

# **Socio-Economic Status and Child Behaviour: Evidence from a contemporary UK cohort**

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## **Editorial Note**

Carol Propper is a Professor of Economics in the Department of Economics and the Centre for Market and Public Organisation (CMPO). She is also a Co-Director at the ESRC Research Centre for Analysis of Social Exclusion (CASE), London School of Economics. At the time of writing, John Rigg was a Research Officer at CASE.

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## **Abstract**

This paper examines whether and how socio-economic status is associated with children's behavioural development in today's children. Using a large cohort of English children born in the early 1990s we find significant social inequalities in several dimensions of child behaviour at age 7. We examine whether these inequalities are associated with characteristics of the child's early home environment and parental behaviours. These include the material quality of the child's home, maternal mental health, parental conflict and child diet. Most of these factors are socially graded and so could potentially account for the gradient in behaviours, but none singly account for a large part of the gradient in behavioural outcomes. However, taken together, these differences in the home environment can explain up to half the social gradients in child behaviours.

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## **1. Introduction**

Child behaviour is an important dimension of children's mental health and has consequences for outcomes in later life. Attention deficit disorder and externalizing behaviour in children has been linked to poorer school performance (Currie and Stabile 2004), poorer final school grades, lower earning and employment in adulthood (Farmer 1993; Gregg and Machin 1998) and adult anti-social behaviour, particularly serious, habitual and violent offending (Benda et al. 2001; Farrington 1998).

Research on children born in the 1950s and 1970s in the UK has shown a social gradient in child behaviours (Schoon et al. 2003; Sacker et al. 2002). Research shows a gradient exists in more contemporary cohorts in the USA and also identifies parental behaviours that may transmit lower socio-economic states (SES) into poorer child outcomes (e.g. Berger et al. 2005; NICHD 2005). Less is known about younger cohorts in the UK. This paper aims to establish whether there is a socio-economic gradient in anti-social behaviour by age 7 in today's children in the UK and to identify some of the aspects of the early childhood home environment that may be associated with this gradient.

The analysis is based on a large sample of today's children: over 6000 from a cohort of over 12,000 live births in one county of England in the early 1990s (ALSPAC). The outcomes examined are measured by maternal and teacher responses to the Strength and Difficulties Questionnaire (Goodman 1997). High scores on these measures have been shown to be linked to later anti-social behaviour in children (Bowen and Heron 2005) and to clinical diagnoses of childhood psychiatric disorders. The measures of the quality of the early home environment examined here have been identified in previous literature as significant correlates of child behaviour.

We find that behavioural outcomes, both as measured by mothers and teachers, are already socially graded by age seven, even in children born in the 1990s. We find that parental behaviours towards their children is also socially graded. These could therefore potentially account for the association of SES and poorer outcomes. But the results show, taken singly, these measures of the parental home quality do not account for a large part of the social gradient in the behavioural outcomes. However, when their impact is considered together, they explain about half the social gradient in maternal assessed behaviours and somewhat more of the teacher assessed behaviours.

## **2. Previous research**

Low SES and child behavioural problems are linked (e.g. Bradley and Corwyn 2002). For the UK, most evidence comes from older cohorts born either in the late 1950s or in the 1970s (e.g. Schoon et al. 2003, Sacker et al. 2002). For the USA, several papers have shown gradients in current cohorts of children (Cuffe et al. 2003; Currie and Stabile 2004; and Berger et al. 2005). For the UK Auginbaugh and Gittleman (2003)

examine one measure of behaviour using a small sample (under 400 children of mothers born in 1958 who gave birth before age 33). Using income, they find little robust evidence of a social gradient.

The literature has identified several aspects of the broader home environment as important correlates of poor child behaviour (e.g. Berger et al. 2005; NICHD 2005). The human capital perspective emphasizes that money can be invested into the development of the child, whether to improve the physical environment for learning or to purchase goods and services that stimulate positive development. So one path is the material quality of the home. Bradley and Corwyn (2000) and Berger et al. (2005) find a link between low income, the material quality of the child's home environment and child behavioural outcomes for relatively contemporary cohorts of children in North America. Aughinbaugh and Gittleman (2003) used a measure of cognitive stimulation and one of emotional support and found were associated with behaviour in both US and UK children of parents born in the late 1950s (but as noted above, also found only small income differences in behaviour).

