includes measures of parental income and education as well as the control variables. Model 2 adds the measures of the social capital forms. Model 1 results indicate that intergenerational closure increases with the income and education of the parents. That is, higher SES parents are more likely to know more of their children's friends and, in turn, the parents of those friends. The number of parents with whom the respondent's parents communicate is lower for male and non-white respondents. Intergenerational closure is higher in rural than urban areas.

Insert Table 3 about here.

Model 2 contains the measures of the forms of social capital: family structure, parochial school attendance, and residential stability. The results show that intergenerational closure is lower for all non-intact family structures compared to intact, two-parent families. Closure is significantly higher for those who attend parochial school. This finding is consistent with the idea that schools surrounded by a religious community offer overlap of multiple domains of the lives of adolescents. Parents are in contact with each other and their children at church and school events. Upon first review, the findings regarding residential stability seem to contradict expectations. They show that those from families who have some

moves (recall that this is either a move in the 5 years prior to wave one *or* one move between waves – not both of these) are represented by an increase in intergenerational closure.

However, recall that higher-income families are generally more mobile than low-income families, but less mobile during critical periods in the childhood of their children. Thus those families who have experienced “some moves” (which is assumed to represent just one move in the last 6 years) were likely to have been strategic about this move in terms of protecting their children and the relationships they had developed. Moreover, because of their higher-income, the move they made may have been to further increase the standard of living of their family. Therefore, it is likely that many of those in the “some move” category have moved up rather than just moved on. Also, these parents are more likely to have sought the best time for their children to move (maybe summer vs. during the school year) and may have even remained in the same geographic area or neighborhood so as not to break ties. Based on this, we would expect those who had experienced frequent moves (generally those with lower-incomes) to develop less intergenerational closure. While the coefficient is negative, it is not significant. This means that those who make frequent moves are not significantly different from those who make no moves. This may be explained by a cross tabulation of the three move variables with a crude dichotomy of high vs. low income. This shows that those with low incomes are overrepresented in the “no movers” and “frequent movers” categories, while those with high incomes were overrepresented in the “some moves” category. In sum, the evidence suggests that each of the forms of social capital is associated with intergenerational closure, after controlling for several indicators of family background. This provides strong support for the quality hypothesis.

The second measure of quality is parental involvement in school. Table 4 contains the results of estimating two models with a dichotomous variable for whether or not the parent participates in a Parent Teacher Organization (PTO). The results of Model 1 show that family income and parental education have positive and highly significant effects on parental participation in school. The probability of parental involvement increases with number of siblings and among blacks. Hispanics and those from rural areas are less likely to belong to a PTO.

Insert Table 4 about here.

Model 2 shows all of the social capital forms are related to PTO participation. Parents from all non-intact family structures are less likely to participate in a PTO as are those who move frequently. Parents who send their children to parochial school are much more likely to be PTO members, and those who have moved once are slightly more likely to participate. Again, the quality hypothesis is supported.

The final measure of quality is participation in extracurricular activities. Table 5 contains the results of estimating two models with extracurricular activity participation as the dependent variable. Model 1 suggests that the probability of participating in extracurricular activities increases with family income and parental education. Males, Hispanics, and those from suburban areas are less likely to participate in extracurricular activities. Black respondents and those from rural areas are more likely to be participants.

Insert Table 5 about here.

In Model 2 we see that all of the social capital forms affect extracurricular activity participation except parochial school attendance. Those from all types of non-intact family structures are less likely to participate in extracurricular activities than those from intact

families. Those who have experienced one move are more likely to participate, and those who have moved frequently are less likely to participate than those who haven't moved at all in the past 6 years. Parochial school attendance does not affect extracurricular activity participation.

The Assistance Hypothesis

I use parent-child interaction and student-teacher relationship as measures of assistance provided by parents and teachers. Table 6 show the results of two models in which parent-child interaction is the dependent variable. Model 1 shows that parent-child interaction increases with family income and parental education. Parent-child interaction is less for males, Hispanics, and those of races other than white, black or Hispanic.

Insert Table 6 about here.

In Model 2, I add the three measures of the forms of social capital. Here we see that all forms are related to parent-child interaction. However, the effects reported for the family structure variables require further explanation. Because the parent-child interaction variable represents the amount of interaction the child receives from all parental figures, respondents with more than two parental figures have access to more potential interaction. This explains why parent-child interaction is higher for those in step and other family structures and lower for those in single-parent families. Parent-child interaction is higher for those attending parochial school and lower for those who move frequently.

