

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5: COMPARING TWO GROWING UP IN SCOTLAND COHORTS



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CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

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AND CHILDCARE USE AND
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IN SCOTLAND COHORTS**

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Responsibility for the opinions expressed in this report, and for all interpretation of the data, lies solely with the authors.

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EXECUTIVE SUMMARY

Overview

Growing Up in Scotland (GUS) is a large-scale longitudinal research project aimed at tracking the lives of several cohorts of children living in Scotland from the early years, through childhood and beyond.

This report draws on data from Birth Cohort 1 (BC1) and Birth Cohort 2 (BC2) combined with administrative data from the Care Inspectorate to provide an understanding of characteristics of early learning and childcare (ELC) use and provision in Scotland. In particular, it assesses how this changed between 2008/09 and 2014 – including whether the increased entitlement to funded ELC (from 475 to 600 hours per year) which came into force in August 2014 appeared to have any immediate effects on ELC use among eligible 3-4 year olds. It also looks at how ELC use and provision differed for children living in different types of areas and with different social background characteristics.

Furthermore, using hitherto unreported data collected in 2015 when children in BC2 were aged 5, the report explores whether there had been any changes in outcomes among 5 year olds since 2009/10 when children in BC1 were the same age.

Finally, the report explores associations between, on the one hand, the average weekly number of hours children spent at their main ELC provider and characteristics of the ELC setting, and, on the other hand, children's cognitive and social development at age 5, as well as their adjustment to primary school.

KEY TERMS:

ELC/Early Learning and Childcare: refers to what was previously known as 'pre-school education'. Includes any wrap-around care the child receives from their main ELC/pre-school provider, but *not* any care received by other providers.

ELC provider: the provider from which the child receives their funded ELC (pre-school) entitlement. If the child receives their funded entitlement from more than one provider, it refers to their main provider.

Childcare: any care the child receives from providers other than their main ELC/pre-school provider.

Comparisons of ELC use: focus is on children who take up their entitlement to funded ELC. The report does *not* compare children who attend ELC/pre-school with those who do not.

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Changes in ELC use

- On average, 4 year olds in 2014 spent just over two hours per week longer at their main ELC provider than 4 year olds in 2008/09.¹ An increase was observed for all the different groups of children considered in the analysis, however, it was particularly notable among those living in more affluent households, in less deprived areas, and whose parents had higher levels of education.
- Looking specifically at ELC use among 4 year olds in the six months before and six months after the increase in funded ELC entitlement introduced in August 2014, the analysis showed an increase (of just over one and a half hours per week) in average parent-reported ELC use in the six months immediately following the increase in entitlement.²
- Encouragingly, the overall proportion of children attending an ELC setting with a high staffing quality grade (as assessed by the Care Inspectorate) increased between 2008/09 and 2014 – from 45% to 55%. However, although an increase was evident across all deprivation groups, it was larger among those living in the least deprived areas and, on average, children living in more deprived areas were less likely to attend an ELC provider with a high staffing quality grade than their peers in less deprived areas.
- Nonetheless, when all aspects of quality were considered, in 2014 (just like in 2008/09) children living in disadvantaged circumstances were just as likely as their more advantaged peers to attend an all-round high quality ELC provider.³
- In both 2008/09 and 2014 the most common type of ELC provider attended by 4 year old children was a local authority-run nursery class attached to a primary school. In both cohorts, children in higher income households were more likely than those in lower income households to attend a private or voluntary ELC provider. This difference was more pronounced in 2014.

¹ Note that, because of slight differences in how data on duration of ELC were collected, comparisons should be treated with caution.

² As above, because of slight differences in how data on duration of ELC were collected, comparisons should be treated with caution.

³ 'All-round high quality' is defined as a provider achieving at least a 'very good' grade on all four themes assessed by the Care Inspectorate (care and support, environment, staffing, and leadership and management).

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Changes in children's outcomes upon entry to primary school

- The vast majority of children were reported by their parent or carer to have adjusted well to primary school. Compared with children the same age in 2009/10, 5 year olds in 2015 were a little more likely to complain about school and to be reluctant to go to school, and a little less likely to look forward to going to school. Nonetheless, overall levels of adjustment to primary school were very similar.
- Parent-reported levels of hyperactivity and pro-social behaviour among 5 year olds improved between 2009/10 and 2015. For example, the proportion of 5 year old children exhibiting higher than average levels of hyperactivity fell from 21% to 18% over this period. Meanwhile, the proportion displaying below average levels of pro-social behaviour fell from 17% to 14%.
- At an overall level there was no change in average problem solving ability among 5 year olds between 2009/10 and 2015. In contrast, the analysis showed a slight decrease in average vocabulary ability for children this age.
- Looking at children according to socio-economic and area characteristics, in both cohorts, those living in less advantaged circumstances were more likely than their more advantaged peers to have below average levels of adjustment to primary school (as reported by their parent or carer). They were also more likely to have poorer social and behavioural development and to score lower on measures of cognitive ability.
- Between 2009/10 and 2015, on the measure of pro-social behaviour, there were signs of a slight widening of the gap between children whose parents had no formal qualifications and children whose parents had a degree. This was driven primarily by an increase in average pro-social behaviour scores among children whose parents were educated to degree level.
- In contrast, on the measure of vocabulary ability there were signs of a slight narrowing of the gap between children in the poorest and the wealthiest families. This was a result of a slight increase in average scores among children in the poorest households alongside a slight decrease in average scores among those in the most affluent households.

Is there a relationship between how long children spend in ELC and outcomes at age 5?

- Among children who took up their entitlement to funded ELC, attending for a relatively small number of additional hours per week (up to an average of 16 hours per week, rather than 12.5 hours per week or less) did not appear to be associated with outcomes at age 5 – either positively or negatively.

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- However, among children in lower and middle income families (outside the most affluent 40% of households), those who attended their main ELC provider for more than 30 hours per week were at a slightly higher risk than those who attended ELC for 12.5 hours or less of exhibiting above average levels of hyperactivity at age 5. This association was also evident after controlling for the level of hyperactivity reported when the child was aged 3, and for other social background characteristics such as the parents' level of education and the level of area deprivation.

Is there a relationship between the quality of the ELC setting and child outcomes at age 5?

- The analysis found some associations between quality of ELC provision (as measured by the Care Inspectorate) and children's social and behavioural outcomes, although the differences in average outcomes were small. These associations remained statistically significant when taking into account differences in children's social background and earlier outcomes measured at age 3.
- Specifically, among children attending ELC, on average, attending a provider with high staffing grades appeared to be associated with a very small decrease in the likelihood of exhibiting above average levels of peer problems at age 5.
- Furthermore, children who attended an ELC setting that achieved at least 'very good' grades across all four of the Care Inspectorate's quality themes were less likely to have raised levels of peer problems at age 5, and were less likely to display below average levels of pro-social behaviour, than children who attended a setting that did not achieve these grades.
- Earlier analysis using GUS data collected from children born in 2004/05 found a statistically significant but weak association between attending an ELC provider with a high level of care and support and better vocabulary at age 5. However, the analysis carried out for this report showed no statistically significant associations between the quality of the ELC setting and any aspects of children's cognitive development.

Implications for policy

- Very few changes were observed in child outcomes on entry to primary school between 2009/10 and 2015. Whilst it is encouraging that the gap in vocabulary ability between children in the poorest and most affluent families appears to have narrowed, this seems to have occurred partly as a result of a decrease in average vocabulary ability among children in the wealthiest families. This highlights the need for policy makers to carefully consider any unintended

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consequences of current and future strategies for ‘closing the gap’ between more and less advantaged children, if they want to ensure that no groups of children are doing worse as a result.

- The Scottish Government have committed to increasing the entitlement to funded ELC to an average of 30 hours per week. This report found no evidence to suggest that this is likely to have any notable detrimental effects on children’s outcomes by the time they enter school. However, neither did it find any evidence to suggest that an increase in ELC duration would be beneficial to children.
- Notably, these findings are based on the current status of ELC provision, where most children experience relatively high levels of quality in the ELC they receive. As demands on providers to offer a higher number of hours increase, there is a risk that the quality of provision may fall.
- Given the association between quality of provision and elements of children’s social and behavioural outcomes, a drop in the quality of provision alongside an increase in the number of hours children spend in ELC may well have more detrimental effects than those shown in this report. This stresses the importance of ensuring that the level of quality of ELC provision does not suffer as demands on providers increase.
- Furthermore, it seems crucial that equality of access to high quality ELC provision is maintained – and, in the case of staffing quality, improved – as the increase in entitlement is rolled out.

1

INTRODUCTION

1.1. Background and report overview

For a number of years, early learning and childcare (ELC) (or ‘pre-school education’ as it is also referred to) has been high on the agenda for policy makers in Scotland and, indeed, across the UK. Recent political commitments to increase the entitlement to free ELC (Scottish Government, 2016a) have further fueled debates about how provision ought to be organised as well as which children (if any) might particularly benefit from attending ELC.

A recent review of the literature (Scobie and Scott, 2017) reveals the range of associations found between various aspects of ELC use and child outcomes in previous research. For example, the Effective Provision of Pre-school Education (EPPE) study, which was specifically designed to explore effects of ELC provision on children’s development, found that attending a high quality ELC provider had beneficial effects on children’s cognitive and social development (e.g. Sylva et al., 2004). In a Scottish context, analysis of data from the Growing Up in Scotland study (GUS) has also suggested a link between attending a high quality ELC provider and cognitive outcomes (Bradshaw et al., 2014).

This report uses data from GUS combined with administrative data provided by the Care Inspectorate to provide an understanding of the characteristics of ELC use and provision in Scotland. In particular it assesses how this changed between 2008/09 and 2014 – including whether the increased entitlement to funded ELC (from 475 to 600 hours per year) which came into force in August 2014 had any immediate effects on ELC use among eligible 3-4 year olds. It also looks at how ELC use and provision differ for children who live in different types of areas and who have different social background characteristics. Furthermore, using hitherto unreported data collected in 2014 and 2015, the report explores whether there was any improvement (or deterioration) in outcomes among 5 year old children in Scotland between 2009/10 and 2015 (before and shortly after the expansion in ELC entitlement). Finally, the report explores associations between, on the one hand, duration of ELC attendance

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and characteristics of the ELC setting and, on the other hand, children's cognitive and social development at age 5, as well as their adjustment to primary school.⁴

1.2. About GUS

GUS is a large-scale longitudinal research project aimed at tracking the lives of several cohorts of Scottish children from the early years, through childhood and beyond. The main aim of the study is to provide information to support policy-making in Scotland, but it is also intended to be a broader resource that can be drawn on by academics, voluntary sector organisations, practitioners, parents and other interested parties.

To date, GUS has collected information about three nationally representative cohorts of children: a child cohort and two birth cohorts. Altogether, information has been collected on around 14,000 children. This report draws on data collected from the two birth cohorts. The first birth cohort (Birth Cohort 1 or 'BC1') comprise 5,217 children born between June 2004 and May 2005 and living in Scotland when aged 10 months. For this cohort, starting in 2005/06, data were collected annually from when the children were aged 10 months until they were just under 6 years old, and then biennially at age 8 and when the children were in Primary 6 (age 10). At the time of writing (2017), the ninth sweep of data collection with this cohort is underway, while the children are aged around 12 and in their first year of secondary school. The second birth cohort (Birth Cohort 2 or 'BC2') comprise 6,127 children who were born between March 2010 and February 2011 and living in Scotland when aged 10 months. For this cohort, starting in 2011, data were collected when the children were aged 10 months, just under 3 years, just under 4 years, and just under 5 years.

The report draws on data collected when the cohort children were aged just under 4 and just under 5 years of age. For BC1, this means drawing on data collected between 2008 and 2010. For BC2, this means drawing on data collected in 2014 and 2015. More detailed information about the data is provided in section 2.1.

1.3. ELC in Scotland: the policy context

The annual entitlement to pre-school education for 3 and 4 year olds in Scotland is set out in the *Standards in Scotland's Schools Etc Act 2000*. This Act placed a duty on local authorities to secure a pre-school education place for all 3 and 4 year-olds whose parents want a place from the term following their child's third birthday. The

⁴ Unlike the EPPE project, this report does not compare the outcomes of children who attended ELC provision with those who did not attend.

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statutory entitlement was introduced in April 2002, initially as 412.5 hours per year. This was then increased to 475 hours in 2007.

In 2014, under *The Children and Young People (Scotland) Act 2014* (hereafter CYP Act 2014), the entitlement to pre-school education was expanded to cover both early learning and childcare. ELC is defined in the Act as a “service, consisting of education and care, of a kind which is suitable in the ordinary case for children who are under school age, regard being had to the importance of interactions and other experiences which support learning and development in a caring and nurturing setting” (Section 46). This new term was introduced in order to overcome the traditional divide between (part time) education and (full time) childcare, the latter of which was seen as less important to learning. The term seeks to reflect EU and OECD recommended models of integrated education and care (Scottish Government, 2016a).

Under the CYP Act 2014 the entitlement to free ELC was increased to 600 hours per year from August 2014, amounting to approximately 16 hours per week during term time. The hours can be delivered in blocks of between two and a half and eight hours a day spread across the week (Scottish Government, 2016b). The free provision is delivered by a range of providers, including local authority nurseries and family centres, nursery classes attached to local authority primary schools, partnerships offered by private or non-profit nurseries and some childminders. However, a recent financial review of ELC provision in Scotland found that three-quarters of children registered for the entitlement receive the provision in a local authority setting (Scottish Government, 2016c).

Depending on their date of birth, children receive varying amounts of funded ELC before starting school. At the time of writing, children who turn 3 between March and the end of August receive two full years (six terms) of funded ELC; children who turn 3 between September and the end of December receive just under two years (five terms), but parents can request an additional year (three terms) of ELC if the child’s school entry is deferred; and children who turn 3 in January or February receive just over a year (four terms), but are entitled to an additional year (three terms) if the child’s school entry is deferred.⁵

In 2014 the entitlement to ELC was also extended to 2 year olds who are looked after under a kinship care order or with a parent appointed guardian, as well as 2 year olds with a parent in receipt of qualifying benefits. This reflects the importance placed on

⁵ <http://www.gov.scot/Topics/People/Young-People/early-years/parenting-early-learning/childcare>

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ELC as a means to closing the attainment gap between the most and least advantaged children. Qualifying benefits include Income Support, Jobseekers Allowance, Employment and Support Allowance, Incapacity or Severe Disablement Allowance and State Pension Credit. In 2015, the range of qualifying benefits was extended to include Child Tax Credits (with some limitations⁶), Universal Credit, and financial support provided under Part VI of the Immigration and Asylum Act 1999.

As well as offering an increased number of hours of ELC and extending the entitlement to some 2 year olds, the CYP Act 2014 contained a provision to increase the flexibility of the funded entitlement. This involved introducing a requirement for local authorities to consult with representative populations of parents every two-three years on which patterns of ELC would best meet their needs, and to reconfigure their services over time towards meeting those needs. This means that local authorities are now required to ensure that ELC is offered in a way that gives parents choice and flexibility in order to help those with work, training or study commitments. Local authorities must demonstrate how they are offering places and improving flexibility based on their consultations with local communities. The Scottish Government committed £969.2 million over 6 years (from 2014/15) to local authorities to support implementation of the ELC elements of the CYP Act 2014 (Scottish Government, 2016a). Since then, the Scottish Government has pledged to increase the provision of funded ELC further to 1140 hours per year by 2020 for children who are 3 or 4 years old, as well for 2 year olds whose parents are on qualifying benefits and eligible for the 600 hours free entitlement through the CYP Act 2014 (Scottish Government, 2016a). In 2016, around 9% of the population of 2 year olds and close to 100% of 3 and 4 year olds were registered for funded ELC (Scottish Government, 2016d).

1.3.1. ELC within the wider Scottish policy context

A central aim of the CYP Act 2014 was to increase the amount and flexibility of ELC available to Scottish parents. The Scottish Government sees this as a significant step towards wider ambitions for Scotland to be the best place for children to grow up. In *A Blueprint for 2020: The Expansion of Early Learning and Childcare in Scotland*, the Scottish Government acknowledges that ELC and schools do not exist in isolation, and that children's outcomes are strongly influenced by factors outside the sphere of

⁶ 2 year olds were eligible if their parent or carer was receiving Child Tax Credit but not Working Tax Credit and had an annual income of less than £16,105, or was receiving both Child Tax Credit and maximum Working Tax Credit and had an annual income of less than £6,420.

education – such as household income, parenting approaches, peer contact and health and development (Bradshaw and Tipping, 2010). Nonetheless, the provision of universally accessible and high quality ELC is highlighted as a means of giving children the best start in life, and of closing attainment and inequality gaps (Scottish Government, 2016a).

Furthermore, the increase in the amount and flexibility of ELC is a feature of the Scottish Government's emphasis on, and aim to shift the balance of public services towards, early intervention and prevention (Scottish Government, 2007a; Scottish Government, 2008). Rather than being seen as a separate stage, the pre-school years are viewed as part of a wider learning process. In policy terms, this view has been exemplified in the development of the 3-5 curriculum in the late 1990s as well as in the inclusion of the pre-school years within *Curriculum for Excellence Early Level* (Kidner, 2011). As an example of this, the 'early level' of the Curriculum for Excellence spans both ELC and Primary 1 and is designed to make the transition to primary school as seamless as possible. Teachers (as well as ELC practitioners) are encouraged to meet the needs of children through active, hands-on and play-based learning. This means that children are able to benefit from less formal, alternative learning environments – for example, outdoor settings and/or other forms of activity – which may bear more similarities to ELC settings or play-based learning (e.g. Scottish Government, 2007b).

1.3.2. Maintaining and improving standards in ELC provision

In order to maintain and improve standards in ELC provision, providers are inspected by the Care Inspectorate, a single regulatory body which inspects care services for both children and adults in Scotland. As well as carrying out routine inspections, the Care Inspectorate has a duty to investigate complaints and can, where appropriate, take enforcement action.

ELC providers are inspected according to the *National Care Standards* (Scottish Government, 2005). The standards reflect the rights of children and young people as set out in the *United Nations Convention on the Rights of the Child*. They recognise the rights of ELC users (i.e. children) to dignity, privacy, choice, and safety, to be treated equally and to be given opportunity to realise their potential in an environment that recognises the benefits of diversity. In inspecting ELC services against these standards, the Care Inspectorate seeks to ensure that providers are “doing everything they should to protect children and keep them safe” (Care Inspectorate, 2014). The National Care Standards also require the Care Inspectorate to take into account local and national guidance, including the Curriculum for Excellence and

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guidance contained in *Pre-birth to Three: Positive Outcomes for Scotland's Children and Families* (Learning and Teaching Scotland, 2010).

Inspections by the Care Inspectorate are unannounced and cover all services which provide day care of children, including – but not restricted to – those which offer pre-school education. ELC services receive a minimum frequency of inspections based on previous performance and risk assessments. When inspected they are graded against four quality themes: care and support; environment; staffing; and management and leadership. Further detail on these themes is provided in section 2.3.

ELC providers are also inspected by Education Scotland – sometimes in tandem with inspections by the Care Inspectorate. These inspections take a different focus and are more concerned with elements of the educational provision in the ELC setting, including the development of skills and understanding in literacy, numeracy, health and well-being. A key difference between Education Scotland and Care Inspectorate inspections is that the latter inspects all services which provide daycare of children to assess care and welfare issues (as outlined above). In contrast, Education Scotland inspections are focused on early years centres and nursery classes which are delivering the funded early learning and childcare, as part of a wider programme to evaluate “the quality of learning and teaching in Scottish schools and education services” (Education Scotland, 2014). In addition, inspections by the Care Inspectorate alone are more frequent and unannounced, whereas those undertaken by Education Scotland, or Education Scotland and the Care Inspectorate together are less frequent and announced two to three weeks in advance.

1.4. Research questions

This report seeks to answer a number of research questions.

First, chapter 3 addresses three questions concerned with ELC use and characteristics:

- How did ELC use and characteristics of ELC provision in 2014/15 compare with 2008/09?
- Did the increase in entitlement to funded ELC introduced in August 2014 lead to any immediate changes in the average number of hours children attended ELC?
- How do ELC use and characteristics vary by the socio-economic characteristics and locations of families?

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Second, two questions about children's outcomes upon entry to primary school are considered in chapter 4:

- What was the level of children's adjustment to primary school and their social and cognitive development at the start of primary school in 2015?
- Has there been any improvement in these outcomes for children at the start of primary school between 2009/10 and 2015?

Third, chapter 5 seeks to answer two specific questions about associations between ELC use and child outcomes:

- Is there a relationship between the average number of hours children attend ELC and outcomes at age 5?
- Is there a relationship between the quality of the ELC setting and child outcomes at age 5?

Finally, with a focus on changes observed between the two cohorts, chapter 6 discusses some of the key findings reported in the previous chapters and also addresses the following question:

- Is there any evidence that the increase in funded ELC entitlement from 475 to 600 hours improved outcomes for children at the start of primary school?

2 METHODS

2.1. Sample and data overview

This report uses data collected from the two GUS birth cohorts (BC1 and BC2). The majority of the analysis draws on data collected at the time the children were just under 5 years old.⁷ In some instances (such as details about ELC use), data collected when the child was aged 4 were also used. For BC1, this means the analysis draws primarily on data collected in 2009/10, with some data collected in 2008/09. For BC2, the analysis draws primarily on data collected in 2015, with some data collected in 2014.

The cohorts are both comprised of nationally representative samples of children living in Scotland at age 10 months (their age at the first sweep of data collection) and who were born over a specific time period: all children in BC1 were born between June 2004 and May 2005; all children in BC2 were born between March 2010 and February 2011. For simplicity, comparisons in the report refer to BC1 and BC2. However, the results for each cohort should be understood to represent all children of the respective age living in Scotland at the time point in question and any statistically significant differences noted in the report should be taken to reflect actual differences in the circumstances and experiences of children of the relevant age and their families. They have not occurred because of differences in the research design for the two cohorts.

For example, the results presented for children in BC2 at the time they were aged 5 are representative of all children of this age living in Scotland in 2015 (when the GUS data were collected) who had also been living in Scotland when they were 10 months old.

The majority of GUS data have been collected through face-to-face interviews with children and parents in their homes. In addition, on three occasions (twice with families in BC1 and once with families in BC2) data were collected through the use of

⁷ At each sweep interviews took place around six weeks before the child's next birthday. In this report the child's age is referred to in years. It is worth bearing in mind, however, that a 4 year old child was actually 46 months old or just under 4, and a 5 year old child was actually aged 58 months or just under 5.

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short online questionnaires which could also be completed over the phone. This report draws on data collected both as part of in-home interviewer visits and data collected through the use of online/telephone questionnaires (see Table 2-1).

Table 2-1 Data overview

Child's age	4 years		5 years	
Cohort	BC1	BC2	BC1	BC2
Year of data collection	2008/09	2014	2009/10	2015
Data collection mode	In-home visit	Online/telephone survey with child's main carer	In-home visit	In-home visit
Number of interviews achieved*	3994	3237	3833	4434

*The focus of the analysis is on the outcomes of children at the age of 5. Therefore, only children whose families took part in the age 5 interview were included in the analysis.

In addition to the GUS survey data, the analysis also draws on administrative data from the Care Inspectorate which was 'linked' to the GUS data. Further information is provided below.

2.2. Survey data on ELC

Around the time the child was aged 4, parents in both cohorts were asked whether the child was attending a 'pre-school' or early education place. If so, further information was collected, including information about the number of hours the child would usually spend in this setting on a weekly basis and details of the provider.⁸

⁸ In the interview, the questions about pre-school education were introduced to parents in the following way: "Children aged three and four are entitled to free part-time early education or 'pre-school' places funded by the Government. These pre-school places are provided by a range of childcare organisations such as nursery schools, nursery classes at primary schools, playgroups or day nurseries (...) For these questions, I would like you to think about only those pre-school places [child's name] may have attended since his/her 3rd birthday."

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As outlined in section 1.3, since the introduction of the CYP Act 2014 the term ‘Early Learning and Childcare’ (ELC) has largely replaced that of ‘pre-school education’ among policy makers and practitioners in Scotland. Accordingly, ***in this report ‘ELC’ is used to refer to what was previously referred to as pre-school education.*** The focus of the report is on ELC provided by the child’s main ELC provider (including both funded and unfunded hours). Thus, figures outlining details of a child’s ELC attendance refer to any time he or she spent at their main ELC provider (i.e. their main pre-school provider), but does not include any time spent with a different provider.⁹ Any childcare the child may have received from other providers is treated separately and is referred to as ‘childcare’, rather than ELC.¹⁰ Further to this, note that only ELC use after the child’s third birthday is included in the GUS data.

Data on ELC were collected slightly differently in the two cohorts. In BC1, ELC data were collected through interviewer-administered questionnaires, the majority as part of the age 4 interview though some parents were asked as part of the age 5 interview. In this report BC1 age 4 data were used as far as possible to ensure the highest possible level of comparability with BC2 data (see below). Age 5 ELC data were used in cases where age 4 information was incomplete or non-existent. In total, ELC data were collected for 3731 children in BC1 – for 3459 of these, ELC data were obtained at the time the child was aged 4; for the remaining 272 the data were obtained when they were aged 5.

For some children in BC2 ELC data were collected through an online or telephone questionnaire when the child was aged 4. For others it was collected through an interviewer-led questionnaire when the child was aged 5. At age 4, information was collected about the child’s current ELC attendance and provider. The ELC data collected from BC2 families as part of the age 5 interview were collected about

⁹ In both cohorts, parents were asked to indicate the type of pre-school provider from the following list: Nursery class attached to a local authority primary school, Nursery class attached to an independent/private school, Local authority nursery school or nursery centre, Private day nursery or nursery school, Community/voluntary nursery, Community/voluntary playgroup, Local authority playgroup, Private playgroup, Family Centre.

¹⁰ Data about childcare *not* provided by the child’s main ELC (pre-school) provider were collected separately. Questions about non-pre-school childcare were introduced to parents in the following way: “By ‘childcare’ I mean when [child’s name] is looked after by anyone other than yourself [and your partner]. We are interested in all types of childcare shown on this card* - including both formal and informal childcare but NOT any pre-school or early-education arrangements covered by [child’s name]’s free pre-school place.” *The card listed a wide range of childcare providers including relatives, childminders and a range of centre or group-based care providers.

current ELC use or, if the child was not currently using any ELC, about ELC use since the child's 3rd birthday. In total, ELC data were collected for 4314 children in BC2¹¹ – for 2908 of these, ELC data were obtained at the time the child was aged 4¹²; for 1406 the data were obtained when they were aged 5.¹³

The data on ELC attendance and ELC provider type used in the analysis are described in more detail in sections 3.3 and 3.4.

2.3. Linked admin data from the Care Inspectorate

The report draws on linked admin data from the Care Inspectorate. As noted in section 1.3.2, the Care Inspectorate regulates care services for children and adults in Scotland. This includes a wide range of services for children and young people, including fostering, adoption and residential care along with child-minding and day care services. This latter category includes settings which provide ELC.

During inspections, the Care Inspectorate assesses the quality of the provider against four quality themes: care and support, environment, staffing, and management and leadership. Until 2016,¹⁴ these quality themes each had accompanying quality statements – these are shown in Table 2-2. For each quality theme, services were awarded a grade between 1 and 6 (Care Inspectorate, 2016) indicating the following: 6 – excellent; 5 – very good; 4 – good; 3 – adequate; 2 – weak; 1 – unsatisfactory.

¹¹ The exact number of cases for which details were obtained vary according to the measure used. The figures given in the text refer to the number of cases for which information about the child's ELC provider were obtained. Information about the average number of hours the child attended ELC per week was obtained for 4306 cases.

¹² Of these 2908, for 1538 children ELC data were collected *before* the increase in entitlement, and for 1370 children ELC data were collected *after* the increase in entitlement.

¹³ Of the 1406 cases where ELC data on provider type were collected at the time the child was aged 5, in 662 cases the information was collected retrospectively – that is, the child was no longer attending ELC at the time of the age 5 interview.

¹⁴ Since 1 July 2016 the Care Inspectorate has only reported on the broader quality themes.