An alternative perspective emphasizes the emotional impact that low income has on parent-child interactions, for example through greater parental stress or likelihood of depression. Maternal depressive symptoms have been widely linked with mothers' ratings of their children's behaviour (NICHD 2003; and Berg et al. 2003). Parental conflict has been associated with child emotional well being (e.g. Jekielek 1998). Yeung et al. (2002) found maternal emotional distress to be an important mediator between low income and poor behavioural outcomes.

A rather different aspect of the child's home – their diet - has also been associated with poor behavioural outcomes in children. For instance, Valenzuela (1997) found that chronic under nutrition can deplete the energy resources of both parent and child, making the child more lethargic and less able to elicit attention from the parent and the parent less sensitive and supportive of the child. Adverse outcomes included increased the likelihood of insecure attachment and limited motivation.

### **3. Data and methods**

#### **3.1 *The Data***

The data here is for children born in one region of the UK in the early 1990s. The Avon Longitudinal Study of Parents and Children (Golding et al. 2001) recruited pregnant women resident in the former Avon Health Authority whose estimated date of delivery was between the 1st of April 1991 and the 31st of December 1992. Approximately 85% of eligible mothers enrolled, resulting in a cohort of over 12000 live births. Samples used here are smaller than this, representing post-birth sample attrition and non-response to questionnaire items. Data from some twenty

questionnaires covering the dates between 8 weeks gestation and the 85th month of the child is used.<sup>1</sup>

### **3.2 *The behavioural outcomes***

The outcomes are different dimensions of child behaviour measured by responses to the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997) at age seven. This instrument has been shown to be a good predictor of conduct, emotional, hyperactivity and any psychiatric disorders in children of the age we examine here (Goodman et al. 2000). The SDQ module comprises 25 questions, which can be used to create five component scores (Table A1). The components relate to five dimensions of behaviour – pro-social, hyperactivity, emotional, conduct and peer relations. A possible maximum of ten can be scored for each component. An overall total behavioural score is derived by adding together the scores for four components, excluding the pro-social score (Goodman 1999).

We use the maternal scores on each of the individual components and the maternal total score. Teachers were also asked to complete the SDQ questionnaire when the child was in their third year of school (at around age seven). We use the total teacher score. A teacher assessment is an independent assessment of child behaviour and may capture different aspects of child behaviour from those observed by the mother.

### **3.3 *Measure of SES***

We use occupation of the father of the child (or mother if no father present) measured at 32 weeks gestation. Occupation is correlated with education, is likely to be a good marker for the financial resources available to the child and the more general socio-economic position of the household, and possibly better measures long-term access to resources than current income. Use of occupation at gestation removes the possibility of reverse causation from child behaviour to parental income. We employ the conventional typology based on the standard occupational classification (Rose and Pevalin 2004), which uses six categories, from class I to V, class III being separated into non-manual and manual. We collapse the last two groups into one category as the sample sizes in these two groups are small. In the analysis we treat this measure as a continuous measure of occupational class taking 5 possible values.<sup>2</sup>

### **3.4 *Measures of the home environment***

We examine three broad aspects of the home environment and parenting behaviours: the material quality of the home, the mental health of the mother and her relationship

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<sup>1</sup> The cross-sectional representation of the ALSPAC sample compared well to the 1991 National Census data of mothers with infants less than one year old. Mothers who were married or cohabiting, owned their own home, did not belong to any ethnic minority and lived in a car-owning household were slightly over-represented (Golding et al. 2001).

<sup>2</sup> This approach is preferred to a manual/non-manual indicator as it allows for variation in outcomes across the whole social spectrum. We also carry out robustness tests using income and maternal education.

with her partner, and the diet fed to the child. Several of the measures used are summaries of a larger set of responses of the mother.

As measures of the material quality of the home we use information on the age at which the study child had ten or more books and of the frequency of visits to places outside the home (shops, department stores, supermarkets, parks, visits to family and friends, libraries, places of interest and places of entertainment).

