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Prevalence of streaming in UK primary schools: evidence from the Millennium Cohort Study

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The adoption of streaming in the primary school (where children are placed in a class on the basis of measures of attainment and remain in that class all of the time) was commonplace when the 11 plus examination was used to select children for grammar school places. During the 1950s and 1960s the practice died out with most children being taught in mixed ability classes with some in-class grouping. During the 1990s successive governments indicated that some form of ability grouping should be introduced in primary schools, setting (children placed in ability groups for some subjects and taught in mixed groups for the remainder of the time) being preferred, however, streaming was introduced in some schools despite evidence that movement between structured ability groups is infrequent and that children tend to remain in the same groups throughout their school careers limiting their educational opportunities. Recent research based on 8875 children, in the Millennium Cohort Study showed that 16.4% of children in Year 2 were in streamed classes. Logistic regression analysis showed that the best predictors of being in the top stream were whether the child was born in autumn or winter 2000, parents owning their own home, and the child's cognitive ability score. The measures predicting being in the bottom stream were being a boy, being born in the spring/summer of 2001, having a behaviour problem, being born into a lone parent family, and cognitive ability score.

Keywords: *ability*; *grouping*; *streaming*; *setting*

Introduction

Grouping pupils by ability has been the subject of research for most of the twentieth century since Whipple carried out a study of the effects of special class placement on a group of high aptitude fifth and sixth graders in the US in 1919. Since then hundreds of studies have been undertaken and there have been many

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literature reviews and syntheses of research findings, some with a UK focus (see Sukhnandan & Lee, 1991; Hallam & Tountounji, 1996; Harlen & Malcolm, 1997; Ireson & Hallam, 1999; Hallam, 2002; Hallam *et al.*, 2002; Kutnick *et al.*, 2005). The research agenda in relation to ability grouping has changed over time in response to political priorities and school practices. There has been no research with a specific focus on streaming in the primary school recently since streaming (or tracking as it is sometimes known) is rare in primary schools internationally (Koerselman, 2011) and seemed to have almost died out in the UK (see Baines *et al.*, 2003; Hallam *et al.*, 2003).

Historically, in England, streaming was commonplace. The Primary School Report of 1930 recommended that children in primary schools should be grouped in classes according to ability (streaming) where numbers allowed (Hadow Report, 1930). In practice, however, most primary schools were too small to implement streaming. In 1944, the Butler Education Act, established the need for ability grouping to ensure effective selection for different types of schooling at secondary level. Following this, the practice of streaming became widespread in larger primary schools throughout the 1940s and 1950s as pupils competed for grammar school places. In the 1960s, streaming began to decline in popularity as research in England showed that there were no positive effects on average attainment and in some studies non-streamed schools performed better, while there were negative social consequences for pupils in the lower streams (Jackson, 1964; Barker Lunn, 1970). By the 1970s, surveys of primary school organisation found that of those schools that were large enough to stream only about 20% chose to do so (Bealing, 1972; DES 1978). With the demise of the 11+ examination and the spread of comprehensive secondary education, mixed ability classes became the norm in primary schools. By the 1990s the incidence of streaming had declined to less than 3% (Lee & Croll, 1995).

During the 1990s, the increased emphasis on raising standards coupled with a widespread assumption that the best way to maximise academic success was through selective grouping led to the Westminister government developing guidelines promoting the use of setting as a means of increasing attainment while minimising the negative effects relating to personal and social development which had emerged in relation to streaming. In 1993, all primary schools were encouraged to introduce setting by the Department for Education (DfE Report, 16/93) and in 1997, the Government White Paper *Excellence in schools* (1997) stated that 'setting should be the norm in secondary schools. In some cases, it is worth considering in primary schools'. In 1998, the Chief Inspector's annual report (Ofsted, 1998a) stated that the organisation of pupils into sets was increasing, especially in Years 5 and 6 for maths and English. The higher the number on roll, the more likely the school was to use setting in one or more year groups. Most schools used setting in Years 5 and 6 only, with the proportion of pupils setted for at least one subject falling steadily the younger the pupils (Ofsted, 1998b).

Two further studies supported the general thrust of these findings. Baines *et al.* (2003) in a study based on five local authorities carried out in 1999 with 111

participant schools and responses from 187 teachers relating to structured grouping in Year 2 and Year 5 found that all reception and most Year 2 and Year 5 classes were mixed ability. Only a quarter adopted setting and none adopted streaming. Hallam *et al.* (2003) in a survey of 2000 randomly selected primary schools, also carried out in 1999, examined differences in grouping practices in schools with same and mixed age classes. The most common form of pupil grouping was within class. Only in mathematics and English was there any substantial evidence of setting. Less than 2% of schools adopted streaming. The aim of the current research using data from the Millenium Cohort Studies is to examine the incidence of streaming among cohort children in 2008.

Attainment and streaming in the primary school

There is no recent research on the impact of streaming on attainment in the primary school. Early research had mixed results. Daniels (1961) found a higher average level of attainment in non-streamed schools which was accompanied by a gathering of scores around the mean. This appeared to be caused by an increase in standards of the less able rather than the holding back of the more able. Blandford (1958) found similar results with a greater spread of scores in streamed schools. Douglas (1964) examining pupils' progress in streamed schools found that children in the lower streams made much less progress relative to the top streams, while the most comprehensive study (Barker Lunn, 1970) comparing pupils in 36 streamed and 36 non-streamed primary schools found no difference in the average academic performance of children of comparable ability and social class in streamed or non-streamed schools. A follow up study two years later, showed no difference in performance at secondary school in relation to prior streaming in primary school (Ferri, 1971). International reviews (Slavin, 1987; Kulik, 1991; Kulik & Kulik, 1987, 1992) also indicated that streaming had little impact on average pupil attainment. Inconsistencies in research findings can be explained in relation to the extent to which the curriculum is differentiated between streams, 'stream dependent' teacher expectations, the quality of the teaching and the predominance of those of low socio-economic status in the lower streams (Schofield, 2010).

The social and personal implications of streaming in the primary school

The most serious criticism of streaming when it was commonplace in the UK derived from its perceived social consequences. There was clear evidence that the low streams tended to include disproportionate numbers of pupils of low socio-economic status, boys and those born in the summer (Douglas, 1964; Barker Lunn, 1970). Early comparisons of streamed or non-streamed schools showed that the social adjustment, social attitudes and attitudes to peers of different ability were 'healthier' among children in non-streamed classes (Willig, 1963; Barker Lunn, 1970). Streaming had a stronger impact on lower ability pupils, who had more negative attitudes in streamed schools (Barker Lunn, 1970; Ferri, 1971).

The more streams in a school the more negative the attitudes towards school of those in the lower streams and the greater the possibility of them regarding themselves as stigmatised (Barker Lunn, 1970). Rudd (1956) reported that streamed children made fewer contributions and paid less attention in lessons. Their behaviour was also more aggressive than non-streamed children, while Barker Lunn (1970) found greater participation among children in non-streamed classes, particularly amongst those of average or below average ability. Jackson (1964) also found more cooperative atmospheres in non-streamed schools.

International reviews have found no overall effect of ability grouping on self-esteem (Kulik & Kulik, 1992; Kulik, 1991), although highly structured ability grouping can legitimise the differential treatment of pupils and those in both the lower or higher sets can become the targets of teasing or bullying. The more schools and teachers highlight differences between pupils in different groups the greater the likelihood that this may occur (Hallam *et al.*, 2002, 2004a, b; MacIntyre & Ireson, 2002).

Expectations and aspirations

Streaming affects parental expectations of their child (Barker Lunn, 1970) and can affect those of pupils (Gamoran, 1986). Pupils assess their prospects based on their placement demonstrating understanding and acceptance of the rationale for grouping adopted by their school particularly in relation to the provision of work at an appropriate level. Pupils are socialised into the values of the school as established by teachers and accepted by parents (Hallam *et al.*, 1999).