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Table 2-2 Care Inspectorate quality themes and statements

Quality theme	Accompanying quality statements
Quality of care and support	<ul style="list-style-type: none"> • Ensures that parents and families participate in assessing and improving the quality of care and support provided by the service. • Enables service users to make individual choices and ensures that every service user can be supported to achieve their potential. • Ensures that service users' health and wellbeing needs are met. • Uses a range of communication methods to ensure we meet the needs of service users.
Quality of environment	<ul style="list-style-type: none"> • Ensures service users and carers participate in assessing and improving the quality of the environment within the service. • Ensures the environment is safe and service users are protected. • The environment allows service users to have as positive a quality of life as possible. • The accommodation and resources are suitable for the needs of the service users.
Quality of staffing	<ul style="list-style-type: none"> • Ensures that service users and carers participate in assessing and improving the quality of staffing in the service. • Staff have been recruited and inducted in a safe and robust manner to protect service users and staff. • Has a professional, trained and motivated workforce which operates to National Care Standards legislation and best practice. • Ensures that everyone working in the service has an ethos of respect towards service users and each other.
Quality of management and leadership	<ul style="list-style-type: none"> • Ensures service users and carers participate in assessing and improving quality of the management and leadership of the service. • Involves the workforce in determining the direction and future objectives of the service. • To encourage good quality care, promotes leadership values throughout the workforce. • Uses quality assurance systems and processes which involve service users, carers, staff and stakeholders to assess the quality of services provided.

2.3.1. Matching the admin data to the survey data

The administrative data on ELC settings used in this report are produced using data from inspection reports. Data on the grades awarded following inspection are held electronically and published on the Care Inspectorate website.

Children in BC1 were born between 1 June 2004 and 31 July 2005. As such, the first children eligible to attend their statutory ELC place in this cohort would have done so from the autumn term of 2007. Most of these children would have continued to attend until June 2009 before starting school in autumn 2009. However, across the cohort as a whole, children would have started ELC sometime between August 2007 and August 2008 and would have potentially attended up to June 2010. Some children may have moved between providers or received their ELC entitlement from two different providers. However, it is not possible to identify which children did so from Care Inspectorate data. In addition, some settings closed or merged or moved and new settings were established and registered.

To reflect the full period of attendance for all children in the cohort, Care Inspectorate data were requested covering the entire period from 2007 to 2010. Where data on a single provider were available for multiple years, for example, quality ratings from multiple inspections, an average figure was calculated.

ELC details provided by parents as part of the GUS interview were successfully matched to Care Inspectorate information for 3658 children following the age 4 interview (99%). This corresponded to 1296 ELC centres meaning that, on average, each centre was attended by two to three children in BC1.¹⁵ Grades on quality themes from Care Inspectorate inspections were available for between 2878 and 3013 BC1 children.¹⁶ For the small number of BC1 cases where Care Inspectorate quality data had not been successfully matched based on the information provided at the age 4 interview, another attempt was made using ELC provider details obtained at the age 5 interview. This resulted in the addition of Care Inspectorate quality information for between 38 and 47 cases, depending on the quality measure.

Children in BC2 were born between 1 March 2010 and 28 February 2011, with the first children becoming eligible to attend their statutory ELC place from the autumn term of 2013. The majority of these children would have continued to attend until June 2015 before starting school in autumn 2015. Across the cohort as a whole,

¹⁵ This is largely due to the 'clustering' of the sample. For further details see Bradshaw and Corbett, 2013.

¹⁶ Data were not always available for all individual quality measures so numbers differ slightly depending on the quality measure looked at.

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children would have started ELC sometime between August 2013 and August 2014, and would have potentially attended until June 2016. Care Inspectorate data were therefore requested covering the entire period from 2013 to 2016.

4426 children in BC2 attended ELC at some point after turning 3 years old. As in BC1, parents were asked for details about the child's main ELC provider. Rather than manually linking survey records to Care Inspectorate data in the office (as was done for BC1), interviewers were able to use an electronic lookup table to select the ELC provider from a pre-defined list provided by the Care Inspectorate. The list included all ELC services that were operating at the point immediately before fieldwork commenced and incorporated a unique Care Inspectorate identifier. This meant the Care Inspectorate identifier for the provider was already appended to the survey data, allowing subsequent matching of other data from the Care Inspectorate.

Survey data were successfully matched to Care Inspectorate quality information for 3941 BC2 children who took part in the age 5 interview (91% of those who attended ELC). This corresponded to 1401 ELC centres meaning that, on average, each centre was attended by two to three children in BC2.

2.4. Child outcomes considered in the report

This report considers three different types of child outcomes, all measured at the time the cohort children were aged just under 5:

- *Adjustment to primary school:* Information was collected from the child's parent or carer in cases where the child had started primary school at time of interview
- *Social, emotional and behavioural development:* Information was collected from the child's parent or carer using the Strengths and Difficulties Questionnaire (SDQ), for all children
- *Cognitive development:* Objective assessments were carried out with all children where consent was obtained.

Details about each type of outcome measure are provided below.

2.4.1. Adjustment to primary school

To assess how well children in BC1 and BC2 had transitioned from ELC to primary school, questions about adjustment to school were asked of the child's main carer as

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part of the age 5 interview¹⁷ where the child had already started Primary 1. This applied to 1227 children in BC1 and 2750 children in BC2.

Two composite measures of the child's adjustment to primary school were developed based on responses to six questions (shown in Table 2-3). Each measure is described in turn below.

¹⁷ The measure of adjustment to primary school relies on parent report and thus reflects parents' perceptions of their child's adjustment, rather than, for example, the child's own assessment.

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Table 2-3 Questions on adjustment to primary school

Question	Response categories	Most positive response
How often has your child complained about school?	<ul style="list-style-type: none"> • More than once a week • Once a week or less • Not at all 	Not at all
How often has your child said good things about school?	<ul style="list-style-type: none"> • More than once a week • Once a week or less • Not at all 	More than once a week
How often does your child look forward to going to school?	<ul style="list-style-type: none"> • More than once a week • Once a week or less • Not at all 	More than once a week
How often has your child been upset or reluctant to go to school?	<ul style="list-style-type: none"> • More than once a week • Once a week or less • Not at all 	Not at all
Is your child finding it hard to sit still and listen?	<ul style="list-style-type: none"> • Agree strongly • Agree • Neither agree nor disagree • Disagree • Disagree strongly 	Disagree/disagree strongly*
Overall, has your child adjusted well to school?	<ul style="list-style-type: none"> • Agree strongly • Agree • Neither agree nor disagree • Disagree • Disagree strongly 	Agree/Agree strongly*

*Categories were combined as shown.

The first composite measure identifies three levels of adjustment to primary school: 'excellent', 'good/average' and 'poor'. Definitions are provided in Table 2-4 below.

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Table 2-4 Adjustment to primary school: composite measure (3 categories)

Level of adjustment	Definition
Excellent	Most positive response given for <i>all</i> six items
Good/average	Most positive response given for <i>at least one</i> , but not for all six items
Poor	Most positive response <i>not given for any</i> of the six items

The second composite measure identifies scores which were 'below average' versus those which were 'average and above'. This measure was derived by adding up standardised scores for the six individual items to create a total score.¹⁸ Those with a score below the mean were classified as 'below average' while the remainder were classified as 'average or above'.

Table 2-5 Adjustment to primary school: composite measure (2 categories)

Level of adjustment	Definition
Average or above	The child's total score summed across all six items was <i>at or above the average</i> (mean) for all children in the cohort whose parent/carer answered the questions
Below average	The child's total score summed across all six items was <i>below the average</i> (mean) for all children in the cohort whose parent/carer answered the questions

2.4.2. Social, emotional and behavioural development

On GUS, measures of social, emotional and behavioural development are routinely obtained through the use of items from the Strengths and Difficulties Questionnaire

¹⁸ For each cohort, standardised z scores were created for each of the six individual items and reliability analysis was carried out to assess whether the items were suitable for combining into a single measure. For BC1, the analysis showed an alpha of 0.681 for the standardised items; for BC2 the analysis showed an alpha of 0.677 for standardised items. On this basis, for both cohorts, the six items were deemed suitable for combining into a single composite score. For each cohort a total score was then created by adding up z scores for the six individual items. The process took into account that some items were scored in reverse order. Cases where information was missing on one or more items were excluded.

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(SDQ) (Goodman, 1997). A parent report version of the SDQ was included in the self-completion section of the age 5 interview in both BC1 and BC2.¹⁹

The SDQ is a commonly used behavioural screening questionnaire designed for use with children aged between 3 and 16. It consists of 25 questions about a child's behaviour, to which the respondent can answer 'not true', 'somewhat true' or 'certainly true'. Responses can be combined to form five different measures of the child's development, namely emotional symptoms (e.g. excessive worrying), conduct problems (e.g. often fighting with other children), hyperactivity/inattention (for example, constantly fidgeting), peer relationship problems (e.g. not having close friends), and pro-social behaviour (e.g. being kind to others). Furthermore, the first four measures can be combined into a 'total difficulties' scale. Higher scores imply greater evidence of difficulties on each of the scales, with the exception of the pro-social behaviour scale where the reverse is true.

In this report, both mean scores and banded versions of the scales have been used. Mean scores are useful for comparing overall levels of social development across groups of children or over time, while the banded versions provide more nuanced and more easily interpretable measures. Previously, SDQ scores were most commonly divided into 'normal', 'borderline' and 'abnormal' scores. These bandings were reviewed in 2016 and it is now recommended that SDQ scores on each of the scales are divided into the following categories: 'close to average', 'slightly raised', 'high' and 'very high', with 'very high' indicating multiple problems identified. The exception is the pro-social scale, which is divided into 'close to average', 'slightly lowered', 'low' and 'very low', with 'very low' indicating very little pro-social behaviour. Across the different scales, the further above (or below) average the score is, the greater the potential cause for concern.

Additionally, the definitions of the scores which constitute each of the categories have been re-standardised to reflect a more recent, British sample.²⁰ Scores for BC1 and BC2 were derived using the same cut-off points to allow comparison.

2.4.3. Cognitive ability

At age 5, the cognitive ability of children in BC1 and BC2 was assessed using the British Ability Scales (BAS). The BAS is a cognitive assessment battery designed for

¹⁹ In BC2 these questions were also asked in the age 3 interview.

²⁰ <http://www.ehcap.co.uk/content/sites/ehcap/uploads/NewsDocuments/236/SDQEnglishUK4-17scoring-1.PDF>

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children aged between 2 years and 6 months and 17 years and 11 months. Though numerous tests of ability and intelligence exist, the BAS are particularly suitable for administration in a social survey like GUS. Two subtests of the BAS were used – the naming vocabulary and picture similarities subtests – which were each administered individually.

The naming vocabulary assessment measures a child's language development. The test requires the child to name a series of pictures of everyday items in order to assess their expressive language ability. Conversely, the picture similarities test measures a child's problem-solving skills (or non-verbal reasoning ability). In this assessment children are shown a row of four pictures on a page and asked to identify a further congruent picture. The child is therefore required to recognise a relationship based upon a common concept or element. The child must perceive various possibly relevant features of the pictures and engage in hypothesis testing to select the correct elements of commonality. The relationships become increasingly complex as the exercise progresses.

There are 36 items in the naming vocabulary assessment and 33 items in the pictures similarities assessment. However, to reduce burden and avoid children being upset by the experience of repeatedly failing items within the scale, the number of items administered to each child is dependent on their performance. For example, one of the criteria for terminating the naming vocabulary assessment is if five successive items are answered incorrectly. Children in both cohorts were asked to complete these assessments when they were just under 5 years old. As such, the GUS BAS assessment scores offer a snapshot of children's ability in expressive vocabulary and problem solving around the time they start primary school.²¹

On completion, the child's raw score (the count of the number of items they answered correctly) is converted into an ability score. The ability score reflects the range and the difficulty of the specific items a child is asked. Lookup tables for the transformation from raw scores to ability scores are provided in the BAS testing materials. The ability scores are then adjusted for the child's age at the time of assessment using scores from a 'norming' sample which are also supplied with the assessment materials. Adjusting the scores in this way avoids older children obtaining higher scores due to their more advanced stage of cognitive development and greater educational experience, rather than their ability.

²¹ In both cohorts, the BAS assessments were also undertaken with the children as part of the age 3 interview.

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While the same BAS assessments – naming vocabulary and picture similarities – were used for both cohorts at the same age, the edition of BAS was different. For BC1, the 2nd edition assessment was used (BAS-II), whereas for BC2 the third edition was used (BAS-3). While the assessments are almost identical across BAS-II and BAS-3 in terms of administration protocols, a number of minor changes were made which would introduce caveats when making a straightforward comparison of ability scores. To allow this, the assessment authors provided a calibration formula which permitted comparison of the standardised ability scores (t-scores). Note that because of this adjustment, it is not possible to express differences in average cognitive ability scores in terms of developmental age in months (as has been done in a previous GUS report, cf. Bradshaw, 2011) for comparison between cohorts.

2.5. Analytic approach and interpreting the findings

Much of this report is concerned with exploring changes between the two cohorts both at an overall level and for different groups of children according to a number of socio-economic characteristics and location (annual equivalised household income; highest level of parental education in the household; area deprivation (SIMD); and urban/rural location). Definitions of these measures are provided in Appendix A. For each outcome considered in the report (e.g. cognitive ability), the relationship between the outcome and measures of socio-economic status or location was examined separately for each cohort. This allowed us to identify any noteworthy differences in outcomes – within each cohort – between children in different circumstances. By then comparing the results for BC1 and BC2 it was possible to assess if there had been any change in the nature of the relationship between the outcome variable and the socio-economic or location variable across the cohorts. For example, whether there had been a narrowing or widening of the gap between children in different socio-economic sub-groups. Further details about this analysis and how to interpret tables are provided in Appendix B.

Throughout the report, unless otherwise stated, only differences which were statistically significant at the 95% level or above are commented on in the text.

Not all families who initially took part in GUS did so for all of the subsequent sweeps. There are a number of reasons why respondents drop out from longitudinal surveys and such attrition is not random. Therefore, the data were weighted using specifically designed weights which adjust for non-response and sample selection. All results have been calculated using weighted data and all comparisons take into account the complex clustered and stratified sample structures. Note that because results were calculated using weighted data, the results and bases presented cannot be used to calculate how many respondents gave a certain answer.

2.5.1. Multivariable analysis

A key point of interest in this report is to examine whether there is an association between ELC use and characteristics and child outcomes. When examining such associations it is important to consider the influence of underlying factors and the inter-relationships between such factors and other things we are interested in. For example, the number of hours children spend in ELC is likely to be related to whether their parent or carer is in paid work, as well as their income level. Simple analysis may identify an association between weekly ELC attendance and children's social development – for example, that children who attend ELC for between 12.5 and 16 hours per week have higher levels of social difficulties than children who attend ELC for less than 12.5 hours per week. However, this association may be occurring simply because of an underlying association between ELC attendance and household income. Thus, rather than ELC attendance being associated with children's social development in its own right, the relationship found in the analysis may be due to the influence of other factors. To 'control' for the influence of other factors (e.g. household income) multivariable regression analysis was used. This form of analysis allows the examination of the relationships between an outcome variable (e.g. social development) and multiple explanatory variables (e.g. weekly ELC attendance, household income) whilst controlling for the inter-relationships between each of the explanatory variables. This means it is possible to identify whether there is an association between any single explanatory variable and the outcome variable also when other relevant variables have been controlled for. For example, to look at whether there is a relationship between duration of time spent in ELC and children's social development that does not simply occur because ELC attendance and household income are related. Note, though, that the identification of associations between one or more explanatory variables and an outcome variable does not necessarily imply that the explanatory variable(s) *causes* the outcome.

For certain analyses – for example, to consider whether an association between ELC quality and social development was different for children in higher and lower income households – 'interactions' were included in the multivariable models. Where an interaction is statistically significant this indicates that the relationship between the explanatory variable (e.g. ELC quality grade) and the outcome variable (e.g. social development) is different according to the value of another explanatory variable (e.g. household income). This may suggest, for example, that whilst ELC quality is generally associated with children's social development, the relationship is stronger among children in lower income households than among those in higher income households.

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The multivariable analysis used both linear and (binary) logistic regression models. Full results of the models are included in the Technical Annex along with notes on how to interpret them.

Note that the statistical analysis and approach used in this report represents one of many available techniques capable of exploring this data. Other analytical approaches may produce different results from those reported here.

3

EARLY LEARNING AND CHILDCARE

3.1. Introduction

As noted in the introductory chapter, ELC provision in Scotland has undergone a number of changes in recent years and continues to be high on the political agenda. This chapter considers the characteristics of ELC use among 4 year olds in 2014/15, comparing this with use six years previously.

In line with key policy debates, the chapter first examines the average number of hours children in each of the two GUS birth cohorts attended their main ELC provider at the time they were aged around 4 years old.²² Specifically, the chapter also explores whether there were any signs of any change in ELC attendance following the increase in entitlement (from 475 hours to 600 hours per year) which was available from August 2014. It also considers how attendance differs according to children's social background and where they live. Moving on to consider the ELC setting, the chapter then looks at the type of ELC providers attended by 4 year old children in each of the cohorts. Following this, using data from the Care Inspectorate, consideration is given to the quality of the ELC providers attended by the cohort children. Finally, the chapter examines how characteristics of the ELC setting – provider type and quality – differ according to measures of children's social background and by location.

3.2. Key findings

- Among children who attended ELC (97% of children in BC1; 98% children in BC2), on average, 4 year olds in 2014 spent just over two hours per week longer in ELC compared with 4 year olds in 2008/09,²³ namely 16.6 hours on average per week compared with 14.4 hours per week.
- In both 2008/09 and 2014, children in more advantaged circumstances tended to spend longer hours in ELC than their less advantaged peers. For example,

²² Details about how these data were collected are provided in Appendix A.

²³ This includes any time the child spent at their main ELC provider (including both funded and unfunded hours) but does not include time spent with any other provider (cf. section 2.2).

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in 2014, on average, children living in households in the lowest income quintile spent just over 15 hours per week at their main ELC provider, while those in the highest income quintile spent an average of 20 hours per week. These differences increased between the cohorts. Children living in urban areas also attended ELC for longer hours than those in rural areas and towns.²⁴

- The analysis showed an increase in average parent-reported ELC use for 4 year old children following the increase in entitlement introduced in August 2014. On average, parents who were interviewed in the six months before the increase in entitlement reported that their child spent 15.3 hours per week in ELC compared with 17.0 hours per week reported by parents who were interviewed in the six months after the increase.²⁵
- The most common type of ELC provider attended by children in each of the two cohorts was a local authority-run nursery class attached to a primary school. In both cohorts, children in higher income households were more likely than those in lower income households to attend a private or voluntary ELC provider. This difference was more pronounced in BC2 than in BC1.
- In both cohorts, children living in disadvantaged circumstances were just as likely as their more advantaged peers to attend an ELC provider which achieved high grades across all four quality themes assessed by the Care Inspectorate.
- However, children in more deprived areas were less likely than those in less deprived areas to attend an ELC provider with a high staffing quality grade (as assessed by the Care Inspectorate). Between 2008/09 and 2014 the proportion of children attending a setting with a high staffing quality grade increased across all deprivation groups. However, it appears to have increased more in areas with the lowest levels of deprivation.

3.3. ELC attendance

As noted in section 1.3, an extension of the entitlement to funded ELC provision for 3 and 4 year olds and eligible 2 year olds came into force in August 2014 – from 475 hours per year to 600 hours per year, spread across a period of 38 weeks. Information about ELC (pre-school) attendance was collected from families in BC1 in

²⁴ This report uses the following urban/rural classification: 'urban' (large and other urban areas); 'towns' (accessible and rural small towns); and 'rural' (accessible and remote rural areas). Further details are provided in Appendix A.

²⁵ As above, this includes any time the child spent at their main ELC provider (including both funded and unfunded hours) but does not include time spent with any other provider (cf. section 2.2).

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2008/09 when the children were around 4 years old. Corresponding information was collected from families in BC2 in 2014 and 2015. This means that for children in BC1 information about ELC attendance was collected while the entitlement was 475 hours per year. Conversely, for many children in BC2 information on ELC attendance was collected *after* the increase in entitlement; that is, when the entitlement was 600 hours per year. That said, for some children in BC2 ELC attendance information was collected *before* the policy change; that is, while the entitlement was still 475 hours per year. Specifically, this applies to BC2 children for whom ELC information was collected before August 2014. On the one hand, this means that comparisons of ELC attendance across the cohorts do not lend themselves easily to assessments of the effect of the increase in entitlement. On the other hand, it means that it is possible to compare – using data from BC2 – average ELC attendance among 4 year olds where the interview took place in the six months *before* the increase in entitlement, with ELC attendance among 4 year olds where the interview took place in the six months *after* the increase in entitlement. Comparisons of this nature will be of particular relevance to policy makers and others interested in examining the potential effects of increasing ELC entitlement.

It is important to note that the way information about average ELC duration was collected varied slightly within and between the cohorts and the original measures of ELC attendance were not directly comparable across cohorts and age points. Therefore, the results must be interpreted with caution. In both cohorts, and at all age points, parents were asked to give an estimate of the amount of time the child would typically spend at their main ELC provider. However, while in BC1 parents were asked to provide a weekly estimate, in BC2 parents were asked to give an estimate for each day of the week, with estimates provided either to the nearest half hour, the nearest ten minutes, or the nearest minute. To enable comparison, these measures were combined into a single composite measure of the amount of time a child spent at their main ELC provider in an average week to the nearest half hour. Further details about the ELC attendance data are provided in Appendix A.

Also, as noted in section 2.2, the measure of ELC used in this report refers specifically to time a child spent at the setting where they received ‘pre-school education’, that is, time spent at their main ELC provider (including both funded and unfunded hours). As such, references to ELC do not include any childcare a child received from other providers (e.g. childminders providing wrap-around childcare). Where applicable, this is referred to as ‘childcare’ rather than ELC.

3.3.1. ELC attendance across the two cohorts

The vast majority of children in both BC1 and BC2 attended ELC at some point around the time they were 4 years old. Children in BC2 were a little more likely to

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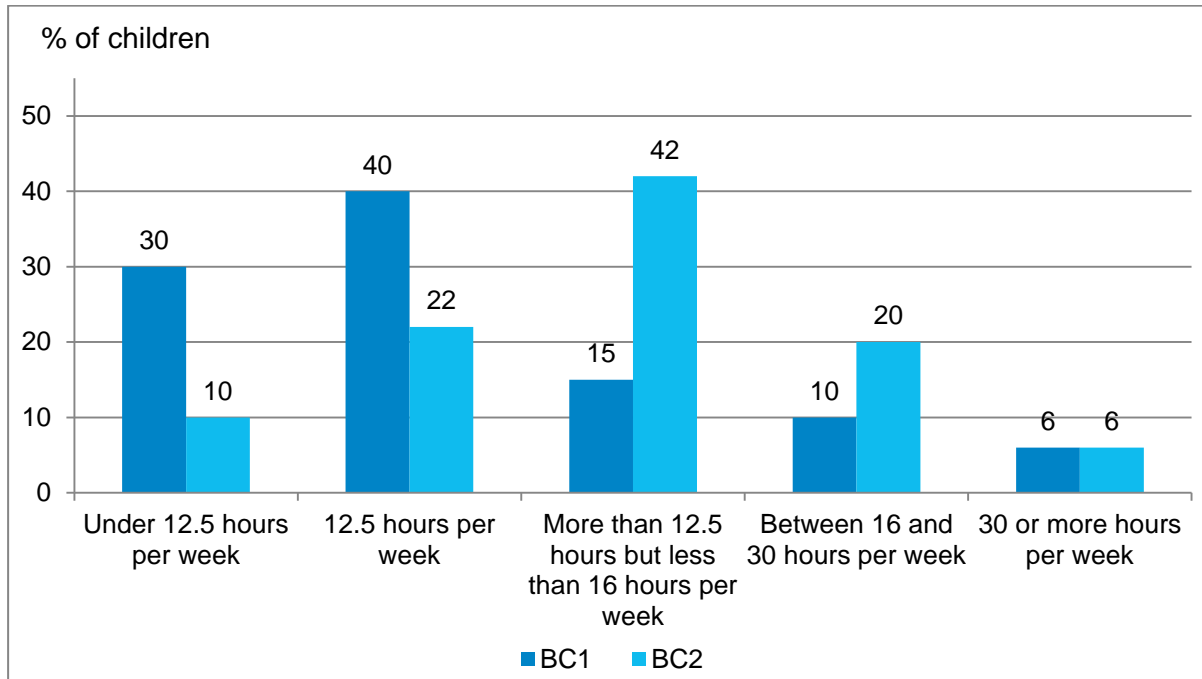
have attended ELC than children in BC1: 97% of children in BC1 had attended ELC since their 3rd birthday compared with 98% in BC2.

Furthermore, among all children who attended ELC, children in BC2 attended their main ELC provider for a higher number of hours per week than children in BC1. On average, children in BC1 attended ELC for 14.4 hours per week, whereas children in BC2 attended ELC for an average of 16.6 hours per week. At the time where ELC data were collected, just under two thirds of children in BC2 were entitled to 600 hours of funded ELC per year,²⁶ while the remaining third of children in BC2 and all children in BC1 were entitled to 475 hours per year.

The general increase in the number of hours children spent at their main ELC provider is further demonstrated in Figure 3-1. The graph shows that the proportion of children who attended ELC for less than 12.5 hours per week decreased from 30% in BC1 to 10% in BC2, and the proportion of children who attended ELC for 12.5 hours per week decreased from 40% to 22%. Meanwhile, the proportion of children who attended ELC for more than 12.5 but less than 16 hours per week increased from 15% to 42%, and the proportion of children who attended for between 16 and 30 hours per week increased from 10% to 20%. The proportion of children who attended ELC for 30 or more hours per week stayed the same.

²⁶ See section 2.2 for details.

Figure 3-1 Average weekly duration of attendance at main ELC provider, by cohort



Base: All cases where child attended ELC and information about average weekly number of hours was provided. Base sizes (unweighted/weighted): BC1 = 3731/3720, BC2 = 4306/4304.

3.3.2. Duration of attendance at ELC and childcare from other providers

It is useful to consider how ELC use was combined with childcare from other providers ('childcare'). Figure 3-2 shows a breakdown of weekly average childcare and ELC use for children in BC1 and BC2.²⁷ It shows that, in both cohorts, care

²⁷ 'Group-based formal childcare not provided by main ELC provider' is defined as time spent with any of the following types of providers: Private creche or nursery; Nursery class attached to primary school; Local Authority playgroup or pre-school; Local Authority creche or nursery; Private playgroup or pre-school; Community/Voluntary playgroup or pre-school; Workplace creche or nursery; Family Centre; Playscheme / summer / holiday club; Breakfast club;

'Other non-group-based formal childcare' is defined as care provided by any of the following: Childminder; Daily nanny at child's home; Live-in nanny; Babysitter at child's home; Child-carer (provided via childcare agency).

'Other informal care' is defined as care provided by any of the following: Child's grandparents, Another relative, The child's older brother or sister, A friend or neighbour.

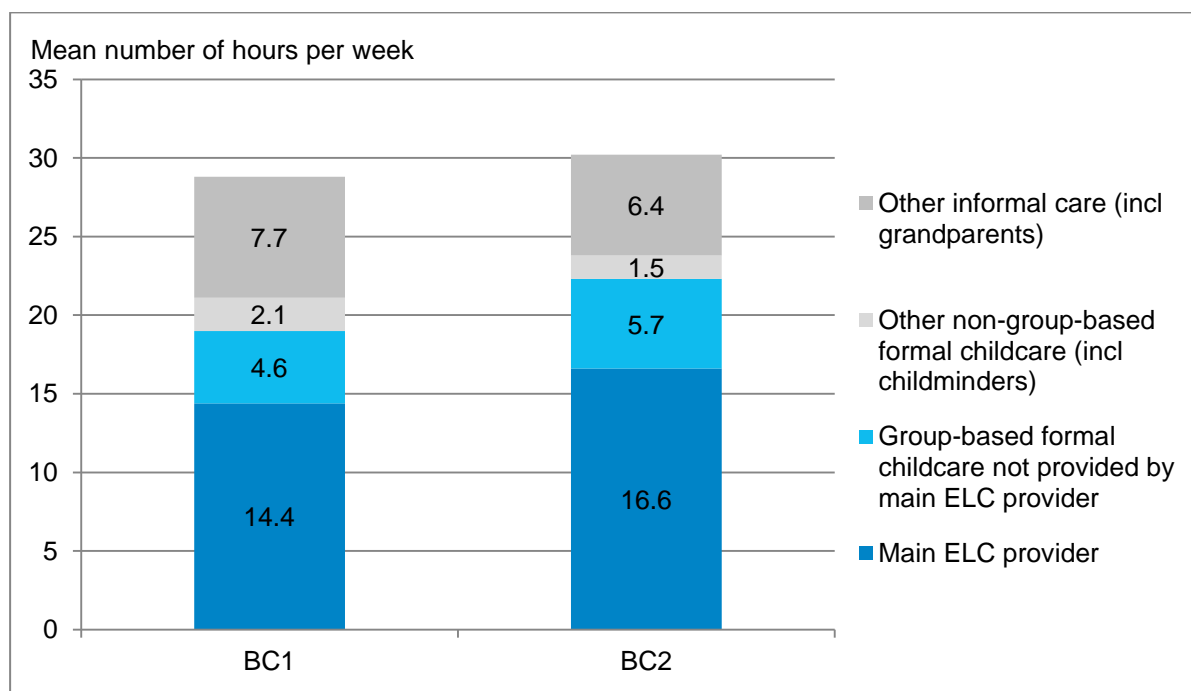
A small number of cases with missing information about provider type were excluded from this analysis.