As a measure of the emotional health of the mother, we construct a measure of maternal mental health before the child was three. The Crown Crisp Experiential Index (CCEI) is a scale measuring psycho-neurotic pathology in community settings (Crown and Crisp 1979; Crisp et al. 1978). Mothers answered, at three intervals post-birth, 24 questions which measured their free-floating anxiety, depression and somaticism. We use the responses to construct a measure of long term maternal mental health, which is the mean score of maternal responses when the study child was aged 8, 21 and 33 months.<sup>3</sup> We also use a measure of the quality of relationship between the parents and the child. When the child was aged 21 months, mothers were asked a set of questions on the extent that they argued with their partner, whether their partner had been physically cruel and whether their partner had been emotionally cruel since the study child was eight months. Responses referred to both the frequency and the extent to which these events affected the mother. Factor analysis was performed on the three dimensions of conflict (arguments, physical cruelty and emotional cruelty) to create a single variable to capture overall parental conflict. In the analysis, we distinguish between low, medium and high-level conflict partnerships (the omitted category being mothers who were not living with a partner).

As measures of diet we examine maternal consumption of harmful goods during pregnancy (asked at 32 weeks gestation) measured by the amount of cigarettes smoked and alcohol consumed; the duration for which the child was breast-fed; and the amount of fruit the child consumed between 8 and 33 months.

In the analyses values of continuous variables are grouped into categories to allow for non-linearities in their impact on behavioural outcomes. In the multivariate analyses, controls for initial health effects that could be correlated with maternal behaviours (whether the child is pre-term, their birth weight, their gender, whether white and family size at eight months) are included. Descriptive statistics for the variables used in the analysis are in Table A2.

### **3.5 Methods**

We first plot the pattern of poor outcomes across occupational groups. We then examine the correlation between each measure of the home environment and SES to establish whether it is significantly associated with SES. We then statistically examine the relationship between each behavioural outcome and SES. For this, we create binary variables based on the scores of each behavioural outcome and the two totals.

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<sup>3</sup> This is highly correlated with pre-pregnancy measures of maternal mental health.

This focuses on the difference between children who are in the lowest part of the distribution of behaviour and the rest of the sample and allows for the non-normal distribution of the outcomes. We use a cut-off score that identifies around the highest quintile of each of the seven distributions (1 denotes scores above this cut-off). The value of the cut-offs are similar to those used in Goodman et al (2000) to predict caseness of child psychiatric disorders.<sup>4</sup> We estimate probit regressions and report the marginal effects of SES on the behavioural outcomes. A positive marginal effect indicates that children from lower SES families have poorer behavioural outcomes. The value of the marginal effects is the percentage point increase in the probability of being in the poorest behavioural category from a change of one category of SES.

We first present results from a bivariate regression of an outcome on SES and then control for initial child health and number of siblings. This second regression provides the benchmark social gradient to which we can compare the impact of each measure. We then add each measure of the home environment separately to the regression. The extent to which the marginal effect of the SES regressor moves closer to zero compared to the benchmark case indicates the extent to which the measure of the home environment accounts for the SES gradient. In the final regression, we control for all the measures of the home environment simultaneously, so allowing for the correlation between the measures.

We test whether each set of measures of home quality has a direct impact on the behavioural outcomes (net of its impact through SES) by the chi-squared statistic of the joint significance test of the variables that make up each of the six separate sets of measures of the home environment.