Streaming not only shapes expectations of performance but predicts later success because of the system itself (Reuman, 1989). The quality of instruction differs between streams as do resources leading to a widening of the gap between groups. High ability groups tend to be taught by the more experienced and better qualified teachers (Jackson, 1964; Barker Lunn, 1970) some schools viewing this as making the best use of teacher expertise (Hallam *et al.*, 2002; Davies *et al.*, 2003). Page (1984) argued that streaming sets in motion a vicious cycle. Based on stereotypes and past experience, teachers hold low expectations for low ability students. Perceiving these views, students lower expectations for themselves, confirming and further reducing expectations. Teachers themselves believe that they are matching instruction to the level of the students' ability, but pupils frequently perceive mismatches (Hallam *et al.*, 2002, 2004a).

Allocation of pupils to groups and movement between them

The allocation of pupils to ability groups, historically, was a somewhat arbitrary affair often not based entirely on prior academic achievement (Jackson, 1964). Many different factors have influenced the groupings that are formed in schools and classrooms including social relationships between pupils, gender, behaviour, the physical aspects of the classroom and class size. Some pupils exhibiting poor

behaviour are placed in low groups irrespective of their level of attainment. In other cases, teachers deliberately split up groups of potentially disruptive pupils into different ability groups in order to be better able to control their behaviour (Hallam *et al.*, 2002; Davies *et al.*, 2003). This can lead to group allocation which is inappropriate in terms of the child's academic attainment (MacIntyre & Ireson, 2002). Barker Lunn (1970) showed that 15% of children were in the wrong stream at the end of the school year on the basis of English and arithmetic performance. This percentage was lower in the early primary years and higher in the later years. At the beginning of the next school year, on average a quarter of these children were moved into their correct stream, but three quarters remained in the wrong stream given their test performance.

In theory movement between streams is possible but in practice it has tended to be restricted (Barker Lunn, 1970; Douglas, 1964), although students being able to move between groups is crucial for the successful operation of structured grouping systems (Ofsted, 1998). There is often a gap between work that has been undertaken and what is required for the higher group and in order to move some children to a higher group others have to move down (Jackson, 1964; Ireson & Hallam, 2001). Where children do change stream, if the movement is in an upward direction they tend to do better, in a downward direction they tend to do worse (Barker Lunn, 1970).

The current research

The evidence presented above suggests that structured ability grouping, of itself, does not raise overall levels of attainment. Highly structured ability grouping is socially divisive, and pupils in the lower groups may be stigmatised. As movement between structured ability groups is infrequent, once allocated to a group, pupils tend to remain in it. This has implications for educational opportunities. In light of this, the research reported here aimed to establish the extent to which pupils in the Millennium Cohort Study (MCS) were in streamed classes at age seven (Year 2), the characteristics of schools which adopted streaming, their intake and the family and personal characteristics of the children that were in different streams. The specific research questions addressed were:

- Is there any relationship between streaming and setting in the primary schools which the cohort children attend?
- What are the characteristics of the schools that adopt streaming and their intake?
- Are there differences in the academic attainment of cohort children who are in streamed or non-streamed classes?
- What are the characteristics of the cohort children who are in the top, middle and bottom streams?

- What are the family characteristics of cohort children who are in the top, middle and bottom streams?
- Are there differences in the aspirations of parents of cohort children in different streams?
- Are there differences in the home environment of cohort children in different streams?

Methodology

The Millennium Cohort Study (MCS) is a multi-disciplinary research project which follows the lives of around 19,000 children born in the UK in 2000–2001. Four surveys of MCS cohort members have been carried out so far at age nine months, three, five and seven years. The vast majority of the fieldwork for MCS4, on which this paper is based, was carried out during 2008. Over 13,800 families took part in the age seven survey. More than 8800 families participated in England, over 2000 in Wales, over 1600 in Scotland and 1300 in Northern Ireland. In total, information was gathered on 14,043 children, from cohort members' parents or guardians and the cohort member themselves in the form of cognitive assessment, physical measurements and a self-completion questionnaire about their likes, dislikes and how they felt about certain aspects of school and home life. For the first time information was also gathered from their primary school teacher.

The self-completion questionnaire asked teachers to rate some aspects of the study child's ability, attainment and behaviour and to profile their needs in school and how the child was taught, e.g., does the school stream or set children for all or some subjects. In total, 7235 teachers in 4969 schools were contacted to take part in the survey. Of these, 5364 teachers (74.1%) from 3981 schools (80.1%) completed and returned a questionnaire for 8875 children. Data were available for each of the countries making up the UK. The sample for England was 5621 children based in 2731 schools, for Wales, 1204 children based in 434 schools, for Scotland, 1099 children in 472 schools and for Northern Ireland 951 children based in 348 schools. A completed teacher questionnaire was missing for just over a third of children who participated in MCS4. This was highest at 39% in Wales, lowest at 32% in Northern Ireland. Figures for England and Scotland were 36% and 33% respectively.

In relation to the 14,043 children who took part in MCS4, boys and the more disadvantaged children were slightly under-represented among the 8875 children in the Teacher Survey (see Table 1).

Sample

The initial analysis was based on the majority of children who were in Year 2/Primary 3 at the time of (parental) interview (93.7%) with a completed teacher questionnaire[1] that included information on streaming[2] (n = 7962 children). After an initial examination of the prevalence of streaming and its relationship with setting

Table 1. Analysis of response bias in teacher survey compared to MCS4 overall

	MCS4	Teacher Survey	% Bias**
% boys	51.4	50.6	−1.56
% with both natural parents	67.1	68.6	+2.24
% lone parent	22.2	21.1	−4.95
% both parents in work	42.0	45.2	+7.62
% non-working household	15.8	14.6	−7.59
% in poverty at age 5 or *	17.0	15.7	−7.65
% in poverty at age 5 and 7*	21.5	19.0	−11.63
% own home (outright/mortgage)	62.4	65.2	+4.49

* This is the standard OECD measure. Note: there is a slight overestimation of the number of families experiencing poverty as the amount of housing benefit being received was not always recorded as this benefit does not come directly to the recipient.
**% Bias = ((teacher survey% - MCS4%) / MCS4%) x 100

in schools, the analyses concentrated on the 16.4% of children in Year 2 who were streamed (n = 1304).

Streaming and setting

Teachers were asked about *streaming* and *setting* in the study child's year and any grouping placement of the study child. The definitions of streaming and setting provided for teachers were as follows:

> We are interested to know about groupings **between** and **within** classes in this child's year. Some schools group children in the same year by general ability and they are taught in these groups for most or all lessons. We refer to this as **streaming.** Some schools group children from different classes by ability for certain subjects only and they may be taught in different ability groups for different subjects. We refer to this as **setting.** Other schools do not group children by ability **between** classes. Sometimes this may be because there are not multiple classes in the year.

Findings

Relationships between streaming and setting in schools

There was a strong relationship between streaming and setting in schools. Figures 1a and 1b show that 64.3% of children who were streamed were also set for literacy, 69.5% were also set for numeracy. Among the majority of children *not* streamed, 23.4% were set for literacy, 29.7% were set for numeracy.

