

Paper 2: What are the key drivers of poverty and life chances for children of primary school age?

Introduction

1. This is the second in a series of papers which outline the key drivers of outcomes for children and of life chances over the life course. This paper considers children's outcomes during the primary school years. The key questions for the paper are :
 - What are the key drivers and causal factors of outcomes?
 - Which aspects of children's primary years are the most important determinants of positive outcomes and good life chances? What single aspect of early childhood has the greatest impact?
 - In what ways do family and the home environment affect children's life chances?
 - What is the nature and magnitude of the relationships between these drivers?
2. This paper will follow the same structure as the *Paper 1 – Drivers of Life Chances – The Early Years* but will not repeat sections which were relevant across the life course. The main sections which will not be repeated are: methodological concerns and the challenges in finding causation, the analysis on the importance of income and the importance of family relationships (although different aspects of the evidence are covered in this paper) but they are equally important to the issues discussed in this paper.
3. The paper will start by presenting an overview of the differences in outcomes between richer and poorer children – looking at health and well-being, cognitive and non-cognitive development and any sub-groups that have particularly poor outcomes. The bulk of the paper will be set out in the second section which outlines the research findings on the key drivers of poor outcomes.

A note on children's development during the primary school years

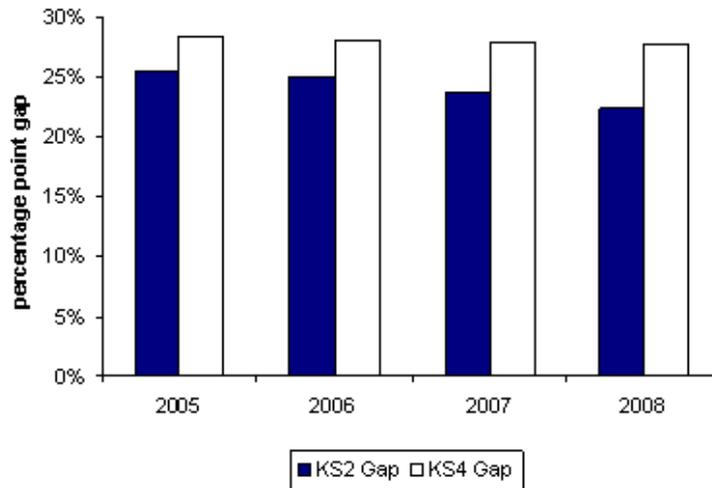
4. Before looking at the evidence on outcomes during primary school, it is useful to briefly reflect on children's development during this period. Around age 6, children begin to reason and experience a real shift in their skills and thinking. Between age 6 and 11, children also start to become more self aware and aware of others so they start to reflect on their own performance and compare themselves to others.
5. Most children experience a drop in confidence between the ages 6 and 10, because of these changes in their cognitive skills. However, children who often or mostly view themselves as a failure, when compared to other children, are more likely to develop behavioural problems or mental health issues. This can in turn lead to a generally negative attitude towards school.
6. Primary school activities should therefore provide children with (a) the opportunity to learn without continual social comparison norms (b) chances to control their own learning (c) respect for all participants and (d) strong emotional and social support. This should support them to develop their self-confidence and their ability to handle setbacks (Eccles, 1999).

Section 1: What are the differences in outcomes between rich and poor children at primary school?

Educational Attainment and Social and Emotional Development

7. In 2008, there was a gap of just over 20% in Key Stage 2 attainment between children eligible for Free School Meals and those who are not. This has been narrowing slowly from 25% since 2005.

