

Parental Investment in Childhood and Later Adult Well-Being: Can More Involved Parents Offset the Effects of Socioeconomic Disadvantage?

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Editorial Note

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Abstract

Parental involvement in their children's lives can have a lasting impact on well-being. More involved parents convey to their children that they are interested in their development, and this in turn signals to the child that their future is valued. However, what happens in socio-economically disadvantaged homes? Can the social capital produced by greater parental involvement counteract some of the harmful effects of less financial capital? These questions are examined on the National Child Development Study; a longitudinal study of children born in Britain in 1958. Results on a sample of children raised in two parent families suggest that parental involvement does matter, but that it depends on when it and poverty are measured, as well as the type of involvement and the gender of the parent. Father interest in education has the strongest impact on earlier poverty, especially at age 11. Meanwhile, both father and mother interest in school at age 16 have the largest direct impact on education. The frequency of outings with mother at age 11 also has a larger direct impact on education than outings with father, however, neither compare with the reduction in the poverty effect as a result of father interest in school.

Keywords: parental involvement; socioeconomic disadvantage; social capital; education; National Child Development Study

JEL classification: I21, I32, J13, Z13

1. Introduction

Parental involvement in their children's lives can have a lasting impact on well-being. More involved parents convey to their children that they are interested in their development and well being. This in turn signals to the child, both directly and indirectly, that their future is valued. Thus, the relationships between parents and children, coupled with the influence from other resources, go along way to ensuring future success. Later outcomes in adulthood such as education (Flouri and Buchanan 2004; Hobcraft 1998), benefit receipt, and social housing (Hobcraft 1998; Sigle-Rushton 2004) are influenced by parental investment in childhood. Positive effects are also noted for more proximate outcomes in adolescence, such as less police contact (Flouri and Buchanan 2002a), relationships with parents (Flouri and Buchanan 2002b), educational test scores (Ho Sui-Chu and Willms 1996; McNeal 1999, 2001) and behaviour (Sacker, Schoon, and Bartley 2002).

The long term connection between parental involvement and later adult outcomes is especially important for poor children since the link between childhood poverty and later adult disadvantage is well-established (Duncan and Brooks-Gunn 1997; Duncan, Yeung, Brooks-Gunn, and Smith 1998; Harper, Marcus, and Moore 2003; Hobcraft 1998). The lack of resources does not afford these children as many options for educational opportunities, and also for increased exposure to higher educated adult role models, thus the experience of economic disadvantage regularly carries over into the next generation. Unfortunately these economically deficient families are the very ones that need extra support not contingent upon monetary factors; however, they all too often lack the various other forms of capital as well. Past research for example suggests that a positive relationship exists between socioeconomic status and parental involvement (Astone and McLanahan 1991; Ho Sui-Chu and Willms 1996; Lareau 1987; McNeal 1999, 2001) and between parental education level and time spent with children (Sayer, Gauthier, and Furstenberg 2004). Parents of high socioeconomic status are more involved in their children's education, which is likely due to a greater comfort and familiarity with the educational system (Ho Sui-Chu and Willms 1996; Lareau 1987). Thus, these children not only benefit from greater parental financial resources, they also receive an additional advantage of having parents who know how to negotiate the world of education.

At the same time, the impact of childhood poverty and parental involvement on well-being varies depending on the age at which the poverty occurs, the age when support/involvement is considered, the type of support/involvement being given, and also the parent that is giving the support. Poverty during childhood is harmful at all ages (Hobcraft 1998); however, it is more deleterious at some ages. For example, poverty during early and middle

childhood was found to be much more important for determining ability and achievement than poverty in adolescence (Duncan and Brooks-Gunn 1997; Duncan et al. 1998). The age when parental support and involvement occurs is also important for the developmental life course (Bronfenbrenner 1986). As children age and become more exposed to outside influences from school and peers they begin to become more independent. This is born out in research which suggests that over time the level of parents' involvement may decrease (Crosnoe 2001; Muller 1998).

The type of support/involvement is related to conceptual issues regarding social or cultural capital (Ho Sui-Chu and Willms 1996; Lareau 1987; McNeal 2001, 1999). Of interest specifically are measures related to the amount of time parents spend with their children, the type of activities they share, the relationship quality between parents and children, and parental contact with the school system. The amount of time and activities that parents and children spend together are important for strengthening the parent-child bond, which in turn can increase the chance that children will heed the advice of their parents as it pertains to education. Certain activities, for example, such as reading to the child, are important for not only increasing their vocabulary, but for also distilling the idea that reading and education in general are important. Greater parent contact with the school system in turn suggests that parents are interested in their child's education, however, it may also indicate poorer student performance as well (Izzo, Weissberg, Kaspro, and Fendrich 1999). In any event, greater contact with school, whether for positive or negative reasons, does proxy for increased social control through increased monitoring (McNeal 1999, 2001).

Lastly, questions surrounding distinctive parental contact by mother and father may involve issues of gender role socialization and traditional values towards educational attainment. Are mothers or fathers more supportive and more involved? And is the support of one versus the other more beneficial? Using a British sample, Flouri and Buchanan (2004) found that mother's involvement at age 7 had a stronger impact on a child's later educational attainment. Similarly, Hobcraft (1998) found consistent support for the idea that parental support is important for later socioeconomic success, however he found that father's involvement was especially important for educational outcomes for both boys and girls, and that mother's involvement was a more consistent predictor for women on outcomes such as risk of teen parenthood. The discrepancy between these two studies is due to a difference of involvement measures. Hobcraft (1998) focused exclusively on parental interest in school, while Flouri and Buchanan (2004) combined measures on parental interest in school with indicators of how often each parent took the child on outings and read to them, as well as whether the father shares equally with the raising of the child.

In this paper, I use the National Child Development Study (NCDS) to explore the above issues and examine the relationship between parental interest/involvement, poverty in childhood and later educational attainment. I aim to contribute to the growing research on parental involvement by tackling the issue of whether more interested parents can offset the harmful effects of living in poverty. Moreover, I analyse the relationship from multiple sources (parents, teachers, and students), at multiple points in childhood, as well as determining whether mother or father involvement matters more at these different stages. Next, I briefly introduce some important concepts and supply some background information on the link between childhood poverty and parental involvement.

2. Parental Involvement as Social Capital

This idea of investment in children's potential human capital through relationships has been best conceptualised within the social capital framework (Coleman 1988; Portes 1998). Coleman (1988: S100) identified social capital to be crucial for educational success. He proposed that social capital "comes about through changes in the relations among persons that facilitate action." It exists in relationships and therefore is less tangible than either financial or human capital, but it is still equally important for later socioeconomic success. It has been recognized however that the term social capital has some conceptual slippage, but Portes (1998: 6) suggests that in the literature "the consensus is ...that social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures." Thus, social capital is a useful framework to analyse the link between parent-child relationships, poverty, and later adult socioeconomic status because it is specifically concerned with these important relationships.

Specifically, I utilize the notion of 'parental involvement as social capital' proposed by McNeal (1999). He suggests that parental involvement can be conceptualised as social capital because it involves dyadic relationships between the parent and child, or between parents and teachers. These dyadic relationships are often indicative of extended social networks that act as potential sanctioning agents for maintaining the norm of investment and caring for children. At the same time, these external linkages are a sign of the resources available to the family from outside sources, in addition to those resources (physical, human, and cultural) within the familial network. McNeal (1999) proposes that parent involvement can be measured by parent-child discussion, parent involvement in parent-teacher organizations, monitoring, and more direct parent involvement in school activities (such as speaking to a teacher or counsellor). There has been some inconsistency with the operational definitions of parental involvement (Fan and Chen 2001), but a great deal of

common ground in terms of parental involvement measures does exist (Grolnick and Slowiaczek 1994; Harris, Furstenberg and Marmer 1998; Harris and Marmer 1996; McNeal 1999).