School and intake characteristics of streamed schools

A variety of measures were examined to establish the differences between schools which streamed and the children who attended them. Table 2 provides a summary

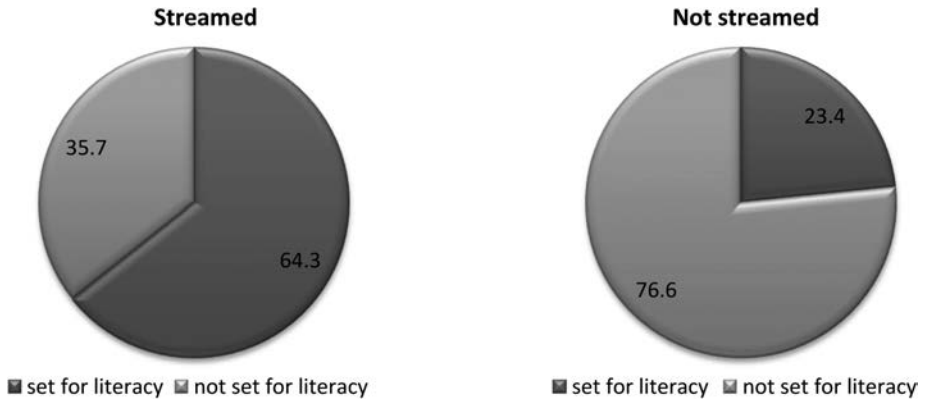

Figure 1a. Relationship between streaming and setting for literacy

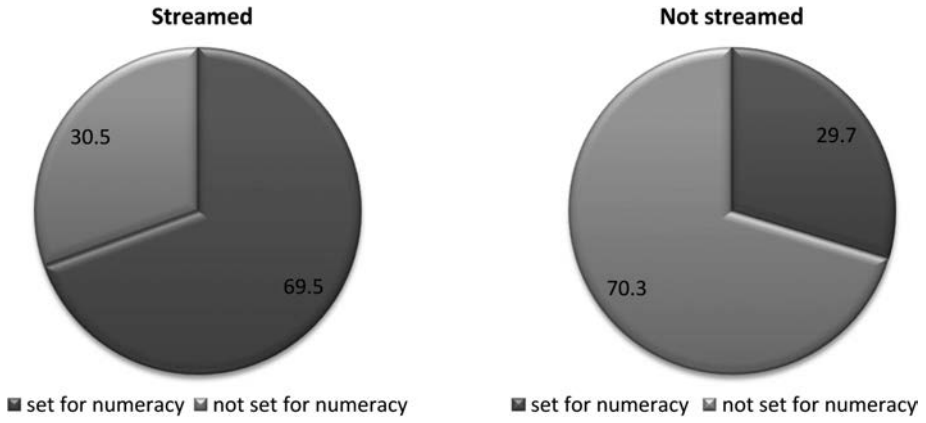

Figure 1b. Relationship between streaming and setting for numeracy

Table 2. School, family and personal characteristics of children considered as possibly associated with streaming

School characteristics	Family characteristics	Personal characteristics
Country	Family structure	Gender
Mixed v single sex	Number of parents working in household	Ethnicity
Faith v non-faith	Highest qualification of mother	Season of birth (autumn, winter, spring, summer born)
Mixed year classes v single year classes	Housing tenure	Cognitive ability
Number of classes in year group	Poverty (family income)	Behaviour difficulties Longstanding illness

of the measures considered. School size was not considered independently as this was taken into account in relation to the number of classes in each year group. Tables 3(a), 3(b) and 3(c) provide the percentage of children streamed by each category within each of these measures, including 95% confidence intervals and statistical significance.

Location. Children in the Teacher Survey who lived in Northern Ireland were significantly less likely (11.2%) than children in Wales (19.5%) or England (16.8%) to be streamed at school. Although a similar proportion of children in Scotland (15.6%) were streamed to those in England, the smaller sample of children living in Scotland meant that the difference between the percentages streamed in Scotland and Ireland was not statistically significant.

School characteristics. The overwhelming majority of children (98.8%) went to mixed sex primary schools. Just 4.4% of children went to a fee paying school, with these children being significantly less likely to be streamed than children at non-fee paying schools (9.4% to 16.7%). 26.5% of children went to a faith school (17.5% Church of England (C of E), 8.1% Catholic, 0.9% other) but there were no substantial differences in the proportions streamed for children attending faith or non-faith schools (17.5% non-faith, 13.8% C of E, 16.4% Catholic). A quarter of children—24.5%—attended a school with mixed year groups, i.e., children of different ages in the same class, and these children were significantly more likely to be streamed than the majority of children educated within single year classes (20.7% to 14.7%). Children attending larger primary schools—those with two, three or more classes in their school year were also significantly more likely to be streamed than those in smaller schools (13% one class, 17.3% two classes, 19% three or more classes).

Family characteristics. Among the family characteristics considered it was only the highest qualification held by the child's mother that was significantly associated with a child being at a streamed school. Children with a mother holding a NVQ4 or NVQ5 qualification (degree equivalent or higher) were the least likely to attend a school that streamed children (13.8%). Most likely were children with a mother who only held qualifications gained overseas (24.4%).

Child characteristics. The personal characteristics of the child significantly associated with attending a school where there was streaming were ethnicity and behaviour. More Pakistani or Bangladeshi children were at a school that streamed in comparison to White children (24.2% to 16.0%), as were more children rated with

Table 3a. Percentage of children streamed by school characteristics

		not streamed % (95%CI)	streamed % (95CI)	Overall N(100%)
Country	England	83.2 (81.3-84.9)	16.8 (15.1-18.7)	*4794*
	Wales	80.5 (75.3-84.9)	19.5 (15.1-24.7)	*1023*
	Scotland	84.4 (80.0-88.0)	15.6 (12.0-20.0)	*979*
	Northern Ireland	88.8 (85.2-91.6)	11.2 (8.4-14.8)	*896*
Classes in Year	One	87.0 (84.7-89.1)	13.0 (10.9-15.3)	*2505*
	Two	82.7 (80.2-84.9)	17.3 (15.1-19.8)	*3006*
	Three+	81.0 (77.4-84.2)	19.0 (15.8-22.6)	*1544*
			Adjusted F=(1.972,767.118)=5.34 P(F)=0.005	
Mixed year classes	Yes	79.3 (76.3-82.0)	20.7 (18.0-23.7)	*1828*
	No	85.3 (83.7-86.9)	14.7 (13.1-16.3)	*5387*
			Adjusted F=(1,389)=18.24 P(F)=0.000	
Single sex school	Single sex	87.6 (78.4-93.3)	12.4 (6.7-21.6)	*97*
	Mixed sex	83.5 (82.0-85.0)	16.5 (15.0-18.0)	*7865*
School fees	Yes	90.6 (86.2-93.7)	9.4 (6.3-13.8)	*299*
	No	83.3 (81.7-84.7)	16.7 (15.3-18.3)	*7663*
			Adjusted F=(1,389)=9.01 P(F)=0.003	
Faith school	None faith	82.5 (80.7-84.2)	17.5 (15.8-19.3)	*5349*
	C of E	86.2 (82.5-89.1)	13.8 (10.9-17.5)	*1031*
	Catholic	83.6 (79.2-87.2)	16.4 (12.8-20.8)	*594*
	Other	92.7 (85.3-96.5)	7.3 (3.5-14.7)	*80*

behaviour difficulties by their parent at age five (18.7%) or age seven (17.9%), or teacher at age seven (18.4%) from the set of questions that make up the Strengths and Difficulties Questionnaire (Goodman, 1997). Comparable percentages for children not rated with behaviour difficulties were 15.2%, 15.7% and 15.6% respectively. Neither the season of their birth, their cognitive ability or Key Stage 1 (KS1) attainment scores was significantly associated with streaming. The individual cognitive and KS1 measures are discussed in more detail below.

Children who are streamed

The analysis now focuses on the child, family and school characteristics of the 16.4% of children in Year 2/Primary 3 who were streamed (n = 1304).[2] There was an even gender balance among this group of children with boys constituting 51% of the total. In addition to saying whether the study child was streamed, teachers were also asked which stream the child was in. The children were not split evenly between 'top', 'middle' and 'bottom' streams with 42.2% (n = 573) being in the 'top' stream, 32.3% (n = 425) in the 'middle' stream and 25.5% (n = 306) in the 'bottom' stream.