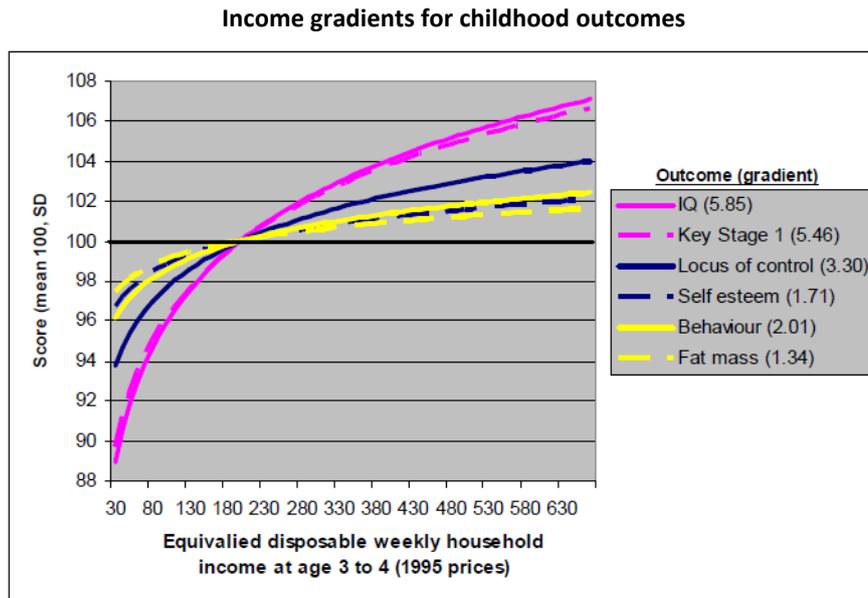
Attainment Gaps between FSM and Non-FSM pupils at KS2 (Level 4 in English and maths) and KS4 (5+A*-C GCSEs including English and maths)



Source: National Pupil Database

8. Gregg and Goodman (2010) also find a large gap in cognitive outcomes between the richest and the poorest using ALSPAC data¹. They find a 27 point gap in percentile scores at age 7 and a 31 point gap at age 11. They note that the gap at age 7 is very similar to the gap at age 5 (which was based on the Millennium Cohort Study so not perfectly comparable) but that the gap starts to grow between age 7 and 11.
9. Gregg et al (2008) provide an overview of the differences in outcomes by family income for 6 outcomes using ALSPAC data: raw IQ score aged 8, Key Stage 1 achievement, locus of control aged 8, self-esteem aged 8, behavioural problems aged 6 to 7, and fat mass aged 9. The chart below shows that the gradients are largest for cognitive outcomes and that gradients in socio-emotional outcomes are around a third to a half as large as those in cognitive outcomes.

¹ These gaps are not directly comparable because (a) Gregg and Goodman use a composite measure of socio-economic position instead of eligibility for Free School Meals and (b) the Alspac cohort turned 7 in around 1999.



Source: Gregg and Goodman (2008)

10. Gregg and Goodman (2010) also show that there are big differences in parental attitudes towards their children's future education during the primary school years. For example, the proportion of mothers who hope that their children will go to university ranges from 37% for the poorest 20% of children to 81% of children for the richest 20% of children. We will come back to the impact that this can have on children's outcomes later in the paper.
11. They also look at a number of other factors that vary by family income and find that poorer children:
 - have less belief in their own abilities and a higher external locus of control;
 - are more likely to suffer from behaviour problems (conduct disorder and hyperactivity); and
 - have more peer problems and to a lesser extent are more likely to be victims of bullying.
12. The negative impacts of bullying are well documented. For example – children who report being victims of bullying at age 8 have, on average, 3 percentage points higher external locus of control and depression at age 10 than children who do not (Gutman and Feinstein, 2008).

Health

13. There are differences in obesity levels between children aged 2 to 15 in rich and poor families. In the lowest income group, 20% of both boys and girls were obese, compared to 15% of boys and 9% of girls in the highest income group. There are no clear differences in child activity levels between children in low and high income households but children from low-income households were less likely to achieve their 5-a-day of fruit and vegetables (Health Survey for England 2006).

Sub-groups at risk of poor outcomes

14. The groups who are at particular risk of poor outcomes at primary school are similar to those identified in the early years paper, with the addition of children in care. For children in care there have been big improvements in the proportion achieving level 4 in English and Maths at the end of Key Stage 2 but they are still performing significantly below the average.