## 4. Results

### 4.1 *The gradient in outcomes*

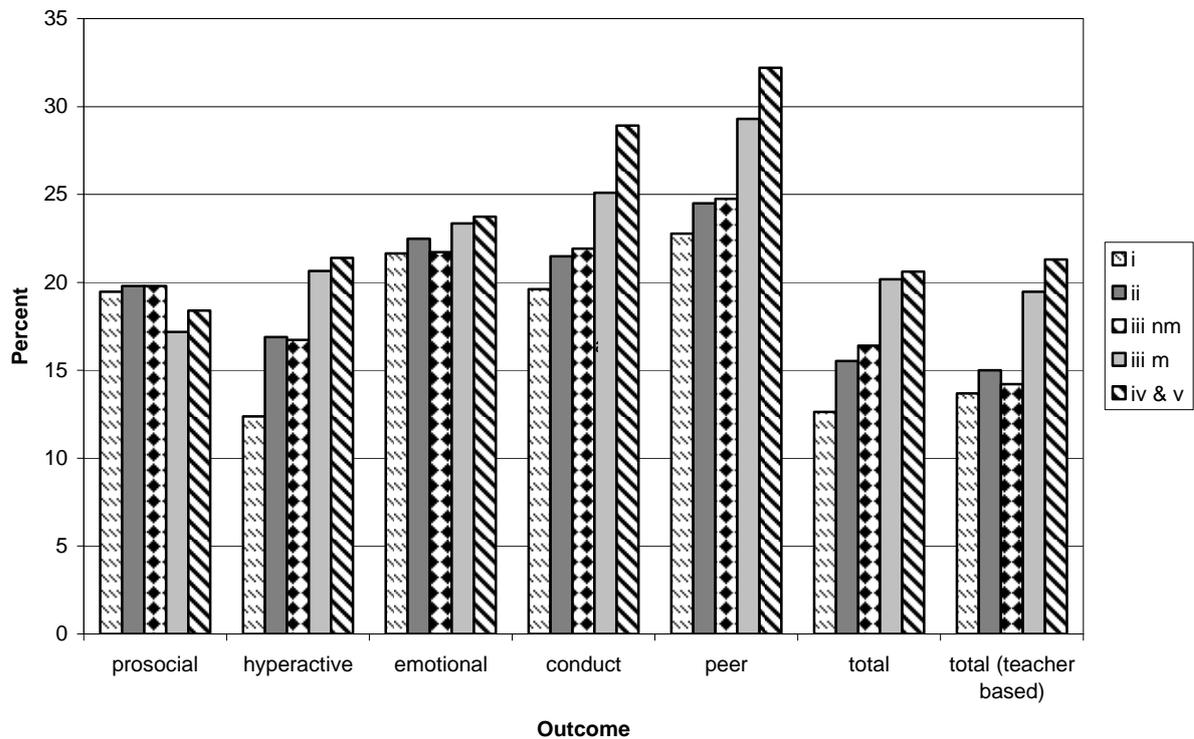
Figure 1 shows the associations between SES and behavioural outcomes at age seven. The figure plots the percent of children with poor outcomes by the five occupational classes, class 1 on the left and classes IV and V on the right. There is evidence of a positive social gradient for all outcomes except the pro-social score: the prevalence of poor behaviour is higher amongst children from low SES families. The gradient is particularly pronounced for the hyperactivity, conduct, peer and total behavioural scores. For example, the prevalence of poor mother-reported total behaviour is approximately 12.5 percent for class I and almost two-thirds higher (20.6 percent) for classes IV and V.<sup>5</sup>

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<sup>4</sup> Goodman et al. (2000) create measures based on the scores of both mother and teachers using cut-offs of above 5 for the hyperactive measure, above 4 for the emotional score and above 3 for the conduct score. Based on the distributions in the ALSPAC sample, the cut-offs we use are above 6, above 2 and above 3 respectively, so we are a little more conservative on the first and less conservative on the second.

<sup>5</sup> These results echo earlier studies which found socio-economic factors to be more important

**Figure 1: Percent of children with poor behavioural outcomes at 81 mths by occupational class**



**4.2 Is the home environment correlated with SES?**

For any of the three aspects of home environment to explain part of the inequalities observed above, it must be positively correlated with SES. Correlation coefficients between occupational class and the six measures of home environment are in the last column of Table A2. Poorer occupational class is associated with poorer material quality of the early home environment (children in lower occupational class households have books in the household later, are less likely to visit parks and the library and are more likely to visit the supermarket and family and friends); with poorer maternal mental health and greater parental conflict; and with a different diet of children and mother (children in poorer homes have a lower duration of breast feeding, lower fruit consumption, greater cigarette smoking during pregnancy).