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provided by their main ELC provider made up a substantial proportion of the total amount of childcare and ELC a child received – half of all childcare for children in BC1 (50%) and just over half of all childcare in BC2 (55%). It also shows a number of differences between the cohorts. For example, there was a small increase in the average number of hours children attended a group-based childcare provider other than their main ELC provider (from 4.6 hours in BC1 to 5.7 hours in BC2), and a small drop in the average number of hours spent in informal care (from 7.7 to 6.4 hours per week). Overall, between 2008/09 and 2014, there was an increase not only in the time 4 year old children spent at their main ELC provider, but also in the time spent in other group-based care and in the overall time they spent in non-parental care.

Figure 3-2 Average weekly duration of attendance at ELC/childcare, by provider type and by cohort



Base: All cases where child attended ELC and information about average weekly number of hours of ELC and other childcare provision was provided. Base sizes (unweighted/weighted): BC1 = 3731/3720, BC2 = 4291/4291. All differences between the cohorts shown in the chart were statistically significant at $p < .001$.

Figure 3-3 shows a further breakdown of weekly average use of childcare and ELC for children in BC2, by the average number of hours they spent at their main ELC provider. It shows some differences in use of other childcare providers according to time spent at the main ELC provider. Most prominently, it indicates that children who spent relatively long hours at their main ELC provider (30 hours or more per week) also tended to spend relatively long hours in another group-based setting (16.1 hours

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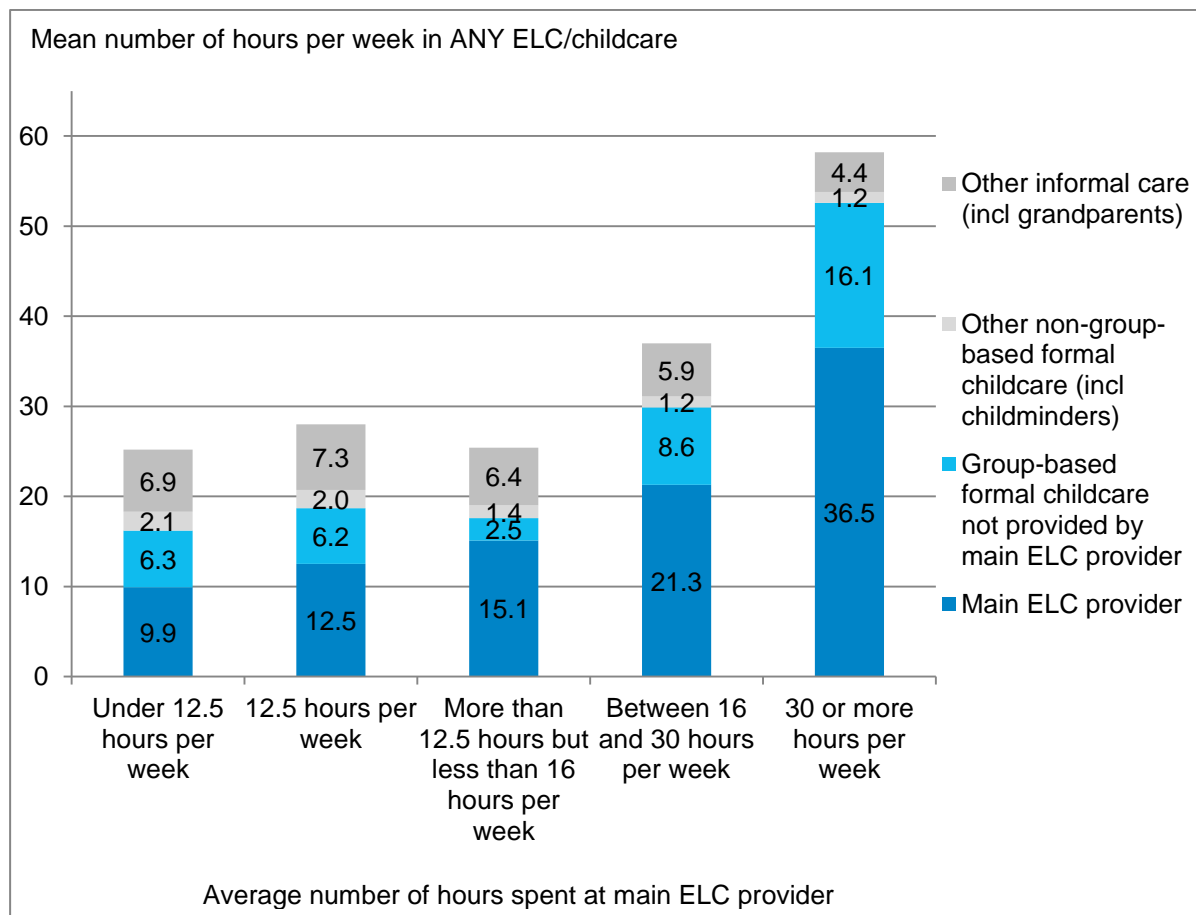
per week on average). While these averages cover a range of children in different circumstances, the figures suggest that, on average, this relatively small group of children (around 6% of all 4 year olds in 2014) spent as much as 58 hours per week being cared for by someone other than their parent(s) or carer(s).²⁸

²⁸ As noted in section 2.2, the child's main carer was asked about any regular childcare arrangements currently in place, or in place since the family was last interviewed. 'Childcare' was defined as "...care carried out by anyone other than yourself [or your partner]. We are interested in all types of childcare (...) including both formal and informal childcare but NOT any pre-school or early education arrangements covered by [child's] free pre-school place".

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Figure 3-3 Average weekly duration of attendance at range of ELC and childcare providers, by average weekly duration of attendance at main ELC provider – BC2 only



Base: All BC2 cases where child attended ELC and information about average weekly number of hours was provided for ELC and other childcare provision. Base sizes (unweighted/weighted): Under 12.5 hours per week = 436/413, 12.5 hours per week = 894/939, More than 12.5 but less than 16 hours per week = 1776/1814, Between 16 and 30 hours per week = 904/862, 30 or more hours per week = 296/276.

3.3.3. Duration of attendance at main ELC provider: comparing families interviewed before and after the increased entitlement in 2014

The analysis also compared weekly ELC use among BC2 families who were interviewed before and after the changes to ELC entitlement came into place in August 2014. Specifically, the average weekly duration of attendance at the child’s main ELC provider among children whose families were interviewed in the six months *before* the increased entitlement came into place was compared with the duration of attendance among children whose families were interviewed in the six months *after* the increase. Given the differences in how data on weekly ELC

attendance were collected before and after the policy change, these results must be interpreted with caution (see Appendix A for further details).

On average, children whose families were interviewed in the six months *after* the increase in entitlement attended their main ELC provider for a higher number of hours per week than those whose families were interviewed in the six months *before* the increase in entitlement: 17.0 compared with 15.3.²⁹

3.3.4. Variations in duration of ELC attendance by socio-economic and area characteristics

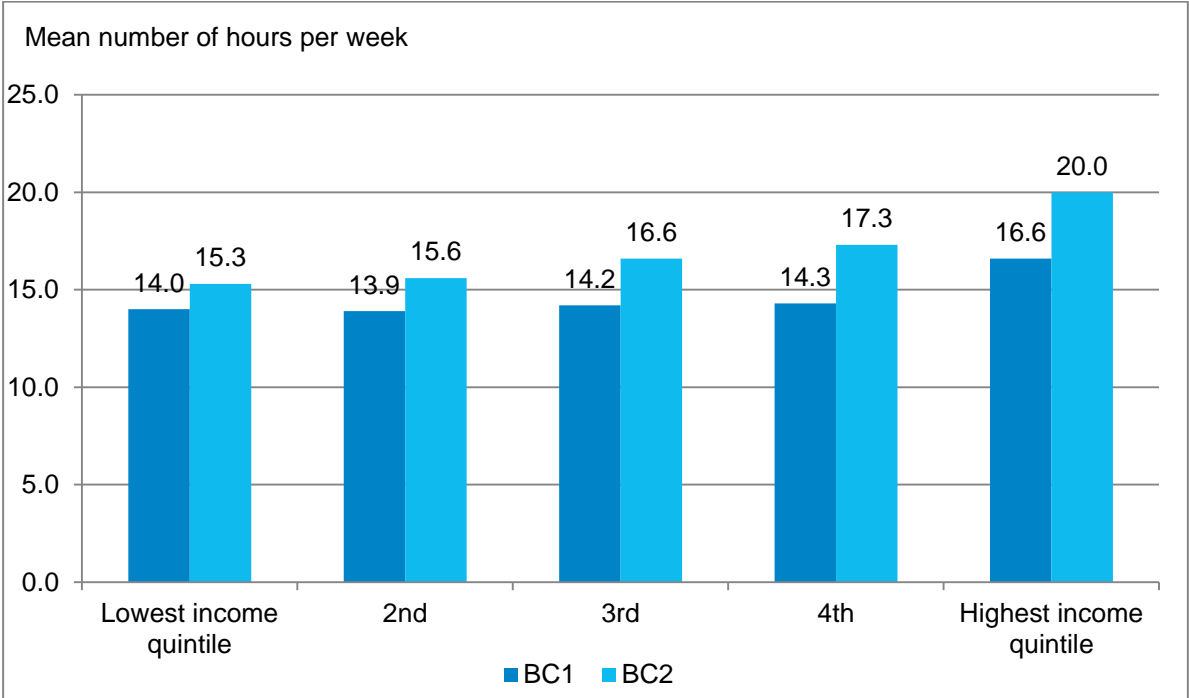
The increase in time spent in ELC between the cohorts (from an average of 14.4 to an average of 16.6 hours per week, as noted above) was evident across all socio-economic groups. Nonetheless, in both cohorts, the average weekly number of hours children attended ELC varied by socio-economic characteristics and location. This is in line with results from earlier analysis of GUS data (Bradshaw et al., 2014). As shown in Figure 3-4, among children in BC2 the number of hours children spent in ELC increased with household income. Furthermore, the difference in weekly ELC attendance between children in the lowest and highest income households increased between the cohorts – from 2.6 hours in BC1 to 4.7 hours in BC2.

²⁹ This represents an increase in the average ELC use of 11%. The increase in funded hours from 475 to 600 represented an increase of 26%.

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Figure 3-4 Average weekly duration of attendance at main ELC provider, by equivalised annual household income and by cohort



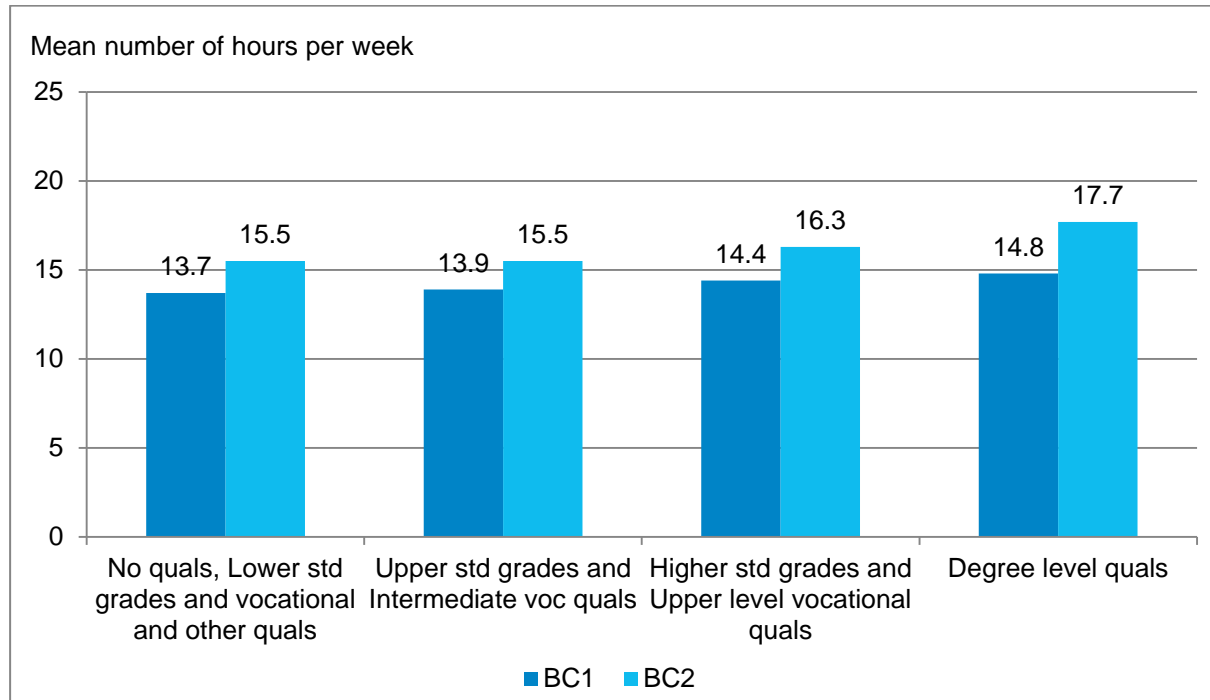
Base: All cases where child attended ELC and information about duration of ELC attendance was provided. Base sizes (unweighted/weighted): BC1 = 3731/3720, BC2 = 4306/4304.

In both cohorts, children whose parents had higher levels of education also spent a higher number of hours in ELC than children whose parents had lower levels of education. The difference between children whose parents had higher and lower levels of education increased between the cohorts. As can be seen in Figure 3-5, among children in BC1 the difference in weekly ELC attendance between children whose parents were educated to degree level and children whose parents had lower standard grades or below was 1.1 hours. Among children in BC2 this difference had risen to 2.2 hours.

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Figure 3-5 Average weekly duration of attendance at main ELC provider, by highest level of parental education and by cohort



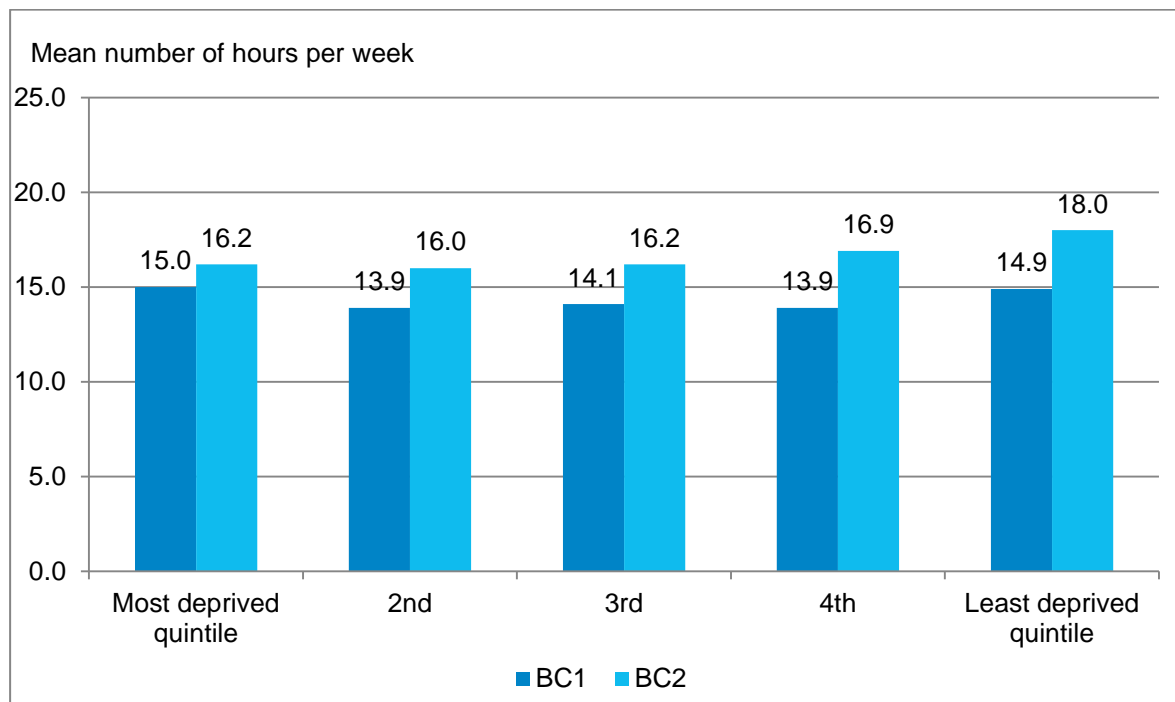
Base: All cases where child attended ELC and information about duration of ELC attendance was provided. Base sizes (unweighted/weighted): BC1 = 3731/3720, BC2 = 4306/4304.

Weekly ELC attendance also varied according to the level of area deprivation. In BC2, as shown in Figure 3-6, children in the less deprived quintiles spent a higher number of hours in ELC than children in more deprived quintiles, with those in the least deprived quintile spending an average of 1.8 hours more in ELC per week than those in the most deprived quintile. In BC1, the pattern was different; on average, BC1 children living in the most and least deprived quintiles attended ELC for longer hours than children in the middle three quintiles. Thus, the difference in weekly ELC attendance between children in the most and least deprived areas increased between the cohorts.

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Figure 3-6 Average weekly duration of attendance at main ELC provider, by level of area deprivation (SIMD) and by cohort



Base: All cases where child attended ELC and information about duration of ELC attendance was provided. Base sizes (unweighted/weighted): BC1 = 3731/3720, BC2 = 4306/4304.

Finally, BC2 children living in urban areas attended ELC for a higher number of hours than children living in towns or rural areas. Children living in urban areas spent an average of 17.2 hours per week in ELC compared with 15.3 hours for children living in towns and 15.7 for children living in rural areas. This pattern was similar to that seen in BC1.³⁰

3.4. The ELC setting

This section looks at characteristics of the ELC settings attended by children in each of the two GUS cohorts. It looks first at the type of ELC provider using the survey data. Second, drawing on data from the Care Inspectorate, it considers the quality ratings of the ELC providers attended by children in each of the cohorts. Third, it considers how these aspects of ELC settings differ according to socio-economic characteristics, area deprivation and urban/rural location.

³⁰ Full results are provided in Table 8-5 in Appendix C.

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3.4.1. Provider type

As part of the GUS interview parents were asked to provide details about the cohort child's main ELC provider, including the type of provider. The following categories were used in the analysis:

- 'Local authority nursery class': nursery classes attached to a local authority-run primary school
- 'Other local authority providers': local authority nursery schools or nursery centres *not* attached to a primary school, local authority playgroups and family centres
- 'Private and voluntary providers': private day nurseries or nursery schools, nursery classes attached to an independent/private school, private playgroups, community/voluntary nurseries, and community/voluntary playgroups.

The majority of children in both cohorts (62%) attended a local authority nursery class attached to a primary school (Table 3-1). The remainder were split between private and voluntary sector providers (21% in BC1; 23% in BC2) and other forms of local authority-run ELC settings (18% in BC1; 15% in BC2). Whilst the figures seem to suggest that children in BC2 were slightly more likely than those in BC1 to attend private and voluntary providers and a little less likely to attend other local authority settings, this difference was not statistically significant.

Table 3-1 ELC provider type, by cohort

	BC1	BC2
<i>Base: All children who attended ELC and where information about provider type was provided.</i>	%	%
Local authority nursery class attached to primary school	62	62
Other local authority settings	18	15
Private and voluntary providers	21	23
<i>Unweighted bases</i>	<i>3731</i>	<i>4314</i>
<i>Weighted bases</i>	<i>3720</i>	<i>4311</i>

No significant difference between the cohorts.

3.4.2. Provider quality

This section compares average quality grades for the ELC settings attended by children in the two cohorts, drawing on data from the Care Inspectorate. Average

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quality grades from a period of three years (2008-2010 for BC1; 2013-2015 for BC2) were calculated for each of the following quality themes: care and support, environment, staffing, and leadership and management.³¹ For each individual theme, the proportion of children who attended a provider with either a 'very good' or 'excellent' grade was derived. In addition, an overall measure of cross-theme quality – 'grading mix' – was derived. This measure indicates whether or not a provider achieved 'very good' or 'excellent' ratings across all four quality themes.³²

The proportion of children in each cohort who attended an ELC setting with a grade of at least 'very good' on each of the individual themes assessed by the Care Inspectorate is shown in Figure 3-7. The figure also shows the proportion of children who attended a provider which achieved at least a grade of 'very good' across all four themes.

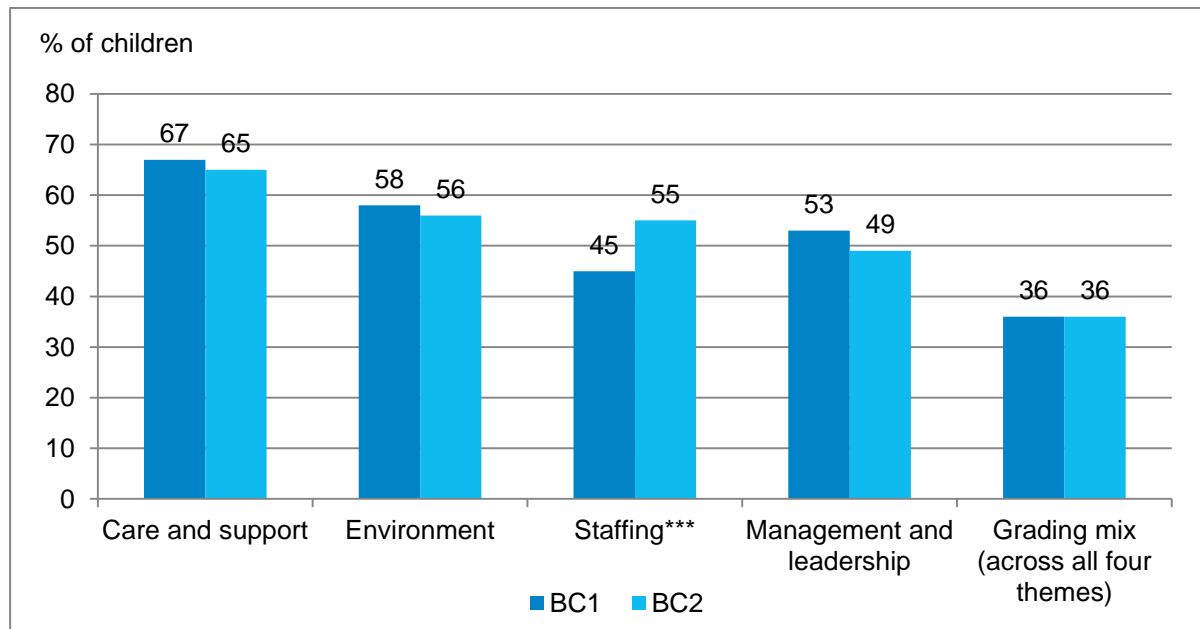
³¹ Further details about the data from the Care Inspectorate are provided in section 2.3.

³² Full results are provided in Appendix C (Table 8-6 and Table 8-11 to Table 8-14).

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Figure 3-7 Proportion of children attending ELC provider with at least ‘very good’ grade on individual quality themes and across all four quality themes, by cohort



Bases: All cases where the child attended ELC and where Care Inspectorate quality information was obtained. Base sizes (unweighted/weighted): BC1: Care and support = 3118/3095, Environment = 3013/2976, Staffing = 3103/3081, Management and leadership = 2998/2963, Grading mix = 2818/2775. BC2: Care and support = 3941/3953, Environment = 3941/3953, Staffing = 3941/3953, Management and leadership = 3941/3953, Grading mix = 3941/3953.

*** significant difference between the cohorts at $p < .001$ level.

Figure 3-7 shows that children in BC2 were more likely than children in BC1 to attend an ELC provider with ‘very good’ or ‘excellent’ staffing grades (55% compared with 45%). However, the proportion of children who attended an ELC provider which achieved ‘very good’ or ‘excellent’ grades across all four quality measures was the same in both cohorts (36%). The apparent differences between the cohorts on other measures were not statistically significant.

Existing research has pointed to some differences in quality between types of ELC settings. For example, a report from the EPPE study noted that the variation in quality was particularly large among private providers (Sylva et al., 2004). In the Scottish context, a recent analysis by the Care Inspectorate which looked at the full range of ELC providers in Scotland suggested that, on average, the quality of local authority settings was higher than for private and voluntary sector providers (Care Inspectorate, 2016). Such differences are also reflected in the GUS data. As illustrated in Figure 3-8, in both cohorts around three in ten (28% in BC1; 29% in BC2) children in private or voluntary settings attended a provider with high quality

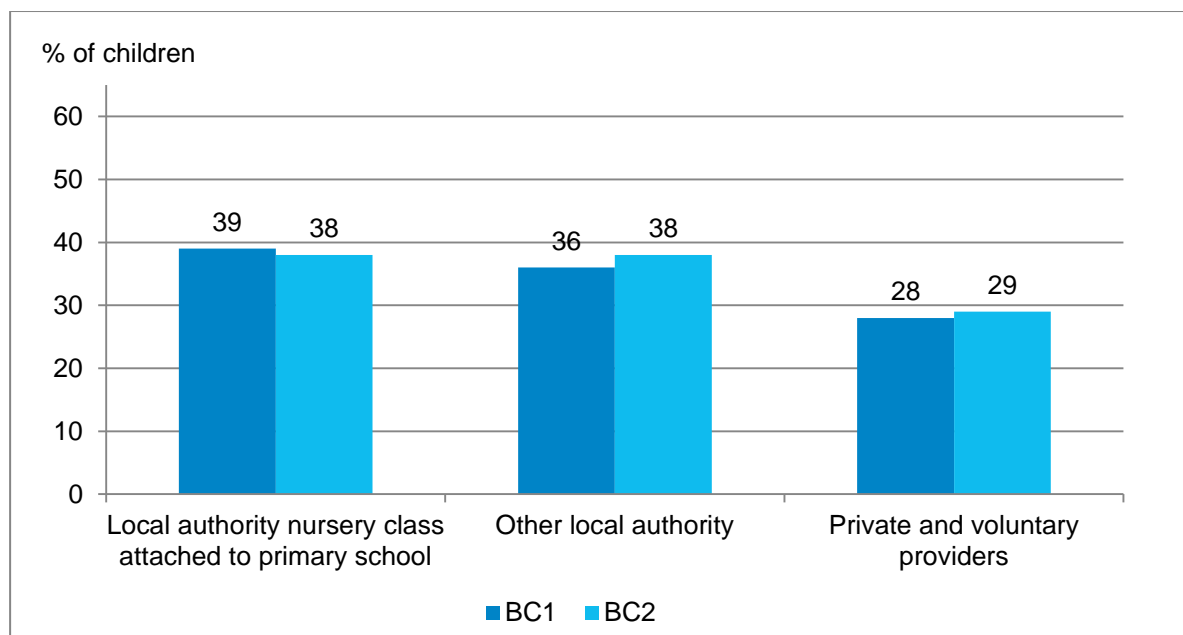
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grades across all four measures, compared with around four in ten (39% in BC1; 38% in BC2) children who attended a local authority nursery class.

It is also worth noting that the proportion of children who attended a provider with a high staffing quality grade increased across all provider types between cohorts, but particularly for children attending private/voluntary providers and other local authority providers.³³

Figure 3-8 Proportion of children attending ELC setting with ‘very high’ or ‘excellent’ score across all four quality themes, by provider type and by cohort



Bases: All cases where the child attended ELC and where information about provider type and Care Inspectorate quality was obtained. Base sizes (unweighted/weighted): BC1: Local authority nursery class attached to primary school = 1728/1709, Other local authority = 433/455, Private and voluntary providers = 657/611. BC2: Local authority nursery class attached to primary school = 2394/2439, Other local authority = 556/607, Private and voluntary providers = 977/893.

