The Relationship Between Childhood Experiences, Subsequent Educational Attainment and Adult Labour Market Performance

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I. Introduction

The relationship between childhood experiences and subsequent labour market performance as an adult is an important area of study for several reasons. First, we may be interested in looking empirically at the transmission mechanisms that underpin the extent of intergenerational mobility (or immobility) of economic status. It is clear that the association between childhood factors and adult earnings, employment and unemployment is likely to be one such transmission (or intervening factor). Second, uncovering any links between childhood disadvantage and performance in the adult labour market is useful in shedding light on the way in which pre-labour market factors (other than education which has been widely studied, or early age test scores which have received some, though less, attention[1]) are connected to labour market success or failure. Thirdly, uncovering such associations may be important in informing future policy related to child outcomes, especially if one can (as we do) study changes over time.

In this Chapter we consider what can be said about these kinds of associations, drawing on data from data from two British birth cohorts, born in a week of March 1958 (the National Child Development Study, NCDS) and in a week of April 1970 (The 1970 British Cohort Study, BCS70). These are unique data sources that follow cohort members from birth, through the childhood years and into adulthood, collecting a huge amount of very rich information along the way. The two surveys have similar structures and, for the some of the analysis, therefore permit one to conduct intertemporal comparisons across the two birth cohorts.

The main findings are as follows:

- On the basis of study of quite large samples of parents and children, the extent of intergenerational mobility in Britain is limited in terms of earnings and education. If anything, mobility seems to have fallen for the 1970 cohort as compared to the earlier 1958 cohort.

- Childhood disadvantages (specific to the child and to their parents) are an important factor in maintaining and reinforcing patterns of immobility of economic status across generations.

- Educational attainment is an important transmission underpinning the extent of mobility as it partially ameliorates the (negative) associations with disadvantage.

- One of the key factors of childhood disadvantage, child poverty, has risen massively in the last thirty years or so. In cross cohort comparisons child poverty seems to have an important (negative) effect on success in the adult labour market. Whilst the effect is dampened down once one controls for education, negative effects on adult wages and employment remain.

- Indicators of disadvantage have a cross-generation spillover effect on to the children of parents who grew up in a disadvantaged environment.

1 See Card (1999) for a thorough survey of links between education and earnings.

The rest of the Chapter is structured as follows. Section II presents a brief discussion of the extent of intergenerational mobility based on data from the two cohorts. Section III then presents a summary of our earlier findings on the links between childhood factors and adult outcomes using the NCDS cohort data. Section IV again uses NCDS data and, as children of the cohort members have now been sampled, explores whether one can pin down any evidence of an intergenerational spillover by relating childrens' maths and reading test scores to measures of childhood disadvantage of their (NCDS cohort member) parent. Section V carries out some simple BCS70 comparisons with NCDS, focussing here on associations with child poverty. Section VI concludes.

II. Intergenerational Mobility in Britain

This Section of the paper sets the scene by considering the extent of mobility (or immobility) of economic and social status across generations using the 1958 and 1970 cohort data. The comparison undertaken here is to estimate the extent of mobility using the same kind of data and modelling specifications for the two cohorts.

There are two principal ways in which researchers have looked at intergenerational mobility. The first, the regression approach, simply runs a regression of a given economic or social outcome for children on the same outcome of parents.[2] The second, the transition matrix approach, considers in more detail where children end up in their generation's distribution of a given economic or social outcome conditional on where their parents were in their own generation's distribution.

Regression estimates defined in a similar way in the NCDS and BCS70 show that, if anything, mobility seems to have fallen across the two cohorts. Data constraints (BCS70 does not contain parental labour market earnings) means that, to ensure the same experiment is being undertaken, we are forced to look at associations between earnings of cohort members and the income of their parents.[3] The following two regressions are for 1773 sons matched to parental income in NCDS and 2717 sons matched to parental income in BCS70:

NCDS, 1773 pairs:	ln(son's earnings) =	.115 ln(parental income) (.019)
BCS70, 2717 pairs:	ln(son's earnings) =	.163 ln(parental income) (.015)

2 The best examples of this work in economics are the US studies of Solon (1992) and Zimmerman (1992) who carefully go through methodological issues to do with obtaining unbiased estimates of the extent of intergenerational mobility. Of course the regression based approach dates back at least as far as Galton's (1886) study of intergenerational correlations of height.