**4.3 How much of the SES gradients are explained by the aspects of the child’s home environment?**

The first column of Table 1 reports the marginal effects for the occupational class variable with no controls, so testing the bivariate relationship in Figure 1. The second column shows marginal effects for the occupational class regressor controlling for background characteristics. This is the benchmark case. The remainder of the table shows the marginal effects for SES controlling for each of the six sets of measures of

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for externalising (e.g. hyperactivity) than internalising (e.g. anxiety) behaviours (Bradley and Corwyn 2002).

the home environment separately. The final column shows the marginal effect of SES controlling for all measures and background controls. A marginal effect closer to zero than the benchmark case indicates that the relevant measure of environment is, at least in part, statistically accounting for the social gradient in the raw data. Chi-squared statistics of the joint significance of the variables in each of the home environment measures are given below the marginal effects of the SES variable.

The first column shows a significant positive gradient for the hyperactivity, conduct, peer, total maternal and total teacher measures of child behaviour. The marginal effects for these outcomes are between 2 and 2.3 percentage points, indicating a change in occupational class from class I to classes IV and V would increase the probability of adverse behaviour by approximately eight percentage points on average (the mean is around 20%). There is a positive gradient for the emotional outcome but this is not significantly different from zero. The gradient is the same for both maternal and the independent teacher assessed scores. The results are also robust to controls for initial health and family size (second column).

The chi-squared statistics indicate that the measures of quality of home environment have a direct impact on the outcomes, with the exception of the emotional score. The impact of home environment in reducing the SES gradient is considerably weaker. The results for hyperactivity show inclusion of each measure individually has little impact on the association between behaviour and SES. The largest falls in the marginal effect for SES are driven by the material quality of the home and duration of breast feeding, but each of these only reduce the SES estimate by around 10%. Examining the other outcomes, the emotional score is not graded by SES. The conduct and the peers scores are both associated with most of the aspects of the home environment but, as for hyperactivity, the reduction on the estimate of SES is generally not large. Generally, across the four different aspects of behaviour and for the mother reported total, none of the factors individually account for a substantial part of any of the SES gradients. As an example, controlling for the material quality of the early home environment reduces the marginal effects of SES by between 0.2 and 0.5 percentage points, which is small compared to the mean of around 2.0. For the teacher-assessed score the estimates for SES fall more after controlling for aspects of the home environment though SES still has a significant statistical direct association with behaviour.

However, controlling for all measures of the home environment simultaneously (final column), changes the results. The measures together account for approximately a third to one half of the SES gradient in hyperactivity, conduct, peer and the total mother-based scores. For the teacher-based total score, the factors together account for around two thirds of the SES gradient and the SES gradient is no longer significant. Finally, the results are similar if maternal education or family income are used as measures of SES (available from authors).

**Table 1: The relationship between SES and behavioural outcomes**

<b>Behavioural outcomes</b>	<b>No controls</b>	<b>Background controls</b>	<b>Material quality of home</b>	<b>Maternal postnatal mental health</b>	<b>Parental conflict</b>	<b>Maternal alcohol and smoking in pregnancy</b>	<b>Duration breast fed</b>	<b>Fruit consumption</b>	<b>All measures together</b>
Hyperactivity	2.1***	2.2***	1.8***	2.1***	2.0***	1.9***	1.8***	2.0***	1.2***
SE	(0.3)	(0.3)	(0.4)	(0.3)	(0.3)	(0.4)	(0.4)	(0.3)	(0.4)
Chi2		174.56***	60.16***	167.89***	63.98***	14.13***	14.40***	17.38***	209.66***
Emotional	0.5	0.5	0.2	0.3	0.3	0.3	0.7	0.4	0.0
SE	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Chi2		55.67***	18.85*	314.98***	73.04***	0.79	8.34**	3.83	370.87***
Conduct	2.2***	2.1***	1.8***	2.0***	1.8***	1.7***	2.1***	2.0***	1.1***
SE	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Chi2		22.92***	55.36***	198.75***	100.99***	34.32***	2.16	10.24**	262.62***
Peers score	2.4***	2.4***	1.9***	2.4***	2.1***	2.0***	2.4***	2.1***	1.4***
SE	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)
Chi2		58.31***	76.68***	156.77***	87.53***	13.61***	4.04	22.43***	241.19***
Total mother	2.2***	2.2***	1.9***	2.1***	2.0***	2.0***	2.0***	2.0***	1.4***
SE	(0.3)	(0.3)	(0.4)	(0.3)	(0.3)	(0.3)	(0.4)	(0.3)	(0.4)
Chi2		59.70***	67.49***	334.07***	102.35***	14.50***	7.15*	25.18***	384.73***