Greater parental involvement, should, other things being equal, indicate greater interest in the child's future and therefore be positively associated with shorter-term academic achievement as well as with longer term socioeconomic success (Fan and Chen 2001). Ho Sui-Chu and Willms (1996) found that greater parental involvement at home and at school increased math and reading achievement in high school. McNeal (1999) also found that parent involvement in general reduces truancy and dropping out but has inconsistent effects on achievement. For example, parental involvement in parent-teacher organizations (PTO) and parental monitoring not only reduced the chance of truancy and dropping out, but educational achievement as well. This last result brings forth the issue that more interested parents could imply that the child is having troubles, and so high parental interest could indicate children who have more difficulty in school (see Epstein 1988; and Horn and West 1992). Nevertheless, greater parental involvement does signal that parents play a larger role in their children's lives, and when the involvement is concerned with their schooling it becomes particularly relevant for later educational attainment.

3. The Link Between Childhood Poverty and Parental Involvement

Poverty early in the life course has consequences not only during childhood, but also extending later in life. Growing up poor impairs early socio-emotional adjustment, as well as cognitive and behavioural development (Chase-Lansdale and Brooks-Gunn 1995; Duncan and Brooks-Gunn 1997). Given the lack of economic resources, parents may use other tools at their disposal to further the development of their children. By stressing the importance of education, parents of lower socioeconomic status may be able to offset the lack of resources.

Indeed past research has discovered a link between childhood poverty (or socioeconomic status more broadly) and parental involvement. There are two separate ways to explore the linkage, the first examines how parental involvement operates at different levels of socioeconomic status, while the second is concerned with the ability of poor families to use involvement to make up for a lack of socioeconomic resources. While these issues are very interrelated the method for analysing them is somewhat different. The former issue concerns interacting involvement with SES (e.g. McNeal 2001), while the latter is carried out by running separate models by childhood poverty status (e.g. Harris and Marmer 1996) or by assessing the SES-adult outcome link before and after the inclusion of involvement (De Civita, Pagani, Vitaro, and Tremblay 2004).

The first approach is best exemplified conceptually by making a distinction between social and/or cultural capital by level of socio-economic status. For example, McNeal (2001) examined whether social and cultural capital operate equally for high and low socioeconomic status. He found that parental involvement is more important at higher levels of socioeconomic status: interaction terms show that while parent-child discussion, involvement in parent-teacher organizations, and monitoring are generally effective for reducing the odds of truancy and dropping out, it is more protective at higher levels of socioeconomic status. Thus, McNeal suggested that the effect of social capital is not equitably distributed and many positive influences only persist for members of traditionally advantaged sections of the population. Similarly, Teachman, Paasch and Carver (1997) interacted parental income with a measure of parent-child contact, as well as with parent-school contact. They found that the positive effect of parental income on educational attainment is enhanced when both parent-child and parent-school contact is high. Thus, they suggest that parents who are more involved with their children and their schools have children who are less likely to drop out of high school, and this is especially true at higher income levels. Lareau (1987) explains the above relationship by proposing that higher SES parents are better at navigating the educational system because they are more familiar with the jargon, and are also more likely to have been involved with the educational system themselves.

The second approach can take on two different forms, the first as exemplified by Harris and Marmer (1996) estimates separate models by poverty status. They found that parental involvement varied by whether the family experienced poverty. For example, fathers of poorer teens were less emotionally and physically involved than fathers of nonpoor teens; this same pattern was not seen for mother involvement. Maternal behavioural involvement tended to be stronger in poorer families, and at the same time increased education more in poor families than father involvement did in nonpoor families. Thus, the Harris and Marmer study reaffirms that parental involvement benefits children, but the effects might vary by whether the child grew up in poverty. Moreover other research examines the link between poverty, parental involvement, and adult disadvantage on samples selected especially because of they socio-economically disadvantaged. For example, Furstenberg and Hughes (1995) found in a relatively at-risk sample of black teenage mothers living in Baltimore that maternal support increased the likelihood of graduating from high school as well as greater labour force attachment. Especially important was the mother's involvement in school activities.

The second form illustrated by De Civita and her colleagues (2004) is surprisingly less common. In this type of research, concerns regarding mediation are brought to the forefront. In other words, the question becomes: does parental interest/involvement act as an intervening variable between childhood poverty and some later outcome. De Civita et al. used a longitudinal

sample of children in Quebec to test whether mothers' educational aspirations mediated the effect of family income on child academic performance. They found that controlling for mothers' aspirations for her child's education decreased the harmful effect of poverty on academic performance. The decline was not absolute however; an effect still remained. Mother's aspirations therefore served as a 'partial' mediator. In fact their results reveal that higher levels of maternal aspirations lowered the likelihood of academic problems by almost 50%.

In this paper, I utilize this last approach and seek to understand whether parental involvement acts as a mediating factor between childhood poverty and later well-being. This is not to say that studying the link between parental involvement at differing levels of SES is not important. Rather, as result of the past literature, I take this notion of inconsistent levels of social capital by level of SES as given and instead attempt to show how parental involvement can offset some of the link between early disadvantage and disadvantage in adulthood. Yet while these issues are very interrelated the method for analysing them is different. The former issue concerns interacting involvement with SES, while the latter is carried out by assessing the SES-adult outcome link before and after the inclusion of involvement.

Thus, the major research question to be answered in this paper is: Can parental involvement offset the effects of childhood poverty on education? Once this has been established several sub questions also need to be addressed. First, does the effect vary depending on when poverty and involvement are measured? Some research for example finds that it is poverty earlier in childhood that is most detrimental (Duncan et al. 1998). Meanwhile, the relationship between children and parents changes as the child ages both in terms of the level and type of support and so the effect may change as well. Second, does the type of support given make a difference? For example, are activities that the parents and children share or the interest that parents show towards their schooling equally valid and influential? Third, does the gender of the parent matter? Do children respond differently to mother and father support? Past research suggests that the interest shown by mothers differs from that shown by fathers (see Harris et al. 1998; Harris and Marmer 1996).

4. Data and Research Methods

The data for this study come from the National Child Development Study (NCDS). This is a longitudinal study of children born throughout Britain in one week of March 1958. A total of 17,414 mothers were originally interviewed, representing 98 percent of all births that occurred in that week. Follow-up interviews were conducted when the cohort members were aged 7, 11, 16, 23, 33, and 42. The strength of using these data for examining parental interest in

childhood is that relatively good measures of parental interest and parent-child relationship quality exist for all three childhood waves. Moreover, survey points in mid-adulthood afford the researcher the unique ability to determine if long-term benefits accrue to children who had interested and involved parents. Past research using these data would suggest that this is the case (see Flouri and Buchanan 2004; Hobcraft 1998; and Sacker et al. 2002).