3 The implications of this for modelling intergenerational correlations and how they have altered over time is discussed in more detail in Gregg and Machin (1999b). One thing to note here is that no correction is made for the fact that the parental income measure may not necessarily reflect permanent income. To the extent that there is a divergence this will result in the estimated intergenerational parameter being biased downwards (Solon, 1992). As such one should not pay too much attention to the size of the parameter but, as long as the bias is not changing through time, the cross time comparisons should be legitimate.

The correlation between son's earnings and parental income rises over time, pointing to reduced intergenerational mobility between the 1958 and 1970 cohort. This is also borne out when one considers transition matrices. These are reported in Table I and show more mobility in the NCDS than in the later cohort. One summary statistic (of many possibilities) is to take the sum of the entries on the leading diagonal and adjacents. This rises from 2.77 in the 1958 cohort to 2.95 for the 1970 cohort.[4] As its seems that mobility has, if anything fallen. It certainly has not risen and it appears the case that higher earning sons are more likely to be from rich families for the later cohort.[5]

III. NCDS Analysis of Links Between Childhood Factors and Adult Outcomes

We now turn to the transmission mechanisms underpinning intergenerational mobility, particularly the links between childhood factors and adult outcomes. The methodology we adopt is a sequential modelling approach following cohort members as they age. The NCDS has sampled cohort members at ages 0 (in 1958), 7, 11, 16, 23 and 33. This puts the following modelling structure on the questions of interest.

Modelling Approach

We begin at age 16 by trying to characterise disadvantage measures (family and child based) derived from econometric models of age 16 outcomes (school attendance, contact with police, staying on at school) that hold constant a large range of age 7 childhood and parental outcomes. Basically we estimate econometric models which we then use to pin down measures of disadvantage for the subsequent analysis. These econometric models hold constant a host of age 7 and parental variables to ›level the playing field: (or proxy individual specific fixed effects) such that when we then follow individuals through time we are able to pick up who moves into a situation of childhood disadvantage and who does not.

The analysis then proceeds to later age outcomes. The first is an important one for the interpretation of the effects we isolate in the empirical work. We look at links between educational attainment (by age 23) and child disadvantage, again holding constant the early age factors. This proves important as, probably not surprisingly, the disadvantaged are seen to have massively inferior education. We are therefore interested in the extent to which those disadvantaged children are able to 'escape' poor adult labour market performance through reaching higher educational levels. We address this in some detail in the discussion of the empirical work below.

The second part of the later age outcomes is concerned with links between measures of economic and social success or failure (at ages 23 and 33) and the disadvantage measures (once again holding constant age 7 and age 16 variables). There are two strands to this. The first looks at the (conditional) correlations between the age 23 and 33 outcomes and disadvantage. The second considers how much

4 Blanden (1999) reports very similar rises (from 2.75 to 2.93) in terms of income correlations between family income of cohort members and the income of their parents.

5 For daughters there seems to be very little change across cohorts. But the comparison here is much more complicated, due to rapidly changing female labour force participation patterns.

of the estimated effects can be explained by differences in educational attainment between those classified as disadvantaged and those who are not, thereby trying to pin down education's role as an intervening factor as discussed above.

Age 16 Outcomes

The analysis at age 16 looks at the associations between three outcomes and a range of child, family and environmental factors. The three outcomes of interest are:

(i) School attendance in the Autumn (Fall) term of the last year of school (aged 15-16). This comes from school records and is defined as the proportion of possible half days attended by the cohort member = (number of possible half days attendance - number of half days absences) / number of possible half days attendance.
(ii) Contact with the police which comes from a question asking "Has the child ever been in contact with the police or probation office?".
(iii) Staying on at school after the compulsory school leaving age (age 16 in this cohort).