Gender. A similar proportion of boys and girls were in the top stream (40.8% boys, 43.7% girls), but girls were over-represented in the middle stream (27.5% boys, 37.2% girls) and boys were over-represented in the bottom stream (31.7% boys, 19.1% girls). Figure 2 shows that boys made up 63.4% of children in the bottom stream.

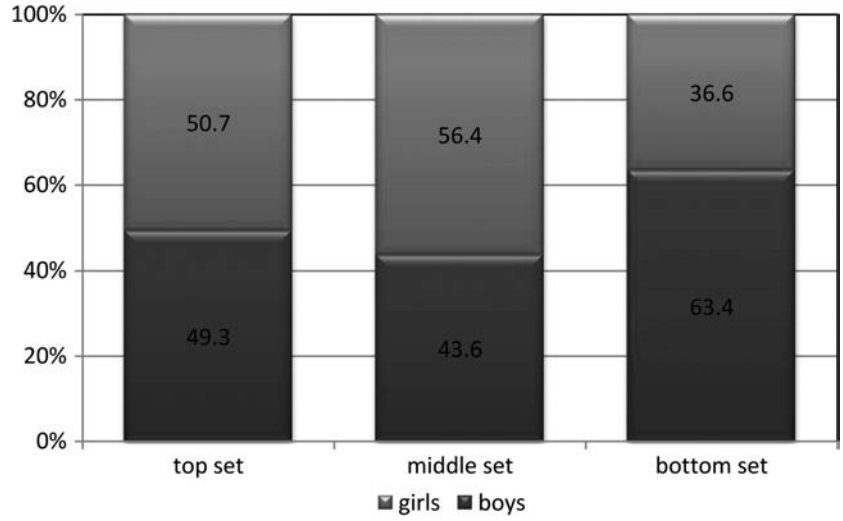

Figure 2. Gender composition of children in the top, middle and bottom streams.

Table 3b. Percentage of children streamed by each family characteristic

		not streamed % (95%CI)	streamed % (95%CI)	Overall N(100%)
Family	2 natural parents	83.8 (82.1-85.4)	16.2 (14.6-17.9)	*5460*
	Lone parent (0 and 7)	81.6 (77.4-85.2)	18.4 (14.8-22.6)	*630*
	Lone parent (7)	85.4 (82.3-88.0)	14.6 (12.0-17.7)	*877*
	Step / other (0 and 7)	80.3 (76.1-83.9)	19.7 (16.1-23.9)	*725*
		Adjusted F=(2.857,1111.375)=2.30 P(F)=0.078		
Poverty (OECD)	No poverty	84.3 (82.5-86.0)	15.7 (14.0-17.5)	*4963*
	Poverty at 5 or 7	81.3 (78.4-83.8)	18.7 (16.2-21.6)	*1488*
	Poverty at 5 and 7	84.4(81.4-87.1)	15.6 (12.9-18.6)	*1220*
		Adjusted F=(1972,767.283)=2.44 P(F)=0.088		
Work	Parent in work	83.8 (82.2-85.4)	16.2 (14.6-17.8)	*6903*
	No parent in work	82.0 (79.0-84.7)	18.0 (15.3-21.0)	*1059*
		Adjusted F=(1,389)=1.45 P(F)=0.230		
Highest qual	No quals / NVQ1	82.4 (79.2-85.3)	17.6 (14.7-20.8)	*1290*
	NVQ2	81.9 (79.5-84.0)	18.1 (16.0-20.5)	*2132*
	NVQ3	83.0 (79.7-85.8)	17.0 (14.2-20.3)	*1220*
	NVQ4 / 5	86.2 (84.4-87.8)	13.8 (12.2-15.6)	*3122*
	Overseas quals only	75.6 (67.4-82.3)	24.4 (17.7-32.6)	*194*
		Adjusted F=(4.879,1898.006)=3.76 P(F)=0.002		
Tenure	Home owner	84.3 (82.7-85.8)	15.7 (14.2-17.3)	*5477*
	Rent (LA/HA)	81.7 (79.0-84.2)	18.3 (15.8-21.0)	*1640*
	Rent (private)	83.3 (79.5-86.5)	16.7 (13.5-20.5)	*674*
	Other	82.0 (73.0-88.4)	18.0 (11.6-27.0)	*167*
		Adjusted F=(2.892,1125.055)=1.47 P(F)=0.222		

Table 3c. Percentage of children streamed by each child characteristic

		not streamed % (95%CI)	streamed % (95%CI)	Overall N(100%)
Gender	Boy	83.4 (81.6-85.1)	16.6 (14.9-18.4)	*4020*
	Girl	83.7 (81.9-85.4)	16.3 (14.6-18.1)	*3942*
		Adjusted F=(1,389)=0.12 P(F)=0.729		
Ethnicity	White	84.0 (82.3-85.5)	16.0 (14.5-17.7)	*6946*
	Mixed	81.9 (74.7-87.4)	18.1 (12.6-25.3)	*201*
	Indian	78.1 (68.6-85.3)	21.9 (14.7-31.4)	*161*
	Pakistani / Bangladeshi	75.8 (69.3-81.3)	24.2 (18.7-30.7)	*372*
	Black/ Black British	85.3 (77.4-90.7)	14.7 (9.3-22.6)	*194*
	Other (Chinese / other Asian)	86.4 (73.6-93.5)	13.6 (6.5-26.4)	*84*
		Adjusted F=(4.849,1886.307)=2.19 P(F)=0.054		
Season	Autumn born	83.9 (81.5-86.1)	16.1 (13.9-18.5)	*2196*
	Winter born	83.4 (81.1-85.5)	16.6 (14.5-18.9)	*2199*
	Spring born	83.9 (81.5-86.1)	16.1 (13.9-18.5)	*1849*
	Summer born	83.0 (80.4-85.2)	17.0 (14.8-19.6)	*1718*
		Adjusted F=(2.884,1121.815)=0.20 P(F)=0.891		
Behaviour	No difficulties at 5 (parent)	84.8 (83.1-86.4)	15.2 (13.6-16.9)	*5548*
	Difficulties at 5 (parent)	81.3 978.8-83.6)	18.7 (16.4-21.2)	*1918*
		Adjusted F=(1,389)=7.77 P(F)=0.006		
	No difficulties at 7 (parent)	84.3 (82.6-86.0)	15.7 (14.0-17.4)	*5359*
	Difficulties at 7 (parent)	82.1 (79.8-84.1)	17.9 (15.9-20.2)	*2415*
		Adjusted F=(1,389)=3.99 P(F)=0.047		
	No difficulties at 7 (teacher)	84.4 (82.7-86.0)	15.6 (14.0-17.3)	*5447*
	Difficulties at 7 (teacher)	81.6 (79.4-83.7)	18.4 (16.3-20.6)	*2425*

(*Continued*)

Table 3c. (*Continued*)

		not streamed % (95%CI)	streamed % (95%CI)	Overall N(100%)
		Adjusted F=(1,389)=6.12 P(F)=0.014		
LS illness	No illness	83.5 (81.8-85.0)	16.5 (15.0-18.2)	*6475*
	Long standing illness	84.0(81.4-86.3)	16.0 (13.7-18.6)	*1482*
		Adjusted F=(1,389)=0.16 P(F)=0.686		
	Mean Scores	not streamed (95%CI)	streamed (95%CI)	Overall N(100%)
Cognitive ability	Mean score at 5	*162.4 (161.3-163.5)*	*159.9 (158.0-161.7)*	*6335*
	Mean score at 7	*175.9 (174.8-177.0)*	*174.0 (171.8-176.3)*	*6450*
	Children at school in England			
Foundation	Mean Foundation Profile Score	*88.1 (87.0-89.2)*	*86.8 (85.0-88.7)*	*3652*
Key Stage 1	Mean reading point score	16.2 (16.0-16.3)	16.0 (15.6-16.4)	*4175*
	Mean writing point score	14.7 (14.6-14.9)	14.5 (14.1-14.9)	*4175*
	Mean maths point score	16.3 (16.1-16.4)	16.1 (15.7-16.5)	*4175*
	Mean science point score	16.0 (15.8-16.2)	15.9 (15.5-16.2)	*4175*

Table 4. Relationship between stream placement and season of birth

	Top stream %	Middle stream %	Bottom stream %
Autumn	37.7	20.4	19.7
Winter	26.9	24.9	24.3
Spring	19.3	27.5	26.7
Summer	16.2	27.1	29.3
N(100%)=	*573*	*425*	*306*

Season of birth. Table 4 sets out the relationship between stream and the season of birth[3] and shows that autumn babies (September–November) were over-represented in the top stream, making up more than 4 in 10 of all children in the top stream compared with just 2 in 10 of the children in middle and bottom streams. Summer babies (June–August) were over-represented in the middle and bottom streams, making up around 3 in 10 of children in these two streams.