<b>Behavioural outcomes</b>	<b>No controls</b>	<b>Background controls</b>	<b>Material quality of home</b>	<b>Maternal postnatal mental health</b>	<b>Parental conflict</b>	<b>Maternal alcohol and smoking in pregnancy</b>	<b>Duration breast fed</b>	<b>Fruit consumption</b>	<b>All measures together</b>
Total Teacher	2.2***	2.0***	1.5***	1.7***	1.7***	1.5***	1.6***	1.6***	0.6
SE	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)
Chi2		125.99***	47.42***	39.61***	34.36***	18.02***	14.56***	27.68***	99.54***

### Notes

1. Observations from 7493 (for mother based total) to 7509 (for emotional) except teacher based total which has 4823 observations.
2. Significance level \*10% \*\* 5% \*\*\* 1%
3. Background controls are sex, ethnicity, pre-term, birthweight, number of sibs at 8 months
4. Chi2 is test of direct impact of measures of home environment (and background controls).
5. Coefficients are marginal effects and measure the percentage point change in the probability of the outcome for a unit change in occupational class. A positive marginal effect indicates that children from lower SES families have poorer behavioural outcomes.

## 5. Conclusions

This paper seeks to identify whether a SES gradient in child behaviour exists for a cohort of today's children in the UK and whether aspects of the home environment are associated with this gradient. Using occupational class as a measure of SES, we find significant inequalities in several dimensions of mother- and teacher-reported child behaviour. A child of parents in the lowest occupational groups is around eight percentage points more likely to have behavioural problems than one with parents in the highest social class. Investigation of the extent to which these social gradients in child behaviour can be explained by the measures of the material quality of the home, the mental health of the mother and her relationship with her partner, and early diet of the child finds that each of these aspects alone does not explain much of the social gradients in child behaviour. The material quality of the home environment and, to a lesser extent, maternal smoking during pregnancy, have the largest impact in reducing the association with SES gradient. But when examined together, the measures of home environment account for between a third and a half of the SES inequalities in behaviours.

Our findings of a social gradient in behaviour in today's UK children show that patterns found in earlier cohorts of UK children have not disappeared. The findings that the home environment explains some of the social gradient in behaviour in the UK echoes findings for children of similar age in the USA. But the results also suggest that the way in which SES affects child behaviour is complex, suggesting that no one single policy instrument is likely to have a large impact on SES differences.

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## Appendix

**Table A1: Component questions in strengths and difficulties questionnaire (SDQs)**

<b>Score</b>	<b>Questions: Extent to which the following applies...</b>
Pro-social	Is considerate of other people's feelings Is helpful if someone is hurt, upset or feeling ill Is nervous or clingy in new situations, easily loses confidence Often volunteers to help others (parents, teachers, other children) Often complains of headaches, stomach-aches or sickness
Hyperactivity	Is restless, overactive, cannot stay still for long Is constantly fidgeting or squirming Is easily distracted, concentration wanders Sees tasks through to the end, has good attention span Thinks things out before acting
Emotional	Often has temper tantrums or hot tempers Has many worries, often seems worried Is often unhappy, down hearted or tearful Is rather solitary, tends to play alone Is kind to younger children
Conduct	Is generally obedient, usually does what adults request Often lies or cheats Steals from home, school or elsewhere Has many fears, is easily scared Often fights with other children or bullies them
Peer relations	Shares readily with other children (treats, toys, pencils etc.) Is picked on or bullied by other children Has at least one good friend Gets on better with adults than with other children Is generally liked by other children