Several data restrictions are placed on the original NCDS data. First, the sample is restricted to cohort members who were born into two parent homes and whose parents did not divorce or separate before age 16. This was necessary to simplify the meaning of parental support from non-resident parents (typically fathers). Other work looking at parental involvement has utilised a similar approach (Amato and Rivera 1999; Harris et al. 1998; Harris and Marmer 1996). In other words, in cases where a high degree of spousal conflict preceded the break-up, or the post-separation relationship is poor and ex-spousal conflict is high due to issues of time and monetary transfers, the mother's view of the father's involvement may be tainted (King and Heard 1999). This reduced the sample from 18558 to 7530. Next the sample is further restricted to those individuals who had valid information on education at age 33, this further reduced the sample to 5621.

As a result of these restrictions the amount of missing data is drastically reduced, and since the remaining missing constitute anywhere from less than 1% to close to 10% of the remaining sample they were simply removed from each variable. The amount of missing on parental involvement measures is allowed to vary between its measurement at age 11 and at age 16 and so any subsequent descriptive statistics are given separately.

4.1 Measures

EDUCATION

The measure of adult disadvantage is having no educational qualifications versus having some by age 33. While this data set has measures of other adult outcomes (such as living in public housing, being in receipt of benefits, or being unemployed), I chose this measure because education often proxies for these other measures of adult disadvantage, and in fact being without any educational qualifications is quite highly correlated to these other measures of disadvantage (Makepeace et al 2003).

CHILDHOOD INDICATORS

Since the relationship between parents and children changes throughout childhood it is important to have measures at several points. Therefore, I use information from all three childhood waves (age 7, age 11, and age 16). Also, I use information that was prior to the cohort member's 7th birthday, since this is causally prior to the assessment of poverty and parental interest.

POVERTY

Family poverty (or disadvantage) is measured at age 7 and age 11. It is not measured in an objective sense such as income, but is gauged by measures that capture whether the family was experiencing 'financial difficulty.' It is measured differently at age 7 than at age 11. At age 7 a Health visitor reported on a number of difficulties families face, with financial difficulties being one. At age 11 parents responded directly to the question 'have you been seriously troubled by financial hardship in the last 12 months'. If they said yes to this question the family was deemed to be living in poverty. As seen in Table 1 approximately 4 ½% of the sample experienced poverty at age 7, while by age 11 this figure was slightly more than 8%. Furthermore cohort members who were poor at either of these ages were more likely to be without educational qualifications by age 33. For example, about 15% of individuals who ended up with no qualifications had been poor at age 7, while only about 3% with some qualifications were poor at the same age. The same pattern holds for poverty at age 11.¹

PARENTAL INVOLVEMENT

Parental involvement is measured at age 11 and age 16. At age 11, I measure it in two ways: firstly, parental interest in education as assessed by teachers and secondly from the parent's response to a question on how often they go on outings with their child. At age 16, while there is an identical interest in education measure, there is no comparable indicator about outings with parents. Instead at age 16, I use an indicator of how well the teen and the parent 'get along with' one another as assessed by the teen themselves.

The parental interest in school measures (asked of the teacher) use the following scale: very interested (including a small number who are 'overly' interested), some interest, and little interest. Frequency of parental outings is asked of the parents (usually the mother) and assessed by the following question: "How often do you take your child out for walks, outings, picnics and visits?" The response categories are hardly ever, occasionally, and most weeks. Lastly, the teen at age 16 is asked to respond to the statement "I get on well with my mother/father" using the following response categories: very untrue/untrue, uncertain, true and very true. Cases where the teen said that they were 'uncertain' were left in the analysis and ordered immediately after very

¹ These 'static' measures of poverty at each age are not perfect indicators of the full extent of time spent in poverty during childhood. However, there appears to be continuity regarding poverty at both these age points: just slightly over a third of the sample that were poor at age 7 were also poor at age 11.

untrue/untrue because saying ‘uncertain’ suggests a potentially negative relationship.²

As seen in Table 1 the average levels of parental involvement vary substantially by later educational attainment. For instance, for cohort members with no qualifications the average level of father interest in education at age 11 was 0.53, whereas the average level was 1.35 for their counterparts with some qualifications. The same relationship is noted for fathers and mothers across all involvement indicators except for how well parent and teen get along at age 16. For this latter measure the average is slightly higher for those who have qualifications but the difference from those who have no qualifications is not significant.

CONTROLS

A wide range of factors are controlled that are measured prior to age 7, as well as at each specific childhood age. Many of them span across several childhood waves and to reduce collinearity these are combined. For example, across several waves the measures of owner-occupied homes have correlations close to .85. These multiple wave measures are added together with higher values then indicating more occurrences in childhood.

The controls include those measured at the parental/household level as well as at the child level. At the family/household level, I control for parental information such as the age of the parents at the birth of the child, the age when the parents left school, and the social class of the father; with this latter measure several waves of information are pooled together. More specifically at the household level measures related to owner occupied homes (pooled across several childhood waves), number of people in the household, and household residential mobility are also included. These last two measures are used as proxies for resource dilution (Downey 1995), and a loss of social capital (Coleman 1988; Pribesh and Downey 1999; Teachman et al. 1997), respectively.

² In separate analyses these age specific items were combined into summated scales since the individual items are essentially tapping the same thing: the relationship quality between mothers and children and between fathers and children. However, for some purposes combining measures from different sources can introduce bias. For example, parents, teachers and adolescents may not rate parental involvement similarly. I explored this issue further by running factor analyses on all age specific items (including both mother and father items together). Two factors were identified at each age, those answered by teachers loaded on one factor, while those from parents or from adolescents loaded on the other. This suggests that combining the items into the same scale may introduce undue bias, and so I opted for the approach of keeping the parental involvement measures separate. This has the added benefit of allowing for the independent assessment of particular types of support.

At the child level, I control on gender, as well as behaviour (aggression and anxiety) and reading ability which are assessed at multiple childhood waves. The behavioural measures are dichotomised to capture high aggression and high anxiety using scales derived from Rutter, Tizard and Whitmore (1970) (see Hobcraft 1998 for earlier derivatives of these variables). Reading ability is assessed slightly differently at each age: at age 7 and 11 it is teacher rated, while at age 11 a measure of scoring poorly on a reading comprehension test is used. Nevertheless the behavioural and reading measures are meant to tap into potential indirect behavioural factors that may affect qualifications as well as more direct routes through reading ability.

Table 2 presents all control variables separately by analysis, which is necessary because each uses slightly different samples (due to a difference in missing on parental involvement). Also, each analysis uses slightly different control variables. The analysis that examines the link between age 7 poverty and age 11 parental involvement only includes control measures that occur at or before age 11. The analysis that looks at the link between age 11 poverty and age 16 interest includes control measures for age 16 as well. From Table 2 we see that the proportions are very similar for the two samples, which is not surprising since the only way they differ is with respect to missing values on parental interest at age 11 or age 16. Since the sample is restricted to individuals who lived in intact homes at age 7, 11 and 16 this sample is likely to be slightly less disadvantaged than other samples drawn from these data (Hobcraft 1998).

4.2 Sample Design

The analysis proceeded in two steps as shown in Figure 1. First the link between poverty at age 7 and education is examined while considering father and mother involvement at age 11, and second the relationship is moved forward to adolescence where the link between poverty at age 11 and education is examined with respect to father and mother involvement at age 16. Setting up the analysis in this way allows for testing the effects of poverty and parental involvement at two developmental periods, middle childhood and adolescence. The dependent variable is dichotomous (no educational qualifications by age 33) and so logistic regression is used. In all tables the odds ratios are reported.