The other measure of assistance is student-teacher relationship. Table 7 reports the results of estimating two models in which student-teacher relationship serves as the dependent variable. Model 1 shows that student-teacher relationships improve with father's education and number of siblings. Perhaps earlier siblings pave the way with teachers for

younger siblings. Being male and being black is related to poorer student-teacher relationships while being Hispanic is related to better relationships with teachers.

Insert Table 7 about here.

In Model 2, I add the three measures of social capital forms. All three forms are related to student-teacher relationships. Student-teacher relationships are less positive for those from step and single parent families and those who have moved often, but more positive for those who attend parochial schools. Overall, these results support the assistance hypothesis.

The Outcomes Hypothesis

The outcomes hypothesis states that the effect of a form of social capital is due to the measured and unmeasured quality of the relationships in that form of social capital and the assistance provided via that form of social capital. The effect of frequent moves, for example, is due in part to its association with the weakening of student-teacher relationships brought about by changing schools. Table 8 contains the results of three models that allow us to test this hypothesis with Grade Point Average as the dependent variable. Model 1, the baseline model, looks at the effects of family income, parental education, and the control variables on GPA. The results show that that GPA increases with parental income and education. GPA is lower for males, black and Hispanics, but it is slightly higher for those of other races (Asian would be the largest group in this category) and those from rural areas.

Insert Table 8 about here.

Model 2 adds the forms of social capital to the models. The results for Model 2 show that GPA is higher for those who attend parochial school and those who have moved once, and it decreases for those in all non-intact family forms.

Model 3 shows that each of the measures of quality and assistance is also associated with GPA. Further, the addition of these variables explains parts of the effects of the forms of social capital. The effect of attending parochial school on GPA is decreased by 34 percent when the quality and assistance variables are included. All of the family structure effects are also diminished (stepfamily effect declines by 13 percent; single-parent effect declines by 29 percent; other family type declines by 2 percent). The positive effect of having moved once in the past 6 years compared to not moving at all declines by 23 percent. So while the effects of the social capital forms are not completely explained by the quality and assistance measures, some part of their effects are indeed channeled through social capital quality and assistance.

Table 9 shows the results of testing for effects of forms, quality, and assistance on suspension from school. Model 1 shows that the probability of being suspended from school decreases with family income and parental education. The likelihood of dropping out is high for males and blacks, but lower for those from rural areas. Grade indicators are also included as control variables when modeling suspension because the distribution of these events by grade shows that they are subject to some degree of grade-specificity. With 7th grade as the reference category, it seems that the probability of being suspended stays the same through 8th grade, increases slightly in 9th grade, and then decreases in the higher grades.

Insert Table 9 about here.

In Model 2, I have added the measures of social capital forms. All are related to the likelihood of suspension from school. Students from all non-intact family types are more likely to be suspended than those from intact families. Parochial school attendance and

moving once decreases the probability of suspension while moving often increases the likelihood of suspension.

Model 3 includes the measures of social capital quality and assistance. Of the quality measures, intergenerational closure and extracurricular activity participation decreases the probability of suspension while parental involvement in school has no effect. In terms of assistance, the better the student-teacher relationship, the less likely one is to be suspended from school. Again we see that the effects of social capital forms on suspension from school can be measured in part by social capital quality and assistance. This time the family structure variables are the most affected – the effect of living in a stepfamily decreases by 36 percent, a single-parent family decreases by 49 percent, and other family type declines by 17 percent. The effect of frequent moves becomes insignificant, while the effect of parochial school attendance declines by just 8 percent. Again we see that part of the effects of social capital forms are channeled through these measures of quality of relationships and assistance provided via relationships.

Finally, I examine the outcomes hypothesis for the dependent variable of dropping out of school. Table 10, Model 1 shows that the probability of dropping out declines with family income and parental education. Blacks, Hispanics, and other non-white races are less likely to drop out of school than whites. The lower likelihood of dropping out among non-whites may seem surprising, but it is consistent with other research on educational continuation when controlling for parental education and income. Again, indicators of grade are included as controls. These measures show that, consistent with expectations, the likelihood of dropping out of school increases with grade (with grade 7 as the reference category).

Insert Table 10 here.