Ethnicity. Among the children who were streamed, there was no significant difference in the ethnic composition of children in the top, middle or bottom streams. Examining the distribution of children across streams within each ethnic group, Figure 3 shows that black or black British children are over-represented and

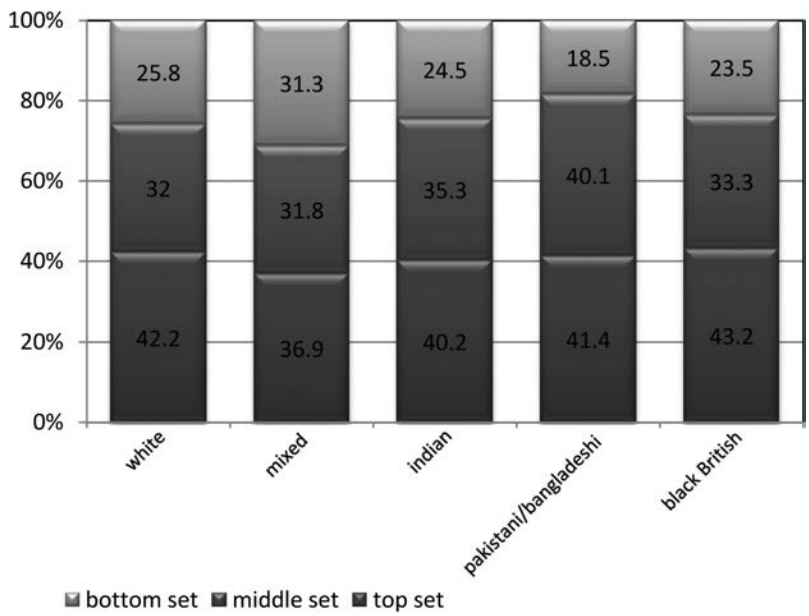

Figure 3. Proportion of children in top, middle and bottom stream by ethnic group

Pakistani/Bangladeshi children are under-represented in the bottom stream. These differences were not, however, statistically significant as a result of the relatively small numbers of children in different minority ethnic groups in this analysis.

Cognitive ability. The children sat cognitive tests each time an interviewer visited them at their home. At age five, a combined total score was constructed from age-adjusted performance in three tests taken from the British Ability Scales (BAS) II (Elliott, 1996):[4] BAS Pattern Construction, BAS Naming Vocabulary and BAS Picture Similarities. Scores ranged between 60 and 240. At age seven, a combined total score was made up from age-adjusted BAS Word Reading, age-adjusted BAS Pattern Construction and a raw score for the Progress in Maths Test (there is no age adjustment for this score). Scores ranged between 76 and 240. Figures 4(a) and 4(b) show that the average scores in assessments at age five and age seven differed significantly by stream. Children in the top stream had the highest average scores; children in the bottom stream the lowest average scores. Children in the middle stream scored between the two extremes. Although overall scores were not measured from performance on the same three tests at the two different age points, the difference between average scores for children in the different streams increased between age five and age seven.

The Pattern Construction Test, a test of non-verbal ability, was however completed at both ages. Figure 5 shows that although children in the top stream had the biggest increase in average scores between age five and age seven, it was children in the middle stream that had made the lowest average score increase. Scores have a range of 20 to 80. At age five the average score was 51.0 (standard error 0.21) and at age seven, 53.4 (standard error 0.22).

All teachers of primary school children in England at the time of the survey recorded a Foundation Stage Profile (FSP) score[5] during their first year at school (Reception class). The profile describes the child's level of attainment at the end of 'early years' education and identifies their learning needs for the next stage of school, helping Year 1 teachers to plan an effective and appropriate curriculum for the child. Overall scores range between 0 and 117. The average FSP score for the

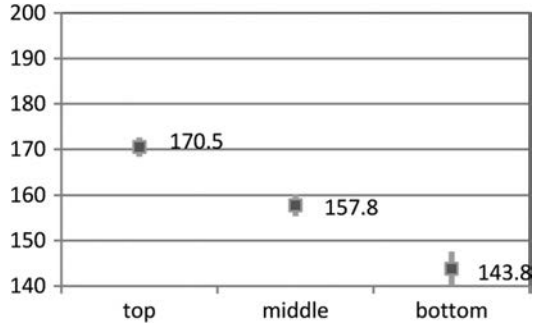

Figure 4a. Average cognitive score at age 5 (inc. 95%CI) by stream

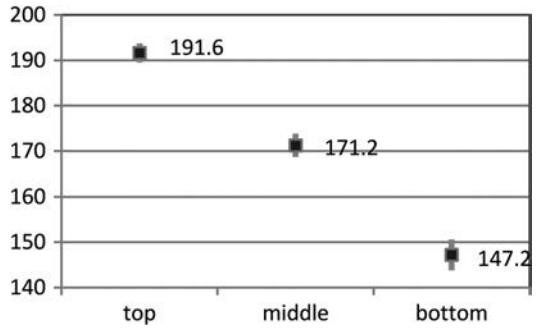

Figure 4b. Average cognitive score at age 7 (inc. 95%CI) by stream

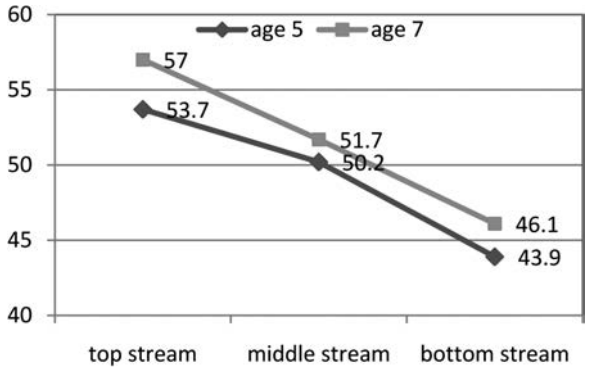

Figure 5. Average score in the BAS Pattern construction test at age 5 and age 7 by stream

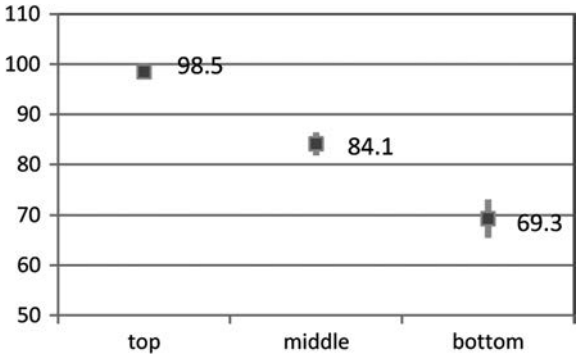

Figure 6. Average Foundation Stage Profile (FSP) scores for children at school in England

children in England in the Teacher Survey when they were age five (n = 4400) was 87.9 with a standard error of 0.52. Figure 6 shows that overall FSP scores differed significantly by stream, with children in the top stream scoring the highest; children in the bottom stream the lowest.