To assess whether parental involvement has an effect on the relationship between childhood poverty and the likelihood of having no qualifications, I ran a model without the interest measure included. Then once this baseline effect is established parental involvement is brought in. In order to assess whether the type of involvement matters each is brought in separately. Lastly mother and father involvement are not included in the same models in order to test the independent input of each and to assess which parent has a greater influence on the relationship between childhood poverty and later education. Harris et al. (1998) interacted mother and father involvement (their measures had moderate correlations ranging from .15 to .44), and found that none of the interaction

terms were significant suggesting that the effects of father involvement do not vary by the level of mother involvement. Meanwhile, in results not shown, I also interacted mother and father involvement. In most cases the interaction terms were not significant, however, there was a weak negative effect of combined mother and father interest in education at age 16 on the risk of having no qualifications.³

5. Results

5.1 Age 7 Poverty, Parental Involvement at Age 11, and Qualifications

Tables 3 and 4 present the logistic regression results (across seven different specifications) showing estimates of age 7 poverty, parental involvement at age 11 and all controls on the likelihood of no qualifications for paternal and maternal involvement, respectively. As seen in Table 3 the effect of poverty at age 7 on the likelihood of having no qualifications is very high in the bivariate case with an odds ratio greater than 6 (Equation 1). The fact that even at the bivariate level the effect is so strong shows how salient an indicator this is for later socio-economic disadvantage in adulthood. Furthermore, Wald tests show that the poverty odds ratio drops significantly from 6.4 to 3.2 when father interest in education is added in Equation 2. However, mother's interest in education does not appear to be as important. Table 4 shows that when mother interest in education is added the poverty odds ratio drops to 4.3 in Equation 2, but the drop is not significant. Further evidence that father interest in education at age 11 is more important than mother interest is the much lower AIC value in Equation 2 of Table 3, versus Equation 2 in Table 4.⁴ Likelihood ratio tests however show that Equation 2 (in Tables 3 and 4) significantly improves the fit from Equation 1 for both mother and father interest in school.

The frequency of outings also decreases the poverty effect on the odds of having no qualifications (Equation 1 versus Equation 4). However, the drop is not significant for either mother or father outings. Thus, mother and father outings seem to have very similar effects on the relationship between poverty and qualifications, whereas father interest in education definitely stood out as

³ However, since mother and father involvement are highly related to each other (correlations approaching .9) subsequent models should combine both taking this high collinearity into account, however that is left to further work; most likely using structural equation modeling techniques in order to properly model the shared variation, as well the latent structure of these measures (Bollen 1989).

⁴ Akaike's Information Criterion (Akaike 1973) is a measure used to compare models across different samples or to compare non-nested models. All else being equal, a model with a lower AIC is assumed to be the better fitting model (Long and Freese 2001).

being more important. Very similar AIC values from Equation 4 in Tables 3 and 4 also supports this position.

Also noteworthy is the significant direct effect of each of the involvement measures on education, with higher involvement reducing the likelihood of having no qualifications. Equation 7 in Tables 3 and 4 shows that in terms of interest in education father interest is more important than mother interest (59% decrease in the odds versus a 44% decrease, respectively). However, a somewhat different pattern emerges for level of outings: with each increase in the level of mother outings at age 11 the odds of having no qualifications decreases by 29%, whereas the same level of father outings decreases the odds by 23%. These results point to the notion that investment in children may be stronger depending on the activity or interest each parent shows: father's interest in education and mother's frequency of outings at age 11 are most important.

While parental interest was influential in reducing the effect of poverty (especially father interest in education), the largest drop in the poverty odds ratio, not surprisingly, comes from adding all the control variables (in Equations 3, 5 and 7). Extensive controls used from birth, age 7, and age 11 completely cancelled out the effect of poverty on later education. Tables 3 and 4 show that the most important predictors of later education are father's social class and living in owner-occupied homes during childhood, as well as the child's gender, level of aggression, and especially reading ability. As further proof of the strength of the parental involvement measures, a significant improvement in model fit was noted when they were added to the model with the control measures only (Equations 3 and 5 vs. Equation 6).

To more clearly see the effects of parental involvement on education a series of predicted probabilities were computed based on estimates from the full models (Equation 7 from Tables 3 and 4). Table 5 presents the predicted probability of having no qualifications based on different levels of parental interest in education and outings at age 11. From this figure we can see how the predicted probability of having no qualifications varies by level of parental interest in education. Father interest, when it is lowest, leads to a slightly higher probability of having no qualifications than lowest mother interest, but once the level increases, father interest seems to have a more protective effect on decreasing the chance of ending up with no qualifications. If fathers are very interested in their child's schooling at age 7, there is greater than a 20% chance of having no qualifications, whereas even with very interested mothers the probability is over 30%.

Next, when considering different levels of parental outings at age 11, a slightly different pattern emerges: the predicted probability of having no qualifications is greatest with the fewest mother outings, as compared to the same level of father outings. For example, the chance of ending up with no qualifications is 55% if mothers hardly ever go on outings with their children,

whereas it is only 47% at the same level for fathers. The effect of mother outings decreases the probability of a child gaining no qualifications as the frequency increases. Thus if the mother goes on outings with the child most weeks the child has about a 39% chance of having no qualifications, compared to a 35% chance due to high father outings. Consequently, it appears that children may be harmed more by a lower frequency of mother outings, whereas in terms of interest in education it is low father interest that is most damaging. However, What happens as children age? Does the effect of poverty remain as strong? And does parental involvement still matter as much once they reach adolescence? To address these questions I move onto the second phase of the analysis and look at the effect that parental involvement at age 16 has on the relationship between age 11 poverty and later education.

5.2 Age 11 Poverty, Parental Involvement at Age 16, and Qualifications

Tables 6 and 7 present the logistic regression results (across seven different specifications) showing estimates of age 11 poverty, parental involvement at age 16 and all controls on the likelihood of no qualifications for paternal and maternal involvement, respectively. As with the previous results, a very large effect of poverty on later education is noted. In the bivariate case (Equation 1) there is greater than a 300% increase in the odds of having no qualifications if the family was poor at age 11. This odds ratio is smaller than it was at age 7 suggesting that perhaps age 7 poverty is more harmful to later education than poverty at age 11.

At this later developmental stage Wald tests reveal a very large and significant drop after including father interest in education. The odds ratio fell significantly from 3.5 to 2.1 (Equation 1 to Equation 2). However, mother interest in education again does not significantly reduce the poverty effect. But in both cases, Equation 2 which includes either father or mother interest in education does significantly improve the overall fit of the model, as indicated by likelihood ratio tests. At the same time, father and mother interest in education at age 16 seem to have more comparable effects on the poverty–qualifications link, than parental interest in education at age 11.⁵ This is further supported by much more similar AIC values than was noted with interest at age 11 (see Equation 2 from Tables 6 and 7).

The direct effects of parental interest in school are larger at age 16 than they were at age 11. For example, in Equation 7 the odds ratio for father interest in school at age 11 was 0.41, whereas it is 0.32 at age 16. For mother interest in

⁵ When father interest in school at age 11 was included age 7 poverty increased the odds of no qualifications by 261%, while it was increased by 333% by including mother interest in school at age 11. In contrast, at age 16 when father interest in school was included age 11 poverty increased the odds of no qualifications by 106%, but was only increased by 127% when mother interest was incorporated.

school the difference in the direct impact is even more dramatic with an odds ratio of 0.56 at age 11 and 0.37 at age 16. Interest at age 16 is closer to the time that these individuals would have been thinking of leaving school and so more interest shown at age 16 may be especially important. Lastly, note the nonsignificance of the ‘get along with’ measures. Apparently, how well parents and teens get along with one another at age 16 does not matter for educational attainment, at least when measured in this way, and in fact their inclusion in the models actually worsens the overall fit.