In Model 2, I have added the social capital forms indicators. The results indicate that respondents from single-parent and other family structures are more likely to drop out of school than those from intact families. Moving frequently is also associated with a higher likelihood of dropping out. Attending parochial school and moving once in the past 6 years are both related to a lower probability of dropping out of school.

Model 3 includes the indicators for social capital quality and assistance. Intergenerational closure and extracurricular activity participation decrease the probability of dropping out of school. In terms of assistance, both parent-child interaction and student-teacher relationship decrease the likelihood of dropping out. In addition, these variables can compensate for the effects of some forms of social capital. The effects of living in a single-parent or other type of family structure decline by 24 and 4 percent respectively. The effect of frequent moves decreases by 11 percent. But most prominent is the finding that the two forms which seemed to protect against dropout – parochial school attendance and some moves – become insignificant when social capital quality and assistance is considered. Again, this indicates that the effects of social capital forms are channeled at least in part through the measurable quality and assistance provided through social capital.

Conditional Hypothesis

The conditional hypothesis suggests that residential stability will have different effects for individuals in strong families than for individuals in weak families. To test this hypothesis I look at interactions between the effect of being in a single-parent family and the effects of moving frequently on GPA, suspension from school and dropping out of school. I chose to test interactions with single-parent families over other non-intact family structures

because the effects of single-parent families were consistently significant in all of my models. None of the interactions between single-parent family and residential stability were significant.

Because parochial school attendance has strong significant effects on both GPA and suspension from school, I also tested the interaction effects between single-parent family structure and parochial school attendance for these two dependent variables. Is it possible that attending a parochial school means more for those from different types of family structures? Here I found one interaction effect that was significant, but only at the $p < 0.10$ level. This interaction is shown in Table 11. Model 1 is the baseline model with all variables except the interaction.

Insert Table 11 about here.

Model 2 adds the interaction between single-parent family structure and parochial school attendance. This interaction indicates that those from single-parent families benefit more from attending parochial school than those not in single-parent families. The main effect of attending parochial school on GPA is 0.116 (Model 2). The effect for those in single parent families is more than double this ($.116 + .197 = .313$). This indicates that, in terms of GPA, adolescents from single-parent families experience two times the benefit of those not from single-parent families of attending parochial school.

SUMMARY AND CONCLUSIONS

This paper uses two waves of data from the National Longitudinal Study of Adolescent Health to test five hypotheses inspired by Coleman's work on social capital and the recent theoretical and empirical innovations building on his approach. The hypotheses

rest most heavily on the work of Astone et al. (1999) who suggest distinctions between social capital forms, the quality of the relationships in the forms, and the assistance these relationships generate.

This analysis lends support to the idea that families use their income to invest in some forms of social capital. That is, the likelihood of remaining in the same house or apartment during a child's development increases with family income. However, the results did not indicate, as other research has indicated, that parents invest in another form of social capital, parochial school attendance.

The results also show that parents talk to more of their children's friends' parents when they live in an intact, two-parent family and when their child attends a parochial school. Parents are also more likely to be involved in their child's school when they live in an intact family, their children attend parochial school, and when the family is relatively residentially stable. Students are more likely to be involved in their school by way of extracurricular activity participation when they live in intact families and when they remain residentially stable. Children in single-parent families and those who move frequently receive less interaction with their parents and poorer relationships with their teachers, but children who attended parochial school experience more interaction with parents and better student-teacher relationships.

The results indicate that the forms, quality, and assistance that constitute social capital affect GPA, suspension from school, and dropping out of school. Part of the effects of family structure, parochial school attendance, and residential stability on these outcomes is due to its association with the quality of the relationships in which adolescents are involved and the assistance provided by these relationships.

There is no evidence of conditional effects of residential mobility for those from different family structures as anticipated by the work of Hagan et al. (1996) and Tucker et al. (1998). However, another social capital form, parochial school attendance, was found to have greater effects for those from single-parent families. This suggests that the conditional hypothesis need not only apply to the effects of residential mobility. The conditional hypothesis is among the newer innovations for social capital theory and can benefit from further theoretical and empirical work.

The concept of social capital continues to undergo theoretical refinement. This analysis takes advantage of the most recent and most sophisticated developments with the newest nationally representative, longitudinal data set available. The National Longitudinal Study of Adolescent Health offers the means to test the theoretical developments offered by recent research, and future waves of data will allow further consideration of these developments. With these and other data, we may begin to understand the ways in which families and communities influence the wellbeing of children.