**Table A2: Descriptive statistics for variables for samples used in the analyses**

	Mean	St Dev	Correlation with SES (1=highest SES, 5= lowest)
<b>Behavioural Outcomes (coded as dummy variable: 1= poorer outcome)</b>			
Prosocial	0.19	0.39	-0.02*
Hyperactivity	0.18	0.38	0.07***
Emotional	0.23	0.42	0.02
Conduct	0.23	0.42	0.06***
Peers score	0.27	0.44	0.07***
Mother based total excl. pro-social	0.17	0.38	0.07***
Teacher based total excl. pro social	0.17	0.38	0.07***
<b>Background controls</b>			
Number of siblings at 8 months			
0 sibling	0.39	0.49	-0.03***
1 siblings	0.35	0.48	-0.02**
2+ siblings	0.17	0.38	0.03***
Missing	0.09	0.28	0.06***
Female	0.48	0.50	0.00
Low birth weight and full term	0.09	0.28	0.03***
Not low birth weight and full term	0.80	0.39	-0.04**
Pre term (less than 37 wks gestation)	0.10	0.30	0.02*
Missing	0.12	0.11	-0.01
Maternal age at child's birth			
21 or less	0.07	0.26	0.17***
22-25	0.19	0.39	0.17***
26-35	0.67	0.47	-0.18***
36 +	0.07	0.26	-0.09***
<b>Measures of home environment</b>			
<i>Material quality of home</i>			
First own 10+ books before 18 mths	0.64	0.48	-0.19***
First own 10+ books between 19 and 30 months	0.19	0.39	0.07***
First own 10+ books between 31 and 42 months	0.07	0.26	0.08***
Missing	0.10	0.30	0.14***
# visits to shops per week	11.59	8.20	0.17***
# visits to department stores per week	1.00	1.60	0.04***
# visits to supermarkets per week	4.02	3.74	0.07***
# visits to family/friends per week	8.81	7.74	0.06***

	Mean	St Dev	Correlation with SES (1=highest SES, 5= lowest)
# visits to park per week	3.67	4.73	-0.37***
# visits to library per week	0.32	0.74	-0.12***
# visits to place of interest per week	0.65	1.18	-0.16***
# visits to places of entertainment per week	0.26	0.74	0.00
Missing	0.04	0.20	0.05***
<i>Post natal maternal mental health (quartiles)</i>			
Best	0.19	0.40	-0.03
Second best	0.18	0.38	-0.05***
Second poorest	0.18	0.39	-0.03***
Poorest	0.18	0.38	0.0
Missing	0.26	0.44	0.11***
<i>Parental conflict at 21 months</i>			
Not in partnership	0.06	0.24	0.07***
In low conflict partnership	0.29	0.45	-0.10***
In medium conflict partnership	0.36	0.48	0.00
In high conflict partnership	0.15	0.36	-0.00
Missing	0.14	0.35	0.09***
<i>Maternal consumption of harmful goods during pregnancy</i>			
Smoked less than 10 cigarettes at 32 weeks gestation	0.82	0.38	-0.19***
Smoked 10+ cigarettes at 32 weeks gestation	0.18	0.38	0.19***
Consumed no units of alcohol	0.32	0.47	-0.02**
Consumed 1-5 units alcohol per week	0.13	0.34	-0.09***
Consumed 6+ units alcohol per week	0.06	0.23	-0.03***
Alcohol consumption missing	0.52	0.50	0.12***
<i>Duration of breastfeeding</i>			
Never (reference category)	0.22	0.42	0.19***
1-2 mths	0.21	0.41	0.07***
3-5 mths	0.15	0.36	-0.04***
6+ mths	0.32	0.47	-0.25***
Missing	0.10	0.30	0.07***
<i>Amount of fruit consumption between birth and 38 months(quartiles)</i>			
Lowest (reference category)	0.16	0.37	0.07***
Second lowest	0.16	0.37	-0.02**
Second highest	0.17	0.37	-0.07***
Highest	0.16	0.37	-0.15***
Missing	0.34	0.47	0.13***

**Notes:**

1. Maternal mental health measured by mean of Crown Crisp Experimental Index (CCEI) between 8 and 33 months.
2. Significance level \*10% \*\* 5% \*\*\* 1%
3. The number of observations for behavioural outcomes for maternal reports ranges from 7493 (total) to 7509 (emotional). Number of observations for teacher-based total is 4823. For all other variables, the number of observations is 10621 (all children with at least one non-missing outcome).
4. A positive SES rank correlation indicates more in lower SES families/children.