3.4.3. Variations in ELC provider characteristics by socio-economic and area characteristics

Previous GUS analysis showed that children living in more advantaged circumstances were more likely to attend a private ELC provider than their less advantaged peers (Bradshaw et al., 2014). The analysis also suggested that 4 year old children living in disadvantaged circumstances and who attended ELC in 2008/09

³³ Full results are provided in Table 8-6 in Appendix C.

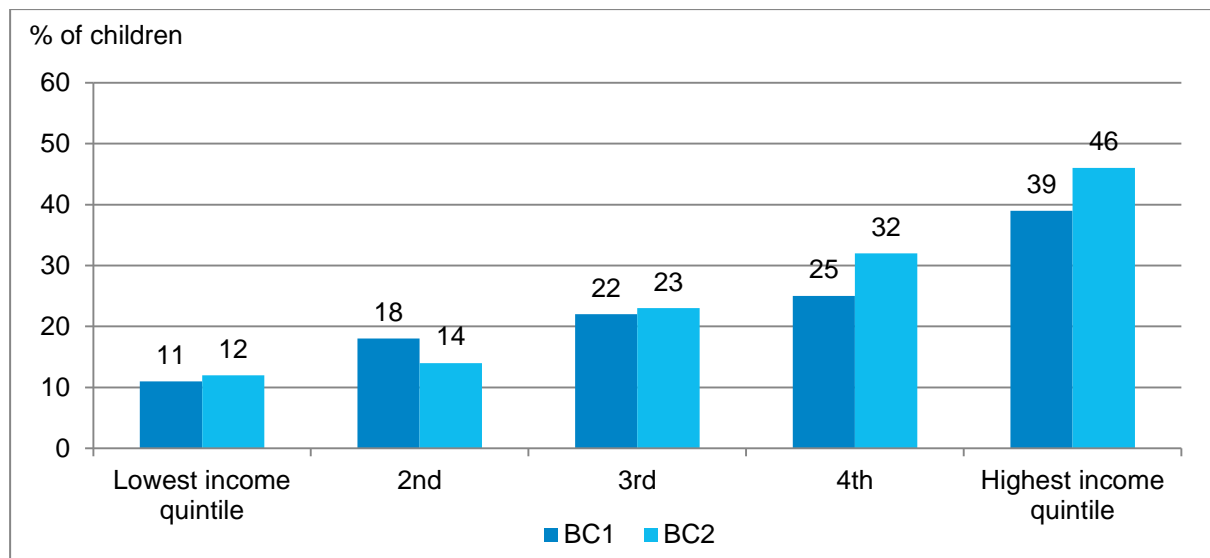
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were no less likely to attend high quality ELC providers than their more advantaged peers. This section considers variations in ELC provider characteristics according to socio-economic and geographic characteristics, and whether there is evidence of any change between the two cohorts.

Looking first at the type of ELC provider children attended, in both cohorts, children living in less deprived areas and those whose parents had higher levels of education were more likely to attend a private or voluntary sector ELC provider than children who lived in the more deprived areas and those whose parents had lower levels of education.³⁴ The type of ELC setting children attended also varied according to household income, with children in higher income households much more likely than those in lower income households to attend a private or voluntary sector provider. For example, as Figure 3-9 shows, among BC2 children in the wealthiest fifth of households, 46% attended a private or voluntary sector ELC provider compared with just 12% of children in the poorest fifth of households.

Figure 3-9 Proportion of children attending a private or voluntary sector provider, by equivalised household income and by cohort



Bases: All cases where the child attended ELC and provider type information was obtained. Base sizes (unweighted/weighted): BC1= 3731/3720, BC2 = 4314/4311.

Figure 3-9 also shows that the difference by household income increased between the cohorts. For example, while the proportion of children in the lowest income group attending a private or voluntary sector provider was at almost the same level in both cohorts (11% in BC1; 12% in BC2), the proportion of children in the highest income

³⁴ Full results are provided in Table 8-8 and Table 8-9 in Appendix C.

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group who attended a private or voluntary sector provider increased from 39% in BC1 to 46% in BC2.

Finally, whether children lived in urban or rural locations was also associated with the type of ELC setting they attended. In both cohorts, children living in urban areas were less likely than those living in towns or rural areas to attend local authority nursery classes attached to a primary school. Conversely, children in urban areas were more likely than children living in towns or rural areas to attend private or voluntary sector providers.³⁵

Moving to quality, Figure 3-10 shows the relationship between the level of area deprivation and the proportion of children attending a setting with a high staffing quality grade for each cohort. It shows that children living in more deprived areas were less likely than their peers in less deprived areas to attend an ELC provider with 'very good' or 'excellent' staffing grades. For example, 49% of BC2 children in the most deprived quintile attended an ELC provider with at least 'very good' staffing grades compared with 62% of those in the least deprived quintile. There was no statistically significant difference in the overall relationship between area deprivation and the likelihood of a child attending an ELC provider with a high staffing quality grade between the cohorts. This means that it is not possible, on the basis of the analysis carried out here, to draw any firm conclusions about any change in this relationship between the cohorts. Nevertheless, looking at the figures there does appear to be a notable difference in the increase in the proportion of children attending a setting with high staffing quality grades according to area deprivation. Although the proportion of children attending a setting with a high staffing quality grade increased across all deprivation groups between the cohorts, it appears to have increased most in areas with the lowest levels of deprivation.³⁶

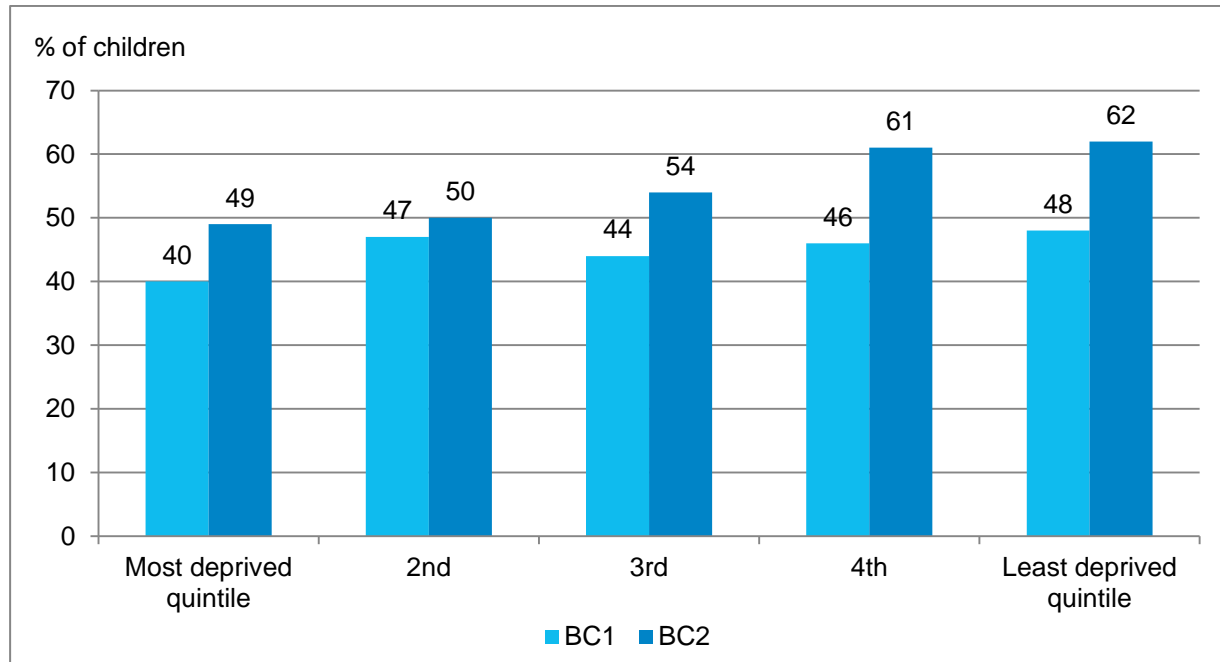
³⁵ Full results are provided in Table 8-10 in Appendix C.

³⁶ Full results are provided in Table 8-13 in Appendix C.

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Figure 3-10 Proportion of children attending an ELC provider with ‘very high’ or ‘excellent’ staffing quality grade, by level of area deprivation (SIMD) and by cohort



Base: All cases where the child attended ELC and where Care Inspectorate quality information was obtained. Base sizes (unweighted/weighted): BC1 = 3103/3081, BC2 = 3941/3953.

Encouragingly, the analysis showed no notable differences in the proportion of children attending ELC settings with consistently high quality grades across all four themes according to either socio-economic circumstances or location.^{37,38} This suggests that children living in disadvantaged circumstances were just as likely as their more advantaged peers to attend an ELC provider which received ‘very good’ or

³⁷ Thus, there were differences in the proportion of children attending a provider with high quality grades according to area deprivation for staffing grades, but not for the overall quality measure (of which staffing is one of the themes measured). This apparent discrepancy is explained by variation in the quality grades achieved on other themes among those achieving a high staffing grade. For example, first of all, of the providers scoring high on one measure (e.g. staffing) some achieved high grades on just this one measure, while others achieved high grades on two, three, or all four measures. Second, among those achieving high grades on two or three themes there was further variation in which themes they achieved high grades in – e.g. some may have achieved high grades on staffing and environment, while others achieved high grades in staffing and management and leadership. Thus, on average, it is possible to observe a pattern for one theme, but not for the others, nor for the overall measure.

³⁸ Full results are provided in Table 8-11 to Table 8-14 in Appendix C.

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'excellent' grades across all themes. This was the case in both 2008/09 and 2014 and reaffirms the findings of a previous GUS report (Bradshaw et al., 2014).³⁹

³⁹ Again, this may seem counter-intuitive given that disadvantaged children were more likely to attend local authority nursery classes, which were, in turn, more likely to achieve high quality grades – would we not expect disadvantaged children to be more likely to attend ELC providers with high quality grades? However, as above, this is largely a result of looking at averages. For example, although less advantaged children were more *likely* than their more advantaged peers to attend local authority nursery classes, not all of them did so – and, similarly, even though local authority nursery classes attached to a primary school were more *likely* than other settings to achieve high grades, not all of them did so.

4 CHILD OUTCOMES AT AGE 5

4.1. Introduction

This chapter focuses on children's adjustment to primary school and their social and cognitive development at the start of primary school. A previous GUS report looked at adjustment to primary school among children in BC1 (Bradshaw et al., 2012). Previous analyses of GUS data have also considered BC1 children's social and cognitive development at age 3 and explored how this had changed by age 5 (e.g. Bradshaw et al., 2014). The analysis presented below adds to these existing findings by considering, for the first time, outcomes for children in BC2 at the time they were aged 5. Furthermore, through comparing outcomes between children in BC1 and BC2, it examines whether there has been any improvement in outcomes for children at the start of primary school between 2009/10 and 2015. Finally, the chapter looks at differences in outcomes between children according to socio-economic characteristics and location, including household income, parental education, area deprivation and urban/rural location.

4.2. Key findings

- In both 2015 and 2009/10, the vast majority of children were reported by their parent or carer to have adjusted well to primary school.
- Compared with children the same age in 2009/10, 5 year old children in 2015 were a little more likely to complain about school and to be reluctant to go to school, and a little less likely to look forward to going to school. Nonetheless, overall levels of adjustment to primary school were very similar.
- Levels of hyperactivity and pro-social behaviour improved between the cohorts. For example, the proportion of children exhibiting higher than average levels of hyperactivity fell from 21% in 2009/10 to 18% in 2015. Meanwhile, the proportion of children displaying below average levels of pro-social behaviour fell from 17% to 14%.
- Looking at all children, there was no change in average problem solving ability at age 5 between the cohorts. In contrast, the analysis showed a slight decrease in average vocabulary ability for children this age.
- Looking at children according to socio-economic and area characteristics, in

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both 2009/10 and 2015, children living in less advantaged circumstances were more likely to be reported as having 'below average' levels of adjustment to primary school, poorer levels of social development and lower levels of cognitive ability than their more advantaged peers.

- Between 2009/10 and 2015, on the measure of pro-social behaviour there were signs of a slight widening of the gap between children whose parents had no formal qualifications and children whose parents had a degree. In contrast, on the measure of vocabulary ability, there were signs of a slight narrowing of the gap between children in the poorest and the wealthiest families.

4.3. Adjustment to primary school

Starting primary school is an important milestone in a child's life, representing one of the most significant changes to their daily lives since birth. There is a growing body of literature demonstrating differences in how children accommodate this change. While some cope easily and make the transition to school smoothly, others find it more stressful (Fabian and Dunlop, 2006). This can impact negatively on children's early school experiences, and can also have a longer-term impact on their educational outcomes.

As outlined in section 2.4.1, two composite measures of adjustment to primary school were derived based on parents' responses to six questions. This section draws on both the composite and individual measures.

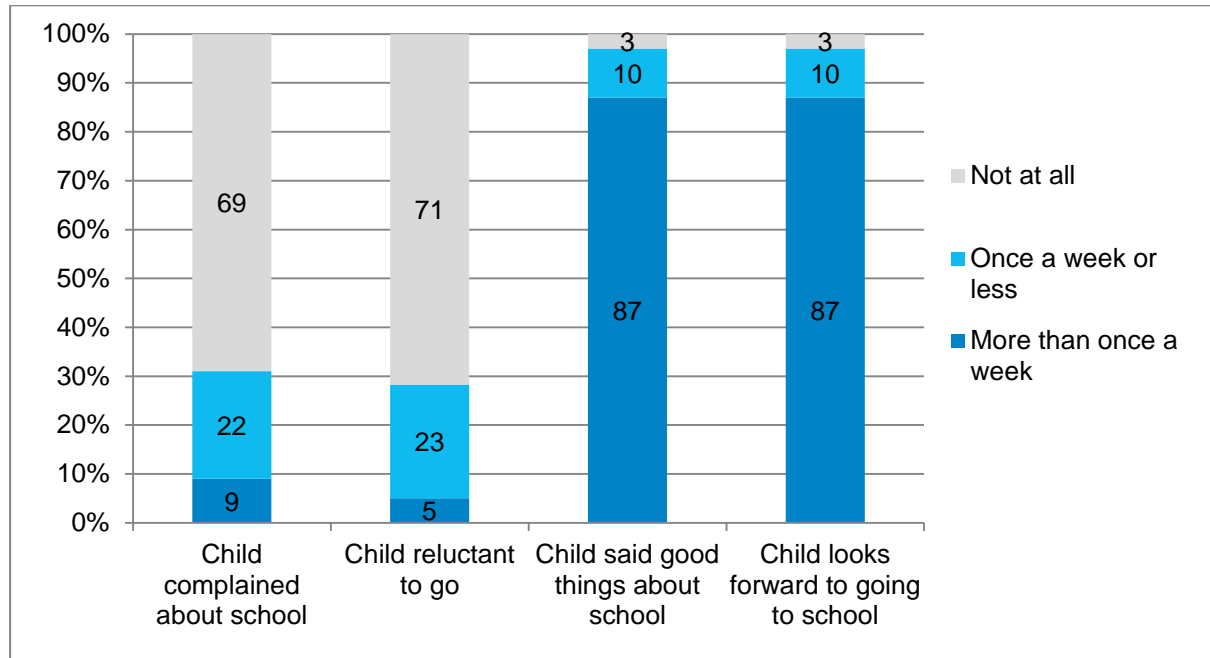
4.3.1. Adjustment to primary school among 5 year old children in 2015

The majority of children in BC2 were reported by their parent or carer as having adjusted well to primary school. As Figure 4-1 illustrates, almost all children in BC2 said good things about school and looked forward to going to school at least once a week (97% on each measure). Just under a third of children complained about school (31%) or were reluctant to go (28%) at least once a week.

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Figure 4-1 Child’s adjustment to primary school (parent report), BC2



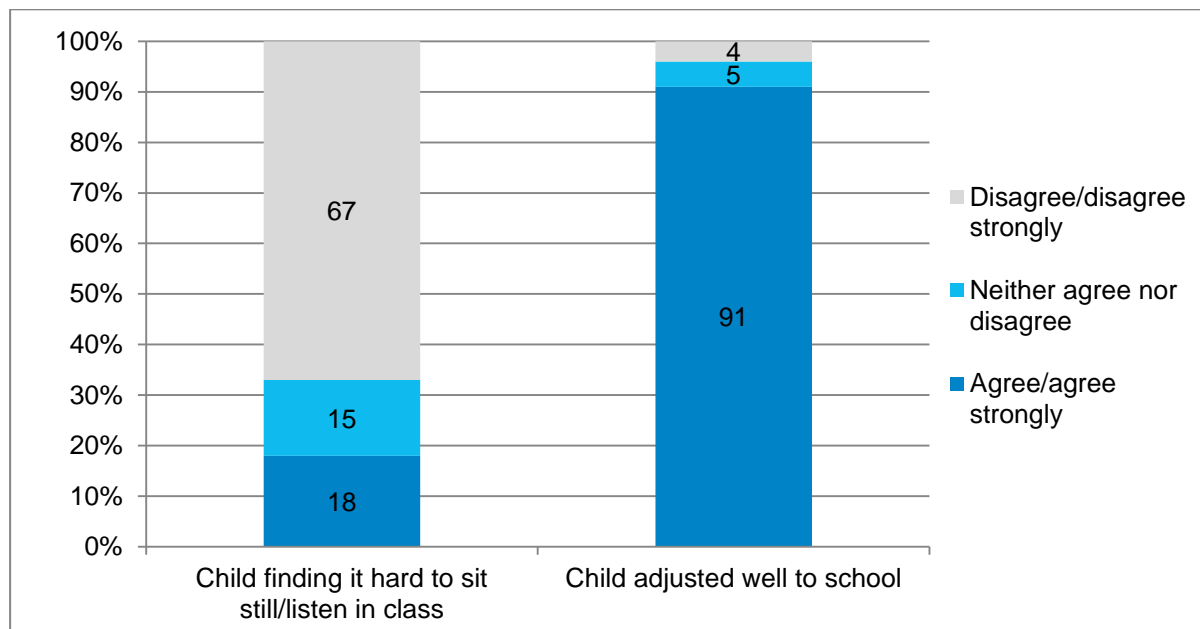
Base: BC2 cases where the cohort child had started primary school at time of age 5 interview and where relevant questions were answered. Base sizes (unweighted/weighted): Complained about school = 1680/1549, Reluctant to go = 1682/1551, Said good things = 1679/1547, Looks forward to going = 1678/1547.

Further, as shown in Figure 4-2, the vast majority of parents agreed that, overall, their child had adjusted well to primary school (91%). A relatively small minority of parents (18%) agreed that their child was finding it hard to sit still or listen in class.

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Figure 4-2 Child's adjustment to primary school (parent report), BC2



Base: BC2 cases where the cohort child had started primary school at time of age 5 interview and where relevant questions were answered. Base sizes (unweighted/weighted): Child finding it hard to sit still/listen = 1647/1517, Child adjusted well to school = 1548/1681.

This rather positive picture is also evident when looking at the composite measures of adjustment. For example, as shown in Figure 4-3 just 2% of children were classified as having poor levels of adjustment.

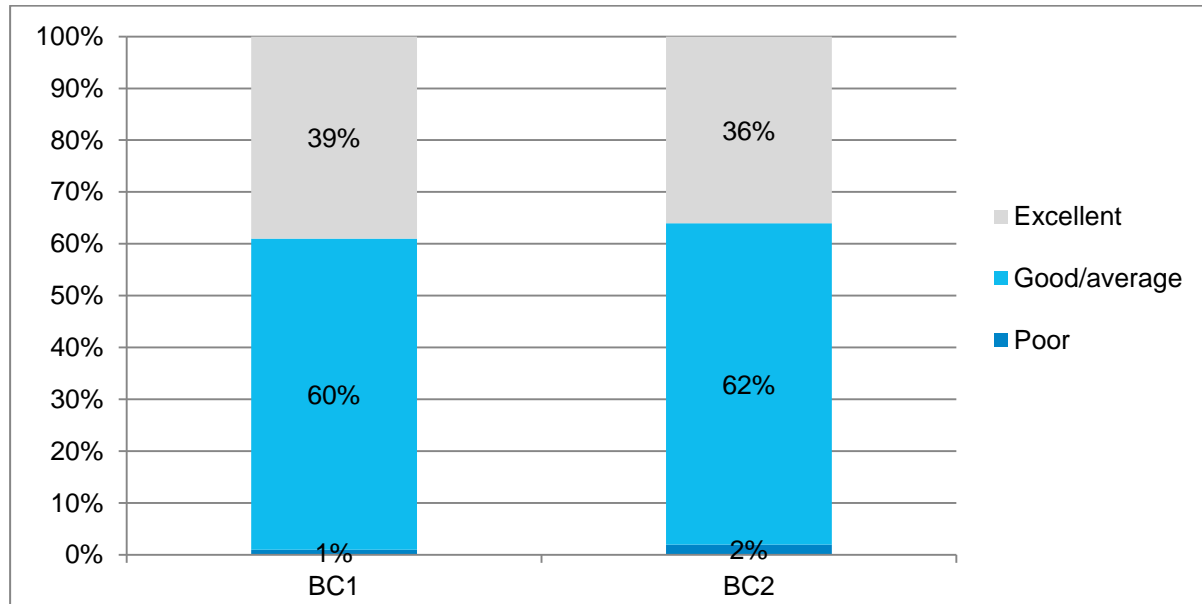
4.3.2. Comparing adjustment to primary school across the cohorts

At an overall level, the analysis showed no differences in the parent-reported level of adjustment to primary school across the cohorts. Figure 4-3 shows the proportion of children in each cohort who had 'excellent', 'good/average' or 'poor' perceived levels of adjustment. It shows that adjustment to primary school was similar across the cohorts – the apparent difference in the proportion with excellent adjustment was not statistically significant.

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Figure 4-3 Proportion of children with ‘poor’, ‘good/average’ and ‘excellent’ adjustment to primary school (parent report), by cohort



Base: Cases where the cohort child had started primary school at time of age 5 interview and where relevant questions were answered. BC1 Base sizes: Unweighted = 1227, Weighted = 1239, BC2 Base sizes: Unweighted = 1681, Weighted = 1550.

There were, however, some small differences on some of the individual measures.⁴⁰ Firstly, compared with children in BC1, children in BC2 were more likely to complain about school: 31% of children in BC2 complained about school at least once a week compared with just 21% of children in BC1. Children in BC2 were also slightly more likely than children in BC1 to be reluctant to go to school: 29% of children in BC2 were reluctant to go to school at least once a week compared with 23% in BC1. Finally, children in BC2 were slightly less likely to look forward to going to school: 87% of children in BC2 looked forward to going school ‘more than once a week’ compared with 91% in BC1.

4.3.3. Variations by socio-economic and area characteristics

Previous GUS analysis of BC1 data showed that levels of parent-reported adjustment to primary school tended to be lower for children in more socio-economically disadvantaged circumstances (Bradshaw et al., 2012). This section explores whether such patterns were also evident in BC2. More specifically, it considers whether parent-reported adjustment to primary school among children in BC2 varied

⁴⁰ Full results are provided in Table 8-15 and 8-16 in Appendix C.

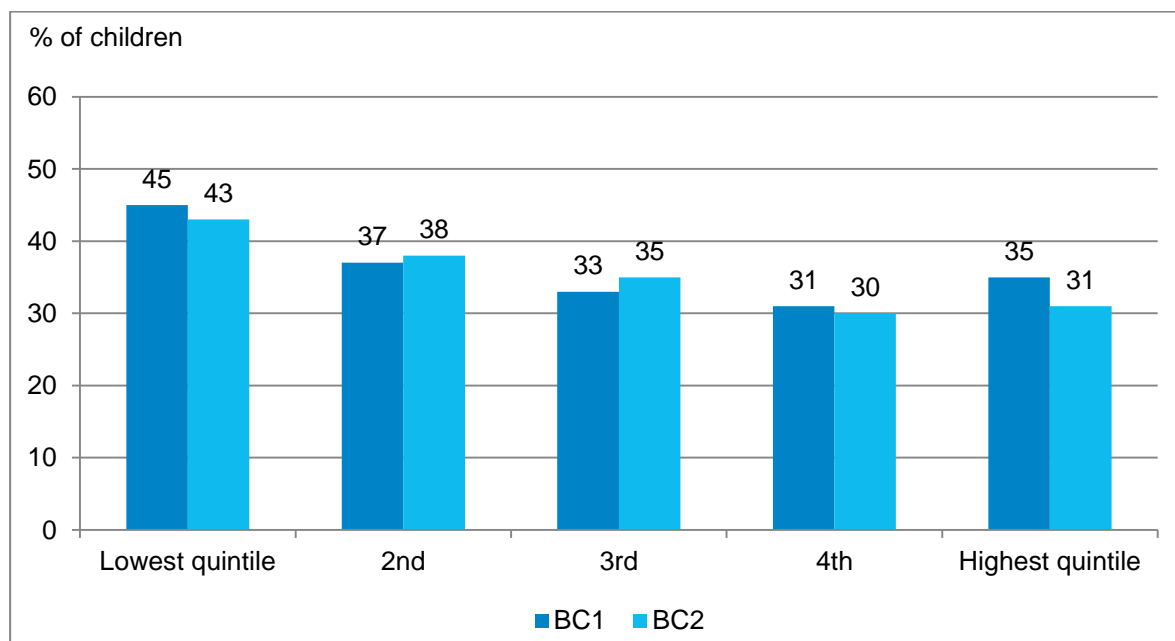
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according to household income, parental education, level of area deprivation, and urban/rural location, and whether this differed to patterns found among children in BC1.

Figure 4-4 shows that, in both cohorts, children living in lower income households were more likely than children in higher income households to be reported as having below average levels of adjustment to primary school. For example, in BC2, 43% of children in the lowest household quintile had below average perceived levels of adjustment compared with 31% in the highest quintile. There was no statistically significant difference in the relationship between household income and parent-reported levels of adjustment to primary school between the cohorts.

Figure 4-4 Proportion of children with ‘below average’ levels of adjustment to primary school (parent report), by equivalised household income (quintiles) and by cohort



Base: Cases where the cohort child had started primary school at time of age 5 interview and where relevant questions were answered. Base sizes (unweighted/weighted): BC1 = 1230/1242, BC2 = 1684/1552.

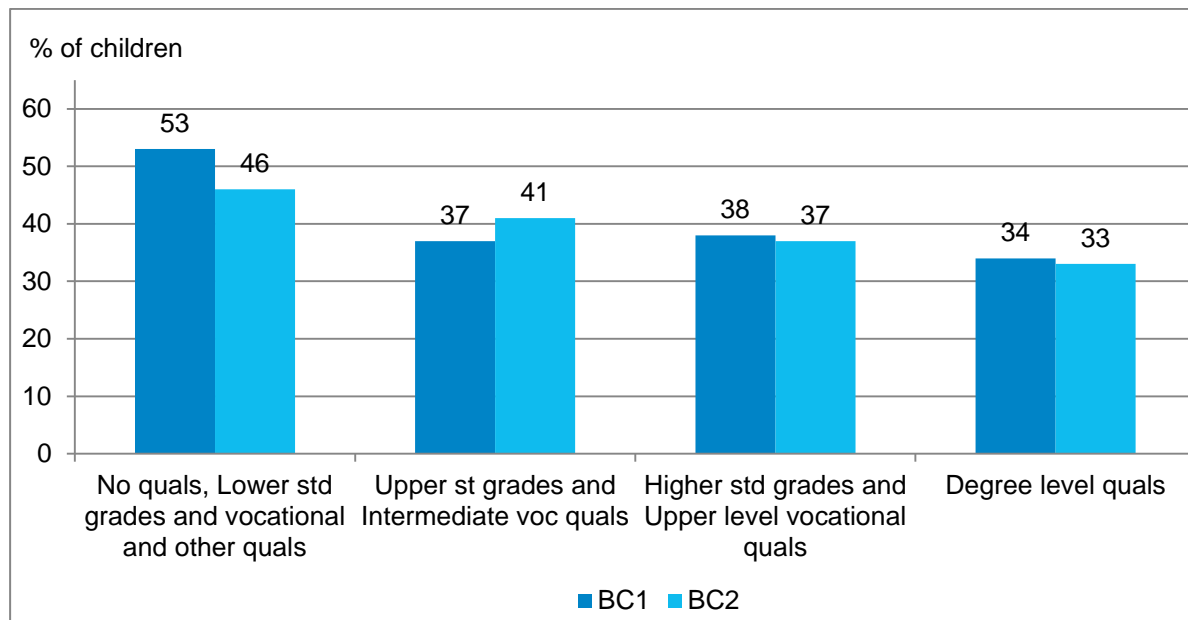
Children living in households with lower levels of education were also more likely than those whose parents had higher levels of education to have below average reported levels of adjustment. For example, as shown in Figure 4-5, among BC2 children whose parents had lower standard grades or below or had no formal qualifications, 46% had below average levels of perceived adjustment compared with 33% of children whose parents were educated to degree level. There was no

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statistically significant difference in the relationship between parental education and adjustment to primary school across the cohorts. Nonetheless, there were some signs that difference between the lowest education group and the highest education group had narrowed between the two cohorts. For example, in BC2, children whose parents had lower standard grades or below or no formal qualifications were less likely to have below average adjustment to primary school than their counterparts in BC1: 46% in BC2 versus 53% in BC1.