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Table 1: Descriptive Statistics for Selected Variables Included in the Analysis (Weighted)

<u>Variable</u>	<u>Percent</u>	<u>Variable</u>	<u>Percent</u>
Family Structure		Race	
Two Parent	55.9	White	67.5
Step Family	13.1	Black	16.0
Single Parent	26.3	Hispanic	12.3
Other Family Type	4.9	Other Race	4.8
Residential Stability		Urbanicity	
No Moves	39.3	Urban	33.7
Some Moves	56.2	Suburban	37.7
Frequent Moves	5.3	Rural	27.7
Parochial School Attendance	2.1	Gender	
Parents Involved in School	33.6	Male	50.0
Participate in Extracurriculars	60.7	Female	50.0
		Suspended From School	11.1
		Dropped Out of School	2.9

Means for Selected Variables in the Analysis

<u>Variable</u>	<u>Range</u>	<u>Mean</u>
Intergenerational Closure	0 -6	2.215
Parent-Child Interaction	0 -32	6.348
Student-Teacher Relationship	-16.415 -7.512	-0.004
Grade Point Average	1 -4	2.832
Family Income (log)	0 -6.907	3.532
Father's Education	0 -18	13.555
Mother's Education	0 -18	13.315
Number of Siblings	0 -12	1.438
Grade	7 -12	9.000

Source: Author's analysis using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 2: The Effect of Income and Family Structure on Parochial School Attendance and Frequent Moves

Variable	Parochial School Attendance		Frequent Moves	
	Beta	Standard Error	Beta	Standard Error
Intercept	-4.232 ***	0.503	-2.127 ***	0.436
Family Structure				
Step Family	-0.221	0.175	0.576 ***	0.145
Single Parent	-0.951 ***	0.204	0.636 ***	0.134
Other Family Type	-1.315 ***	0.403	1.456 ***	0.167
Financial and Human Capital				
Family Income	-0.009	0.100	-0.194 **	0.077
Mother's Education	0.010	0.032	-0.005	0.026
Father's Education	0.130 ***	0.032	-0.026	0.028
Controls				
Number of Siblings	-0.212 ***	0.058	-0.005	0.041
Male	-0.145	0.114	-0.268 ***	0.095
Black	-0.067	0.162	-0.281 **	0.129
Hispanic	-0.828 ***	0.268	-0.074	0.153
Other Race	-1.704 ***	0.508	0.075	0.202
Suburban	-0.537 ***	0.145	0.009	0.117
Rural	-0.114	0.140	0.090	0.120

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents' education were introduced into these models, but were not significant.

Source: Author's analysis using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 3: Effect of Forms of Social Capital on Intergenerational Closure

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	-1.004 ***	0.166	-0.588 ***	0.174
Social Capital Forms				
Step Family			-0.458 ***	0.063
Single Parent			-0.300 ***	0.063
Other Family Type			-0.671 ***	0.106
Parochial School Attendance			0.751 ***	0.105
Some Moves			0.079 *	0.043
Frequent Moves			-0.143	0.094
Financial and Human Capital				
Family Income	0.219 ***	0.032	0.164 ***	0.033
Mother's Education	0.128 ***	0.011	0.127 ***	0.011
Father's Education	0.068 ***	0.011	0.059 ***	0.011
Controls				
Number of Siblings	0.015	0.017	0.001	0.018
Male	-0.112 ***	0.041	-0.108 ***	0.040
Black	-0.526 ***	0.057	-0.467 ***	0.057
Hispanic	-0.569 ***	0.069	-0.546 ***	0.069
Other Race	-0.755 ***	0.094	-0.731 ***	0.094
Suburban	0.078	0.050	0.095 *	0.050
Rural	0.257 ***	0.053	0.232 ***	0.052
Flag for missing family income	-0.129 **	0.059	-0.138 **	0.059

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on parents education were introduced into these models, but were not significant.