The child, environmental and parental factors are a whole range of factors designed to in some sense 'level the playing field at age 7'. These areas follows:
(a) age 7 individual-specific characteristics: ethnicity, age 7 cognitive skills measured by maths and reading test scores), indicators of illness[6] and behavioural problems[7] and whether the child was classified as an educational special needs child;
(b) parental educational status;
(c) the pre-7 and age 7-16 outcomes of interest. In our empirical models these are the following: whether the child was living in a lone mother family; whether the father figure was unemployed at the survey date; whether the family was in financial difficulties in the year prior to the survey date[8]; whether the child has ever been in care.

We prefer to think of the inclusion of the variables in (a) and (b) as fixing what we might call the 'initial conditions' (i.e. standardising the characteristics of individuals at an early age) so that we can then follow a sequential modelling approach as individuals grow older. Put alternatively, we are interested in the relationship between our age 16 outcomes and the variables in (c) above in models that hold constant these initial conditions.

6 The illness variables correspond to the age 15/16 school year and are included in the school attendance and staying on models to ensure that we are not classifying children as low school attendance individuals or poor school performers if they are ill.

7 The behavioural problems variables are defined from the following eight "syndrome" scores given in NCDS: unforthcomingness, withdrawal, depression, anxiety, hostility towards adults, anxiety for acceptance by children, restlessness and "inconsequential" behaviour. They are entered into the empirical models as 0-1 dummies indicating positive scores on 1, 2/3 and 4 or more of the 8 measures (with no positive scores being the reference group).

8 To be precise the age 11 and 16 questions on family financial difficulties related to the previous year but at age 7 it referred to the child's early years.

The key findings from the estimated econometric models are:

- staying on at school, better school attendance and reduced contact with the police are more likely for children with higher age 7 maths and reading ability, for children with more educated parents and for children who grew up in families that did not face financial difficulties in the years in which children grew up;
- the impact of family financial difficulties is more important than family structure (whether the father was ever unemployed, or living in a lone mother family);
- if children were ever placed in care during their childhood this massively increased their chances of contact with the police.

Table II presents a summary of the age 16 results by defining a 'representative' cohort member with a given set of characteristics and then altering these characteristics to see what the econometric models predict in terms of school attendance, contact with the police and the likelihood of staying on at school. The Table is useful as it draws out the relative magnitudes of the associations, and also lets us combine together the effects of more than one variable (like in in the last two rows of the Table). The largest positive effect on school attendance comes from higher age 7 reading ability and on staying on rates from better reading and maths ability at age 7 for both males and females: for example, the second last row of the Table combines the two effects showing that being in the highest quintile of both raises staying on rates by a huge .41 higher than the base for males and .44 for females.

The most negative effects on school attendance are from growing up in a family facing financial hardship. The same is true for staying on rates, along with a strong negative effect from low parental education. The last row of the Table highlights this pattern showing that school attendance is .099 and .136 points lower than the base and the staying on rate is .482 and .409 points lower than the base for males and females who grew up in low parental education families that faced financial difficulties during the childhood years.

Contact with the police or probation services is much higher for children who have ever been in care at .10 higher than the .02 base for males and .03 higher than the .01 base for females. Children growing up in low parental education families with financial difficulties during the childhood years are also much more likely to have contact with the police for both males and females (with positive deviations of .134 and .042 for males and females respectively).

Characterising Disadvantage

We use these age 16 findings to characterise the childhood years of cohort members with certain characteristics as disadvantaged. We utilise both family and child based disadvantage measures. One should, of course, note that this distinction is somewhat hazy and, indeed, that we are somewhat selective in terms of what disadvantages we focus upon. This results in the following two groups of disadvantage measures:

The family based measures are:

- whether the cohort member was ever placed in care during his/her childhood;
- whether the family was ever in financial difficulties;
- whether the cohort member ever lived in a lone mother family, but did not report financial difficulties;
- whether the cohort member's father was unemployed at any of the age 7, 11 and 16 interview dates, but did not report financial difficulties.

We adopt these definitions because of the clear overlap between (ii), (iii) and (iv) and in terms of their correlations with age 16 outcomes. In our analysis we then consider a variety of age 23 and 33 outcomes and model them as a function of our measures of social disadvantage.[9]

The child specific measures are:

- low school attendance (< .75);
- contact with police.