Figure 4-5 Proportion of children with 'below average' levels of adjustment to primary school (parent report), by highest household level of education and by cohort



Base: Cases where the cohort child had started primary school at time of age 5 interview and where relevant questions were answered. Base sizes (unweighted/weighted): BC1 = 1230/1242, BC2 = 1684/1552.

The analysis showed no differences in parent-reported levels of adjustment to primary school according to either the level of area deprivation or urban/rural location in either of the cohorts.

4.4. Social, emotional and behavioural development at age 5

As outlined in section 2.4.2, in GUS, children's social, emotional and behavioural development is measured through the use of the SDQ (Goodman, 1997). Previous analysis of BC1 data has shown that children living in less advantaged circumstances tend to have higher levels of socio-emotional and behavioural difficulties than their more advantaged peers (e.g. Bradshaw and Tipping, 2010). This section looks at the social, emotional and behavioural development of children in

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BC2 when they were nearing their fifth birthday, in 2015. It further examines whether there is evidence of any changes in the social development of 5 year olds since 2009/10, when children in BC1 were the same age. Finally, it considers whether socio-economic and area characteristics continue to be associated with children's social development at this age – including whether there is any evidence of a widening or a narrowing of the gap between the most and least advantaged children.

Further details about the measures used in the analysis can be found in section 2.4.2. Note that due to variations in the number of 'don't know' responses across individual questions, base sizes in the charts vary slightly between the measures.

4.4.1. Social, emotional and behavioural development among 5 year old children in 2015

As shown in Table 4-1, at the age of 5 the vast majority of children in BC2 did not present any social, emotional or behavioural difficulties as measured on the SDQ. For example, on the total difficulties scale – which combines scores from the emotional symptoms, conduct problems, hyperactivity and peer problems items – 90% of children had scores in the 'close to average' range. Just 5% had scores classed as slightly raised, while 2% had scores classed as high, and 3% had scores classed as very high.

Across the individual difficulty scales – emotional symptoms, conduct problems, hyperactivity and peer problems – between 82% and 95% of children returned scores within the 'close to average' range. Between 3% and 8% of children had slightly raised scores, while between 1% and 8% had high scores and between 1% and 7% had very high scores. On the pro-social scale, 86% of children had 'close to average' scores, 8% had slightly lowered scores, 4% had low scores and 2% had very low scores. These proportions broadly match what would be expected for SDQ scores taken from any community population in Britain.⁴¹

As the figure shows, the most common form of difficulties reported for 5 year old children in 2015 was hyperactivity: almost one in five children had scores classified as above average on this measure (18%). The least prevalent type of difficulties reported for 5 year olds in 2015 was emotional symptoms where just 5% of children had a score outside the average range.

⁴¹ Normative data from British samples is available at <http://www.sdqinfo.org/>.

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Table 4-1 Strengths and Difficulties Questionnaire subscales, BC2 (row %)

		SDQ scores				Bases	
		Close to average	Slightly raised (Slightly lowered)*	High (Low)*	Very high (Very low)*	<i>Unwtd</i>	<i>Wtd</i>
Total difficulties scales							
Total difficulties	%	90	5	2	3	4317	4300
Emotional symptoms	%	95	3	1	1	4335	4321
Conduct problems	%	88	7	3	2	4335	4320
Hyperactivity	%	82	7	4	7	4334	4320
Peer problems	%	85	8	4	3	4328	4312
Pro-social score	%	86	8	4	2	4331	4316

Base: All cases where information was provided for relevant questions.

*Descriptions in brackets refer to the pro-social subscale which runs in the opposite direction of the difficulties scales (i.e. a lower pro-social score indicates a less positive outcome).

4.4.2. Comparing social, emotional and behavioural development across the cohorts

When comparing 5 year old children in 2015 with children who were the same age in 2009/10, the analysis showed some small but statistically significant improvements in social, emotional and behavioural development.

As shown in Figure 4-6, the mean total difficulties score dropped from 7.9 in BC1 to 7.6 in BC2. This indicates a slightly lower level of overall difficulties among 5 year old children in 2015 compared with children the same age six years previously. However, the analysis showed no differences in the proportion of children with ‘close to average’ total difficulty scores (90% in both cohorts). This suggests that any improvements between the cohorts were very small. Similarly, despite a slight difference in mean score, the level of conduct problems was very similar across the cohorts.⁴²

More notable changes were visible in relation to hyperactivity and pro-social behaviour. On these measures, differences between the cohorts were evident both

⁴² There were some indications that the conduct problems score had reduced slightly between the cohorts, however, the proportion of children with scores in the ‘close to average’ range was the same in both cohorts, at 88%.

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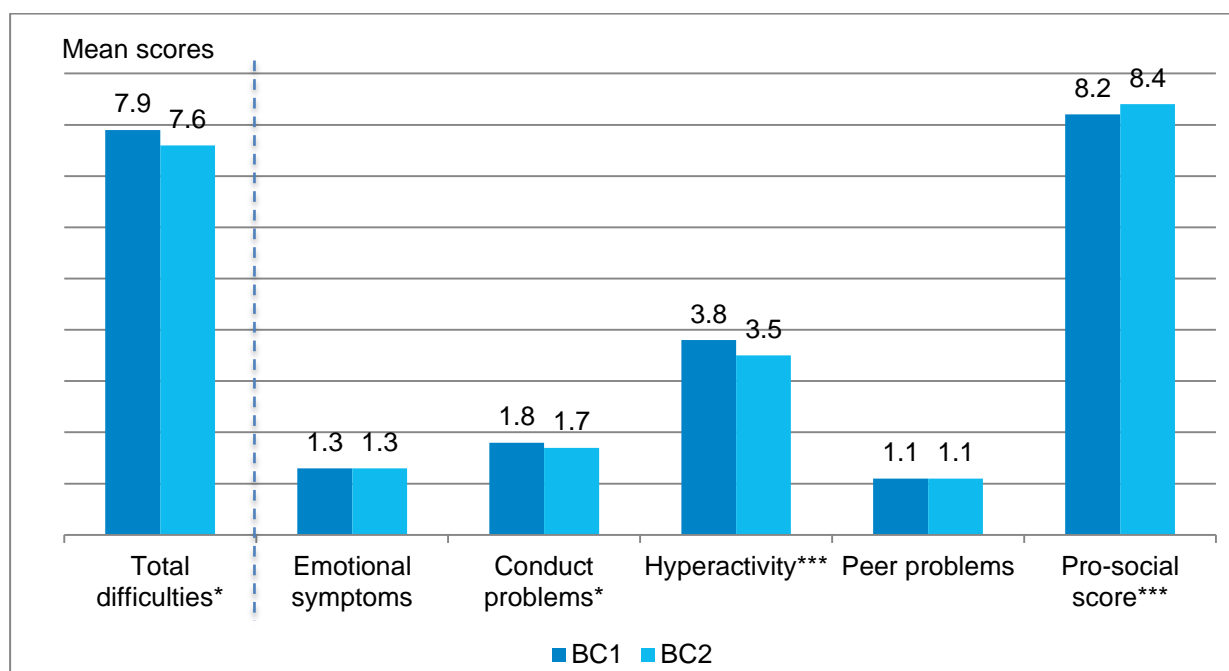
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when looking at the mean scores and when looking at the proportion of children with scores outwith the 'close to average' range.

For hyperactivity, the mean score dropped from 3.8 in BC1 to 3.5 in BC2 while the proportion of children with scores outwith the 'close to average' classification dropped from 21% to 18%. This suggests that 5 year old children in 2015 were less likely than children who were the same age six years previously to display behaviours associated with hyperactivity.

For pro-social behaviour, the mean score rose from 8.2 in BC1 to 8.4 in BC2, while the proportion of children with scores outside the 'close to average' range dropped from 17% to 13%. This suggests that, compared with children who were aged 5 in 2009/10, 5 year olds in 2015 were more likely to exhibit pro-social behaviours such as being considerate of other people's feelings, sharing readily with other children and being helpful if someone is hurt.

Figure 4-6 Mean Strengths and Difficulties scores, by cohort



Bases: All cases where information was provided for relevant questions. BC1 Base sizes (unweighted/weighted): Emotional symptoms = 3786/3779, Conduct problems = 3803/3797, Hyperactivity = 3793/3785, Peer problems = 3801/3795, Pro-social score = 3802/3796. BC2 Base sizes: Emotional symptoms = 4335/4321, Conduct problems = 4335/4320, Hyperactivity = 4334/4320, Peer problems = 4328/4312, Pro-social score = 4331/4316, Total difficulties = 4317/4300
*** significant difference between the cohorts at $p < .001$ level; * significant difference between the cohorts at $p < .05$ level.

Note: The pro-social scale runs in the opposite direction of the difficulties scales (i.e. a higher pro-social score indicates a more positive outcome, while a higher difficulties score indicates a more negative outcome).

4.4.3. Variations by socio-economic and area characteristics

As noted above, previous analyses of GUS data found that, among children who entered primary school in 2007/08 or 2008/09, those in less advantaged circumstances were reported to have higher levels of social, emotional and behavioural difficulties and lower levels of pro-social behaviour (Bradshaw and Tipping, 2010). This section examines whether such patterns were also apparent among BC2 children when they were the same age, including whether there are any signs of a widening or a narrowing of the gap between the most and the least advantaged children according to household income, parental education, and level of area deprivation. Associations with urban/rural location are also explored.

Similar to patterns found previously, among children in BC2 household income was strongly associated with all six measures of social, emotional and behavioural development.⁴³ Compared with their peers in higher income households, children in lower income households had higher mean scores – that is, higher levels of difficulties – on all five measures of difficulties (i.e. total difficulties, emotional symptoms, conduct problems, hyperactivity and peer problems). Conversely, on the pro-social behaviour measure children in lower income families had lower mean scores than those in higher income families – indicating that, on average, children in more disadvantaged circumstances displayed less pro-social behaviours than their peers in more advantaged circumstances. The analysis showed no indications of any change in the relationship between household income and children’s social development between the cohorts.

Parents’ level of education also remained associated with all six measures of children’s social development at age 5: in 2015, as in 2009/10, mean difficulties scores fell as parents’ level of education increased, with the reverse pattern evident for pro-social behaviour.⁴⁴ Thus, children whose parent or parents had higher levels of education continued to display fewer symptoms of social, emotional and behavioural difficulties than children whose parents had lower levels of education. Indeed, there were indications that differences between children according to their parents’ level of education had increased slightly in relation to pro-social behaviour.⁴⁵

⁴³ Full results are provided in Table 8-22 in Appendix C.

⁴⁴ Full results are provided in Table 8-23 in Appendix C.

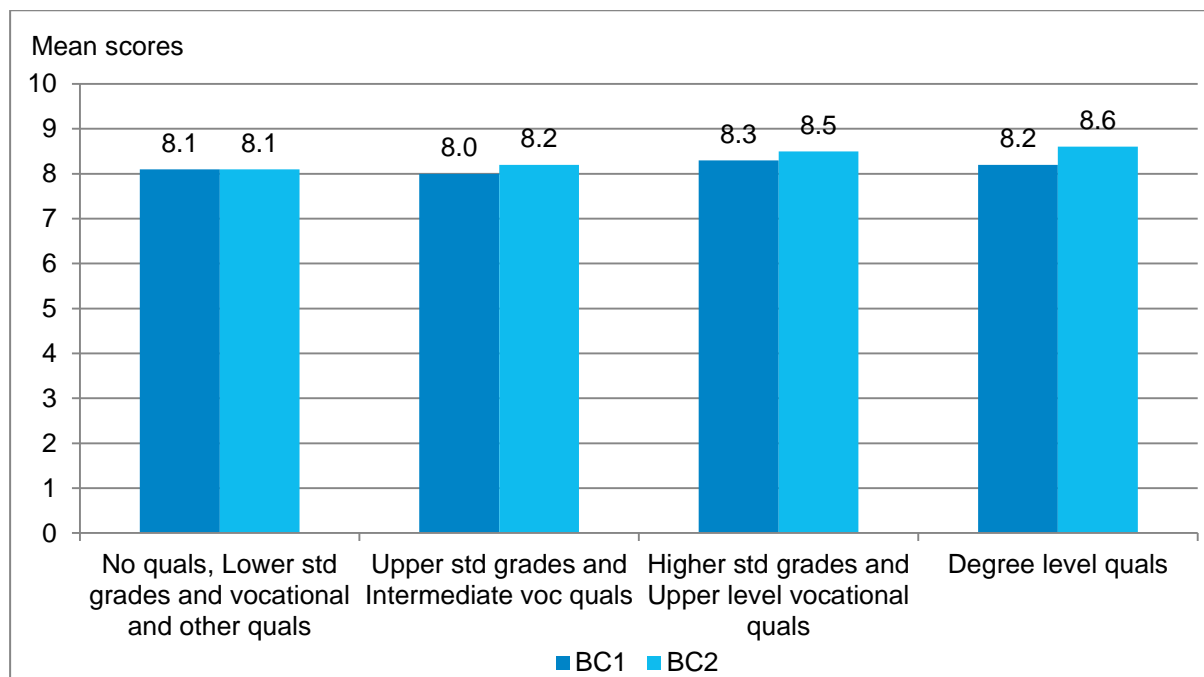
⁴⁵ There were also some indications that differences had increased in relation to the level of peer problems and conduct problems. However, differences here were extremely small and are therefore not commented upon in the text.

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On this measure, across the different levels of education, children in BC2 had higher mean scores than their BC1 peers, indicating higher levels of pro-social behaviour. The slight widening of the gap on this measure seems to be driven by a combination of higher levels of improvement among children whose parents were qualified to degree than all other groups, and no improvement among children whose parents had no qualifications or lower standard grades (see Figure 4-7).

Figure 4-7 Pro-social mean score, by highest household level of education and by cohort



Base: All cases where information was provided for relevant questions. Base size (unweighted/weighted): BC1 = 3802/3796, BC2 = 4331/4316.

The level of area deprivation was also associated with all six measures of social, emotional and behavioural development, with better outcomes reported for children in less deprived areas than for their peers in more deprived areas.⁴⁶ For example, on the measure of pro-social behaviour, the pro-social mean score for children in the least deprived quintile was 8.6 while it was 8.2 for those in the most deprived quintile.

⁴⁶ Full results are provided in Table 8-24 in Appendix C.

There were no statistically significant changes in the relationship between area deprivation and any of the difficulties measured across the cohorts.⁴⁷

Finally, in both cohorts, whether a child lived in an urban or rural location was – perhaps surprisingly – associated with their reported level of social, emotional and behavioural difficulties but not with pro-social behaviour. For example, on the total difficulties scale children living in urban locations had higher mean scores (7.8) than children in towns (7.3) and children in rural areas (7.1). Similar patterns were evident for the other measures of difficulties, suggesting that, on average, children in urban areas have more socio-emotional and behavioural difficulties than children in towns and rural areas.⁴⁸ This is likely to be explained, at least in part, by differences in socio-economic circumstances, with children in urban areas more likely to be living in disadvantaged circumstances (see e.g. Pateman, 2011).

4.5. Cognitive development at age 5 in 2015 and 2009/10

Previous longitudinal research has established that early cognitive ability influences later life outcomes. For example, analysis of the 1970 Birth Cohort Study showed that assessments of ability at 22 and 42 months predicted educational qualifications at age 26 (Feinstein, 2003). Other research has shown that poor cognitive ability in the early years can have a negative impact on a range of other outcomes, including employment, health and social development (Duncan and Brooks-Gunn, 1997; Essen and Wedge, 1978; Rutter and Madge, 1976). Using cohort studies such as GUS to measure cognitive ability can therefore help to build a better understanding of children's cognitive development and to identify stages at which interventions might be effective in improving later outcomes. As detailed in section 2.4.3, cognitive assessments were carried out with children in both cohorts as part of the age 5 interview, when most children were aged 58 months. Two different assessments were carried out: naming vocabulary (a measure of expressive vocabulary) and picture similarities (a measure of problem solving abilities).

⁴⁷ The analysis did show some indications of a very slight widening of the gap in pro-social behaviour and conduct problems. However, these differences were extremely small and are therefore not commented on in the text.

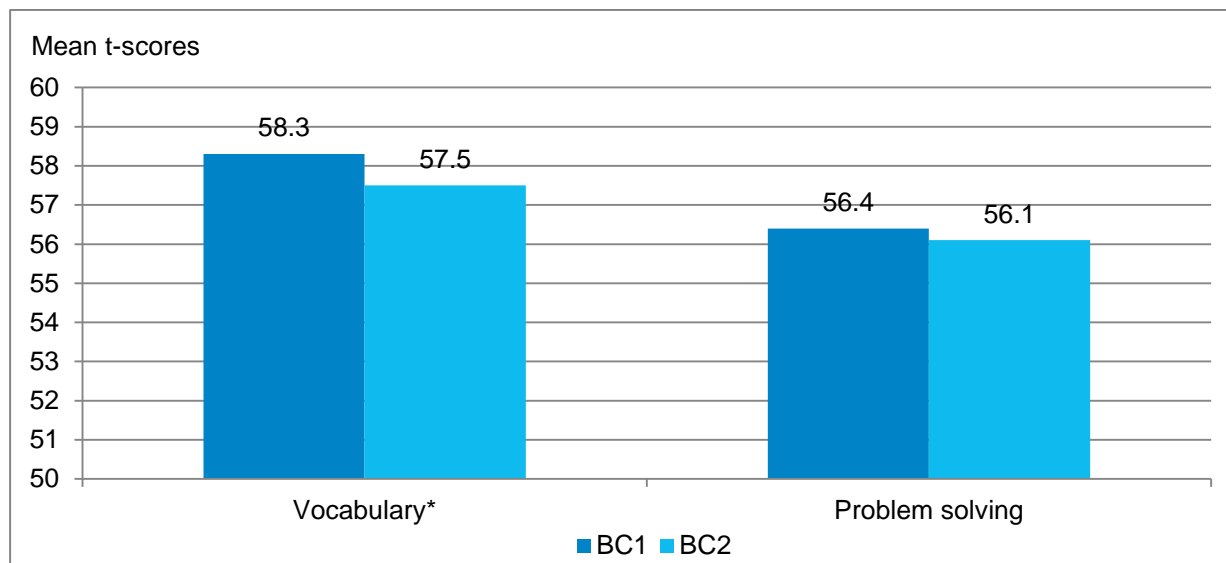
⁴⁸ Full results are provided in Table 8-25 in Appendix C.

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Figure 4-8 shows the mean vocabulary and problem solving scores for children in BC1 and BC2 when they were aged just under 5 (2009/10 for children in BC1; 2015 for children in BC2). A higher score indicates a higher level of ability.⁴⁹

Figure 4-8 Mean cognitive ability t-scores at age 5, by cohort



Base: All children who completed assessments. BC1 base sizes (unweighted/weighted): Vocabulary = 3723/3706, Problem solving = 3721/3703, BC2 base sizes (unweighted/weighted): Vocabulary = 4326/4310, Problem solving = 4314/4300.

* significant difference between cohorts at $p < .05$ level.

Figure 4-8 shows that when comparing mean cognitive ability t-scores across the two cohorts, children in BC2 had slightly lower vocabulary scores at age 5 compared with children in BC1. This suggests that 5 year olds in 2015 had slightly poorer vocabulary than 5 year olds six years earlier. This finding contrasts that from a similar analysis using data collected when the children were aged 3 which showed that, on average, 3 year old children born in 2004/05 had higher vocabulary test scores than 3 year olds born in 2010/11 (Bradshaw et al., 2015). It therefore appears that between age 3 and age 5, children in BC2 progressed slightly less rapidly than children in BC1. However, it is worth noting that the difference between the cohorts at age 5 was smaller than that found at age 3. Taken together, the findings suggest that the improvements in vocabulary between the cohorts found at age 3 had, at best, been cancelled out by age 5.

⁴⁹ The vocabulary and problem solving t-scores are standardised scores which express average ability based on comparisons with a UK wide norming sample. Further details on the scores are provided in section 2.4.3.

Whilst the average problem solving score for children in BC2 was also very slightly lower than in BC1, this difference was not statistically significant. A similar pattern for problem solving ability was found when comparing BC1 and BC2 at age 3 (Bradshaw et al., 2015).

4.5.1. Variations in cognitive ability scores by socio-economic and area characteristics

Previous analysis using BC1 data found that children living in more socio-economically disadvantaged circumstances tended to have lower cognitive ability than children in more advantaged circumstances (Bradshaw et al., 2014). This section explores whether such patterns were also evident among children in BC2. In particular, it examines whether cognitive ability varied according to household income, parental education and level of area deprivation, and whether this was different to the patterns found in analyses of BC1 data. Differences by urban/rural location are also explored.

In BC2, cognitive ability varied significantly according to socio-economic characteristics and location. In terms of household income, as income increased, cognitive ability also increased for each assessment. For example, for vocabulary, children living in households with an annual income in the top quintile had a mean t-score 7.7 points higher than those living in households with an annual income in the lowest quintile. Similarly for problem solving, children in the highest income quintile had a mean t-score 4.8 points higher than those in the lowest income quintile.

Parental education and area deprivation followed a similar pattern with children living in more advantaged circumstances having higher average scores on both vocabulary and problem solving than children in less advantaged circumstances.⁵⁰ There were also differences in cognitive ability among children in BC2 by urban/rural location. For the vocabulary assessment, children living in rural areas had the highest score (59.9), followed by towns (58.1) and urban areas (56.8). For the problem solving assessment, children living in towns had the highest score (57.6), followed by rural (57.4) and urban areas (55.4).⁵¹

Differences in average cognitive ability between children with different socio-economic characteristics were broadly similar across BC1 and BC2. In both cohorts, children living in less advantaged circumstances had lower average scores than

⁵⁰ Full results are provided in Table 8-27 and Table 8-28 in Appendix C.

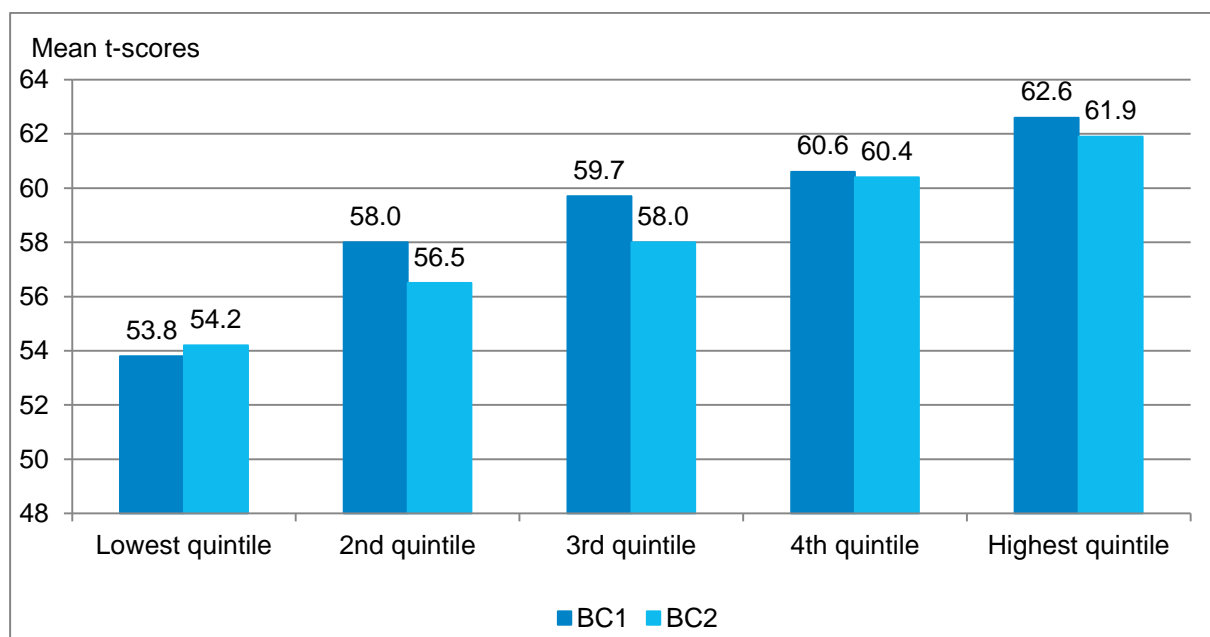
⁵¹ Full results are provided in Table 8-29 in Appendix C.

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those in more advantaged circumstances. There was only one difference between the two cohorts which was statistically significant. As shown in Figure 4-9, the gap in vocabulary ability between children in the lowest and highest income households narrowed between the cohorts. In BC1, the difference in mean t-scores between children in the highest and the lowest income quintiles was 8.8, while in BC2 the difference had reduced to 7.7. This is explained by a small increase in vocabulary scores among children in the lowest income group alongside a decrease in vocabulary scores among children in the higher income groups.

Figure 4-9 Mean vocabulary t-scores, by equivalised household income and by cohort



Base: All children who completed assessments. Base sizes (unweighted/weighted): BC1 = 3723/3706, BC2 = 4326/4310.

5

ELC USE AND OUTCOMES AT AGE 5

5.1. Introduction

As already noted, improving children's outcomes and closing the gap between advantaged and disadvantaged children are important objectives of the Scottish Government's commitment to increasing the entitlement to ELC (e.g. Scottish Government, 2016a). To date, the evidence on the effects of increasing the number of funded hours of ELC on children's outcomes has been mixed. For example, previous GUS analysis using BC1 data found no association between weekly ELC duration and children's cognitive or social development at age 5 (Bradshaw et al., 2014). Additionally, the EPPE study found no evidence that children who attended full-time ELC provision had better outcomes at age 5 than children attending part-time (Sylva et al., 2004). That said, existing research has suggested that attending ELC (as opposed to not attending ELC) can have beneficial effects on children's outcomes (Melhuish et al., 2015).

It is widely acknowledged that if part of the aim of providing funded ELC is to improve children's outcomes, this provision must be of high quality (e.g. Scottish Government, 2016a). As noted above, existing research has suggested that attending a high quality ELC provider can have a positive effect on children's outcomes, even after other factors are taken into account (Melhuish et al., 2015). However, what constitutes 'high quality' ELC provision is itself a subject of research, as illustrated by the EPPE project which focuses specifically on identifying the key aspects of high quality pre-school provision (Sylva et al., 2012). Previous GUS analysis used data from Education Scotland and the Care Inspectorate alongside BC1 data to examine whether any quality measures appeared to be particularly important for child outcomes (Bradshaw et al., 2014). This analysis found a positive association between the Care Inspectorate care and support grading of the ELC setting and children's vocabulary at age 5.

Drawing on data collected from families in BC2, this chapter examines whether there was any relationship between the average number of hours a child attended ELC

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during the pre-school period⁵² and their cognitive and social development upon entry to primary school, as well as their adjustment to primary school. Further to this, it examines whether there is any evidence that the quality of the ELC setting – as assessed by the Care Inspectorate – is associated with children’s outcomes.