Source: Author's analysis using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 4: The Effect of Social Capital Forms on Parental Involvement in School

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	-6.932 ***	0.236	-6.623 ***	0.246
Social Capital Forms				
Step Family			-0.449 ***	0.083
Single Parent			-0.264 ***	0.084
Other Family Type			-0.415 ***	0.153
Parochial School Attendance			0.654 ***	0.127
Some Moves			0.105 *	0.055
Frequent Moves			-0.245 *	0.131
Financial and Human Capital				
Family Income	0.359 ***	0.043	0.314 ***	0.044
Mother's Education	0.263 ***	0.014	0.265 ***	0.014
Father's Education	0.097 ***	0.014	0.088 ***	0.014
Controls				
Number of Siblings	0.157 ***	0.022	0.155 ***	0.023
Male	-0.041	0.051	-0.038	0.052
Black	0.166 **	0.072	0.211 ***	0.073
Hispanic	-0.193 **	0.094	-0.165 *	0.095
Other Race	-0.059	0.119	-0.034	0.120
Suburban	0.003	0.063	0.019	0.063
Rural	-0.250 ***	0.068	-0.277 ***	0.069
Flag for missing family income	-0.181 **	0.079	-0.194 **	0.079

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 5: The Effect of Social Capital Forms on Extracurricular Activity Participation

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	-1.013 ***	0.189	-0.783 ***	0.199
Social Capital Forms				
Step Family			-0.158 **	0.069
Single Parent			-0.199 ***	0.066
Other Family Type			-0.442 ***	0.106
Parochial School Attendance			-0.011	0.121
Some Moves			0.165 ***	0.047
Frequent Moves			-0.306 ***	0.097
Financial and Human Capital				
Family Income	0.118 ***	0.036	0.073 *	0.037
Mother's Education	0.051 ***	0.012	0.050 ***	0.012
Father's Education	0.032 ***	0.012	0.030 **	0.012
Controls				
Number of Siblings	0.029	0.019	0.011	0.019
Male	-0.128 ***	0.044	-0.135 ***	0.044
Black	0.193 ***	0.062	0.239 ***	0.063
Hispanic	-0.343 ***	0.072	-0.331 ***	0.072
Other Race	0.150	0.099	0.155	0.100
Suburban	-0.091 *	0.054	-0.089	0.054
Rural	0.433 ***	0.058	0.416 ***	0.059
Flag for missing family income	-0.118 *	0.062	-0.128 **	0.063

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 6: The Effect of Social Capital Forms on Parent-Child Interaction

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	2.237 ***	0.321	2.012 ***	0.334
Social Capital Forms				
Step Family			1.088 ***	0.118
Single Parent			-0.430 ***	0.113
Other Family Type			1.410 ***	0.183
Parochial School Attendance			0.975 ***	0.200
Some Moves			0.040	0.079
Frequent Moves			-0.401 **	0.169
Financial and Human Capital				
Family Income	0.337 ***	0.062	0.293 ***	0.063
Mother's Education	0.134 ***	0.021	0.146 ***	0.020
Father's Education	0.112 ***	0.021	0.112 ***	0.021
Controls				
Number of Siblings	-0.012	0.032	0.003	0.033
Male	-0.412 ***	0.076	-0.415 ***	0.075
Black	0.012	0.105	-0.023	0.105
Hispanic	-0.259 **	0.127	-0.251 *	0.126
Other Race	-0.504 ***	0.168	-0.464 ***	0.167
Suburban	0.124	0.093	0.143	0.092
Rural	0.113	0.098	0.095	0.097

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 7: The Effect of Social Capital Forms on Student-Teacher Relationship

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	-1.624 ***	0.343	-0.971 ***	0.360
Social Capital Forms				
Step Family			-0.404 ***	0.127
Single Parent			-0.753 ***	0.122
Other Family Type			-0.297	0.198
Parochial School Attendance			0.900 ***	0.216
Some Moves			0.089	0.086
Frequent Moves			-0.579 ***	0.182
Financial and Human Capital				
Family Income	0.077	0.066	-0.035	0.068
Mother's Education	0.034	0.022	0.037 *	0.022
Father's Education	0.071 ***	0.022	0.059 ***	0.035
Controls				
Number of Siblings	0.174 ***	0.034	0.155 ***	0.035
Male	-0.517 ***	0.081	-0.518 ***	0.081
Black	-0.406 ***	0.112	-0.332 ***	0.113
Hispanic	0.303 **	0.136	0.317 **	0.136
Other Race	0.275	0.180	0.247	0.180
Suburban	0.016	0.100	0.037	0.099
Rural	0.161	0.161	0.115	0.105

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 8: The Effect of Social Capital Forms, Quality, and Assistance on Grade Point Average