The Extent of Disadvantage

For our birth cohort of people born in March 1958, 16.7 percent of children in our sample experienced financial distress at any of the observed ages 7, 11 or 16.[10] In terms of the other disadvantage measures, 3.8 percent of children were ever placed in care during their childhood years, and 7.4 percent had a father unemployed at least once at ages 7, 11 or 16. Only 2.9 percent had an unemployed father without also reporting financial difficulties at some time. 10.7 percent were living in a lone parent family at some point in time and 5.5 percent reported being in a lone parent family without financial distress. In terms of the child-specific anti-social measures, around 10 percent had school attendance below .75 at age 15 (excluding sick individuals). Finally, 6.3 percent had contact with the police by age 16.

The subsequent analysis looks at the relationship between age 23 and 33 economic and social outcomes and these measures of disadvantage, utilising the sequential modelling approach outlined above.

Educational Attainment

[9] See also some early work using the NCDS up to age 23 by Elias and Blanchflower (1987) and the more recent studies by Kiernan (1995) and Hobcraft (1998). Blanchflower and Elias (1993) also examine some of the economic outcomes that we consider here in their work on NCDS twins.

[10] As it turns out there is a clear mapping between the NCDS financial distress measure and FES poverty rates. In NCDS 11.0 percent reported financial distress at age 11 (1969) and 10.5 percent at 16 (1975). In the FES data poverty rates were 12.0 percent (after housing costs) and 10.3 percent (before housing costs) in 1969 and were 12.2 and 10.0 percent respectively in 1975. It is therefore encouraging that a close correspondence between these measures exists. Of the sub-sample that answered in both years around 40 percent of those in financial difficulties in 1969 were again in difficulty in 1975. This gives some idea of the concentration of poverty on the same children

The starting point of the analysis between adult outcomes and disadvantage concerns the association between educational achievement and childhood disadvantage. It is very clear that the educational attainment of the disadvantaged is considerably lower.[11] For example, only 1 percent of boys who had school attendance less than .75 or who had been in contact with the police went on to get a degree (or higher) by age 23; this compares to 13 percent of the other NCDS boys. Figures for girls are 1 percent and 11 percent respectively. In terms of family disadvantage only 4 percent of boys (3 percent of girls) who were ever placed in care or lived in a family facing financial difficulties went on to degree level as compared to 13 percent of boys (11 percent of girls) who were not in such a situation in their childhood years.

At the other end of the education spectrum, the disadvantaged are heavily over-represented in the part of the population that have no educational qualifications. For example, 53 percent of boys (62 percent of girls) with school attendance less than .75 or who had been in contact with the police left school with no educational qualifications. This compares to 19 percent of boys and 25 percent of girls with better attendance and no police contact.

Because of these very strong association it seems likely that success in education is likely to be a potentially important transmission mechanism underpinning links between childhood disadvantage and adult economic and social outcomes, and therefore the extent of intergenerational mobility. As such it is important in the analysis of age 23 and 33 economic and social outcomes, which is discussed next, to look at what happens when one does and does not net out the education differences between the disadvantaged and non-disadvantaged cohort members.

Age 23 and 33 Outcomes

At age 23 four economic and social outcomes were looked at, with the fourth one differing for male and female cohort members. For both sexes, we looked at age 23 hourly wages, employment status at the 1981 survey data and time spent unemployed (in months) since age 16. Then for male cohort members we looked at the probability of having experienced a prison or borstal spell since age 16, and for female cohort members we looked at the probability of having become a lone mother by age 23. At age 33 we look at wages and employment status for both sexes. These variables enable us to consider a relatively wide range of outcomes (from higher wages through to prison attendance for males and lone parenthood for females) in our search for factors that shape relative success or failure in the early years of adulthood.