5.2. Key findings

- The analysis found no statistically significant associations between either the average number of hours per week a child spent in ELC or the quality of the ELC provider and children’s adjustment to primary school, or their cognitive development at age 5 once other factors were taken into account. However, it did show some associations between ELC use and certain aspects of children’s social and behavioural development.
- Children who spent 30 hours or more in ELC on a weekly basis were more likely to display above average levels of behaviours associated with hyperactivity at age 5 than children who spent 12.5 hours or less in ELC. This association was evident after controlling for differences in social background and the level of hyperactivity recorded when children were aged 3. Notably, though, the association was only apparent for children in lower and middle income groups – it was not statistically significant among children in the wealthiest 40% of households.
- The analysis found no other statistically significant associations between weekly ELC duration and child outcomes at age 5 after controlling for differences in social background.
- Among children who used ELC, attending a provider with higher staffing grades appeared to be associated with a very small decrease in the likelihood of exhibiting above average levels of peer problems at age 5.
- Children who attended an ELC setting that achieved at least ‘very good’ grades across all four of the Care Inspectorate’s quality themes were less likely to have raised levels of peer problems at age 5, and were less likely to display below average levels of pro-social behaviour, than children who attended a setting that did not achieve these grades.

⁵² Information was collected about the average number of hours the child was attending pre-school on a weekly basis at the time the cohort child was aged around 4 years old. The question wording specified only to include any pre-school education the child had attended since their third birthday. Further details are provided in Appendix A.

5.3. Analysing associations between ELC use and child outcomes

The main aim of this chapter is to examine whether the average weekly number of hours children attended ELC and the quality of the ELC setting were associated with outcomes at age 5. For each ELC measure, initial analysis was undertaken to look at associations between selected ELC measures and each of the following child outcomes at age 5: adjustment to primary school, vocabulary and problem solving ability, level of social, emotional and behavioural difficulties (measured through the total difficulties scale) and level of pro-social behaviour. Where a statistically significant association was found in relation to the total difficulties measure, further analysis was undertaken for each of the individual difficulties subscales – conduct problems, emotional difficulties, hyperactivity/inattention, and peer problems.

The main ELC measures of interest for this analysis are related to ELC provided by the child's main ELC provider (their pre-school provider). This includes both funded and unfunded hours. However, it does not include any childcare received from other providers (e.g. childminders used for wrap-around childcare, see also sections 3.3 and 3.4). The measure of weekly duration of ELC attendance used five categories similar to those used in a previous GUS report (Bradshaw et al., 2014) but adjusted to reflect the change in ELC attendance pattern between the two cohorts.

Where the bivariate analysis showed a statistically significant⁵³ association between the ELC measure and the outcome in question, multivariable regression models were fitted.⁵⁴

In the first step, the equivalent outcome measured at age 3 was added to the model. Where the association between the ELC measure and the outcome was subsequently not statistically significant but the outcome at age 3 was, this indicated that the differences in outcomes observed at age 5 were by and large explained by earlier differences.

ELC use – including the type of ELC provider children attend – is associated with a number of factors which are also associated with children's outcomes. For example, analysis in previous sections showed that children in higher income households are much more likely to attend private or voluntary ELC providers and also tend to have different patterns of cognitive and behavioural outcomes than those in lower income households. Thus, we should account for these differences to properly explore the associations between ELC measures and outcomes at age 5. Where an association between the ELC measure and child outcome at age 5 still held once age 3 outcome

⁵³ Models were fitted where associations were borderline significant up to $p < .007$.

⁵⁴ Details are provided in the Technical Annex.

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was taken into account, a number of social background variables were therefore added to the model. This was done in order to control for any relationships between these and the ELC measure which might be explaining the association found in the bivariate analysis – for example, higher vocabulary ability at age 5 being explained by other factors not already captured in the age 3 outcome, rather than by characteristics of ELC.

The multivariable analysis controlled for the following social background characteristics: household income (equivalised), highest parental level of education (household level), socio-economic classification (household level), level of area deprivation, urban/rural location and the child's gender. Details about these variables are provided in Appendix A.

In cases where an association between the ELC measure and the outcome in question was still statistically significant even after controlling for differences in social background, further tests were carried out. First, where an association with average weekly ELC duration was found, a measure of ELC quality was added to the model to test whether the association still held once the quality of the ELC setting was taken into account. Conversely, where an association with ELC quality was still statistically significant once social background characteristics were controlled for, a measure of average weekly ELC duration was added to the model to test whether the association still held once differences in the number of hours the child attended their ELC provider was taken into account.

Finally, to test whether associations between the ELC measures and child outcomes differed for children from different backgrounds, 'interaction effects' were fitted to the models. This allowed us to test whether a relationship between, for example, ELC quality and children's social development varied according the level of household income. Where an interaction effect was found to be significant, two separate models were fitted: one for children in the wealthiest 40% of households and one for the remaining 60%.⁵⁵

5.4. Weekly ELC duration and child outcomes at age 5

The bivariate analysis showed no statistically significant associations between the average weekly number of hours children attended their main ELC provider and their adjustment to primary school (as reported by their parent or carer).

Some associations were found between the average weekly number of hours children attended their main ELC provider and both vocabulary and problem solving

⁵⁵ These groupings were devised to ensure appropriate base sizes (30+) were achieved across all measures included in the models for each group.

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ability.⁵⁶ On both measures, children who were attending their main ELC provider for between 12.5 and 16 hours per week appeared to do less well compared with their peers who attended their main ELC provider for either a lower or a higher number of hours per week. The association between duration of ELC attendance and vocabulary was no longer evident when children's vocabulary score at age 3 was controlled for. This suggests that the group of children who attended ELC for between 12.5 and 16 hours per week already had poorer vocabulary than their peers at the time they were aged 3 – i.e. before they started pre-school.⁵⁷ The association between duration of ELC and problem solving scores at age 5 was still evident after controlling for problem solving scores at age 3 but no longer held once differences in social background were taken into account. This indicates that the association found between ELC duration and problem solving ability was driven by differences in the children's social background rather than by how many hours they spent in ELC.

The bivariate analysis also showed an association between weekly duration of ELC attendance and children's level of social and behavioural difficulties. Bivariate associations were found in relation to the measures of total difficulties, hyperactivity and peer problems. However, once age 3 outcomes and differences in social background were taken into account, the associations with total difficulties and peer problems were no longer statistically significant. In contrast, the association between weekly ELC duration and the likelihood of children exhibiting above average levels of hyperactivity at age 5 remained even after controlling for levels of hyperactivity reported at age 3 and for differences in social background. Compared with those who attended for 12.5 hours or less, children who attended ELC for 30 hours per week or more were slightly more likely to be in the group with above average levels of hyperactivity at age 5.⁵⁸ This association remained statistically significant even when controlling for differences in the quality grades achieved by the ELC setting.⁵⁹ Of course, it is not possible to conclude that the long hours of ELC use are *causing* the higher risk of displaying above average levels of hyperactivity at age 5. For example, children who already displayed raised levels of difficulties at age 3 may have been more likely to subsequently spend longer hours in ELC because other forms of

⁵⁶ Full results are provided in Table 8-30 in Appendix C.

⁵⁷ Information about pre-school/ELC use specifically referred to pre-school education the child had attended after their third birthday (see Appendix A for further details).

⁵⁸ The odds of children who attended ELC for 30 hours or more per week exhibiting above average levels of difficulties were 1.6 times higher than the odds for children who attended ELC for 12.5 hours or less. Full results are provided in Table 1 in the Technical Annex.

⁵⁹ This was tested by adding a measure of ELC quality ('grading mix') to the model. Full results are provided in Table 2 in the Technical Annex.

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childcare were not suitable – hence, their difficulties might explain their long hours of ELC attendance, rather than the other way around. However, further analysis showed no differences in the association between duration of ELC and the likelihood of displaying above average levels of hyperactivity at age 5 according to the level of difficulties reported at age 3.⁶⁰ Thus, the association does not appear to be explained by children with higher levels of difficulties at age 3 being more likely to use longer hours of ELC – that is, irrespective of whether they had higher or lower levels of hyperactivity difficulties at age 3, children who experienced long durations of ELC were more likely to exhibit above average levels of hyperactivity at age 5.

As previously noted, this analysis looked specifically at time the child spent at their main ELC provider, and the findings therefore cannot be used to draw conclusions about use of formal childcare *per se*. Even so, it is worth bearing in mind that, as illustrated in section 3.3.2, among children in BC2, time spent at their main ELC provider made up a substantial proportion of the time spent in formal care – over two thirds (70%) of all the formal childcare received, and an even higher proportion (74%) of group-based formal care. Also, preliminary additional analysis (results not shown) suggested that there was an association between time spent in *any* group-based care and children’s likelihood of exhibiting raised levels of hyperactivity at age 5 – although the research required to fully understand this association (between levels of hyperactivity and the combination of ELC and childcare being used, the time spent with different ELC and childcare providers, and overall time in group care) is beyond the scope of this report. Furthermore, the finding is in line with other research which has suggested that spending long hours in non-parental care may negatively affect children’s outcomes. For example, previous GUS research found that children who attended non-parental childcare for more than 40 hours per week at the age of 3 had higher levels of social, emotional and behavioural difficulties than children who spent less (or no) time in non-parental care (Bradshaw and Wasoff, 2009).

Interestingly, the association between weekly ELC duration and the likelihood of exhibiting above average levels of hyperactivity at age 5 seemed to differ according to household income.⁶¹ In fact, separate analysis of children in the wealthiest 40% of households showed no statistically significant association between the number of hours children spent in ELC and the likelihood of displaying raised levels of

⁶⁰ This was tested by fitting an interaction effect between age 3 hyperactivity levels and weekly ELC attendance to the model predicting displaying above average levels of hyperactivity difficulties. Results not shown.

⁶¹ Preliminary additional analysis suggested that this was also the case when looking at time spent in *any* group-based care. Results not shown.

difficulties at age 5. In contrast, among children in lower and middle income households (outside the wealthiest 40%), children who spent 30 hours or more in ELC per week were more likely than those who spent 12.5 hours or less to display above average levels of hyperactivity at age 5.⁶²

The analysis showed no differences in outcomes between children who spent between 12.5 and 30 hours in ELC and those who spent 12.5 hours or less.

5.5. ELC quality and child outcomes at age 5

No statistically significant associations were observed between the quality of the ELC setting – as measured by the Care Inspectorate – and children’s subsequent adjustment to primary school.

Earlier analysis of BC1 data found an association between attending an ELC setting with a high care and support grade and having slightly better vocabulary ability at age 5 (Bradshaw et al., 2014). This association was statistically significant, meaning it was unlikely to have occurred due to chance alone, but the average difference in vocabulary observed was very small. The analysis carried out for this report – using BC2 data – found no statistically significant associations between any of the ELC quality measures considered and either problem solving or vocabulary ability.⁶³ To explain the difference in results would require further analysis which is beyond the scope of this report.

The bivariate analysis showed a number of associations between ELC quality measures and children’s social and behavioural outcomes at age 5. Initial associations were found between three of the Care Inspectorate measures of ELC provider quality – care and support, staffing, and consistently high scores across all four themes (grading mix) – and the level of total difficulties reported at age 5. However, associations between total difficulties and care and support and staffing grade were very weak and once difficulties at age 3 and differences in social background were accounted for, these associations were no longer statistically significant.

The analysis also suggested that the quality of staffing was associated with the level of peer problems reported for children at age 5 – this association was statistically

⁶² The odds of children in lower and middle income households (outside the wealthiest 40% of households) exhibiting above average levels of hyperactivity at age 5 were twice as high among children who spent 30 hours or more in ELC per week compared with children who spent 12.5 hours or less (OR=1.965). Results are provided in Table 3a in the Technical Annex.

⁶³ The analysis did show some associations between ELC quality measures and aspects of children’s cognitive development, however, these were not statistically significant.

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significant after controlling for the level of peer problems reported at age 3 and differences in social background. The multivariable analysis suggested that as the staffing grade increased, the likelihood of children displaying above average levels of peer problems decreased, although the effect size was small. In other words, attending an ELC setting with higher quality staffing grades appeared to be associated with a very small decrease in the likelihood of children exhibiting above average levels of peer problems at age 5. This association also held when accounting for differences in the number of hours children attended their ELC provider. This is perhaps not surprising given the limited variation in the amount of time children spent at their main ELC provider (i.e. most children attended for between 12.5 and 16 hours per week). Nonetheless, this seems to suggest that the association between staffing quality and children's level of peer problems was evident irrespective of the number of hours spent in ELC.

The bivariate analysis also showed associations between the overall, cross-theme level of quality of the ELC setting – that is, whether a provider achieved 'very high' or 'excellent' grades across all four quality themes – and the levels of peer problems and pro-social behaviour reported for children at age 5. Both these associations were statistically significant also after taking into account age 3 scores and differences in social background. This analysis suggested that those who attended an ELC provider which achieved 'very good' or 'excellent' grades across all four of the Care Inspectorate's quality themes were less likely to exhibit above average levels of peer problems at age 5.⁶⁴ Similarly, children who attended an ELC provider with high quality grades across the four themes were less likely to display below average levels of pro-social behaviour at age 5 when taking into account their level of pro-social behaviour at age 3, compared with children who attended an ELC provider that did not achieve such consistently high quality grades.⁶⁵ As above, this association

⁶⁴ The odds of exhibiting above average levels of peer problems at age 5 among children who attended an ELC provider which did not achieve at least 'very good' grades across all four quality themes, were 1.4 times higher than the odds for children who attended an ELC provider who achieved 'very good' or 'excellent' grades across all four quality themes (once the level of problems reported at age 3 and differences in social background were taken into account). Results are provided in Table 7 in the Technical Annex.

⁶⁵ The odds of exhibiting below average levels of pro-social behaviour at age 5 among children who attended an ELC provider which did not achieve at least 'very good' grades across all four quality themes were 1.4 times higher than the odds for children who attended an ELC provider who achieved 'very good' or 'excellent' grades across all four quality themes (once the level of pro-social behaviour reported at age 3 and differences in social background were taken into account). Results are provided in Table 10 in the Technical Annex.

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remained statistically significant when accounting for differences in the number of hours children attended ELC. The analysis found no statistically significant differences in these relationships according to household income.

6

DISCUSSION AND CONCLUSIONS

6.1. Introduction

This chapter discusses some of the main findings set out in the previous chapters and proposes some implications for policy. It focuses on the changes observed between the two cohorts, and, where different, on the specific patterns observed for children in BC2. In doing so, it addresses the research questions set out in section 1.4.

6.2. Changes in ELC use

The analysis suggested that, on average, 4 year olds in 2014 spent slightly longer in ELC per week than 4 year olds in 2008/09. Although not explored here, this increase might be related to a higher proportion of mothers being in paid employment (cf. Knudsen and Bradshaw, 2017).

The analysis also showed a small but statistically significant increase in the average weekly number of hours children spent in ELC immediately before and after the increase in entitlement to funded ELC which came into force in August 2014. Because of the differences in how data on ELC duration were collected before and after the expansion, this finding should be treated with caution. As noted in section 3.3, the original survey data on ELC attendance had to be converted into a format which was comparable across the different time points (see Appendix A for further details). Nevertheless, the findings do seem to suggest that the increase in the number of funded hours may well have led to an increase in the average number of hours children spent in ELC. It is not surprising that parents who were already using ELC would take advantage of an extra few hours of funded ELC per week. However, given the potential implications for providers, it is perhaps more notable that the increase in hours was visible so shortly after the implementation date (the analysis compared weekly ELC attendance among families interviewed during the six months immediately *before* the implementation date and families interviewed during the six months immediately *after* the implementation date).

While the increase in average time spent in ELC was observed for all groups of children considered in the analysis, it was particularly notable among the most advantaged groups – that is, among children living in more affluent households, in less deprived areas, and whose parents had higher levels of education. Indeed, the

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difference in weekly ELC attendance between the most and least advantaged children increased between 2008/09 and 2014. There are a number of possible reasons for this. For example, more affluent families may have been more likely to have access to providers (in particular, private or voluntary sector providers) which may have been quicker to offer extended and flexible hours that suited their needs, for example because they had already been offering parents extended or wrap-around hours for a fee. It may also be that more affluent parents were more likely to be in work and therefore more likely to take advantage of the offer of additional funded childcare. More affluent and degree-educated parents may also be more likely to believe that attending ELC will be beneficial to their child. The analysis carried out here did not specifically consider the drivers of this increasing difference, though, and the suggestions above are speculative only.

Although children in the most affluent families tended to spend longer hours at their main ELC provider (possibly as a result of attending their main ELC provider for wrap-around childcare, too), in 2014, across each income group children spent an average of at least 15 hours per week in ELC. This suggests that almost all families – including the less advantaged – were taking up their full funded ELC entitlement and many were paying for further hours with the main ELC provider too. Given the current emphasis on ELC provision as a means of closing the attainment gap (Scottish Government, 2016a), this is encouraging for policy makers. Going forward, it is worth considering whether less affluent families would use an even higher number of hours of ELC if they had a better choice of providers and/or flexibility, including the option of combining funded entitlement with wrap-around care. This is particularly pertinent given the planned expansion of ELC and underlines the importance of ensuring equitable access to the increased hours and flexibility for all families, irrespective of where they live or what type of provider they use.

In terms of the type of ELC provider 4 year old children were attending in 2014, the analysis showed a rather similar pattern to that seen for 4 year olds in 2008/09. Namely, that the majority attended a local authority nursery class attached to a primary school. An increasing difference between the most and least advantaged families was evident in relation to parents' choice of ELC provider, with the most affluent families in BC2 more likely than those in BC1 to use a private or voluntary provider. Private and voluntary providers are more likely to offer wrap-around childcare than local authority nursery classes. As such, this finding may suggest that more affluent working parents are particularly likely to prioritise the flexibility of being able to use the same provider for the funded ELC hours and other childcare.

In 2014, at an overall level, 4 year olds were no less likely than children the same age six years previously to attend an ELC provider which achieved top grades across all four quality themes measured by the Care Inspectorate.

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The analysis suggested that children living in more deprived areas were less likely than their more advantaged peers to attend an ELC provider with ‘very high’ or ‘excellent’ staffing grades. While the proportion of children attending a setting with a high staffing quality grade increased across all deprivation groups between 2008/09 and 2014, it appears to have increased the most in areas with the lowest levels of deprivation. Crucially, though, in 2014 (just like in 2008/09) children living in disadvantaged circumstances were just as likely as their more advantaged peers to attend an all-round high quality ELC provider.

In summary, the analysis showed an increase in the number of hours 4 year old children attended ELC between 2008/09 and 2014, and suggested this increase may well have happened as a result of the increase in entitlement introduced in August 2014. Notably, though, the most affluent families appear to have been particularly likely to take advantage of the increased entitlement. On quality, it seemed that children in the least deprived areas benefitted more than their peers living in more deprived areas from an overall increase in the proportion of children attending an ELC setting with high quality staffing. Nonetheless, looking across the quality themes assessed by the Care Inspectorate, children in disadvantaged circumstances remained as likely as more advantaged children to be attending a high quality ELC provider. Given the association between ELC quality and child outcomes (indicated in this report, and also demonstrated in the wider literature, cf. Melhuish et al., 2015), it is of crucial importance that this equality of access to high quality ELC provision is maintained – and, in the case of staffing quality, improved – as any increase in entitlement is rolled out.

6.3. Changes in children’s outcomes upon entry to primary school

Most children were reported by their parents to have adjusted well to primary school – this was the case both in 2009/10 and in 2015. However, children who were in their first year of primary school in 2015 were a little more likely to complain about school and to be reluctant to go to school, and a little less likely to look forward to going to school than those who started school six years earlier. Furthermore, disadvantaged children continued to be reported to have lower overall levels of adjustment than the more advantaged children. That said, although not statistically significant, there were some encouraging signs that the gap in adjustment to primary school between children whose parents had no or lower qualifications and children whose parents had a degree had narrowed. This was driven primarily by improvements among children of the least educated parents.

In 2015 as well as in 2009/10, the majority of 5 year old children were reported as having no social, emotional or behavioural difficulties. Encouragingly, the analysis also showed signs of improvements in the levels of pro-social behaviour and in behaviours related to hyperactivity. However, for pro-social behaviour there were

indications that this improvement took place disproportionately among children in the most highly educated households and children who lived in less deprived areas, leading to a slight increase in the gap between children at different ends of these measures.

The analysis showed no change in the problem solving ability of 5 year olds between 2009/10 and 2015. In contrast, there was a slight decrease in average vocabulary ability. This suggests that the improvements in vocabulary between the cohorts found at age 3 (Bradshaw et al., 2015) had, at best, been cancelled out by age 5. More encouragingly, the analysis showed signs of a narrowing of the gap in vocabulary ability between children in the poorest and the wealthiest households. Notably, however, this narrowing appeared to be driven as much by a decrease in ability among children in the most affluent families as by an increase in ability among those in the least affluent.

Thus, the analysis showed some signs of improvements in children's social development on entry to primary school over the period. Conversely, it found no evidence of any improvements either in relation to children's adjustment to primary school or their cognitive ability.

6.4. Is there a relationship between the number of hours children attend ELC and outcomes at age 5? And is there any evidence that the increase in ELC entitlement improved outcomes for children at the start of primary school?

The analysis found no evidence that attending ELC for a relatively small number of additional hours per week was associated with children's outcomes at age 5. However, the findings did suggest that attending ELC for 30 hours or more per week was negatively associated with some aspects of children's behavioural development. Specifically, children who attended ELC for more than 30 hours per week were at higher risk of displaying above average levels of hyperactivity difficulties at age 5 than those who attended ELC for 12.5 hours or less, even when differences in social background were taken into account. Interestingly, the association did not apply for children in more affluent households.⁶⁶ Further analysis is required to understand what drives this apparent difference between children from more and less affluent backgrounds.

It is important to note that this analysis looked specifically at time the child spent at their main ELC provider. As such, the findings cannot be used to draw conclusions about use of formal childcare *per se*. Nonetheless, time spent at their main ELC

⁶⁶ The relationship was evident among children in the families outside the most affluent 40% of households, but not among children in the most affluent 40%.

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provider did make up a substantial proportion of the time children spent in formal care, and the finding is broadly in line with earlier research findings which have suggested that spending very long hours in non-parental care can have negative effects on children's social and behavioural development (e.g. Bradshaw and Wasoff, 2009).

The data for this report were not collected specifically with the purpose of evaluating the increase in funded hours of ELC from 475 to 600 per year, and the results must be treated as indicative in this respect – an evaluation designed to measure such an impact may well have come to other conclusions. That said, as set out above, the analysis did not find any evidence to suggest that attending ELC for up to 16 hours per week rather than up to 12.5 hours per week was either positively or negatively associated with children's outcomes at entry to primary school.

Looking ahead, as set out at the beginning of this report, the Scottish Government have committed to increasing the entitlement to funded ELC to an average of 30 hours per week. The analysis carried out for this report did not find any evidence to suggest that such an increase is likely to have any notable impact on children's outcomes by the time they enter school, either positive or negative. Although the analysis suggested that spending an average of 30 or more hours in ELC per week was associated with a higher risk of exhibiting behaviour problems upon entry to primary school, the differences in risk levels were very small. Notably, though, these findings are based on the *current* status of ELC provision, where most children experience relatively high levels of quality in the ELC they receive. As demands on providers to offer a higher number of hours increase in line with the increased entitlement there is a risk that quality of provision will fall. Given the association between quality of provision and elements of children's social and behavioural outcomes, a drop in the quality of provision alongside an increase in the number of hours children spend in ELC may well have more detrimental effects than those considered here. This stresses the importance of ensuring that the level of quality of ELC provision does not suffer, even as demands on providers increase.

6.5. Is there a relationship between the quality of the ELC setting and child outcomes at age 5?

The analysis suggested that, compared with attending a lower quality provider, attending a high quality ELC provider may have beneficial effects on some aspects of children's social development – particularly in relation to how they conduct themselves in a social environment and their relationships with others. Specifically, children who attended an ELC provider which achieved at least 'very good' grades across all four quality themes assessed by the Care Inspectorate were a little less likely to exhibit above average levels of peer problems and a little less likely to display below average levels of pro-social behaviour around the time they started

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school, compared with their peers who attended an ELC provider which did not achieve such high quality grades. Further to this, attending an ELC provider with higher staffing grades was found to be associated with a very small but statistically significant decrease in the likelihood of exhibiting above average levels of peer problems. Notably, for both outcome measures the effect sizes were very small, suggesting that any effects of attending high quality ELC on social and behavioural outcomes are likely to be minor in comparison with other factors such as parenting approaches, peer contact, and health and development (cf. e.g. Bradshaw and Tipping, 2010). That said, the outcomes considered here are very strongly affected by social background characteristics and the quality measures used in the analysis were not specifically developed with a view to informing analysis of effects on children's outcomes. In this context even weak associations are worth taking note of, especially in a context of ELC expansion.

The association found between higher staffing quality and a lower likelihood of experiencing peer relationship problems seems to confirm the role of staffing as an important component of high quality ELC provision – particularly in relation to facilitating positive social and behavioural development in children. Whilst this analysis did not consider different aspects of staffing quality, other research has suggested that staff qualifications and training is likely to play a role, because staff with better (relevant) qualifications can help provide a more stimulating and supporting environment (Scobie and Scott, 2017).

At the same time, as illustrated by the associations with overall levels of quality measured across the four Care Inspectorate themes, our findings also suggest that staffing is not the only aspect of quality that matters. This is also highlighted elsewhere (e.g. Scobie and Scott, 2017) and is important for those seeking to develop high quality ELC environments, as it stresses the importance of viewing ELC quality in a holistic manner.

As noted above, children in disadvantaged circumstances were a little less likely to attend an ELC provider with high staffing grades than their more advantaged peers. Otherwise, however, they were just as likely to attend a high quality ELC provider as more advantaged children. Also, the associations found between attending a high quality ELC provider and social and behavioural development did not appear to be any different for children with different social backgrounds. In other words, more advantaged children did not appear to benefit more from settings which had higher quality grades than less advantaged children. Nevertheless, given the association found between staffing quality and aspects of children's social development, the difference in propensity to attend an ELC setting with a high staffing quality grade between children in more and less advantaged areas is notable, and is something to be borne in mind during the rollout of the planned increase to the funded entitlement.

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The analysis did not find any statistically significant associations between either the amount of time children spent in ELC or the quality of their ELC provider and how well they adjusted to primary school.

Earlier analysis using GUS data collected from children born in 2004/05 showed a statistically significant but weak positive relationship between ELC quality and children's vocabulary, indicating that attending an ELC provider with a higher care and support grade was associated with slightly better vocabulary scores at age 5, although the difference in average vocabulary was very small. This report, which uses data collected from children born in 2010/11, found no statistically significant associations between any of the ELC quality measures considered and children's cognitive development at age 5.⁶⁷

In summary, the analysis found some associations between quality of provision and children's social and behavioural outcomes, although the difference in average outcome was small. In line with much of the existing literature (e.g. Melhuish et al., 2015) these suggest that higher quality environments are associated with better outcomes for children. Whilst the precise findings are slightly different to those found in a previous GUS analysis (Bradshaw et al., 2014), the implications are similar – namely that the quality of ELC provision has a bearing on children's outcomes. This stresses the importance of ensuring quality is at least maintained but ideally improved as part of any proposed changes to ELC provision. Any decrease in the quality of ELC provision as a result of the planned increase in entitlement runs the risk of a negative knock-on effect on children's outcomes.

⁶⁷ The analysis did show some associations between ELC quality measures and aspects of children's cognitive development, however, these were not statistically significant.

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8 APPENDICES

8.1. APPENDIX A: DETAILS OF KEY VARIABLES

Weekly duration of ELC attendance

One of the key measures of ELC use considered in this report is the average number of hours children attend ELC on a weekly basis. Across both cohorts and age points, this measure is based on parent report and includes both funded and unfunded hours. The way in which attendance was reported differed slightly across cohorts and age points.

- In BC1, at both age points, parents were asked to estimate how many hours of pre-school the child attended on a weekly basis.⁶⁸
- In BC2, cases where ELC data were collected during the age 4 interview and where this took place *before* 1st August 2014, parents were asked to indicate how long the child attended pre-school on each day of the week to the nearest *half hour*.
- In BC2, cases where ELC data were collected during the age 4 interview and where this took place *after* 1st August 2014, parents were asked to indicate how long the child attended pre-school on each day of the week to the nearest *ten minutes*.
- Finally, in BC2, cases where ELC data were collected as part of the age 5 interview, parents were asked how long the child spent at pre-school for each day of the week. Hours and minutes were recorded separately, allowing for reporting of pre-school attendance detailed to the nearest minute.