Section 2: Key drivers of gaps in outcomes during primary school years

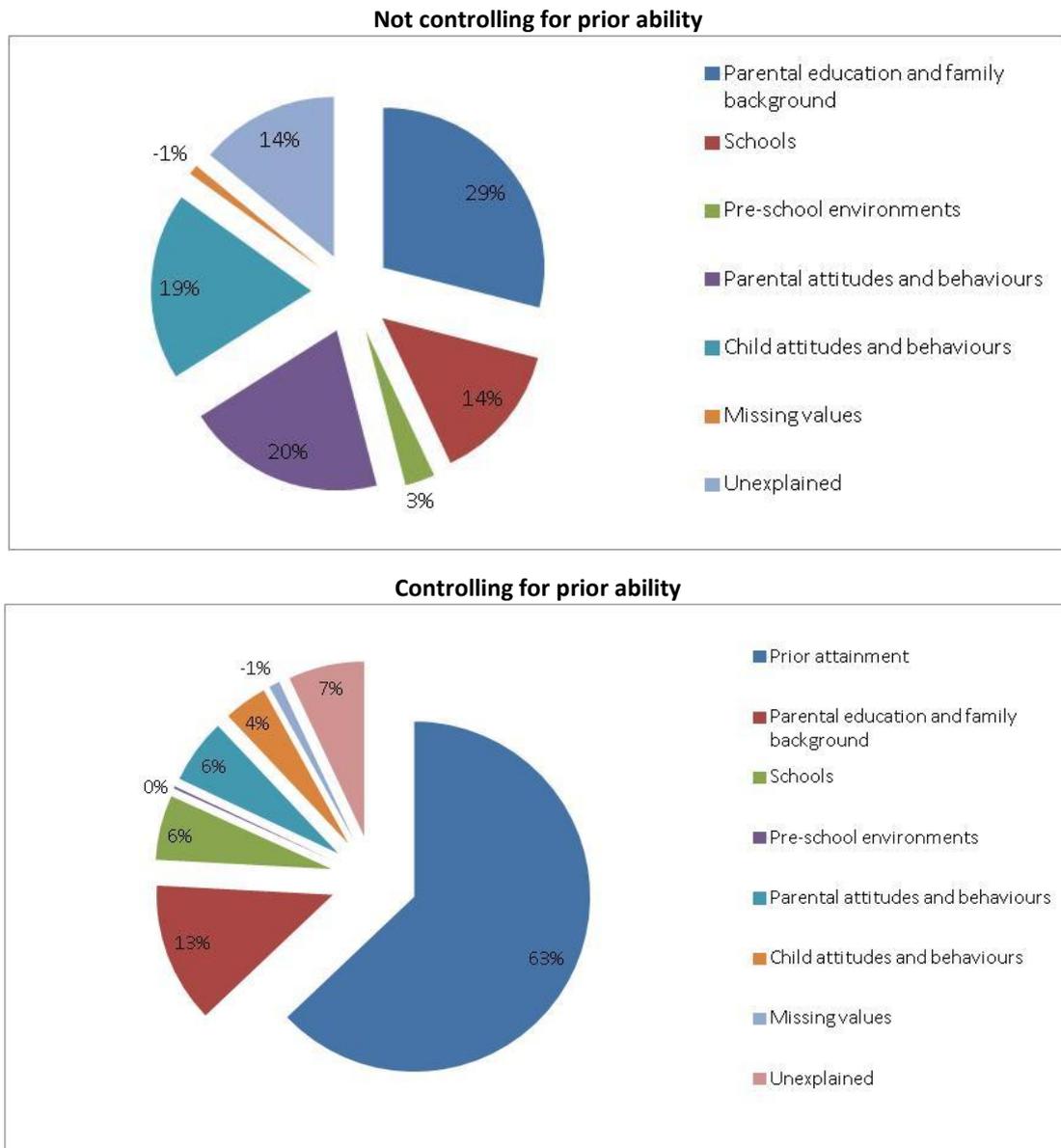
15. As set out in the introduction, this section does not repeat the analysis on the impact of income, but the arguments are equally valid for primary school children.

A. Overview and the importance of prior attainment

16. The key drivers of poor outcomes in the primary school years are remarkably similar to those in the early years. As was the case at age 5, prior attainment at age 7 is a very strong predictor of outcomes at age 11 and the effect has become stronger. The research continues to point to the importance of family background, parental education levels, and parental aspirations for and involvement in their child's learning as key factors contributing to these gaps. The positive effects of early years education remain in primary school cognitive development and schools have been shown to have an impact, albeit small. Mother's mental health and family relationships have also been shown to have an impact on some outcomes for some children.
17. Gregg and Goodman (2010) look at the gap in Key Stage 2 attainment between the richest and the poorest² children in the Avon Longitudinal Study of Parents and Children study and carry out a decomposition analysis to establish which factors are the most important in driving this gap in attainment. Overall, their analysis is able to explain the vast majority of the socio-economic gradient in educational attainment. This is especially true when prior attainment is included (only 7% of the gap remains unexplained) and the analysis therefore has greater explanatory power than for the early years analysis.
18. The charts below show clearly that prior attainment (as measured by attainment at Key Stage 1) has a very significant impact on attainment at age 11. Prior attainment explains over 60% of the gap in attainment between the poorest and the richest, emphasising the importance of closing gaps in attainment at an earlier stage. Other reports quoted in the sections below confirm this finding.
19. Note that in the chart below it would be more accurate to say "controlling for prior attainment" rather than ability as it is measured by previous test scores.