Similar to the previous section, the effect of poverty is significantly reduced by the controls for family background and individual attributes at age 7, 11 and 16. It drops to about 1.2, and is no longer significant. Important control factors common to both father and mother involvement models are gender, the number of people in the household and especially reading ability throughout childhood.

As in the previous section the predicted probability of having no qualifications by level of parental interest was computed based on estimates from the full models (Equation 7). Table 8 shows a fairly similar pattern for parental interest in education at age 16 as was seen with interest at age 11. Again father interest in education at the highest level seems to have a more protective effect than mother interest on education, but the difference is not as great as it was at age 11. For example, the predicted probability of having no qualifications when the father is very interested in school is almost 16%, and is about 19.5% when the mother is very interested. Previously at age 11 the predicted probabilities of no qualifications at the highest level of parental interest led to a 10 percentage point gap between father and mother interest.

6. Discussion

In this paper parental involvement was conceptualised as an indicator of social capital, and the goal was to address the question ‘Can parental involvement offset the effects of childhood poverty on education?’ The current results add to the growing literature on this topic by suggesting that parental involvement does act as a valuable source of familial social capital and also operates to reduce the harmful effect of childhood poverty. The disadvantaged families in this dataset were able to compensate for some of the detrimental effects of a lack of resources by making up for it through increased involvement. The impact of parental involvement, however, was by no means universal across all ages and type of involvement, nor was it similar depending on which parent it came from. At the same time, parental involvement was not sufficient to completely cancel the negative association between poverty and education; instead it acted as a ‘partial’ mediator (Baron and Kenney 1986).

In terms of age differences, descriptively the mean level of parental interest in school (the only involvement measure exactly the same at two time points) increased for both parents between age 11 and age 16 indicating that as children progress in school their parents become more interested (on average). This is different than what some past research has suggested. Izzo et al. (1999) for example found that frequency of parental contact with teachers as well as parental participation at school declined over a three year period. Their study examined children in kindergarten through to third grade and its relevance to older ages remains to be seen however. More relevant perhaps is the study by Muller (1998). Using a sample of American youth between Grades 8 and 10 she found that average levels of parental involvement either increased or decreased depending on the measured used: attendance at school meetings decreased, whereas talking about school increased. The current measure is still somewhat different from this since it taps into the teachers' perception of the parents' interest which is most likely observed from parent-teacher contact.

Nevertheless in the current study, parental involvement/interest had a different effect on the poverty-education link depending on the age it was measured. For example, parental interest in school at age 11 (especially that from fathers) had a stronger effect on reducing poverty than interest in school at age 16. This finding is particularly salient since there was a greater direct effect of poverty at age 7 than poverty at age 11. Being able to reduce the effect of early disadvantage is especially important since early poverty has been found to be especially detrimental to later well-being (Duncan et al. 1998). In addition, parental interest in education at age 16 had a more pervasive *direct* effect on reducing the odds of no qualifications than earlier interest at age 11. This likely points to a recency effect since the dependent measure is meant to tap into individuals who are leaving school at or shortly after age 16. In other words, interested parents at age 16 are probably more important to their children staying in school than the interest shown at age 11.

Also important was the type of parental involvement. Parental interest in school as rated by the teacher was the most important measure of involvement, surpassing frequency of outings, and how well parents and teen got along at age 16. This finding is not too surprising when the outcome is one of an educational nature. Measures tapping more direct parent-school linkages should be more applicable to an education outcome. Several other studies also confirm the importance of similar parent-school measures on education related outcomes (Ho Sui-Chu and Willms 1996; Izzo et al. 1999; McNeal 1999; Muller 1998). Harris and Marmer (1996) in contrast point to the importance of variables measuring closeness or emotional involvement between parents and children, but suggest that these relationships are better at predicting more behavioural measures such as depression and delinquency. Given these latter findings the current null effect of how well the parents and teen get along with one another is not entirely surprising. To strengthen this position, some analyses (not shown)

indicate that the current 'get along with' measures are also more related to behavioural outcomes such as police contact at age 16. For example, a higher proportion of teens who gave negative responses to the question whether they get along with their parents got in trouble with the police at age 16.

Different effects were also witnessed depending on which parent provided the interest. This is not surprising since other research has also uncovered gender differences (see Flouri and Buchanan 2004; Harris and Marmer 1996; Hobcraft 1998). In the current work it appears that father interest in education at age 11 had a greater impact than mother interest on reducing the effect of age 7 poverty. This difference still remains for age 16, but is not as strong, suggesting that by adolescence the support given by parents has similar effects. Meanwhile, a stronger direct effect of mother outings on qualifications was noticed, with a low frequency of mother outings at age 11 having a slightly stronger impact than father outings on increasing the probability of the child gaining no qualifications. Other work suggests that fathers from nonpoor families are more instrumental for educational achievement, while mothers in poor families may play a larger role (Harris and Marmer 1996). Hobcraft (1998) as well found that father interest in school was important for later education; however in contrast Flouri and Buchanan (2004) discovered that mother involvement was more important. The current results add to these past studies and further our understanding of the link between mother and father interest, childhood poverty and later education. Mother and father interest does have somewhat different effects and much of it depends on the type of involvement being measured: father interest in school appears to be particularly relevant while it is mother's involvement in other activities that are important.

In closing, in terms of social capital theory, investment in social capital through greater parental involvement during childhood can have a beneficial impact on reducing the long-term effect of childhood poverty. The parents in this sample have been able to reduce the impact of poverty by either showing a greater interest in education or increasing the frequency of outings, hence building greater social capital through more acceptance of the education system or by strengthening the bond with their children. And for this educational outcome at least, it is the interest shown in the education system that is most important. Past work by McNeal (1999) also supports this claim since he found that increased involvement in parent-teacher organizations significantly reduced the risk of dropping out of school.

Meanwhile the long-term impact of father involvement (particularly the interest in school) cannot be overemphasised, especially as a buffer to early socio-economic disadvantage. Thus, paternal support is very important for building social capital for the accumulation of human capital in the next generation. However, it must be noted that while the effect of poverty was reduced by parental involvement it cannot eliminate the wider structural factors that operate on a child's life chances. Future research should explore the way in

which parental involvement is affected by these other factors at the child level as well as the household level. Nonetheless, the present results are promising because they suggest that over the long-term parents can make up for the lack of financial resources during their child's life by being more involved in their education, both at age 11 and age 16. The current research points to a need for further exploration into why father's interest in school is important, yet it is maternal behaviours such as frequency of outings that are most influential. Knowing the optimal ways that fathers and mothers can compensate for a lack of socioeconomic resources can aid in reducing the intergenerational transmission of disadvantage.