Key Stage 1 results. Key Stage 1 results were available for around 90% of the children at school in England. The overall average MCS results at KS1 for 6838 children were slightly higher than the national average for England. For reading they were 15.9 compared with the national average of 15.6, for writing 14.5 as opposed to 14.2, for mathematics 16.0 as compared with 15.8 and for science 15.8 compared with a national average of 15.5. Average scores differed significantly by stream with children in the top stream scoring the highest; children in the bottom stream the lowest in all four 'key stage' subjects (Figure 7). There were no statistically significant differences in KS1 attainment whether the child was in a streamed or mixed ability class. The average KS1 point scores achieved by children in streamed versus not streamed classes were for reading, 16.2 compared to 16.0; writing 14.7 compared to 14.5; maths 16.3 compared to 16.1, and science 16.0 compared to 15.9.

Behaviour. Figure 8 shows that children in the top stream were the least likely to be rated with 'severe' or 'definite' difficulties by their parent at age five and age seven or teacher at age seven, children in the bottom stream the most likely. More children in the middle or bottom stream were rated by their parent to have some level of difficulty at age seven than at age five. Teachers were far more likely than parents to rate children in the bottom stream with some degree of difficulty at age seven.

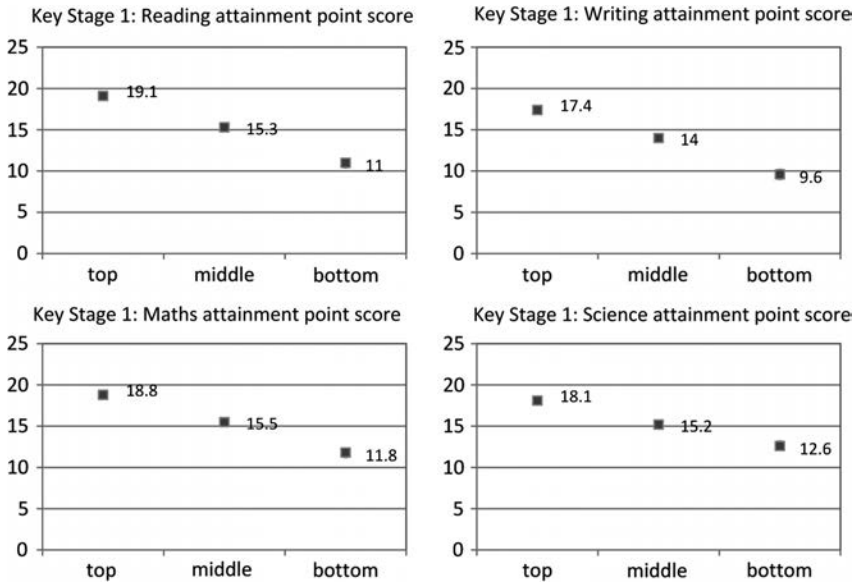

Figure 7. Average point scores in KS1 tests by stream placement for children in England

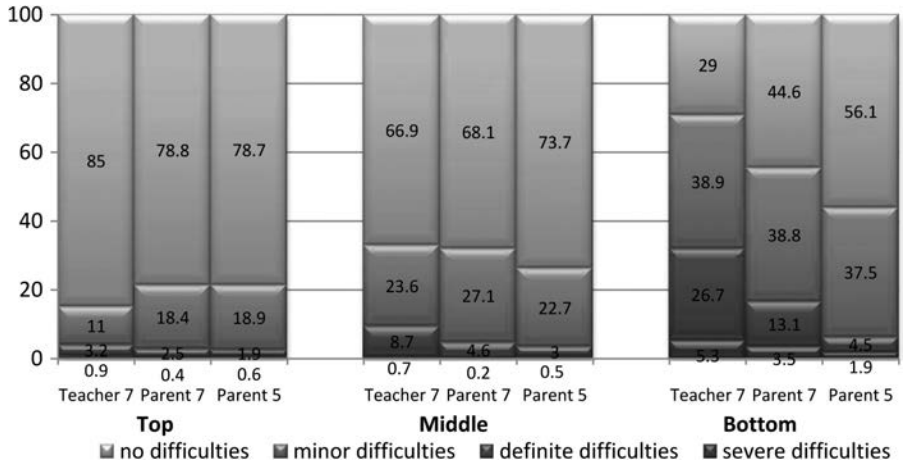

Figure 8. Percentage of children rated with difficulties on the Strengths and Difficulties Questionnaire by teacher and parent by stream

Long-standing illness. Children in the bottom stream were significantly more likely to be reported to have a long-standing illness by their parent than children in the top stream: 23.3% compared to 14%. Children in the middle stream again took a middle position, 19.8% had a longstanding illness.

Family characteristics. Family characteristics were not associated with whether a child was at a school that streamed or not, but among the 16.4% of children who were streamed they were very much associated with whether the child was in the 'top', 'middle' or 'bottom' stream. Children in the top stream had more advantageous socio-economic family circumstances, children in the bottom stream more disadvantages.

Just over two-thirds (68.8%) of all children lived with two natural parents. This increased to 79.8% of children in the top stream, compared with 65.6% of children in the middle stream and 48.2% of children in the bottom stream. 4.9% of children in the top stream had consistently lived in a lone parent household. This increased to 7.7% for children in the middle stream and a high 20.4% for children in the bottom stream. Fewer children in the top stream were part of a non-working household (7.5%) compared with children in the middle (14.7%) or bottom (31.2%) streams. Children in the top stream were most likely to live in an owner occupied home (76.7%) and children in the bottom stream the least likely (40%). 13.2% of children in the top stream lived in local authority or housing association rented accommodation. This increased to 26.7% for children in the middle stream and 44.2% among children in the bottom stream.

Children in the bottom stream were the most likely to have experienced poverty—as measured by weekly family income and related to the number of house-

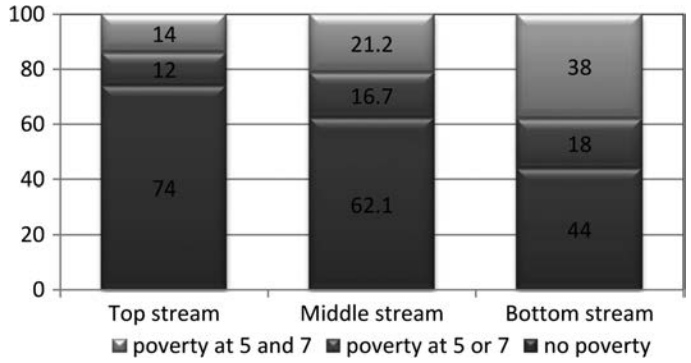

Figure 9. Poverty experience at age 5 and age 7 for children by streaming

hold members in work and the number of dependents.[6] Figure 9 shows that although a quarter of children in the top stream were classified as living in poverty at age five, age seven or both ages, this increased to more than a third of children in the middle stream and more than half of all children in the bottom stream. In fact, 38% of children in the bottom stream had experienced poverty at both age five and age seven.

Mothers of children in the bottom stream were most likely to have no qualifications (19.8%) and least likely to have a degree level or higher qualification (NVQ4 or 5 equivalent) (14.5%) (see Figure 10).