² Their "socio-economic position" measure includes income, self reported financial difficulties, mother's and father's occupational class and housing tenure.

Explaining the gap between the poorest and the richest: decomposition of direct effects at age 11



Source: Gregg and Goodman (2010)

B. Parental Education and Family Background

20. As shown above Gregg and Goodman (2010) find a significant role for family background and parental education, as was the case in the early years. Even when controlling for prior attainment, these factors explain 13% of the gap in attainment (or 30% of the gap when not controlling for prior attainment).

21. As set out in the early years paper, Gregg et al (2008) found parental education to be the single biggest driver of the gaps in outcomes (for background data see chart ‘Income gradients for childhood outcomes’ in Section 1). Parental education explains about 1/3 of the gap in Key Stage 1 outcomes between high and low income families and around 50% of the gap in IQ. The local neighbourhood was found to explain around 22% of the gap in Key Stage 1 outcomes. Family

structure and parental employment status were also found to have a small effect. The Effective Provision of Pre-school Education (EPPE) 3-11 study also identifies an impact of parental qualifications on reading and mathematics at Key Stage 2.

22. The EPPE 3-11 study found that the mother's qualification was an important predictor of social and behavioural outcomes and had the strongest effects on self-regulation and hyperactivity outcomes. Gregg et al (2008) looked at self-esteem, locus of control and behaviour and found consistent results. In terms of background factors, the child's locus of control is explained to a large extent by parental education and to a smaller extent by family structure and parental employment. In terms of behaviour, the only significant factors found were parental education and local neighbourhood and for self-esteem, parental education was found to be the most important influence (36%).
23. In terms of health outcomes, Gregg et al (2008) show that almost 75% of the income gradient in fat mass is explained by parental education and the remainder is largely explained by the local neighbourhood. No other factors are found to be significant.