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Table 1: Mean Levels of Parental Involvement and Poverty by Qualifications

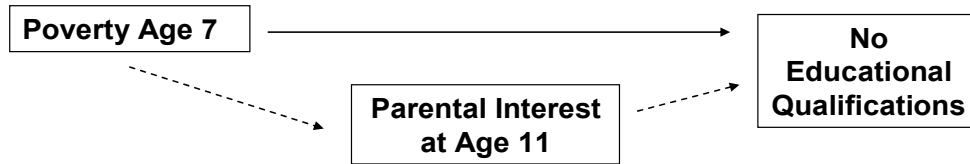
	Full Sample	Qualifications [†]	
		None	Some
Poor at Age 7 (1=yes, 0=no)	0.046 (5621)	0.154* (579)	0.034 (5042)
Poor at Age 11 (1=yes, 0=no)	0.083 (5621)	0.206* (579)	0.069 (5042)
Father Interest in School, Age 11 (0=little interest, 1=some interest, 2=very interested)	1.27 (3952)	0.531* (371)	1.35 (3581)
Mother Interest in School, Age 11 (0=little interest, 1=some interest, 2=very interested)	1.12 (4710)	0.647* (459)	1.17 (4251)
Father Outings, Age 11 (0=hardly ever, 1=occasionally, 2=most weeks)	1.47 (5583)	1.20* (571)	1.50 (5012)
Mother Outings, Age 11 (0=hardly ever, 1=occasionally, 2=most weeks)	1.52 (5593)	1.27* (575)	1.55 (5018)
Father Interest in School, Age 16 (0=little interest, 1=some interest, 2=very interested)	1.32 (3714)	0.497* (312)	1.40 (3402)
Mother Interest in School, Age 16 (0=little interest, 1=some interest, 2=very interested)	1.36 (3988)	0.663* (353)	1.43 (3635)
Does child get along well with Father, Age 16 (0=untrue/very untrue, 1=uncertain, 2=true, 3=very true)	2.12 (4765)	2.07 (412)	2.12 (4353)
Does child get along well with Mother, Age 16 (0=untrue/very untrue, 1=uncertain, 2=true, 3=very true)	2.26 (4770)	2.23 (415)	2.27 (4355)

* Indicates a significant difference between education groups at .01 level.

† Not including missing on Qualifications which varies from 1222 to 1904 depending on the variable. Restricted to intact families from birth to age 16 and only valid information on educational outcome. Respective sample sizes in parentheses below means.

Figure 1: Two Separate Models

A



B

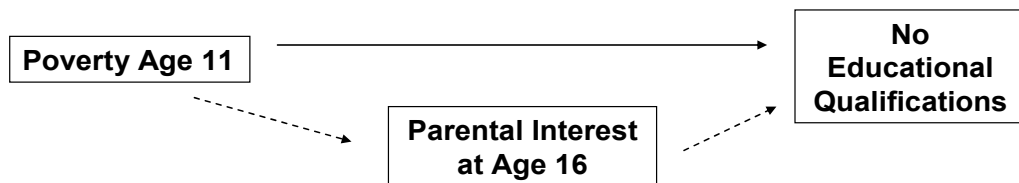


Table 2: Variable Definitions, and Means for Both Samples. NCDS Intact Families Birth to Age 16

Variable	Definition	Means in Both Samples	
		Poverty 7, Interest 11 (n=3072)	Poverty 11, Interest 16 (n=2658)
<i>Poverty</i>			
Poverty at Age 7	Health Visitor reported that the family was having ‘financial difficulties’ (1,0)	0.042	-----
Poverty at Age 11	The parents reported that they were having ‘financial difficulty’ in the past year (1,0)	-----	0.064
<i>Parental Involvement</i>			
Father Interest in School, Age 11	Father’s interest in the child’s school, as assessed by the teacher (0=little interest, 1=some interest, 2=very interested/overly interested)	1.285	----
Mother Interest in School, Age 11	Mother’s interest in the child’s school, as assessed by the teacher (0=little interest, 1=some interest, 2=very interested/overly interested)	1.237	----
Frequency of Outings with Father, Age 11	Parents are asked the question “How often does the father/father figure take the child out for walks, outings, picnics and visits?” (0=hardly ever, 1=occasionally, 2=most weeks)	1.493	----
Frequency of Outings with Mother, Age 11	Parents are asked the question “How often does the mother/mother figure take the child out for walks, outings, picnics and visits?” (0=hardly ever, 1=occasionally, 2=most weeks)	1.537	----
Father Interest in School, Age 16	Father’s interest in the child’s school, as assessed by the teacher (0=little interest, 1=some interest, 2=very interested/overly interested)	----	1.365
Mother Interest in School, Age 16	Mother’s interest in the child’s school, as assessed by the teacher (0=little interest, 1=some interest, 2=very interested/overly interested)	----	1.410
Getting Along with Father, Age 16	The teen is asked to respond to the statement “I get on well with my father” using the response categories: very untrue/untrue=0, uncertain=1, true=2, very true=3	----	2.147
Getting Along with Mother, Age 16	The teen is asked to respond to the statement “I get on well with my mother” using the response categories: very untrue/untrue=0, uncertain=1, true=2, very true=3	----	2.273
<i>Parental/Household Measures</i>			
Young Parents at Birth	Both parents were young (Father <age 25; Mother <age 23) at the birth of the respondent (1,0)	0.094	0.095
Father Left School at Young Age	Father/Father figure left school prior to age 15 (1,0)	0.561	0.560
Mother Left School at Young Age	Mother/Mother figure left school prior to age 15 (1,0)	0.459	0.448
Low Father Social Class	Father was employed in a semi- or un-skilled manual occupation (1,0)		
Birth - Age 11	Number of waves between birth and Age 11 with low father social class (0 – 3)	0.519	-----
Birth - Age 16	Number of waves between birth and Age 16 with low father social class (0 – 4)	-----	0.585

Variable	Definition	Means in Both Samples	
		Poverty 7, Interest 11 (n=3072)	Poverty 11, Interest 16 (n=2658)
Owner-Occupied Home	Family lived in an owner occupied home, versus public and privately rented housing (1,0)		
Age 7 - Age 11	Number of waves between Age 7 and Age 11 in an owner-occupied home (0 – 2)	1.03	-----
Age 7 - Age 16	Number of waves between Age 7 and Age 11 in an owner-occupied home (0 – 3)	-----	1.65
Number in Household	Number of People in the Household (0 to 8)		
Age 7 - Age 11	Average number of people in the household between age 7 and age 11 (2.5 – 8)	4.94	-----
Age 7 - Age 16	Average number of people in the household between age 7 and age 16 (2.7 – 8)	-----	4.83
Residential Mobility			
Birth - Age 11	Number of times family moved from birth to age 11 (0 – 9)	1.31	-----
Birth - Age 16	Number of times family moved from birth to age 16 (0 – 9)	-----	1.52
Child Level Measures			
Sex	Respondent is Male (1,0)	0.497	0.495
High Child Aggression	Parents were asked to rate whether their child fought with other children, were irritable, destructive, or disobedient (scale is frequently, sometimes or never). Items were summated, Range is 0-8. High aggression is defined having a score of 4 to 8 (\approx 75th percentile). (1,0)		
Age 7 - Age 11	Number of waves that the child had high aggression, age 7 to age 11 (0 – 2).	0.224	-----
Age 7 - Age 16	Number of waves that the child had high aggression, age 7 to age 16 (0 – 3).	-----	0.238
High Child Anxiety	Parents were asked to rate whether their child was a worrier, a loner, miserable or tearful, or afraid of new situations (scale is frequently, sometimes or never). Items were summated, Range is 0-8. High anxiety is defined having a score of 4 to 8 (\approx 75th percentile). (1,0)		
Age 7 - Age 11	Number of waves that the child had high anxiety, age 7 to age 11 (0 – 2).	0.347	-----
Age 7 - Age 16	Number of waves that the child had high anxiety, age 7 to age 16 (0 – 3).	-----	0.447
Poor Reading Ability	At age 7: Teacher rated respondent as being a poor reader, as compared to average and above average readers (1,0). At age 11: Child scored in lowest quartile on reading comprehension test (1,0). At age 16: Child's English reading ability is considered below average by teacher (1,0)		
Age 7 - Age 11	Number of waves that the child was a poor reader, age 7 to age 11 (0 – 2)	0.300	-----
Age 7 - Age 16	Number of waves that the child was a poor reader, age 7 to age 16 (0 – 3)	-----	0.409