Some simple descriptive statistics for the economic and social outcomes at ages 23 and 33 are reported in Table III for all NCDS cohort members and broken down by the disadvantage variables. In these raw data descriptions age 23 hourly wages and the probability of being employed are lower than average for those characterised as disadvantaged in almost all cases. On the other hand, the probability of having had a prison/borstal spell (for males) or being a lone parent (for females) are higher for those

11 Educational attainment is measured by a nine fold ordered ranking of educational qualifications (academic and vocational) ranging from no educational qualifications to a degree or higher (see Gregg and Machin, 1999a).

characterised as disadvantaged in almost all cases. There is some variation across the different groups with low school attendance being strongly associated with lower wages and employment. Also, ever being placed in care during the childhood years and being in contact with the police/probation between ages 10 and 16 are associated with much higher incidence of prison/borstal spells for men. At age 33 hourly wages and employment rates are clearly lower in respect of the first four measures (low school attendance, police/probation, ever in care, ever in financial difficulties), though there is less difference for those from a lone parent (in the absence of financial difficulties) background.

We have estimated statistical models that build by age and do and do not take account of age 23 educational attainment. A summary of the main results are given in the flow diagrams in Figures I and II. The flow diagrams are structured as follows. They report the association between childhood disadvantage and each outcome variable in column 1, after controlling for the age 7 attributes listed earlier. Column 2 introduces the age 16 anti-social measures and reports how much of the original association with family disadvantage is left after allowing for them. In a similar vein, in column 3 we introduce educational attainment at age 23 and in column 4 age 23 employment or wage outturns in the age 33 models.

As an example of the way the flow charts operate consider the relationship between male employment rates and family financial distress, given in row 3 of Figure I. The employment rate of men at age 23 is 8.0 percentage points lower for those experiencing financial distress in their families as children. When we add in the age 16 anti-social behaviour variables this falls to 6.4 percentage points. So one can think of poor school attendance and contact with the police accounting for 1.6 percentage points of the negative employment effect associated with childhood financial distress. Moving on, when one then includes educational attainment this is further reduced to 5.3 percentage points.

The overall picture emerging from the flow diagrams in Figures 10 and 11 is that of a clearly marked relationship between childhood disadvantage and adult economic and social outcomes. What is also clear is that educational attainment acts as an important transmission mechanism as the magnitude of the association is usually considerably diminished by including the education variable. Nevertheless, an important and often sizable fraction of the association with disadvantage remains intact. The main exception to this is the wage results at age 23, but we would argue that looking at wages at age 23 is probably too early in the life cycle to identify any important effects. For females, almost all outcomes are significantly worse for most of the disadvantage variables (except for the lone parent and father unemployed variables, whose effects are more mixed), and remain so (albeit smaller) once one controls for education.

Looking in a little more detail, the quantitatively most important effects in the age 23 models that control for educational attainment are the following: individuals growing up in a family facing financial difficulties have joblessness rates about 5 percent higher (men) and 9 percent higher (women); being in contact with the police or probation services results in much lower employment probabilities (reduced by 5 percent for men, 13 percent for women) and significantly higher probabilities of a prison/borstal spell for men (by 1.6 percent) and lone parenthood for women (4.5 percent). By age 33 the effects of some of the disadvantage still persist. Most notably the childhood poverty measure (family financial difficulties) is significantly associated with worse economic outcomes (lower wages and employment

probabilities) for men even after netting out education differences.

Adding in the educational attainment variable reduces the estimated coefficients by up to 50 percent (the 'typical' reduction is probably about 1/3). As these estimated models include the early age 'ability' related measures (what we earlier called the 'initial conditions' variables) this shows that education is indeed an important transmission mechanism which underpins the relationship between disadvantage and inferior economic and social outcomes.

IV Intergenerational Links

Some of the NCDS cohort members now have their own children and the data set contains information on test score outcomes from a battery of tests administered to the cohort members whose children were old enough in 1991. This data allows an intergenerational aspect to our study and lets us ask the very important question of whether social disadvantage faced by the NCDS cohort member in their childhood years has any clear relationship with their own children's cognitive abilities.

Table IV reports information on two tests administered to the cohort members' children between the ages of 6 and 9 in 1991. The tests are the well-known Peabody Individual Achievement Tests (for maths and reading recognition) and are standardised for age differences (see Social Statistics Research Unit, undated, for more details). Children have been classified into percentiles of the test scores distribution and we report the mean percentile broken down by parents' social disadvantage in the Table. A clear and strong pattern emerges. For maths and reading tests children for whom one of their parents faced social disadvantages in their own childhood have lower percentile rankings. In particular, the percentile scores are extremely low for children whose parents' own childhood experiences included a spell in care (by a huge 14 percentile points for boys and 16 points for girls relative to the average) and for those with parents who had been in contact with the police/probation services as a youth (by 10 and 14 percentile points relative to the mean for boys and girls respectively).