The educational aspirations held for the child and the learning environment at home. The educational involvement and aspirations of parents for their children was high in all streams. The vast majority of parents had visited school for parents' evenings

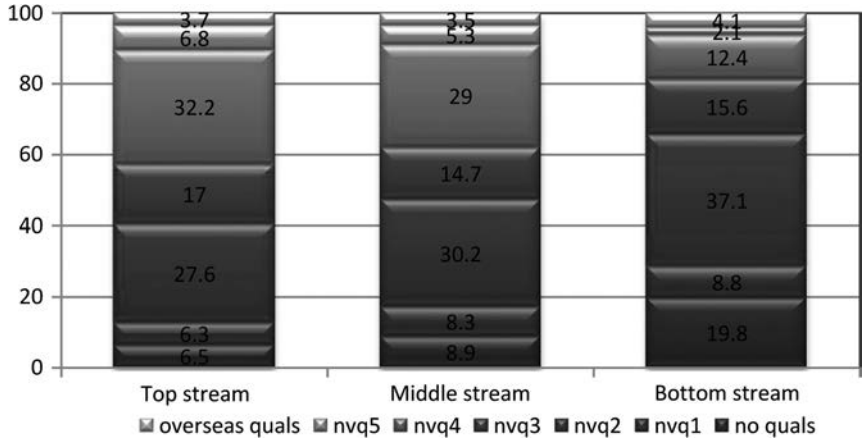

Figure 10. Highest qualification of child's mother by streaming

(95.4% top stream, 94.6% middle stream, 91.3% bottom stream) and wanted their child to stay on for post-compulsory education, although this was significantly lower among parents of children in the bottom stream (98.9% top stream, 98.4% middle stream, 94.6% bottom stream). Among those who wanted their child to remain in post-compulsory education, almost all wanted them to go on to study at university (96.4% top stream, 95.9% middle stream, 95.7% bottom stream).

Children in the top stream were significantly more likely to be read to by their mother everyday or several times a week than children in the middle or bottom stream (70% top stream, 62.5% middle stream, 59.2% bottom stream). Mothers of children in the bottom stream were also the most likely to report that they only 'rarely' or 'sometimes' enjoyed listening to or doing things with their child (14.2% compared with 8% middle and 7.5% top stream).

As homework increasingly becomes computer- and Internet-based, children in the bottom stream were found to be at a disadvantage. Table 5 shows that they were significantly less likely to have access to a computer or the Internet in their home, and among those that did have access, they were the least likely to use the Internet. They were however by far the most likely to have a TV in their bedroom.

Which personal or family characteristics significantly impact on a child's stream placement?

The findings reported above were based on bivariate analyses which focused on the differences between children who were in the top, middle or bottom stream. A series of multivariate logistic regression analyses were performed to assess whether the observed differences between groups were statistically significant after taking other characteristics into consideration. The results are discussed in terms of the 'odds ratio' (OR) or the relative odds of a particular characteristic, e.g., having behaviour difficulties or being part of a single parent household, being associated

Table 5. Access to technology at home by stream

	Top Stream % (95%CI)	Middle Stream % (95%CI)	Bottom Stream % (95%CI)
Access to a computer at home	87.7% (84.6-90.3)	82.5% (77.3-86.7)	76.6% (71.3-81.2)
Linked to the Internet at home	87.9% (84.6-90.7)	80.0% (74.7-84.5)	66.6% (59.7-72.8)
Use the Internet (if have access)	88.5% (84.2-91.8)	81.7% (76.5-86.0)	75.1% (67.7-81.2)
TV in their bedroom	43.6% (38.8-48.5)	61.7% (56.0-67.0)	73.0% (67.0-78.3)
N(100%)=	*573*	*425*	*306*

with stream placement against a 'reference category', i.e., having no behaviour difficulties or being part of an intact two parent family, once other measures in the model have been controlled for. The OR for the reference category is set as one, thus an OR greater than one indicates that a characteristic has a positive association with stream placement and an OR less than one indicates the characteristic has a negative association with stream placement.[7]

The analyses concentrated on determining the personal and family characteristics of children who were placed in the 'top' or 'bottom' streams. Three separate models were produced for each analysis. The first model concentrated on a child's personal characteristics, the second their family socio-economic circumstances. The final model included both sets of measures. The analysis is based on the 1147 children who had data for all measures (88% of the 1304 who were streamed). For children at school in England, the final model was also run with the addition of the Foundation Stage Profile (FSP) score. This restricted the sample further. Details of the specific measures are given below.

The child-based variables in model 1 and model 3

- *Sex of child* (0 = girl, 1 = boy) (Reference category = girl).
- *Season born in* (1 = autumn, 2 = winter, 3 = spring, 4 = summer) (Reference category: summer).
- *Longstanding illness* (0 = no, 1 = yes) (Reference category = no).
- *Parent rated behaviour problems at age five* (Strengths and Difficulties Questionnaire) (0 = no difficulties, 1 =behaviour difficulties) (Reference category: no difficulties).
- *Age-adjusted cognitive ability score at age five (three separate scores combined)* (1 = lowest quintile; 5 = highest quintile) (Reference category: lowest quintile).

Additional variable for children at school in England.

- *Foundation Stage Profile (FSP)*: total score (1 = lowest quintile; 5 = highest quintile) (Reference category: lowest quintile).

The parental/family variables in Model 2 and Model 3.

- *Family structure* (1 = both natural parents, 2 = lone parent birth and 7, 3 = lone parent at seven, 4 = step/other at birth and seven) (Reference category: both natural parents).
- *Mother's highest qualification* (0 = no qualifications; 4 = NVQ 4/5; 5 = overseas only) (Reference category: NVQ 2 level qualifications).
- *Poverty* (0 = no experience of poverty, 1 = poverty at some stage) (Reference category: no experience of poverty).

- *Housing tenure* (0 = home owner, 1 = rent, 2 = other) (Reference category: home owner.)

Table 6 provides a summary of the results, highlighting the measures significantly related to 'top' or 'bottom' stream placement. Table 7 gives the odds ratios and 95% confidence intervals for the individual categories of all variables in the models.

Child characteristics. The results suggest that autumn or winter born children were significantly more likely to be in the top stream (OR 3.89 autumn, OR 2.26 winter) and significantly less likely to be in the bottom stream (OR 0.49 autumn, OR 0.65 winter) when compared to summer born children. Cognitive scores were split into quintiles, and showed that children in each quintile above the lowest were progressively more likely to be in the top stream and progressively less likely to be in the bottom stream. Children with cognitive scores in the top quintile were more than 15 times as likely as children with cognitive scores in the lowest quintile to be part of the top stream (OR 15.44) and 11 times less likely to be part of the bottom stream (OR 0.09). Boys and children with behaviour difficulties were significantly more likely to be in the bottom stream (OR 1.78 boys, OR 1.70 behaviour difficulties), but gender and behaviour were not significantly associated with placement of children in the top stream.

Table 6. Summary of significant associations between child characteristics and family circumstances and stream placement for children in Year 2.

	Stream Placement					
	Top v Middle/Bottom			Bottom v Top/Middle		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child characteristics						
Gender				***		***
Season of birth	****		****	**		**
Cognitive ability (age 5)	****		****	****		****
Behaviour difficulties (age 5)	*			****		***
Current family circumstances						
Mother's highest qualification					**	*
Housing tenure		**	**			
Family structure		*			***	**
Working household						
Experience of poverty						

Significance level: **** p<.001; *** p<.01; ** p<.05; * p<.1

Table 7. Multiple logistic regression predicting placement in top or bottom stream among children in Year 2 (odds ratios and 95% Confidence Interval)

	Stream Placement					
	Top v Middle/Bottom			Bottom v Top/Middle		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child characteristics						
Gender (ref cat: girl)	1.00		0.94	1.65		1.78
	(0.73-1.36)		(0.69-1.29)	(1.14-2.40)		(1.18-2.54)
Season of birth (ref cat: summer)						
Autumn	3.94		3.89	0.48		0.49
	(2.57-6.04)		(2.43-6.24)	(0.28-0.80)		(0.29-0.83)
Winter	2.24		2.26	0.64		0.65
	(1.43-3.51)		(1.44-3.55)	(0.38-1.07)		(0.38-1.09)
Spring	1.26		1.21	0.86		0.91
	(0.75-2.13)		(0.71-2.04)	(0.52-1.42)		(0.54-1.55)
Cognitive ability (age 5) (ref cat: lowest quintile)						
Second	2.73		2.74	0.52		0.53
	(1.51-4.91)		(1.46-5.12)	(0.31-0.86)		(0.31-0.90)
Third	3.79		3.55	0.27		0.31
	(2.27-6.33)		(2.05-6.19)	(0.17-0.44)		(0.19-0.51)
Fourth	7.13		6.37	0.17		0.21
	(4.25-11.97)		(3.72-10.91)	(0.09-0.33)		(0.11-0.41)
Fifth (highest)	17.78		15.44	0.05		0.09
	(9.98-31.66)		(8.19-29.10)	(0.02-0.11)		(0.04-0.20)
Behaviour difficulties (age 5)	0.73		0.84	2.00		1.70