Table 3: The Impact of Poverty at Age 7 and Paternal Involvement at Age 11 on Likelihood of Having No Qualifications (Odds Ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family Experienced Financial Difficulty, Age 7	6.361*** (1.264)	<i>3.161***</i> (0.371)	<i>1.265</i> (0.322)	5.279*** (1.077)	1.450 (0.363)	1.488 (0.371)	1.252 (0.320)
Father Interest in Education, Age 11		0.232*** (0.023)	0.402*** (0.046)				0.414*** (0.047)
Frequency of Father Outings with Child, Age 11				0.518*** (0.051)	0.691*** (0.077)		0.772** (0.087)
Parent/Household Measures							
Young Parents at Birth			1.498 (0.406)		1.851** (0.494)	1.802** (0.479)	1.521 (0.413)
Father Left School at Young Age			1.362 (0.290)		1.578** (0.329)	1.558** (0.324)	1.382 (0.294)
Mother Left School at Young Age			1.428*** (0.253)		1.474** (0.257)	1.489** (0.260)	1.403* (0.248)
Low Social Class, Measured from Birth to Age 11			1.217*** (0.089)		1.243*** (0.090)	1.255*** (0.091)	1.211*** (0.089)
Owner-Occupied Home, Measured at Age 7 and Age 11			0.739*** (0.071)		0.666*** (0.062)	0.655*** (0.061)	0.744*** (0.071)
Average Number in Household, Age 7 and 11			1.127** (0.063)		1.178*** (0.066)	1.213*** (0.067)	1.105* (0.063)
Number of Times Family Moved, Birth to Age 11			1.034 (0.059)		1.026 (0.058)	1.028 (0.058)	1.033 (0.060)
Child Level Measures							
Cohort Member is Male			0.540*** (0.083)		0.548*** (0.083)	0.544*** (0.082)	0.543*** (0.083)
High Child Aggression, Measured at Age 7 and Age 11			1.319** (0.174)		1.397** (0.182)	1.446*** (0.187)	1.289* (0.171)
High Child Anxiety, Measured at Age 7 and Age 11			0.857 (0.117)		0.830 (0.112)	0.835 (0.112)	0.855 (0.118)
Low Reading Ability, Measured at Age 7 and Age 11			2.693*** (0.264)		3.240*** (0.305)	3.272*** (0.307)	2.691*** (0.264)
LR Chi Square (df)	70.03 (1)	327.30 (2)	520.14 (13)	113.11 (2)	461.80 (13)	450.88 (12)	525.33 (14)
Log Likelihood	-874.62	-745.98	-649.56	-853.08	-678.73	-684.19	-646.97
Pseudo R-Square	0.039	0.180	0.286	0.062	0.254	0.248	0.289
AIC [†]	1753.24	1497.96	1327.12	1712.16	1385.46	1394.38	1323.94

* p < .10; ** p < .05; *** p < .01 (Standard errors in parentheses). N=3072

[†] df = k+1, where k is the number of parameters.

Poverty odds ratios in *italics* indicate a significant drop (p < .05) from Equation 1.

Table 4: The Impact of Poverty at Age 7 and Maternal Involvement at Age 11 on Likelihood of Having No Qualifications (Odds Ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family Experienced Financial Difficulty, Age 7	6.361*** (1.264)	4.334*** (0.906)	<i>1.372</i> (0.346)	5.219*** (1.067)	<i>1.409</i> (0.353)	<i>1.488</i> (0.371)	<i>1.314</i> (0.333)
Mother Interest in Education, Age 11		0.359*** (0.032)	0.552*** (0.058)				0.563*** (0.059)
Frequency of Mother Outings with Child, Age 11				0.517*** (0.054)	0.678*** (0.080)		0.713*** (0.084)
Parent/Household Measures							
Young Parents at Birth			1.615* (0.432)		1.888** (0.504)	1.802** (0.479)	1.677* (0.450)
Father Left School at Young Age			1.404 (0.294)		1.598** (0.334)	1.558** (0.324)	1.441* (0.303)
Mother Left School at Young Age			1.494** (0.262)		1.476** (0.258)	1.489** (0.260)	1.472** (0.259)
Low Social Class, Measured from Birth to Age 11			1.246*** (0.090)		1.245*** (0.090)	1.255*** (0.091)	1.239*** (0.090)
Owner-Occupied Home, Measured at Age 7 and Age 11			0.700*** (0.071)		0.665*** (0.062)	0.655*** (0.061)	0.707*** (0.067)
Average Number in Household, Age 7 and 11			1.172*** (0.065)		1.181*** (0.066)	1.213*** (0.067)	1.146** (0.064)
Number of Times Family Moved, Birth to Age 11			1.022 (0.058)		1.030 (0.058)	1.028 (0.058)	1.025 (0.059)
Child Level Measures							
Cohort Member is Male			0.544*** (0.083)		0.532*** (0.081)	0.544*** (0.082)	0.533*** (0.082)
High Child Aggression, Measured at Age 7 and Age 11			1.348** (0.178)		1.408*** (0.183)	1.446*** (0.187)	1.322** (0.174)
High Child Anxiety, Measured at Age 7 and Age 11			0.856 (0.116)		0.836 (0.113)	0.835 (0.112)	0.857 (0.117)
Low Reading Ability, Measured at Age 7 and Age 11			2.941*** (0.282)		3.222*** (0.303)	3.272*** (0.307)	2.905*** (0.279)
LR Chi Square (df)	70.03 (1)	217.03 (2)	483.79 (13)	108.21 (2)	461.62 (13)	450.88 (12)	491.89 (14)
Log Likelihood	-874.62	-801.12	-667.74	-855.53	-678.82	-684.19	-663.69
Pseudo R-Square	0.039	0.119	0.266	0.060	0.254	0.248	0.270
AIC†	1753.24	1608.24	1363.48	1717.06	1385.64	1394.38	1357.38

* p < .10; ** p < .05; *** p < .01 (Standard errors in parentheses). N=3072

† df = k+1, where k is the number of parameters.

Poverty odds ratios in italics indicate a significant drop (p < .05) from Equation 1.

Table 5: Predicted Probability of Having No Qualifications by Levels of Parental Involvement at Age 11

	Level of Interest in Education at Age 11		
	Little	Some	Very
Father Interest	62.53%	40.87%	22.25%
Mother Interest	60.95%	46.78%	33.11%

Reference Categories: Not poor, occasional outings, both parents young at birth, both mum and dad left school young, 1 wave of low father social class between birth and age 11, 2 waves of being in owner-occupied homes between age 7 and 11, female, 1 instance of having high aggression, high anxiety, and poor reading ability between age 7 and 11, 4 people on average in the household between age 7 and 11, and 1.3 residential moves between birth and age 11.