These results demonstrate a further effect of social disadvantage when growing up, namely the existence of an intergenerational spillover.[12] The children of parents who grew up in socially disadvantaged situations are more likely to have lower scores in tests administered to them at an early age. As early age maths and reading ability are important determinants of economic and social success or failure as an adult this suggests that the effects of childhood disadvantage persist over more than one generation.

V. Cross-Cohort Comparisons

[12] The more detailed econometric models in Gregg and Machin (1998) show this pattern of significantly lower child test scores is preserved in a multivariate analysis. Some of these econometric models do control for parental test scores, thereby netting out any 'inheritance' links, making it unlikely that the intergenerational spillovers from disadvantage are due to cognitive disadvantage being transmitted across generations.

The motivating discussion and some of the findings on intergenerational mobility, reported on in Section II, stressed the need to look at changes through time. The case for this is made all the more relevant when one notes that the time periods between early labour market years of the NCDS and BCS70 cohorts were characterised by rising wage and income inequality (Machin, 1996, 1998; Goodman, Johnson and Webb, 1997), and by increased child poverty (Gregg, Harkness and Machin, 1999). Figure III shows increasing child poverty rates, from about 1 in 10 in 1968 to just under 1 in 3 by 1995/6. As the Figure shows, the proportion of children in poverty showing only a moderate rise in the 1970s, but increasing at a rapid rate thereafter.

As the design of the NCDS ad BCS70 cohort surveys are similar (some questions are identical) we have begun to look at the extent to which associations between economic and social outcomes and childhood experiences vary across cohorts. The age 16 data on staying on at school and contact with the police are the same across the two cohorts so Table V reports the associations between these two outcomes and the childhood poverty measure (where the family reported being in financial difficulties). The associations are rather stable for both male and female cohort members. But as childhood poverty rose between 1974 (when the NCDS cohort was 16) amd 1986 (when the BCS70 cohort was 16), as picked up by the rising mean of the financial difficulties variable, this suggests a more important link between disadvantage and the age 16 outcomes for the older cohort. Whilst this requires a lot more research, it seems likely that this kind of link could be underpinning the findings of Section II that intergenerational mobility has probably fallen.

VI. Conclusions

This paper surveys some of our recent work on connections between childhood experiences, subsequent educational attainment and adult labour market performance, and how these link to the somewhat larger body of work on the extent of intergenerational mobility. Our findings reveal that disadvantages faced during childhood display a persistent (negative) association with the subsequent economic success of individuals. An important transmission mechanism underpinning these links is educational attainment, which is vastly inferior for those we classify in the disadvantaged groups. However, over and above this, factors such as poor school attendance and growing up in a family in financial distress matter in shaping adult labour market performance (in our work they matter more than lone parenthood, which seems to be dominated by family poverty). Further to this, the children of parents who grew up in a socially disadvantaged situation during their own childhood have lower early age cognitive abilities suggesting a potentially important cross-generational link that may well spill over to effect the subsequent economic fortunes of children of disadvantaged individuals. As such, the fact that some of the measures of disadvantage we consider, like child poverty, have increased in recent years means that careful cross-cohort differences are an important future area of study. This is particularly true, given that the inequality of labour market outcomes has risen in Britain in recent years.

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Table I:
Changes in The Extent of Intergenerational Mobility in Britain

Sum leading diagonal and adjacents: NCDS 2.77; BCS70 2.95.