Variable	Model 1		Model 2		Model 3	
	Beta	Standard Error	Beta	Standard Error	Beta	Standard Error
Intercept	1.757 ***	0.068	1.903 ***	0.071	1.939 ***	0.07
Social Capital Quality						
Intergenerational Closure					0.016 ***	0.004
Parental Involvement in School					0.075 ***	0.018
Extracurricular Activities					0.074 ***	0.016
Social Capital Assistance						
Parent-Child Interaction					0.016 ***	0.002
Student-Teacher Relationship					0.048 ***	0.002
Social Capital Forms						
Step Family			-0.113 ***	0.025	-0.098 ***	0.024
Single Parent			-0.174 ***	0.024	-0.124 ***	0.023
Other Family Type			-0.179 ***	0.042	-0.176 ***	0.040
Parochial School Attendance			0.219 ***	0.041	0.145 ***	0.039
Some Moves			0.040 **	0.017	0.031 *	0.016
Frequent Moves			-0.038	0.040	-0.003	0.038
Financial and Human Capital						
Family Income	0.080 ***	0.013	0.053 ***	0.013	0.043 ***	0.013
Mother's Education	0.035 ***	0.004	0.035 ***	0.004	0.025 ***	0.004
Father's Education	0.038 ***	0.004	0.035 ***	0.004	0.028 ***	0.004
Controls						
Number of Siblings	-0.003	0.007	-0.009	0.007	-0.018 ***	0.007
Male	-0.239 ***	0.016	-0.237 ***	0.016	-0.203 ***	0.015
Black	-0.228 ***	0.022	-0.202 **	0.022	-0.178 ***	0.021
Hispanic	-0.145 ***	0.027	-0.138 ***	0.027	-0.133 ***	0.026
Other Race	0.078 **	0.035	0.077 **	0.035	0.084 **	0.034
Suburban	-0.030	0.020	-0.024	0.020	-0.028	0.019
Rural	0.047 **	0.021	0.036 *	0.021	0.022	0.020

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 9: The Effect of Social Capital Forms, Quality, and Assistance on Suspension from School

Variable	Model 1		Model 2		Model 3	
	Beta	Standard Error	Beta	Standard Error	Beta	Standard Error
Intercept	0.616 *	0.329	0.291	0.343	0.386	0.370
Social Capital Quality						
Intergenerational Closure					-0.057 **	0.024
Parental Involvement in School					-0.107	0.096
Extracurricular Activities					-0.314 ***	0.091
Social Capital Assistance						
Parent-Child Interaction					-0.011	0.011
Student-Teacher Relationship					-0.170 ***	0.009
Social Capital Forms						
Step Family			0.223 *	0.115	0.142	0.119
Single Parent			0.362 ***	0.105	0.184 *	0.109
Other Family Type			0.425 ***	0.163	0.351 **	0.171
Parochial School Attendance			-1.381 ***	0.364	-1.267 ***	0.371
Some Moves			-0.179 **	0.077	-0.165 **	0.079
Frequent Moves			0.270 *	0.162	0.184	0.168
Financial and Human Capital						
Family Income	-0.269 ***	0.057	-0.196 ***	0.059	-0.204 ***	0.061
Mother's Education	-0.081 ***	0.020	-0.081 ***	0.020	-0.064 ***	0.022
Father's Education	-0.096 ***	0.021	0.090 ***	0.021	-0.081 ***	0.022
Controls						
Number of Siblings	-0.018	0.030	-0.004	0.031	0.020	0.032
Male	0.836 ***	0.075	0.839 ***	0.075	0.786 ***	0.078
Black	0.642 ***	0.090	0.578 ***	0.091	0.574 ***	0.096
Hispanic	-0.165	0.126	-0.183	0.126	-0.128	0.129
Other Race	-0.048	0.169	-0.066	0.170	-0.038	0.176
Suburban	-0.126	0.088	-0.147 *	0.089	-0.153 *	0.092
Rural	-0.238 **	0.094	-0.208 **	0.094	-0.181 *	0.098
Grade 8	0.077	0.131	0.073	0.132	-0.012	0.137
Grade 9	0.207 *	0.106	0.209 **	0.106	-0.067	0.122
Grade 10	-0.384 ***	0.144	-0.374 ***	0.144	-0.429 ***	0.149
Grade 11	-0.312 **	0.148	-0.307 **	0.148	-0.271 *	0.152

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 10: The Effect of Social Capital Forms, Quality, and Assistance on Dropping Out of School