To enable comparison, all measures of ELC attendance were adapted to a format where **.5 denotes half an hour**. For BC2 data this was done, first, for each day of the week. The average number of hours was then derived as a total of the time entered for each day of the week. Because the data were collected in different ways, the measures of ELC attendance are not directly comparable across cohorts and age points and results must be interpreted with caution. The analysis uses both continuous and banded measures of ELC attendance.

⁶⁸ The question wording was as follows: 'For roughly how many hours does [child's name] attend his/her pre-school place in an average week?'

Equivalised annual household income (quintiles)

In GUS, overall income is measured at household level before tax. At each interview, parents are asked to provide information about the amount of income they receive. This covers all sources of income including earnings, benefits, tax credits and interest from savings. Amounts can be given as either weekly, monthly or annual amounts which are adjusted to produce a single annual figure.

These figures are then 'equivalised' to reflect differences in household size and composition, as these factors affect the income level required to attain a particular living standard. For example, a couple with dependent children will need a higher income than a single person with no children to attain the same material living standards.

The equivalised household income measure enables comparison between households of different size and composition. Furthermore, it also enables comparison over time and, in the case of GUS, between the two cohorts. After equivalisation, the sample is split into five, equally-sized groups – or quintiles – according to income distribution. Each group thus contains around 20% of families.

However, because the income data on GUS is collected in a series of ranges (e.g. £10,400 to £15,599, £15,600 to £20,799 and so on) rather than as a scale of specific, individual values (e.g. £12,457) the split can be slightly imprecise and some groups may contain slightly more or less than 20%. It is also important to note that the groups are split relative to the spread of income for that cohort and sweep of data collection rather than in reference to a fixed cut-off point. As such, the cut-off point denoting the maximum annual income of the poorest 20% of families in BC1 will be different to the cut-off point for the equivalent group in BC2. Nevertheless, in each cohort the lowest and highest quintiles will represent the richest and poorest 20% of families with a child of that particular age.

Highest household level of education

At the first wave of data collection for both cohorts, parents were asked to provide information on the nature and level of any school and post-school qualifications they had obtained. This information was obtained for up to two adults in the household (the main adult respondent and, where applicable, their partner) and was updated at each subsequent contact. Qualifications were grouped according to their equivalent position on the Scottish Credit and Qualifications Framework which ranges from Access 1 to Doctorate. For the purposes of the analysis carried out for this report, these were further banded to create the following categories:

- Degree level qualifications
- Higher standard grades and upper level vocational qualifications

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- Upper standard grades and intermediate vocational qualifications
- No qualifications, lower standard grades and vocational and other qualifications

The highest qualification was defined for each parent and a household level variable was calculated. In couple families this corresponds to the highest classification among the respondent and his/her partner.

Area deprivation (SIMD)

Area deprivation was measured using the Scottish Index of Multiple Deprivation (SIMD) which identifies small area concentrations of multiple deprivation across Scotland. It is based on 37 indicators in the seven individual domains of Current Income, Employment, Health, Education Skills and Training, Geographic Access to Services (including public transport travel times for the first time), Housing and a new Crime Domain. SIMD is presented at data zone level, enabling small pockets of deprivation to be identified. The data zones, which have a median population size of 769, are ranked from most deprived (1) to least deprived (6,505) on the overall SIMD and on each of the individual domains. The result is a comprehensive picture of relative area deprivation across Scotland.

In this report the data zones have been grouped into quintiles. Quintiles are percentiles which divide a distribution into fifths, i.e., the 20th, 40th, 60th, and 80th percentiles. Those respondents whose postcode falls into the first quintile are said to live in one of the 20% least deprived areas in Scotland. Those whose postcode falls into the fifth quintile are said to live in one of the 20% most deprived areas in Scotland.

Further details on SIMD can be found on the Scottish Government Website

<http://www.gov.scot/Topics/Statistics/SIMD/Overview>

Urban/rural classification

The Scottish Government Urban Rural Classification was first released in 2000 and is consistent with the Government's core definition of rurality which defines settlements of 3,000 or less people to be rural. It also classifies areas as remote based on drive times from settlements of 10,000 or more people. The definitions of urban and rural areas underlying the classification are unchanged.

The classification has been designed to be simple and easy to understand and apply. It distinguishes between urban, rural and remote areas within Scotland and includes the following categories:

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- 'Large Urban Areas': Settlements of 125,000 people or more
- 'Other Urban Areas': Settlements of 10,000 to 124,999 people
- 'Accessible Small Towns': Settlements of between 3,000 and 9,999 people and within 30 minutes' drive of a settlement of 10,000 or more
- 'Remote Small Towns': Settlements of between 3,000 and 9,999 people and with a drive time of over 30 minutes to a settlement of 10,000 or more
- 'Accessible Rural': Settlements of less than 3,000 people and within 30 minutes' drive of a settlement of 10,000 or more
- 'Remote Rural': Settlements of less than 3,000 people and with a drive time of over 30 minutes to a settlement of 10,000 or more

For further details on the classification see the Scottish Government's website: http://www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification?utm_source=website&utm_medium=navigation&utm_campaign=statistics-evaluationtools

For the purposes of this report, the above were banded into three categories:

- Urban areas (large and other urban areas)
- Towns (accessible and rural small towns)
- Rural areas (accessible and remote rural areas)

Socio-economic classification (NSSEC) (highest level in household)

This variable draws on the National Statistics Socio-Economic Classification (NSSEC). It comprises five different occupational classifications:

- Managerial and professional occupations
- Intermediate occupations
- Small employers and own account holders
- Lower supervisory and technical occupations
- Semi routine and routine occupations
- Never worked

Further information is available at:

<https://www.ons.gov.uk/methodology/classificationsandstandards/otherclassifications/thenationalstatistics socioeconomicclassificationnssecbasedonsoc2010>

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8.2. APPENDIX B: INTERPRETING THE COHORT COMPARISON TABLES

Many of the tables in Appendix C are presented as 'nested' cross-tabulations. These are cross-tabulations of two variables (e.g. whether child has a longstanding illness by equivalised household income) nested by a third variable: cohort. This approach allows that all of the information of interest is produced as a single table and also permits a statistical test to explore whether the relationship between the two variables has changed between the cohorts.

As standard, the statistical tests carried out for the nested cross-tabulations were based on combined values for both cohorts (not shown in the table) and not on the individual cohort figures. As such, this test does not tell us whether differences by income are statistically significant within each cohort. Furthermore, the test is run across all categories and does not test for differences between each individual category and the next, e.g. between the 4th quintile and highest quintile.

Statistical significance levels are reported as *, ** or ***, indicating statistical significance at the 95%, 99% and 99.9% levels. Where nothing else is indicated, no statistically significant differences were found.

Running the tables as nested cross-tabulations allows us to test (using interaction analysis) whether the relationship between two variables (e.g. whether child has a longstanding illness by equivalised household income) is statistically significantly different between the two cohorts. Where there is a statistically significant difference in the relationship between the two variables in question across the cohorts, this is indicated by the use of 'a' (e.g. Table 8-2). A difference in relationship may refer to a strengthening of the association, a weakening of the association or some other change – such as moving from a positive relationship (e.g. as income increases likelihood of having a longstanding illness also increase) to a negative relationship (e.g. as income increases likelihood of having a longstanding illness decreases).

In cases where a statistically significant difference in the relationship between the two variables was found (as indicated by an 'a'), separate statistical tests were run for each cohort to test whether the relationship between the two variables held for both cohorts. In these cases, statistical significance is reported for each cohort (e.g. Table 8-2).

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8.3. APPENDIX C: ADDITIONAL TABLES

Table 8-1 Duration of attendance at main ELC provider – by cohort

	BC1	BC2
Avg. weekly ELC attendance (hours)		
Average (mean) number of hours per week***	14.4	16.6
	%	%
Under 12.5 hours per week***	30	10
12.5 hours per week***	40	22
More than 12.5 hours but less than 16 hours per week***	15	42
Between 16 and 30 hours per week***	10	20
30 or more hours per week	6	6
<i>Unweighted bases</i>	3731	4306
<i>Weighted bases</i>	3720	4304

Base: All cases where child attended ELC and information about duration was provided.

*** significant difference between cohorts at p<.001 level.

Table 8-2 Duration of attendance at main ELC provider - by household income and by cohort

Equivalent household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
Avg. (mean) hours per week^a						
BC1***	14.0	13.9	14.2	14.3	16.6	14.4
BC2***	15.3	15.6	16.6	17.3	20.0	16.6
<i>Unweighted bases – BC1</i>	689	787	628	830	573	3731
<i>Unweighted bases – BC2</i>	773	742	797	735	823	4306
<i>Weighted bases – BC1</i>	870	820	591	723	488	3720
<i>Weighted bases – BC2</i>	1012	786	741	614	666	4304

Base: All cases where child attended ELC and information about duration was provided.

*** significant difference by household income at p<.001 level.

^a significant difference in relationship with household income between the cohorts.

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Table 8-3 Duration of attendance at main ELC provider - by parental education and by cohort

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
<i>Avg. (mean) hours per week^a</i>					
BC1*	13.7	13.9	14.4	14.8	14.4
BC2***	15.5	15.5	16.3	17.7	16.6
<i>Unweighted bases – BC1</i>	284	617	1207	1483	3731
<i>Unweighted bases – BC2</i>	285	559	1231	2126	4306
<i>Weighted bases – BC1</i>	382	703	1186	1288	3720
<i>Weighted bases – BC2</i>	413	698	1277	1789	4304

Base: All cases where child attended ELC and information about duration was provided.

*** significant differences by parental level of education at p<.001 level.

* significant differences by parental level of education at p<.05 level.

^a significant difference in relationship with parental education between the cohorts.

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Table 8-4 Duration of attendance at main ELC provider - by area deprivation and by cohort

	Area deprivation (SIMD quintiles)					
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
Avg. (mean) hours per week^a						
BC1**	15.0	13.9	14.1	13.9	14.9	14.4
BC2***	16.2	16.0	16.2	16.9	18.0	16.6
<i>Unweighted bases – BC1</i>	636	677	747	837	834	3731
<i>Unweighted bases – BC2</i>	726	812	898	923	947	4306
<i>Weighted bases – BC1</i>	829	727	700	756	708	3720
<i>Weighted bases – BC2</i>	962	892	846	811	792	4304

Base: All cases where child attended ELC and information about duration was provided.

*** significant differences by area deprivation at p<.001 level.

** significant differences by area deprivation at p<.01 level.

^a significant difference in relationship with area deprivation between the cohorts.

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Table 8-5 Duration of attendance at main ELC provider - by urban/rural location and by cohort

Urban/Rural location				
	Urban	Towns (accessible and remote)	Rural (accessible and remote)	All
<i>Avg. (mean) hours per week***</i>				
BC1	14.9	13.5	13.1	14.4
BC2	17.2	15.3	15.7	16.6
<i>Unweighted bases – BC1</i>	<i>2478</i>	<i>497</i>	<i>756</i>	<i>3731</i>
<i>Unweighted bases – BC2</i>	<i>2772</i>	<i>622</i>	<i>912</i>	<i>4306</i>
<i>Weighted bases – BC1</i>	<i>2591</i>	<i>467</i>	<i>662</i>	<i>3720</i>
<i>Weighted bases – BC2</i>	<i>2944</i>	<i>580</i>	<i>780</i>	<i>4304</i>

Base: All cases where child attended ELC and information about duration was provided.

*** significant differences by urban/rural location at p<.001 level.

No significant difference in relationship with urban/rural location between the cohorts.

Table 8-6 % of children attending ELC provider with certain quality grading – by ELC provider type and by cohort

ELC provider type				
	Local authority nursery class attached to primary school	Other local authority	Private and voluntary providers	All
<i>Care and Support***</i>	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'very good' or 'excellent' grade	73	73	48	67
Attended provider with less than 'very good' grade	27	27	52	33
BC2				
Attended provider with 'very good' or 'excellent' grade	70	66	52	65
Attended provider with less than 'very good' grade	30	34	48	35

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Table 8-6 continued (ELC provider type)				
Bases				
<i>Unweighted bases – BC1</i>	1899	498	721	3118
<i>Unweighted bases – BC2</i>	2394	556	977	3941
<i>Weighted bases – BC1</i>	1890	529	676	3095
<i>Weighted bases – BC2</i>	2439	607	893	3953
Environment^a	% of children	% of children	% of children	% of children
BC1***				
Attended provider with 'very good' or 'excellent' grade	64	62	39	58
Attended provider with less than 'very good' grade	36	38	61	42
BC2***				
Attended provider with 'very good' or 'excellent' grade	59	58	45	56
Attended provider with less than 'very good' grade	41	42	55	44
Bases				
<i>Unweighted bases – BC1</i>	1834	474	705	3013
<i>Unweighted bases – BC2</i>	2394	556	977	3941
<i>Weighted bases – BC1</i>	1817	501	658	2976
<i>Weighted bases – BC2</i>	2439	607	893	3953
Staffing^a	% of children	% of children	% of children	% of children
BC1***				
Attended provider with 'very good' or 'excellent' grade	49	44	32	45
Attended provider with less than 'very good' grade	51	56	68	55
BC2**				
Attended provider with 'very good' or 'excellent' grade	55	60	49	55
Attended provider with less than 'very good' grade	45	40	51	45

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Table 8-6 continued (ELC provider type)				
Bases				
<i>Unweighted bases – BC1</i>	1886	496	721	3103
<i>Unweighted bases – BC2</i>	2394	556	977	3941
<i>Weighted bases – BC1</i>	1879	526	676	3081
<i>Weighted bases – BC2</i>	2439	607	893	3953
Management and Leadership***	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'very good' or 'excellent' grade	57	55	39	53
Attended provider with less than 'very good' grade	43	45	61	47
BC2				
Attended provider with 'very good' or 'excellent' grade	52	53	40	49
Attended provider with less than 'very good' grade	48	47	60	51
Bases				
<i>Unweighted bases – BC1</i>	1824	473	701	2998
<i>Unweighted bases – BC2</i>	2394	556	977	3941
<i>Weighted bases – BC1</i>	1808	500	655	2963
<i>Weighted bases – BC2</i>	2439	607	893	3953
Grading mix***	% of children	% of children	% of children	% of children
BC1				
Attended provider with at least 'very good' grade on all four quality measures	39	36	28	36
Attended provider with mix of grades across quality measures	61	64	72	64
BC2				
Attended provider with at least 'very good' grade on all four quality measures	38	38	29	36
Attended provider with mix of grades across quality measures	62	62	71	64

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Table 8-6 continued (ELC provider type)				
Bases				
<i>Unweighted bases – BC1</i>	1728	433	657	2818
<i>Unweighted bases – BC2</i>	2394	556	977	3941
<i>Weighted bases – BC1</i>	1709	455	611	2775
<i>Weighted bases – BC2</i>	2439	607	893	3953

Base: All cases where information about ELC quality and type of ELC was available.

*** significant difference by type of ELC provider at $p < .001$ level.

** significant difference by type of ELC provider at $p < .01$ level.

^a significant difference in relationship with type of ELC provider between the cohorts.

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Table 8-7 Type of ELC provider child attended – by household income and by cohort (% of children)

Equivalised household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
<i>ELC provider type child attended^a</i>	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Local authority nursery class attached to primary school***	67	64	64	59	50	62
Other local authority	23	18	15	17	11	18
Private and voluntary***	11	18	22	25	39	21
BC2						
Local authority nursery class attached to primary school***	68	72	63	56	43	62
Other local authority	20	14	13	12	11	15
Private and voluntary***	12	14	23	32	46	23
Bases						
<i>Unweighted bases – BC1</i>	689	787	628	830	573	3731
<i>Unweighted bases – BC2</i>	772	745	798	737	831	4314
<i>Weighted bases – BC1</i>	870	820	591	723	488	3720
<i>Weighted bases – BC2</i>	1014	791	742	615	672	4311

Base: All cases where information about ELC type was provided.

*** significant difference by household income at p<.001 level.

^a significant difference in relationship with household income between the cohorts.

Sig tested on Local authority nursery class attached to primary school and on Private and voluntary.

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Table 8-8 Type of ELC provider child attended – by parental education and by cohort (% of children)

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
<i>ELC provider type child attended***</i>	% of children	% of children	% of children	% of children	% of children
BC1					
Local authority nursery class attached to primary school	70	69	60	56	62
Other local authority	23	19	20	13	18
Private and voluntary	7	12	21	31	21
BC2					
Local authority nursery class attached to primary school	70	69	65	54	62
Other local authority	21	16	17	12	15
Private and voluntary	9	15	18	34	23
Bases					
<i>Unweighted bases – BC1</i>	284	617	1207	1483	3731
<i>Unweighted bases – BC2</i>	284	559	1230	2136	4314
<i>Weighted bases – BC1</i>	382	703	1186	1288	3720
<i>Weighted bases – BC2</i>	412	699	1276	1798	4311

Base: All cases where information about ELC type was provided.

*** significant differences by parental level of education at p<.001 level.

No significant difference in relationship with parental education between the cohorts.

Sig tested on Local authority nursery class attached to primary school and on Private and voluntary – differences significant on both.

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Table 8-9 Type of ELC provider child attended – by area deprivation and by cohort (% of children)

	Area deprivation (SIMD quintiles)					
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
ELC provider type child attended***	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Local authority nursery class attached to primary school	60	65	62	64	56	62
Other local authority	26	19	16	13	13	18
Private and voluntary	14	16	22	23	31	21
BC2						
Local authority nursery class attached to primary school	65	66	63	60	53	62
Other local authority	21	17	13	13	11	15
Private and voluntary	14	17	24	27	36	23
Bases						
<i>Unweighted bases – BC1</i>	636	677	747	837	834	3731
<i>Unweighted bases – BC2</i>	721	813	901	927	952	4314
<i>Weighted bases – BC1</i>	829	727	700	756	708	3720
<i>Weighted bases – BC2</i>	956	894	850	816	795	4311

Base: All cases where information about ELC type was provided.

*** significant differences by area deprivation at $p < .001$ level.

No significant difference in relationship with area deprivation between the cohorts.

Sig tested on Local authority nursery class attached to primary school and on Private and voluntary – differences significant on both.

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Table 8-10 Type of ELC provider child attended – by urban/rural location and by cohort (% of children)

	Urban/Rural location			
	Urban	Towns (accessible and remote)	Rural (accessible and remote)	All
<i>ELC provider type child attended***</i>	% of children	% of children	% of children	% of children
BC1				
Local authority nursery class attached to primary school	59	65	69	62
Other local authority	20	15	11	18
Private and voluntary	21	21	20	21
BC2				
Local authority nursery class attached to primary school	59	67	69	62
Other local authority	18	11	9	15
Private and voluntary	24	21	22	23
Bases				
<i>Unweighted bases – BC1</i>	2478	497	756	3731
<i>Unweighted bases – BC2</i>	2774	625	915	4314
<i>Weighted bases – BC1</i>	2591	467	662	3720
<i>Weighted bases – BC2</i>	2947	582	782	4311

Base: All cases where information about ELC type was provided.

*** significant differences by urban/rural location at $p < .001$ level.

** significant differences by urban/rural location at $p < .01$ level.

No significant difference in relationship with urban/rural location between the cohorts.

Sig tested on Local authority nursery class attached to primary school and on Private and voluntary.

When testing on combined BC1 and BC2 figures (cf. Appendix B), differences were sig for Local authority nursery class attached to primary school only.

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Table 8-11 % of children attending ELC provider with certain quality grading – by household income and by cohort

Equivalised household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
	% of children	% of children	% of children	% of children	% of children	% of children
Care and Support						
BC1						
Attended provider with 'very good' or 'excellent' grade	67	65	69	69	69	67
Attended provider with less than 'very good' grade	33	35	31	31	31	33
BC2						
Attended provider with at least 'very good' grade	64	65	67	65	62	65
Attended provider with less than 'very good' grade	36	35	33	35	38	35
Bases						
<i>Unweighted bases – BC1</i>	565	663	528	706	476	3118
<i>Unweighted bases – BC2</i>	716	682	717	683	748	3941
<i>Weighted bases – BC1</i>	709	689	498	615	401	3095
<i>Weighted bases – BC2</i>	944	730	664	568	605	3953
Environment	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'very good' or 'excellent' grade	59	56	60	57	59	58
Attended provider with less than 'very good' grade	41	44	40	43	41	42

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-11 continued (equivalised household income)

Table 8-11 continued (equivalised household income)						
BC2						
Attended provider with at least 'very good' grade	56	55	57	54	56	56
Attended provider with less than 'very good' grade	44	45	43	46	44	44
Bases						
<i>Unweighted bases – BC1</i>	538	639	519	683	457	3013
<i>Unweighted bases – BC2</i>	716	682	717	683	748	3941
<i>Weighted bases – BC1</i>	668	662	487	594	386	2976
<i>Weighted bases – BC2</i>	944	730	664	568	605	3953
Staffing	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'very good' or 'excellent' grade	46	44	45	44	48	45
Attended provider with less than 'very good' grade	54	56	55	56	52	55
BC2						
Attended provider with at least 'very good' grade	51	54	58	55	60	55
Attended provider with less than 'very good' grade	49	46	42	45	40	45
Bases						
<i>Unweighted bases – BC1</i>	564	659	522	702	476	3103
<i>Unweighted bases – BC2</i>	716	682	717	683	748	3941
<i>Weighted bases – BC1</i>	708	685	492	611	401	3081
<i>Weighted bases – BC2</i>	944	730	664	568	605	3953

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-11 continued (equivalised household income)

Management and Leadership	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'very good' or 'excellent' grade	52	52	54	53	56	53
Attended provider with less than 'very good' grade	48	48	46	47	44	47
BC2						
Attended provider with at least 'very good' grade	48	50	51	50	50	49
Attended provider with less than 'very good' grade	52	50	49	50	50	51
Bases						
<i>Unweighted bases – BC1</i>	537	638	515	677	454	2998
<i>Unweighted bases – BC2</i>	716	682	717	683	748	3941
<i>Weighted bases – BC1</i>	667	661	483	589	383	2963
<i>Weighted bases – BC2</i>	944	730	664	568	605	3953
Grading mix	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with at least 'very good' grade on all four quality measures	37	34	36	36	40	36
Attended provider with mix of grades across quality measures	63	66	64	64	60	64
BC2						
Attended provider with at least 'very good' grade on all four quality measures	36	35	38	36	36	36
Attended provider with mix of grades across quality measures	64	65	62	64	64	64

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-11 continued (equivalised household income)

Bases						
<i>Unweighted bases – BC1</i>	496	603	482	644	430	2818
<i>Unweighted bases – BC2</i>	716	682	717	683	748	3941
<i>Weighted bases – BC1</i>	619	623	449	559	363	2775
<i>Weighted bases – BC2</i>	944	730	664	568	605	3953

Base: All cases where ELC quality information was available.

* significant difference by level of household income at p<.05 level.

No significant difference in relationship with household income between the cohorts.

Table 8-12 % of children attending ELC provider with certain quality grading – by parental education and by cohort

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
Care and Support	% of children	% of children	% of children	% of children	% of children
BC1					
Attended provider with 'very good' or 'excellent' grade	69	68	69	66	67
Attended provider with less than 'very good' grade	31	32	31	34	33
BC2					
Attended provider with at least 'very good' grade	62	66	67	64	65
Attended provider with less than 'very good' grade	38	34	33	36	35

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-12 continued (highest household level of education)					
Bases					
<i>Unweighted bases – BC1</i>	237	500	1015	1251	3118
<i>Unweighted bases – BC2</i>	256	526	1131	1931	3941
<i>Weighted bases – BC1</i>	321	570	992	1082	3095
<i>Weighted bases – BC2</i>	371	661	1177	1627	3953
Environment	% of children	% of children	% of children	% of children	% of children
BC1					
Attended provider with 'very good' or 'excellent' grade	66	55	59	56	58
Attended provider with less than 'very good' grade	34	45	41	44	42
BC2					
Attended provider with at least 'very good' grade	55	57	57	55	56
Attended provider with less than 'very good' grade	45	43	43	45	44
Bases					
<i>Unweighted bases – BC1</i>	227	482	984	1211	3013
<i>Unweighted bases – BC2</i>	256	526	1131	1931	3941
<i>Weighted bases – BC1</i>	306	543	960	1045	2976
<i>Weighted bases – BC2</i>	371	661	1177	1627	3953
Staffing	% of children	% of children	% of children	% of children	% of children
BC1					
Attended provider with 'very good' or 'excellent' grade	47	44	45	44	45
Attended provider with less than 'very good' grade	53	56	55	56	55

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-12 continued (highest household level of education)

BC2					
Attended provider with at least 'very good' grade	47	54	54	58	55
Attended provider with less than 'very good' grade	53	46	46	42	45
Bases					
<i>Unweighted bases – BC1</i>	236	495	1013	1245	3103
<i>Unweighted bases – BC2</i>	256	526	1131	1931	3941
<i>Weighted bases – BC1</i>	320	565	990	1077	3081
<i>Weighted bases – BC2</i>	371	661	1177	1627	3953
Management and Leadership	% of children	% of children	% of children	% of children	% of children
BC1					
Attended provider with 'very good' or 'excellent' grade	56	52	53	53	53
Attended provider with less than 'very good' grade	44	48	47	47	47
BC2					
Attended provider with at least 'very good' grade	44	51	50	50	49
Attended provider with less than 'very good' grade	56	49	50	50	51
Bases					
<i>Unweighted bases – BC1</i>	226	478	982	1204	2998
<i>Unweighted bases – BC2</i>	256	526	1131	1931	3941
<i>Weighted bases – BC1</i>	305	539	959	1040	2963
<i>Weighted bases – BC2</i>	371	661	1177	1627	3953

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-12 continued (highest household level of education)					
Grading mix	% of children	% of children	% of children	% of children	% of children
BC1					
Attended provider with at least 'very good' grade on all four quality measures	40	36	36	35	36
Attended provider with mix of grades across quality measures	60	64	64	65	64
BC2					
Attended provider with at least 'very good' grade on all four quality measures	30	37	37	36	36
Attended provider with mix of grades across quality measures	70	63	63	64	64
Bases					
<i>Unweighted bases – BC1</i>	207	446	926	1143	2818
<i>Unweighted bases – BC2</i>	256	526	1131	1931	3941
<i>Weighted bases – BC1</i>	279	502	904	985	2775
<i>Weighted bases – BC2</i>	371	661	1177	1627	3953

Base: All cases where ELC quality information was available.

No significant differences by parental education in either cohort.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-13 % of children attending ELC provider with certain quality grading – by area deprivation and by cohort

Area deprivation (SIMD quintiles)						
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
Care and Support	%	%	%	%	%	%
BC1						
Attended provider with 'Very good' or 'Excellent' grade	66	65	69	67	70	67
Attended provider with less than 'Very good' grade	34	35	31	33	30	33
BC2						
Attended provider with 'Very good' or 'Excellent' grade	62	66	69	64	64	65
Attended provider with less than 'Very good' grade	38	34	31	36	36	35
Bases						
<i>Unweighted bases – BC1</i>	513	556	634	711	704	3118
<i>Unweighted bases – BC2</i>	663	739	836	840	863	3941
<i>Weighted bases – BC1</i>	669	595	592	643	595	3095
<i>Weighted bases – BC2</i>	883	821	786	744	720	3953
Environment	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'Very good' or 'Excellent' grade	56	57	59	59	59	58
Attended provider with less than 'Very good' grade	44	43	41	41	41	42

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-13 continued (area deprivation)						
BC2						
Attended provider with 'Very good' or 'Excellent' grade	56	55	56	58	55	56
Attended provider with less than 'Very good' grade	44	45	44	42	45	44
Bases						
<i>Unweighted bases – BC1</i>	479	540	617	697	680	3013
<i>Unweighted bases – BC2</i>	663	739	836	840	863	3941
<i>Weighted bases – BC1</i>	623	573	575	629	576	2976
<i>Weighted bases – BC2</i>	883	821	786	744	720	3953
Staffing**	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'Very good' or 'Excellent' grade	40	47	44	46	48	45
Attended provider with less than 'Very good' grade	60	53	56	54	52	55
BC2						
Attended provider with 'Very good' or 'Excellent' grade	49	50	54	61	62	55
Attended provider with less than 'Very good' grade	51	50	46	39	38	45
Bases						
<i>Unweighted bases – BC1</i>	512	550	632	707	702	3103
<i>Unweighted bases – BC2</i>	663	739	836	840	863	3941
<i>Weighted bases – BC1</i>	668	590	591	639	594	3081
<i>Weighted bases – BC2</i>	883	821	786	744	720	3953

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-13 continued (area deprivation)						
Management and Leadership	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with 'Very good' or 'Excellent' grade	49	53	53	54	57	53
Attended provider with less than 'Very good' grade	51	47	47	46	43	47
BC2						
Attended provider with 'Very good' or 'Excellent' grade	45	48	52	52	51	49
Attended provider with less than 'Very good' grade	55	52	48	48	49	51
Bases						
<i>Unweighted bases – BC1</i>	479	538	614	693	674	2998
<i>Unweighted bases – BC2</i>	663	739	836	840	863	3941
<i>Weighted bases – BC1</i>	623	570	572	625	571	2963
<i>Weighted bases – BC2</i>	883	821	786	744	720	3953
Grading mix	% of children	% of children	% of children	% of children	% of children	% of children
BC1						
Attended provider with at least 'very good' grade on all four quality measures	31	35	37	37	42	36
Attended provider with mix of grades across quality measures	69	65	63	63	58	64

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-13 continued (area deprivation)

BC2						
Attended provider with at least 'very good' grade on all four quality measures	32	36	36	39	37	36
Attended provider with mix of grades across quality measures	68	64	64	61	63	64
Bases						
<i>Unweighted bases – BC1</i>	436	499	587	660	636	2818
<i>Unweighted bases – BC2</i>	663	739	836	840	863	3941
<i>Weighted bases – BC1</i>	566	527	545	596	540	2775
<i>Weighted bases – BC2</i>	883	821	786	744	720	3953

Base: All cases where ELC quality information was available.