NCDS	Son's Earnings Quartile			
Parental Income Quartile	Bottom	2nd	3rd	Top
Bottom	.31	.28	.23	.18
2nd	.30	.23	.26	.21
3rd	.21	.26	.27	.26
Top	.18	.23	.24	.36
BCS70	Son's Earnings Quartile			
Parental Income Quartile	Bottom	2nd	3rd	Top
Bottom	.35	.27	.22	.15
2nd	.27	.28	.24	.21
3rd	.19	.25	.28	.28
Top	.17	.20	.24	.39

Table II:
Summary of Econometric Estimates Used to Characterise Disadvantage at Age 16 For The NCDS Cohort (Marginal Effects Calculated As Deviations From Base)

	Males			Females		
	School Atten-dance	Contact With Police/ Probation	Stay on at School	School Atten-dance	Contact With Police/ Probation	Stay on at School
Base Individual	.853	.024	.509	.841	.006	.444
Deviations From Base:						
Non-White	-.001	+.001	+.050	+.010	-.004	+.114
Top Quintile of Maths Test Scores	-.003	+.018	+.123	+.002	-.002	+.208
Top Quintile of Reading Test Scores	+.018	-.015	+.346	+.025	+.004	+.310
Ever in Care	-.001	+.098	-.109	-.006	+.028	-.027
Father Left School Aged 15 or Less	-.019	+.018	-.232	-.013	+.010	-.184
Mother Left School Aged 15 or Less	-.012	+.013	-.239	-.022	+.001	-.209
Lone Mother Family at Child age 7	-.005	+.003	-.039	-.001	+.000	-.057
Lone Mother Family at Child age 11 or 16	-.010	+.007	.003	-.013	+.001	-.053
Father Unemployed at Child age 7	-.024	+.002	-.086	-.033	+.001	.040
Father Unemployed at Child age 7	-.013	+.003	-.032	-.009	-.001	-.075
Family in Financial Difficulties at Child age 7	-.021	+.020	-.186	-.033	+.003	-.129
Family in Financial Difficulties at Child age 11 or 16	-.023	+.018	-.092	-.038	+.006	-.091
Top Quintile of Maths and Reading Test Scores	+.017	-.007	+.406	+.026	+.002	+.444
Father and Mother Left School Aged 15 or Less, Family in Financial Difficulties at Child age 7, 11 or 16	-.099	+.134	-.482	-.136	+.042	-.409

Notes:

1. Reproduced from Gregg and Machin (1999a).
2. Derived from Tobit models of school attendance and Probit models of staying on school and police contact (estimated separately for males and fermales). Independent variables included in all models were: Non-White; dummies for 2nd , 3rd and Top Lowest Quintile of Maths Test Scores (age 7); dummies for 2nd , 3rd and Top Lowest Quintile of Reading Test Scores (age 7); Behavioural Response 1, 2/3 and 4 (see footnote **); Ever Educational Special Needs; Ever in Care; Father Left School Aged 15 or Less; Mother Left School Aged 15 or Less; Lone Mother Family at Child age 7; Lone Mother Family at Child age 11 or 16; Father Unemployed at Child age 7; Father Unemployed at Child age 11 or 16;
3. The base individual is White, Lowest Quintiles of Test Scores, Never in Care, Father and Mother Left School After 15, Never in Lone Mother Family, Father Never Unemployed, Never in Family With Financial Difficulties, not sick in last school year and behavioural response score of 0)

Table III:
NCDS Age 23 and 33 Outcomes By Disadvantage Status

Male Cohort Members	Hourly Pay, Age 23	Employment, Age 23	Unemployment Time (in months) Since Age 16, Age 23	Prison Spell Since Age 16, Age 23	Hourly Pay, Age 33	Employment, Age 33
All males	2.71	.86	5	.01	7.63	.91
Low school attendance	2.50	.72	11	.04	5.80	.81
Contact with police	2.61	.77	9	.05	6.43	.82
Ever in care	2.56	.72	11	.07	6.36	.75
Ever in financial difficulties	2.60	.77	9	.03	6.28	.83
Ever in lone parent family (no financial difficulties)	2.71	.86	6	.01	7.73	.91
Father ever unemployed (no financial difficulties)	2.65	.78	6	.02	7.19	.91
Female Cohort Members	Hourly Pay, Age 23	Employment, Age 23	Unemployment Time (in months) Since Age 16, Age 23	Lone Mother by Age 23, Age 23	Hourly Pay, Age 33	Employment, Age 33
All females	2.38	.66	4	.08	5.24	.76
Low school attendance	2.05	.47	7	.20	3.95	.62
Contact with police	2.02	.44	6	.19	4.49	.63
Ever in care	2.22	.51	6	.17	4.78	.62
Ever in financial difficulties	2.24	.49	6	.16	4.22	.65
Ever in lone parent family (no financial difficulties)	2.42	.68	3	.08	5.94	.70
Father ever unemployed (no financial difficulties)	2.16	.62	5	.08	4.75	.69