Variable	Model 1		Model 2		Model 3	
	Beta	Standard Error	Beta	Standard Error	Beta	Standard Error
Intercept	1.382 **	0.649	0.520	0.682	1.423 **	0.715
Social Capital Quality						
Intergenerational Closure					-0.143 ***	0.052
Parental Involvement in School					-0.272	0.223
Extracurricular Activities					-1.085 ***	0.174
Social Capital Assistance						
Parent-Child Interaction					-0.144 ***	0.024
Student-Teacher Relationship					-0.082 ***	0.017
Social Capital Forms						
Step Family			0.138	0.226	0.130	0.231
Single Parent			0.643 ***	0.180	0.488 ***	0.184
Other Family Type			0.966 ***	0.235	0.930 ***	0.244
Parochial School Attendance			-0.441 ***	0.516	-0.053	0.524
Some Moves			-0.294 **	0.144	-0.223	0.146
Frequent Moves			1.335 ***	0.178	1.190 ***	0.184
Financial and Human Capital						
Family Income	-0.520 ***	0.099	-0.381 ***	0.105	-0.349 ***	0.108
Mother's Education	-0.195 ***	0.037	-0.199 ***	0.037	-0.152 ***	0.039
Father's Education	-0.150 ***	0.039	-0.147 ***	0.039	-0.021 ***	0.041
Controls						
Number of Siblings	-0.143 **	0.057	-0.049	0.059	-0.021	0.059
Male	0.162	0.131	0.239 *	0.134	0.076	0.138
Black	-1.091 ***	0.211	-1.232 ***	0.216	-1.173 ***	0.219
Hispanic	-0.493 **	0.196	-0.523 ***	0.196	-0.549 ***	0.200
Other Race	-1.519 ***	0.464	-1.495 ***	0.465	-1.482 ***	0.469
Suburban	-0.180	0.161	-0.201	0.163	-0.158	0.167
Rural	-0.247	0.166	-0.234	0.169	-0.128	0.173
Grade 8	0.464	0.445	0.548	0.447	0.540	0.452
Grade 9	1.806 ***	0.346	1.846 ***	0.348	1.171 ***	0.362
Grade 10	1.002 **	0.397	1.121 ***	0.400	1.107 ***	0.405
Grade 11	1.819 ***	0.368	1.898 ***	0.371	1.844 ***	0.377

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

Table 11: The Effect of Parochial School Attendance Conditioned on Family Structure

Variable	Model 1		Model 2	
	Beta	Standard Error	Beta	Standard Error
Intercept	1.939 ***	0.070	1.941 ***	0.070
Single Parent Fam x Parochial School			0.197 *	0.111
Social Capital Quality				
Intergenerational Closure	0.016 ***	0.004	0.016 ***	0.004
Parental Involvement in School	0.075 ***	0.018	0.074 ***	0.018
Extracurricular Activities	0.074 ***	0.016	0.074 ***	0.016
Social Capital Assistance				
Parent-Child Interaction	0.016 ***	0.002	0.016 ***	0.018
Student-Teacher Relationship	0.048 ***	0.002	0.048 ***	0.048
Social Capital Forms				
Step Family	-0.098	0.024	-0.098 ***	0.024
Single Parent	-0.124	0.023	-0.129 ***	0.023
Other Family Type	-0.176	0.040	-0.177 ***	0.040
Parochial School Attendance	0.145	0.039	0.116 ***	0.042
Some Moves	0.031	0.016	0.031 *	0.016
Frequent Moves	-0.003	0.038	-0.003	0.038
Financial and Human Capital				
Family Income	0.043 ***	0.013	0.042 ***	0.013
Mother's Education	0.025 ***	0.004	0.025 ***	0.004
Father's Education	0.028 ***	0.004	0.029 ***	0.004
Controls				
Number of Siblings	-0.018 **	0.007	-0.018 ***	0.007
Male	-0.203	0.015	-0.203 ***	0.015
Black	-0.178 ***	0.021	-0.178 ***	0.021
Hispanic	-0.133 **	0.026	-0.133 ***	0.026
Other Race	0.084 ***	0.034	0.084 **	0.034
Suburban	-0.028	0.019	-0.029	0.019
Rural	0.022	0.020	0.022	0.020

***p<.01; **p<.05; *p<.10

Flag variables indicating mean substitution on family income and parents education were introduced into these models, but were not significant.

Source: Author's calculations using the National Longitudinal Study of Adolescent Health (1995 & 1996)

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