** significant difference by area deprivation at $p < .01$ level.

No significant difference in relationship with area deprivation between the cohorts.

Table 8-14 % of children attending ELC provider with certain quality grading – by urban/rural location and by cohort

	Urban/Rural location			
	Urban	Towns (accessible and remote)	Rural (accessible and remote)	All
Care and Support	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'Very good' or 'Excellent' grade	66	68	71	67
Attended provider with less than 'Very good' grade	34	32	29	33
BC2				
Attended provider with 'Very good' or 'Excellent' grade	66	66	62	65
Attended provider with less than 'Very good' grade	34	34	38	35

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-14 continued (urban/rural location)				
Bases				
<i>Unweighted bases – BC1</i>	2065	389	664	3118
<i>Unweighted bases – BC2</i>	2525	566	850	3941
<i>Weighted bases – BC1</i>	2158	357	580	3095
<i>Weighted bases – BC2</i>	2696	528	729	3953
Environment	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'Very good' or 'Excellent' grade	58	53	62	58
Attended provider with less than 'Very good' grade	42	47	38	42
BC2				
Attended provider with 'Very good' or 'Excellent' grade	56	58	56	56
Attended provider with less than 'Very good' grade	44	42	44	44
Bases				
<i>Unweighted bases – BC1</i>	1975	380	658	3013
<i>Unweighted bases – BC2</i>	2525	566	850	3941
<i>Weighted bases – BC1</i>	2055	347	574	2976
<i>Weighted bases – BC2</i>	2696	528	729	3953
Staffing	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'Very good' or 'Excellent' grade	46	43	42	45
Attended provider with less than 'Very good' grade	54	57	58	55
BC2				
Attended provider with 'Very good' or 'Excellent' grade	55	54	54	55
Attended provider with less than 'Very good' grade	45	46	46	45

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-14 continued (urban/rural location)				
Bases				
<i>Unweighted bases – BC1</i>	2054	389	660	3103
<i>Unweighted bases – BC2</i>	2525	566	850	3941
<i>Weighted bases – BC1</i>	2148	357	577	3081
<i>Weighted bases – BC2</i>	2696	528	729	3953
Management and Leadership	% of children	% of children	% of children	% of children
BC1				
Attended provider with 'Very good' or 'Excellent' grade	54	52	52	53
Attended provider with less than 'Very good' grade	46	48	48	47
BC2				
Attended provider with 'Very good' or 'Excellent' grade	49	54	46	49
Attended provider with less than 'Very good' grade	51	46	54	51
Bases				
<i>Unweighted bases – BC1</i>	1962	380	656	2998
<i>Unweighted bases – BC2</i>	2525	566	850	3941
<i>Weighted bases – BC1</i>	2043	347	572	2963
<i>Weighted bases – BC2</i>	2696	528	729	3953
Grading mix^a	% of children	% of children	% of children	% of children
BC1				
Attended provider with at least 'very good' grade on all four quality measures	38	28	35	36
Attended provider with mix of grades across quality measures	62	72	65	64
BC2				
Attended provider with at least 'very good' grade on all four quality measures	35	44	33	36
Attended provider with mix of grades across quality measures	65	56	67	64

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-14 continued (urban/rural location)

Bases				
<i>Unweighted bases – BC1</i>	1839	353	626	2818
<i>Unweighted bases – BC2</i>	2525	566	850	3941
<i>Weighted bases – BC1</i>	1906	323	546	2775
<i>Weighted bases – BC2</i>	2696	528	729	3953

Base: All cases where ELC quality information was available.

Table 8-15 Adjustment to primary school – individual measures (1) – by cohort

	BC1	BC2
	%	%
<i>Child complained about school</i>		
More than once a week	7	9
Once a week or less	14	22
Not at all***	79	69
<i>Unweighted bases</i>	1227	1680
<i>Weighted bases</i>	1240	1549
<i>Child reluctant to go to school</i>		
More than once a week	4	5
Once a week or less	19	23
Not at all***	77	71
<i>Unweighted bases</i>	1227	1682
<i>Weighted bases</i>	1240	1551
<i>Child said good things about school</i>		
More than once a week	89	87
Once a week or less	8	10
Not at all	3	3
<i>Unweighted bases</i>	1225	1679
<i>Weighted bases</i>	1237	1547

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-15 continued (adjustment to primary school, by cohort)

<i>Child looks forward to going to school</i>		
More than once a week***	91	87
Once a week or less	5	10
Not at all	3	3
<i>Unweighted bases</i>	1220	1678
<i>Weighted bases</i>	1232	1547

Bases: Cases where child had started primary school at time of age 5 interview.

*** significant difference between the cohorts at $p < .001$ level.

Table 8-16 Adjustment to primary school – individual measures (2) – by cohort

	BC1	BC2
	%	%
<i>Child finding it hard to sit still/listen in class</i>		
Agree/agree strongly	15	18
Neither agree nor disagree	19	15
Disagree/disagree strongly	66	67
<i>Unweighted bases</i>	1121	1647
<i>Weighted bases</i>	1129	1517
<i>Child has adjusted well to school</i>		
Agree/agree strongly	91	91
Neither agree nor disagree	6	5
Disagree/disagree strongly	3	4
<i>Unweighted bases</i>	1202	1681
<i>Weighted bases</i>	1214	1548

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

No significant difference between the cohorts.

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CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-17 Adjustment to primary school – composite measures – by cohort

	BC1	BC2
	%	%
<i>Adjustment – composite measure 1</i>		
Poor	1	2
Good/average	60	62
Excellent	39	36
<i>Unweighted bases</i>	<i>1227</i>	<i>1681</i>
<i>Weighted bases</i>	<i>1239</i>	<i>1550</i>
<i>Adjustment – composite measure 2</i>		
Below average	38	37
Average or above	62	63
<i>Unweighted bases</i>	<i>1230</i>	<i>1684</i>
<i>Weighted bases</i>	<i>1242</i>	<i>1552</i>

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

No significant differences between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-18 Adjustment to primary school – by household income and by cohort

Equivalised household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
<i>Child's adjustment to primary school***</i>	%	%	%	%	%	%
BC1						
Below average	45	37	33	31	35	38
Average or above	55	63	67	69	65	62
BC2						
Below average	43	38	35	30	31	37
Average or above	57	62	65	70	69	63
Bases						
<i>Unweighted bases – BC1</i>	238	271	191	271	186	1230
<i>Unweighted bases – BC2</i>	315	265	308	294	313	1684
<i>Weighted bases – BC1</i>	304	282	181	237	159	1242
<i>Weighted bases – BC2</i>	377	259	259	229	234	1552

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

*** significant difference by household income at $p < .001$ level.

No significant differences in relationship with household income between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-19 Adjustment to primary school – by parental education and by cohort

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
<i>Child's adjustment to primary school***</i>	%	%	%	%	%
BC1					
Below average	53	37	38	34	38
Average or above	47	63	62	66	62
BC2					
Below average	46	41	37	33	37
Average or above	54	59	63	67	63
Bases					
<i>Unweighted bases – BC1</i>	81	204	407	488	1230
<i>Unweighted bases – BC2</i>	103	238	491	810	1684
<i>Weighted bases – BC1</i>	105	236	412	430	1242
<i>Weighted bases – BC2</i>	128	277	473	629	1552

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

*** significant differences by parental level of education p<.001 level.

No significant differences in relationship with parental education between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-20 Adjustment to primary school – by area deprivation and by cohort

Area deprivation (SIMD quintiles)						
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
<i>Child's adjustment to primary school</i>	%	%	%	%	%	%
BC1						
Below average	41	38	33	40	36	38
Average or above	59	62	67	60	64	62
BC2						
Below average	41	38	35	36	34	37
Average or above	59	62	65	64	66	63
Bases						
<i>Unweighted bases – BC1</i>	235	238	244	273	240	1230
<i>Unweighted bases – BC2</i>	305	322	349	347	361	1684
<i>Weighted bases – BC2</i>	307	254	227	249	205	1242
<i>Weighted bases – BC2</i>	366	322	303	284	278	1552

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

No significant differences by area deprivation in either of the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-21 Adjustment to primary school – by urban/rural location and by cohort

	Urban/Rural location			
	Urban	Towns (accessible and remote)	Rural (accessible and remote)	All
<i>Child's adjustment to primary school</i>	%	%	%	%
BC1				
Below average	37	38	39	38
Average or above	63	62	61	62
BC2				
Below average	37	38	39	37
Average or above	63	62	61	63
Bases				
<i>Unweighted bases – BC1</i>	832	151	247	1230
<i>Unweighted bases – BC2</i>	1148	206	330	1684
<i>Weighted bases – BC1</i>	878	150	214	1242
<i>Weighted bases – BC2</i>	1123	172	257	1552

Bases: Cases where child had started primary school at time of age 5 interview and where information was provided.

No significant differences by urban/rural location in either of the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-22 SDQ summary mean scores – by household income and by cohort

Equivalised household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
Total difficulties***						
BC1	9.7	8.0	7.4	6.8	6.2	7.9
BC2	9.7	7.9	6.9	6.1	5.9	7.6
<i>Unweighted bases – BC1</i>	705	794	638	849	587	3786
<i>Unweighted bases – BC2</i>	772	752	801	756	843	4317
<i>Weighted bases – BC1</i>	892	830	604	738	501	3779
<i>Weighted bases – BC2</i>	1015	796	745	633	681	4300
Emotional symptoms***						
BC1	1.5	1.3	1.2	1.0	1.0	1.3
BC2	1.5	1.3	1.2	1.1	1.1	1.3
<i>Unweighted bases – BC1</i>	712	795	642	849	588	3802
<i>Unweighted bases – BC2</i>	779	755	801	759	844	4335
<i>Weighted bases – BC1</i>	899	830	607	738	501	3795
<i>Weighted bases – BC2</i>	1022	799	745	635	682	4321
Conduct problems***						
BC1	2.2	1.8	1.6	1.6	1.3	1.8
BC2	2.2	1.7	1.5	1.3	1.3	1.7
<i>Unweighted bases – BC1</i>	712	795	642	850	588	3803
<i>Unweighted bases – BC2</i>	778	754	802	759	845	4335
<i>Weighted bases – BC1</i>	899	830	607	740	501	3797
<i>Weighted bases – BC2</i>	1021	798	746	635	683	4320

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-22 continued (equivalised household income)						
Hyperactivity***						
BC1	4.4	3.8	3.7	3.3	3.1	3.8
BC2	4.4	3.7	3.3	2.9	2.8	3.5
<i>Unweighted bases – BC1</i>	707	795	639	850	588	3793
<i>Unweighted bases – BC2</i>	778	754	802	758	845	4334
<i>Weighted bases – BC1</i>	894	830	605	740	501	3785
<i>Weighted bases – BC2</i>	1022	798	746	635	683	4320
Peer problems***						
BC1	1.5	1.1	1.0	0.8	0.7	1.1
BC2	1.6	1.1	0.9	0.7	0.7	1.1
<i>Unweighted bases – BC1</i>	713	795	641	850	587	3801
<i>Unweighted bases – BC2</i>	778	754	802	756	844	4328
<i>Weighted bases – BC1</i>	900	831	607	740	501	3795
<i>Weighted bases – BC2</i>	1022	798	746	633	682	4312
Pro-social***						
BC1	8.0	8.2	8.2	8.3	8.4	8.2
BC2	8.1	8.5	8.6	8.6	8.7	8.4
<i>Unweighted bases- BC1</i>	712	794	643	849	588	3802
<i>Weighted bases – BC1</i>	899	829	609	738	501	3796
<i>Unweighted bases – BC2</i>	778	753	801	758	844	4331
<i>Weighted bases – BC2</i>	1022	796	744	635	682	4316

Base: All cases where information was provided for relevant questions.

*** significant difference by level of household income at p<.001 level.

No significant difference in relationship with household income between the cohorts.

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CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-23 SDQ summary mean scores – by parental education and by cohort

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
Total difficulties***					
BC1	9.9	9.2	7.5	6.7	7.9
BC2	9.7	9.2	7.7	6.3	7.6
<i>Unweighted bases – BC1</i>	288	620	1225	1510	3786
<i>Unweighted bases – BC2</i>	270	551	1233	2159	4317
<i>Weighted bases – BC1</i>	390	709	1206	1311	3779
<i>Weighted bases – BC2</i>	392	686	1277	1821	4300
Emotional symptoms***					
BC1	1.6	1.5	1.2	1.1	1.3
BC2	1.7	1.5	1.2	1.2	1.3
<i>Unweighted bases – BC1</i>	290	627	1228	1511	3802
<i>Unweighted bases – BC2</i>	271	557	1237	2165	4335
<i>Weighted bases – BC1</i>	391	716	1208	1312	3795
<i>Weighted bases – BC2</i>	393	693	1284	1826	4321
Conduct problems^a					
BC1 ***	2.2	2.1	1.6	1.5	1.8
BC2 ***	2.1	2.2	1.7	1.4	1.7
<i>Unweighted bases – BC1</i>	289	629	1228	1511	3803
<i>Unweighted bases – BC2</i>	271	554	1238	2167	4335
<i>Weighted bases – BC1</i>	391	719	1208	1312	3797
<i>Weighted bases – BC2</i>	393	689	1285	1828	4320

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-23 continued (highest household level of education)

Hyperactivity***					
BC1	4.4	4.3	3.7	3.2	3.8
BC2	4.2	4.2	3.7	3.0	3.5
<i>Unweighted bases – BC1</i>	290	622	1227	1511	3793
<i>Unweighted bases – BC2</i>	271	555	1238	2165	4334
<i>Weighted bases – BC1</i>	391	711	1207	1312	3785
<i>Weighted bases – BC2</i>	393	691	1285	1827	4320
Peer problems^a					
BC1 ***	1.6	1.3	1.0	0.9	1.1
BC2 ***	1.7	1.4	1.1	0.8	1.1
<i>Unweighted bases – BC1</i>	289	630	1226	1510	3801
<i>Unweighted bases – BC2</i>	272	556	1234	2162	4328
<i>Weighted bases – BC1</i>	391	720	1206	1311	3795
<i>Weighted bases – BC2</i>	394	692	1278	1824	4312
Pro-social^a					
BC1 **	8.1	8.0	8.3	8.2	8.2
BC2 ***	8.1	8.2	8.5	8.6	8.4
<i>Unweighted bases – BC1</i>	289	627	1229	1511	3802
<i>Unweighted bases – BC2</i>	272	555	1237	2164	4331
<i>Weighted bases – BC1</i>	390	717	1210	1312	3796
<i>Weighted bases – BC2</i>	394	691	1284	1825	4316

Base: All cases where information was provided for relevant questions.

*** significant difference by parental education at p<.001 level.

** significant difference by parental education at p<.01 level.

^a significant difference in relationship with parental education between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-24 SDQ summary mean scores – by area deprivation and by cohort

Area deprivation (SIMD quintiles)						
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
Total difficulties***						
BC1	9.4	8.4	7.7	7.1	6.4	7.9
BC2	9.0	8.4	7.1	6.8	6.2	7.6
<i>Unweighted bases – BC1</i>	659	681	757	844	845	3786
<i>Unweighted bases – BC2</i>	727	801	900	932	957	4317
<i>Weighted bases – BC1</i>	860	731	710	762	717	3779
<i>Weighted bases – BC2</i>	958	878	847	818	800	4300
Emotional symptoms***						
BC1	1.5	1.4	1.2	1.1	1.0	1.3
BC2	1.5	1.3	1.3	1.2	1.1	1.3
<i>Unweighted bases – BC1</i>	664	684	762	845	847	3802
<i>Unweighted bases – BC2</i>	729	809	904	935	958	4335
<i>Weighted bases – BC1</i>	865	734	715	762	719	3795
<i>Weighted bases – BC2</i>	960	888	852	821	800	4321
Conduct problems^a						
BC1 ***	2.1	1.8	1.8	1.6	1.4	1.8
BC2 ***	2.0	1.9	1.5	1.5	1.4	1.7
<i>Unweighted bases – BC1</i>	665	684	761	846	847	3803
<i>Unweighted bases – BC2</i>	730	808	903	936	958	4335
<i>Weighted bases – BC1</i>	866	734	714	764	719	3797
<i>Weighted bases – BC2</i>	961	887	850	822	800	4320

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CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-24 continued (area deprivation)

Table 8-24 continued (area deprivation)						
Hyperactivity***						
BC1	4.4	4.0	3.7	3.5	3.2	3.8
BC2	4.1	4.0	3.3	3.2	2.9	3.5
<i>Unweighted bases – BC1</i>	661	682	758	846	846	3793
<i>Unweighted bases – BC2</i>	731	808	904	934	957	4334
<i>Weighted bases – BC1</i>	862	732	711	764	718	3785
<i>Weighted bases – BC2</i>	962	888	851	820	800	4320
Peer problems***						
BC1	1.4	1.2	1.0	0.9	0.8	1.1
BC2	1.4	1.3	1.0	0.9	0.8	1.1
<i>Unweighted bases – BC1</i>	664	684	762	845	846	3801
<i>Unweighted bases – BC2</i>	729	806	902	933	958	4328
<i>Weighted bases – BC1</i>	866	734	715	763	718	3795
<i>Weighted bases – BC2</i>	960	883	850	819	800	4312
Pro-social^a						
BC1	8.1	8.3	8.1	8.2	8.3	8.2
BC2***	8.2	8.3	8.5	8.6	8.6	8.4
<i>Unweighted bases – BC1</i>	665	684	761	845	847	3802
<i>Unweighted bases – BC2</i>	729	806	904	934	958	4331
<i>Weighted bases – BC1</i>	867	734	714	762	719	3796
<i>Weighted bases – BC2</i>	959	885	851	820	800	4316

Base: All cases where information was provided for relevant questions.

*** significant difference by area deprivation at p<.001 level.

^a significant difference in relationship with area deprivation between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-25 SDQ summary mean scores – by urban/rural location and by cohort

Urban/Rural location				
	Urban	Towns (accessible and remote)	Rural (accessible and remote)	All
Total difficulties***				
BC1	8.1	7.6	7.1	7.9
BC2	7.8	7.3	7.1	7.6
<i>Unweighted bases – BC1</i>	2525	504	757	3786
<i>Unweighted bases – BC2</i>	2784	620	913	4317
<i>Weighted bases – BC1</i>	2639	476	664	3779
<i>Weighted bases – BC2</i>	2946	575	779	4300
Emotional symptoms**				
BC1	1.3	1.2	1.1	1.3
BC2	1.3	1.2	1.3	1.3
<i>Unweighted bases – BC1</i>	2535	507	760	3802
<i>Unweighted bases – BC2</i>	2794	624	917	4335
<i>Weighted bases – BC1</i>	2650	479	666	3795
<i>Weighted bases – BC2</i>	2958	580	783	4321
Conduct problems***				
BC1	1.8	1.7	1.7	1.8
BC2	1.7	1.7	1.5	1.7
<i>Unweighted bases – BC1</i>	2537	506	760	3803
<i>Unweighted bases – BC2</i>	2795	624	916	4335
<i>Weighted bases – BC1</i>	2653	478	666	3797
<i>Weighted bases – BC2</i>	2958	579	782	4320
Hyperactivity***				
BC1	3.9	3.7	3.4	3.8
BC2	3.6	3.4	3.4	3.5

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-25 continued (urban/rural location)				
<i>Unweighted bases – BC1</i>	2528	506	759	3793
<i>Unweighted bases – BC2</i>	2794	623	917	4334
<i>Weighted bases – BC1</i>	2643	477	665	3785
<i>Weighted bases – BC2</i>	2958	578	783	4320
Peer problems***				
BC1	1.1	1.0	1.0	1.1
BC2	1.2	1.0	1.0	1.1
<i>Unweighted bases – BC1</i>	2537	506	758	3801
<i>Unweighted bases – BC2</i>	2790	624	914	4328
<i>Weighted bases – BC1</i>	2653	478	665	3795
<i>Weighted bases – BC2</i>	2952	580	781	4312
Pro-social				
BC1	8.2	8.3	8.2	8.2
BC2	8.4	8.4	8.5	8.4
<i>Unweighted bases – BC1</i>	2535	507	760	3802
<i>Unweighted bases – BC2</i>	2791	624	916	4331
<i>Weighted bases – BC1</i>	2651	479	666	3796
<i>Weighted bases – BC2</i>	2954	580	782	4316

Base: All cases where information was provided for relevant questions.

*** significant difference by urban/rural location at p<.001 level.

** significant difference by urban/rural location at p<.01 level.

No significant difference in relationship with urban/rural location between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-26 Cognitive ability mean t-score – by household income and by cohort

Equivalised household income (quintiles)						
	Lowest quintile	2nd	3rd	4th	Highest quintile	All
Vocabulary^a						
BC1***	53.8	58.0	59.7	60.6	62.2	58.3
BC2***	54.2	56.5	58.0	60.4	61.9	57.5
<i>Unweighted bases – BC1</i>	689	778	628	837	578	3723
<i>Unweighted bases – BC2</i>	761	748	796	755	845	4326
<i>Weighted bases – BC1</i>	870	812	591	729	492	3706
<i>Weighted bases – BC2</i>	1004	793	737	632	683	4310
Problem solving***						
BC1	53.3	55.6	56.9	58.0	59.9	56.4
BC2	54.0	55.1	56.9	57.9	58.8	56.1
<i>Unweighted bases – BC1</i>	686	779	628	838	578	3721
<i>Unweighted bases – BC2</i>	756	750	794	753	844	4314
<i>Weighted bases – BC1</i>	867	813	591	729	492	3703
<i>Weighted bases – BC2</i>	998	796	735	630	682	4300

Base: All children who completed assessments.

*** significant difference by household income at p<.001 level.

^a significant difference in relationship with household income between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-27 Cognitive ability mean t-score – by parental education and by cohort

Highest household level of education					
	No quals, Lower std grades and vocational and other quals	Upper std grades and Intermediate voc quals	Higher std grades and Upper level vocational quals	Degree level quals	All
Vocabulary***					
BC1	52.1	56.0	58.5	61.4	58.3
BC2	50.2	54.8	57.5	60.3	57.5
<i>Unweighted bases – BC1</i>	271	612	1212	1493	3723
<i>Unweighted bases – BC2</i>	281	558	1227	2157	4326
<i>Weighted bases – BC1</i>	365	700	1191	1296	3706
<i>Weighted bases – BC2</i>	407	698	1268	1814	4310
Problem solving***					
BC1	51.6	54.6	56.5	58.6	56.4
BC2	53.2	53.9	56.3	57.8	56.1
<i>Unweighted bases – BC1</i>	270	612	1211	1493	3721
<i>Unweighted bases – BC2</i>	278	556	1221	2155	4314
<i>Weighted bases – BC1</i>	364	701	1189	1296	3703
<i>Weighted bases – BC2</i>	406	695	1260	1814	4300

Base: All children who completed assessments.

*** significant differences by parental level of education at p<.001 level.

No significant difference in relationship with parental education between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-28 Cognitive ability mean t-score – by area deprivation and by cohort

Area deprivation (SIMD quintiles)						
	Most deprived quintile	2nd	3rd	4th	Least deprived quintile	All
Vocabulary***						
BC1	55.3	56.8	58.7	60.3	60.7	58.3
BC2	54.8	55.7	58.1	59.6	60	57.5
<i>Unweighted bases – BC1</i>	638	668	744	836	837	3723
<i>Unweighted bases – BC2</i>	720	800	907	937	962	4326
<i>Weighted bases – BC1</i>	827	718	698	754	710	3706
<i>Weighted bases – BC2</i>	953	880	852	822	803	4310
Problem solving***						
BC1	53.8	55.4	56.9	57.4	58.7	56.4
BC2	54.3	54.5	57.4	56.9	57.7	56.1
<i>Unweighted bases – BC1</i>	634	670	743	836	838	3721
<i>Unweighted bases – BC2</i>	717	797	904	935	961	4314
<i>Weighted bases – BC1</i>	822	720	696	754	711	3703
<i>Weighted bases – BC2</i>	949	876	849	823	802	4300

Base: All children who completed assessments.

*** significant differences by area deprivation at $p < .001$ level.

No significant difference in relationship with area deprivation between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-29 Cognitive ability mean t-score – by urban/rural location and by cohort

	Urban/Rural location			
	Urban	Towns	Rural	All
<i>Vocabulary***</i>				
BC1	57.6	59.2	60.3	58.3
BC2	56.8	58.1	59.9	57.5
<i>Unweighted bases – BC1</i>	<i>2473</i>	<i>500</i>	<i>750</i>	<i>3723</i>
<i>Unweighted bases – BC2</i>	<i>2781</i>	<i>629</i>	<i>916</i>	<i>4326</i>
<i>Weighted bases – BC1</i>	<i>2576</i>	<i>472</i>	<i>658</i>	<i>3706</i>
<i>Weighted bases – BC2</i>	<i>2945</i>	<i>585</i>	<i>781</i>	<i>4310</i>
<i>Problem solving***</i>				
BC1	55.9	57.3	57.4	56.4
BC2	55.4	57.6	57.4	56.1
<i>Unweighted bases – BC1</i>	<i>2471</i>	<i>500</i>	<i>750</i>	<i>3721</i>
<i>Unweighted bases – BC2</i>	<i>2771</i>	<i>628</i>	<i>915</i>	<i>4314</i>
<i>Weighted bases – BC1</i>	<i>2574</i>	<i>472</i>	<i>658</i>	<i>3703</i>
<i>Weighted bases – BC2</i>	<i>2935</i>	<i>584</i>	<i>781</i>	<i>4300</i>

Base: All children who completed assessments

*** significant differences by urban/rural location at $p < .001$ level.

No significant difference in relationship with urban/rural location between the cohorts.

GROWING UP IN SCOTLAND

CHANGES IN EARLY LEARNING AND CHILDCARE USE AND OUTCOMES AT AGE 5

Table 8-30 Vocabulary and problem solving mean scores at age 5, by weekly number of hours child attended ELC (BC2 only)

<i>Mean score</i>	Weekly ELC duration				All
	Up to 12.5 hours	Over 12.5 up to 16 hours	Over 16, less than 30 hours	30 hours or more	
Vocabulary**	58.3	56.6	57.6	58.5	57.5
Problem solving*	56.7	55.4	56.2	57.0	56.1
<i>Unweighted bases – vocabulary</i>	1305	1722	884	293	4326
<i>Weighted bases – vocabulary</i>	1324	1751	839	274	4310
<i>Unweighted bases – problem solving</i>	1301	1718	882	292	4314
<i>Weighted bases – problem solving</i>	1319	1749	837	272	4300

Base: All children in BC2 who attended ELC and where information about number of hours was provided.

** significant differences by average weekly number of hours child attended ELC at $p < .01$ level;

* significant differences by average weekly number of hours child attended ELC at $p < .05$ level



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