Table IV:
Maths and Reading Test Score Percentiles For Children (Aged 6-9) of NCDS Cohort Members

	Percentile in Maths Peabody Individual Achievement Test	Number of Children	Percentile in Maths Peabody Individual Achievement Test	Number of Children
All children aged 6-9	52	1007	51	1008
Parent had low school attendance	48	104	45	105
Parent was in contact with police	41	56	36	56
Parent was ever in care	38	37	35	37
Parent grew up in family facing financial difficulties	45	182	44	183
Parent ever in lone parent family (but not financial difficulties)	56	65	53	65
Parent's father ever unemployed (but not financial difficulties)	54	31	48	31

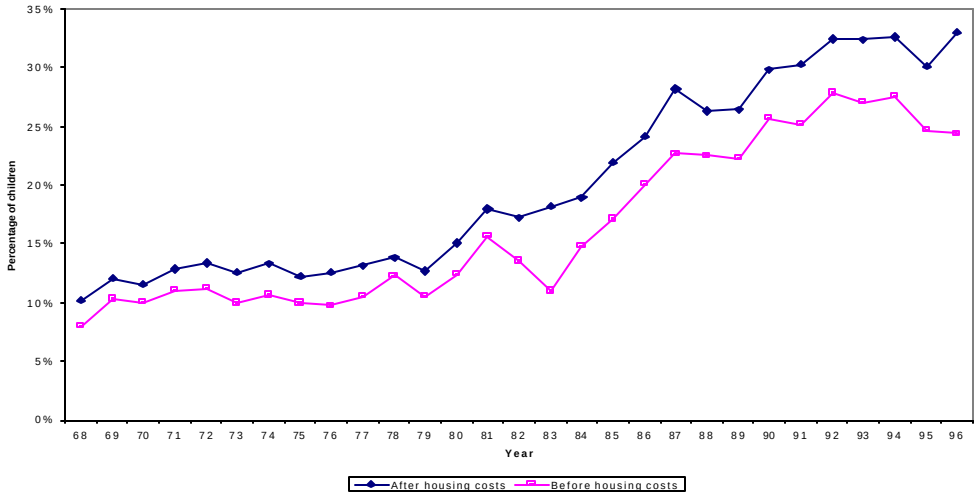
Notes: Taken from Gregg and Machin (199b). age range of children is from 6 years and 0 months to 9 years and 0 months inclusive (at the time of taking the tests).

Table V: Cross Cohort Comparisons of Associations Between Age 16 Outcomes and Child Poverty

	Staying on at school		Contact with police	
Male Cohort Members	NCDS	BCS70	NCDS	BCS70
Family faced financial difficulties: marginal effect (standard error)	-.104 (.023)	-.088 (.031)	.073 (.016)	.067 (022)
Mean of financial difficulties	.104	.160	.104	.160
Female Cohort Members	NCDS	BCS70	NCDS	BCS70
Family faced financial difficulties: marginal effect (standard error)	-.122 (.022)	-.154 (.028)	.038 (.012)	.022 (.015)
Mean of financial difficulties	.106	.152	.106	.152

Notes: derived from probit models of staying on at school and police contact estimated separately for male and female cohort members in each cohort. Other variables included in all models were: mother's and father's education; whether the father was living with the cohort member at ages 7 (NCDS) , 5 (BCS70) and 16 (both cohorts); whether the father was unemployed at ages 7 (NCDS) , 5 (BCS70) and 16 (both cohorts) ; whether the cohort member was ever placed in care.

Figure III:
Trends in Child Poverty in Britain



Notes: From Gregg, Harkness and Machin (1999). Based on Family Expenditure Survey data with a relative poverty line is defined as half average equivalised income in each year.