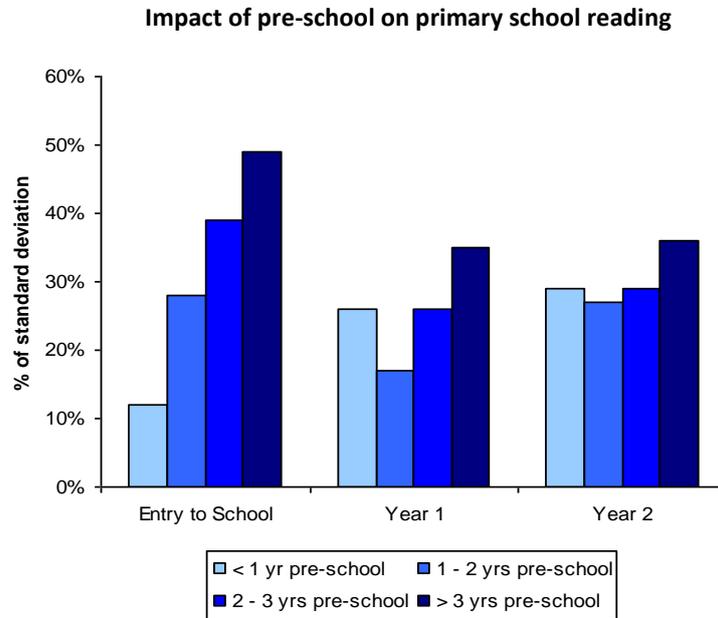
C. Parental Involvement and Aspirations

24. For this age group, both parents' and children's attitudes and behaviours start to have a real impact (as can be expected when considering the development that children go through at this age). Of all the factors within 'parents' attitudes and behaviours', the mothers' hopes for university has the biggest impact. This clearly illustrates the impact that aspirations have on children's outcomes.
25. Parental involvement has a positive effect on children's achievement even when the influence of background factors such as social class and family size have been taken into account (Desforges, 2003). Parental behaviour has a bigger effect than school quality on attainment at Key Stage 2 but the child's ability when starting school is the most important factor in predicting Key Stage 2 attainment – this aligns closely with the findings above.
26. Fathers' interest and involvement in their children's learning is statistically associated with better educational outcomes (higher attainment as well as more positive attitudes and better behaviour) even when controlling for a wide variety of other influencing factors. There is more mixed evidence about whether parental involvement in homework specifically affects pupils' achievement at school³.
27. A Literature review by Gutman and Akerman (2008) found that most parents have high aspirations for young children but these change as children grow older because of economic constraints, children's abilities and the availability of opportunities. They also found that aspirations are stronger predictors of attainment for young people from more disadvantaged backgrounds but that higher parental aspirations can lessen the effects of socio economic disadvantage.

³ A US study suggested that supporting children's autonomy can increase attainment whereas direct involvement in children's homework can reduce attainment.

D. Pre-school education and the early home learning environment

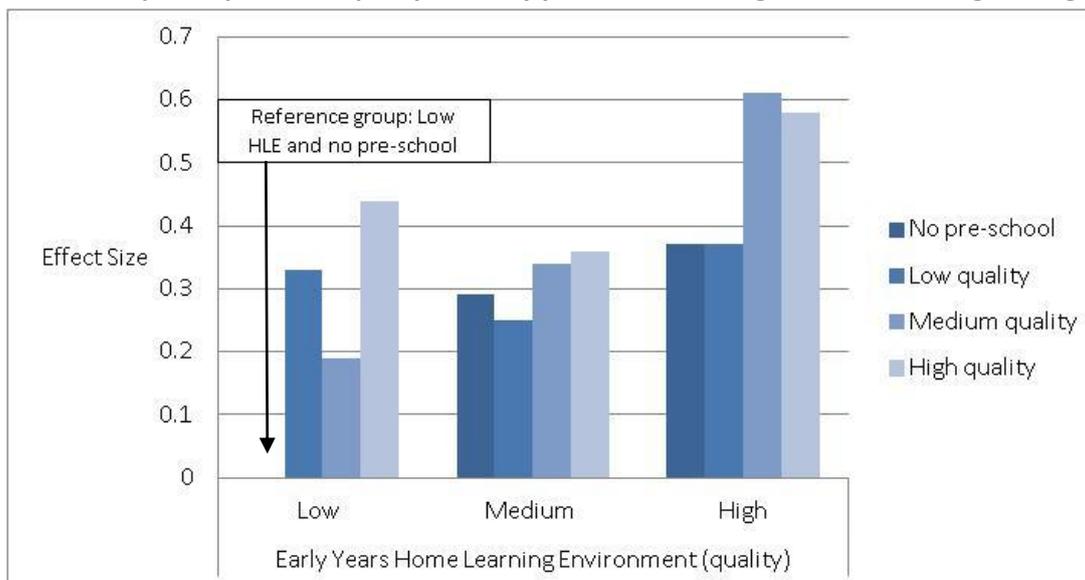
28. The EPPE study continues to find a positive impact of pre-school education on primary school attainment. By year two of school, the effects of having attended pre-school and the duration of attendance remain. However, the differences in reading ability between children who attended pre-school for one year or less and those who attended for two years or more reduce dramatically by the end of year two.



Source: Sylva, K. et al (2004).

29. The positive impacts of pre-school continue into later childhood. By age 11, children who attended pre-school perform significantly better in Key Stage 2 maths and English, as well as on behavioural outcomes. The quality of pre-school also continues to impact on Key Stage 2 attainment and behavioural outcomes. The high-quality group perform statistically significantly better in English and maths than home children and the low quality group. Overall, combining a good early years home learning environment with high quality pre-school has the most positive effect on children at age 11.