	Frequency of Outings at Age 11		
	Hardly Ever	Occasionally	Most Weeks
Father Outings	47.23%	40.87%	34.79%
Mother Outings	55.23%	46.78%	38.51%

Reference Categories: Not poor, some interest in school, both parents young at birth, both mum and dad left school young, 1 wave of low father social class between birth and age 11, 2 waves of being in owner-occupied homes between age 7 and 11, female, 1 instance of having high aggression, high anxiety, and poor reading ability between age 7 and 11, 4 people on average in the household between age 7 and 11, and 1.3 residential moves between birth and age 11.

Table 6: The Impact of Poverty at Age 11 and Paternal Involvement at Age 16 on Likelihood of Having No Qualifications (Odds Ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family Experienced Financial Difficulty, Age 11	3.514*** (0.749)	<i>2.060***</i> (0.488)	<i>1.066</i> (0.307)	3.515*** (0.749)	<i>1.167</i> (0.329)	<i>1.167</i> (0.328)	<i>1.049</i> (0.303)
Father Interest in Education, Age 16		0.171*** (0.021)	0.325*** (0.046)				0.319*** (0.046)
Getting Along with Father, Age 16				0.918 (0.083)	1.000 (0.108)		1.120 (0.124)
Parent/Household Measures							
Young Parents at Birth			1.600 (0.508)		1.978** (0.601)	1.978** (0.599)	1.642 (0.523)
Father Left School at Young Age			1.449 (0.374)		1.682** (0.420)	1.682** (0.420)	1.446 (0.374)
Mother Left School at Young Age			1.079 (0.236)		1.107 (0.237)	1.107 (0.236)	1.086 (0.237)
Low Social Class, Measured from Birth to Age 16			1.035 (0.083)		1.061 (0.083)	1.061 (0.083)	1.038 (0.089)
Owner-Occupied Home, Measured at Age 7, Age 11, and Age 16			0.914 (0.074)		0.826** (0.063)	0.826** (0.063)	0.914 (0.074)
Average Number in Household, Age 7, 11 and 16			1.174** (0.089)		1.270*** (0.093)	1.270*** (0.093)	1.178** (0.089)
Number of Times Family Moved, Birth to Age 16			1.030 (0.063)		1.012 (0.060)	1.012 (0.060)	1.036 (0.064)
Child Level Measures							
Cohort Member is Male			0.502*** (0.099)		0.465*** (0.090)	0.465*** (0.090)	0.502*** (0.099)
High Child Aggression, Measured at Age 7, Age 11, and Age 16			1.316* (0.191)		1.363** (0.192)	1.363** (0.191)	1.324* (0.192)
High Child Anxiety, Measured at Age 7, Age 11, and Age 16			0.838 (0.114)		0.795* (0.105)	0.795* (0.105)	0.843 (0.115)
Low Reading Ability, Measured at Age 7, Age 11, and Age 16			3.113*** (0.290)		3.776*** (0.339)	3.776*** (0.339)	3.100*** (0.289)
LR Chi Square	28.38	293.52	515.30	29.27	446.69	446.69	516.37
(df)	(1)	(2)	(13)	(2)	(13)	(12)	(14)
Log Likelihood	-659.83	-527.26	-416.37	-659.38	-450.67	-450.67	-415.83
Pseudo R-Square	0.021	0.218	0.382	0.022	0.331	0.331	0.383
AIC†	1322.66	1060.52	860.74	1324.76	929.34	927.34	861.66

* p < .10; ** p < .05; *** p < .01 (Standard errors in parentheses). N=2658

† df = k+1, where k is the number of parameters.

Poverty odds ratios in italics indicate a significant drop (p < .05) from Equation 1.

Table 7: The Impact of Poverty at Age 11 and Maternal Involvement at Age 16 on Likelihood of Having No Qualifications (Odds Ratios)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family Experienced Financial Difficulty, Age 11	3.514*** (0.749)	2.273*** (0.533)	<i>1.087</i> (0.314)	3.516*** (0.749)	<i>1.167</i> (0.329)	<i>1.167</i> (0.328)	<i>1.07</i> (0.311)
Mother Interest in Education, Age 16		0.196*** (0.023)	0.375*** (0.052)				0.367*** (0.051)
Getting Along with Mother, Age 16				0.959 (0.099)	1.000 (0.120)		1.142 (0.144)
Parent/Household Measures							
Young Parents at Birth			1.688* (0.530)		1.978** (0.599)	1.978** (0.599)	1.697* (0.533)
Father Left School at Young Age			1.477 (0.379)		1.682** (0.420)	1.682** (0.420)	1.463 (0.376)
Mother Left School at Young Age			1.038 (0.236)		1.107 (0.236)	1.107 (0.236)	1.035 (0.225)
Low Social Class, Measured from Birth to Age 16			1.059 (0.084)		1.061 (0.083)	1.061 (0.083)	1.061 (0.084)
Owner-Occupied Home, Measured at Age 7, Age 11, and Age 16			0.896 (0.072)		0.826** (0.063)	0.826** (0.063)	0.896 (0.072)
Average Number in Household, Age 7, 11 and 16			1.193** (0.090)		1.270*** (0.093)	1.270*** (0.093)	1.196** (0.091)
Number of Times Family Moved, Birth to Age 16			1.002 (0.061)		1.012 (0.060)	1.012 (0.060)	1.005 (0.061)
Child Level Measures							
Cohort Member is Male			0.495*** (0.097)		0.465*** (0.090)	0.465*** (0.090)	0.491*** (0.097)
High Child Aggression, Measured at Age 7, Age 11, and Age 16			1.319* (0.191)		1.363** (0.192)	1.363** (0.191)	1.328* (0.193)
High Child Anxiety, Measured at Age 7, Age 11, and Age 16			0.845 (0.115)		0.795* (0.105)	0.795* (0.105)	0.846 (0.115)
Low Reading Ability, Measured at Age 7, Age 11, and Age 16			3.159*** (0.294)		3.776*** (0.339)	3.776*** (0.339)	3.145*** (0.293)
LR Chi Square (df)	28.38 (1)	261.54 (2)	499.97 (13)	28.55 (2)	446.69 (13)	446.69 (12)	501.10 (14)
Log Likelihood	-659.83	-543.25	-424.03	-659.74	-450.67	-450.67	-423.47
Pseudo R-Square	0.021	0.194	0.371	0.021	0.331	0.331	0.372
AIC†	1322.66	1092.52	876.06	1325.48	929.34	927.34	876.94

* p < .10; ** p < .05; *** p < .01 (Standard errors in parentheses). N=2658

† df = k+1, where k is the number of parameters.

Poverty odds ratios in italics indicate a significant drop (p < .05) from Equation 1.

Table 8: Predicted Probability of Having No Qualifications by Levels of Parental Involvement at Age 16

	Level of Interest in Education at Age 16		
	Little	Some	Very
Father Interest	64.60%	36.82%	15.69%
Mother Interest	64.16%	39.65%	19.43%

Reference Categories: Not poor, answered ‘true’ to getting along with parents, both parents young at birth, both mum and dad left school young, 2 waves of low father social class between birth and age 16, 2 waves of being in owner-occupied homes between age 7 and 16, female, 2 instances of having high aggression, high anxiety, and poor reading ability between age 7 and 16, 4 people on average in the household between age 7 and 16, and 1.5 residential moves between birth and age 16.