The combined impact of pre-school quality and early years home learning environment on age 11 English



Source: Sylva et al (2008) EPPE 3-11

E. The Quality of Schools and Teacher

30. Most studies also find an impact of the quality of schools, albeit a fairly small one. For example Guttman and Feinstein showed that around 10% of the variation in Key Stage 2 pupil attainment (slightly higher for maths than for English) was attributable to differences between schools, but only around 3% of the variation in non-cognitive outcomes. Gregg and Goodman (2010) found that schools explained a relatively small proportion of the gap in attainment between the richest and the poorest (6% when controlling for prior attainment).
31. The EPPE 3-11 Study showed similar results. Overall, it found that the effects of mother’s highest qualification and the early home learning environment are twice as important as the effects of pre- or primary school for English results at Key Stage 2. For maths, the impact of the school is somewhat higher. They found that the academic effectiveness of schools had a positive influence on English and maths scores (again a stronger influence on maths scores) and that these effects were stronger than the pre-school effects. The effectiveness of the primary school also had an impact on the progress that children made between 7 and 11. Teaching quality was a significant predictor of cognitive progress in both reading and mathematics over key stage 2. For social and behavioural outcomes, this study found that on average the effectiveness of the school did not show a significant effect.
32. This is also borne out in international research. Results from the PISA study (2000) showed that only around 5% of the between-school variance in reading literacy was explained by school climate, policies and resources (around 50% was explained by student background, 20% by school context and 30% remained unexplained). The results for maths and science were similar.
33. Children appear to be as happy in poorly performing as in well performing schools, but lower pupil-teacher ratios are associated with greater pupil enjoyment.

F. Peer Effects

34. Peer effects have been shown to have relatively small effects – they are dwarfed by the impact of the pupil's own prior attainment. Low ability pupils do not appear to benefit as much from mixing with high ability peers as intermediate and high ability pupils do (Gibbons, S., and Telhaj, S. 2006).

G. Mother's Mental Health

35. Gregg et al (2008), find that the psychological functioning of a child's mother explains a large proportion of the gradients observed for all the child outcomes⁴. Further decomposition of the role of the psychological functioning of the mother showed that the mothers' locus of control is significantly associated with 5 of the 6 developmental outcomes (all except child self-esteem). The greater level of anxiety and depression, and the harsher discipline of low income mothers are associated particularly with poorer child self-esteem and greater behavioural issues.

H. Family Structure and Relationships

36. Children of single parents have been shown to perform less well academically and to have worse behavioural outcomes. However, after controlling for background variables, the impacts of family structure itself are often reduced. For example, the EPPE 3-11 finds an impact of a change in marital status on behaviour but not on educational attainment in primary school. Paper 1 set out some of the key evidence around the impact of conflict and family breakdown on children.
37. The evidence shows that high levels of parental conflict, a reduction in parenting quality or resource, worse parent-child relationships, poor maternal mental health and a reduction in income are the key factors which contribute towards poorer child outcomes during and after parental separation. Research also shows that it is multiple changes in family structure which has the worst impact on children. In summary – studies have concluded that it is not lone – parenthood in itself which causes poor outcomes for children, but rather the relationship issues and financial hardship that result from divorce and separation (See for example Mooney et al, 2008 and Coleman and Glenn, 2009).

⁴ Psychological functioning was identified using a large range of measures covering mental health and interpersonal relationships; Crown-Crisp Experiential Index (CCEI), Frequency and severity of life event shocks, subjective financial distress, quality of parental relationship, harshness of maternal discipline, maternal social networks, and maternal locus of control.

Conclusions

38. The key drivers of poor outcomes in the primary school years are remarkably similar to those in the early years. Cognitive outcomes are driven primarily by prior attainment, family background and parental education, parental aspirations and involvement in their children's learning. Non-cognitive outcomes are primarily driven by the mother's qualifications and mental health.
39. This paper has demonstrated clearly the importance of the early years by showing the persistence of early attainment and the continuing influence on cognitive outcomes of pre-school and the early home learning environment.
40. The impact of parents' aspirations is a new driver compared to the early years, but essentially captures aspects of the home environment which are similar to the parenting and the early home learning environment factors which were of great importance in the early years.
41. The continuing importance of parents' attitudes and behaviours show that it is important to engage parents in schools and in their children's learning more generally. Perhaps if more parents were engaged in their children's development earlier on, they would feel more hopeful about their learning at primary school and therefore have greater aspirations for their children.
42. In general there is less research and analysis on children of primary age. A lot of focus is on early years and then on GCSE results / results at 19 and there appears to be a gap in the knowledge of what the *most important* drivers for this age group. Given that the Millennium Cohort study is now starting to cover primary school ages there is a real opportunity to fill this gap.

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