(ref cat: no difficulties)	(0.53-1.02)		(0.60-1.19)	(1.39-2.88)		(1.16-2.49)
Longstanding Illness	0.78		0.89	1.08		0.92
(ref cat: no illness)	(0.50-1.22)		(0.58-1.37)	(0.67-1.74)		(0.55-1.54)
Current family circumstances						
Mother's highest qualification						
(ref cat: no quals/nvq1)		1.34	1.07		0.81	1.00
Nvq2		(0.87-2.07)	(0.63-1.81)		(0.52-1.28)	(0.60-1.67)
		1.53	1.09		0.68	0.90
Nvq3		(0.97-2.42)	(0.62-1.92)		(0.38-1.21)	(0.46-1.75)
		1.79	1.34		0.41	0.54
Nvq4/5		(1.13-2.85)	(0.75-2.39)		(0.25-0.68)	(0.31-0.95)
		2.27	1.90		0.71	0.79
Overseas quals only		(0.82-6.31)	(0.72-5.05)		(0.27-1.87)	(0.29-2.17)
Housing tenure (ref cat: home owner)						
Rented		0.57	0.52		1.41	1.47
		(0.38-0.86)	(0.33-0.82)		(0.85-2.35)	(0.84-2.58)
Other		0.47	0.49		1.33	1.44
		(0.15-1.43)	(0.17-1.44)		(0.53-3.34)	(0.52-3.97)
Family structure (ref cat: two parents)						
Lone parent (consistent)		0.58	0.71		2.83	2.56
		(0.32-1.05)	(0.37-1.38)		(1.54-5.19)	(1.29-5.09)
Become lone parent		0.75	0.83		1.06	0.97
		(0.43-1.30)	(0.44-1.53)		(0.57-1.97)	(0.52-1.83)
Step family / other		0.55	0.61		1.65	1.51
		(0.33-0.93)	(0.35-1.07)		(0.94-2.89)	(0.83-2.75)
Non-working household						
(ref cat: working parent)		0.73	0.78		1.54	1.40
		(0.42-1.27)	(0.42-1.44)		(0.86-2.79)	(0.72-2.71)

(*Continued*)

Table 7. (*Continued*)

	Stream Placement					
	Top v Middle/Bottom			Bottom v Top/Middle		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Experience of poverty						
(ref cat: not in poverty age 5 or 7)		0.90	1.08		0.97	0.84
Poverty age 5 or 7		(0.59-1.40)	(0.63-1.83)		(0.57-1.65)	(0.47-1.51)
		0.88	1.31		1.29	0.94
Poverty age 5 and 7		(0.58-1.35)	(0.82-2.08)		(0.76-2.19)	(0.52-1.67)
Nagelkerke pseudo R^2	0.29	0.12	0.32	0.25	0.16	0.30
n	*1147*	*1147*	*1147*	*1147*	*1147*	*1147*

Family circumstances. Children who had a mother with a degree or higher level qualification (NVQ4 or NVQ5) were significantly less likely to be in the bottom stream (OR 0.54) whereas children who were in a (consistent) single parent family were significantly more likely to be part of the bottom stream (OR 2.56). Children in the top stream were significantly less likely to live in rented accommodation (OR 0.52) or to have experienced family disruption and to be living as part of a step family (OR 0.61).

The final model was repeated with the inclusion of the Foundation Stage Profile (FSP) score for children at school in England. This reduced the sample size to n = 675. The FSP score was a significant predictor of placement in both 'top' and 'bottom' stream. Children with cognitive scores in the fourth or highest quintile were also significantly more likely to be in the top stream and significantly less likely to be in the bottom stream. The only other significant predictors of stream placement were being part of a lone parent family (bottom stream) and being autumn born (top stream).

Discussion

The data from the study indicated that a significant proportion of Millennium Cohort Study children at age seven were in streamed classes. While the source of the data makes comparison with school surveys difficult it does suggest that streaming may have experienced something of a revival in large UK schools, although there do seem to be differences between countries.

Historically, schools have been free to make their own decisions about the kinds of pupil grouping that they adopt, although from time to time they have been under considerable political pressure to adopt particular practices. The findings showed that the schools adopting streaming were more likely to be large, have mixed age classes, and have an intake with higher proportions of Pakistani and Bangladeshi children, those with behaviour difficulties and those with low levels of mother's education. The incidence of streaming for cohort children attending fee paying schools was much lower than for state schools. Previous research in the UK showed that the factors that tended to encourage schools to adopt structured ability grouping (usually setting) included: raising standards; matching work to pupil needs; the demands of different curriculum subjects; making the best use of teacher expertise; initiatives related to literacy and numeracy; meeting the non-academic needs of pupils; school and class size; resources; timetabling; school ethos; and accountability to outside bodies. School staff do not seem to base their decisions on ideology but on raising standards to meet government priorities and managing practical issues in the school environment (Hallam *et al.*, 2002, 2004a). This research raises issues as to why those schools adopting streaming were doing so given that this and other research has shown that streaming, of itself, does not raise attainment (e.g., Barker Lunn, 1970; Ferri, 1971) and that many were also adopting setting which has been demonstrated to be more effective in this respect

(Slavin, 1987). There was insufficient evidence from the current research to draw conclusions as to whether streaming increased differences in performance between those in top and bottom streams in comparison with similar children in mixed-ability classes. Indeed the findings suggest that progress may be most limited in middle streams, a finding which supports recent research on banding in secondary education (McManus, 2010). Data collected relating to the children's performance when they are aged 11 will be able to address these questions.

In contrast to earlier research (Barker Lunn, 1970; MacIntyre & Ireson, 2002) the streams did seem to be based on the current attainment levels of the children, presumably because of Foundation Stage Assessments, which were not available until relatively recently. The predominance of summer born children in the lower streams is not surprising as some are almost a whole year younger than their autumn born counterparts and might be expected to be performing at more immature development levels. Related to this, and of concern, is the extent to which pupils can move between groups. Previous research has suggested that this is not a common practice in schools (Barker Lunn, 1970), and that there are practical problems in moving children in terms of class size and curriculum coverage. Moving children between sets seems to be easier than moving them between streams possibly because the formal class structure remains the same (Hallam *et al.*, 2002; Davies *et al.*, 2003). Lack of flexibility in movement between streams may mean that an individual child's educational trajectory is determined at a very early age. Important questions need to be asked about the extent of movement between streams in schools adopting this practice.

The research does raise issues relating to social cohesion. A range of measures of deprivation differentiated between children in the bottom and top streams. Green and colleagues (2006) argue that countries that practice early educational selection tend to exhibit higher levels of social segregation as grouping by ability amounts to grouping by social background. Systems that minimise grouping by ability and differentiation between schools seem to be better at combating social segregation than those which adopt early structured grouping practices (OECD, 2001; Green *et al.*, 2006). High levels of structured ability grouping throughout education systems also seem to reduce intergenerational mobility (Brunello & Checci, 2006; Maurin & McNally, 2007). When structured grouping or selection operates at older age levels there is an argument that it motivates students to work hard and perform at a higher level particularly when there are high stakes tests (Koerselman, 2011) but streaming when children are under the age of seven based on assessments that parents and children are unaware of cannot be justified in these terms and disadvantage particular groups including boys, summer born children, those with behaviour difficulties, those from single parent homes and those with mothers who have low levels of education.

The parents of all of the children, whatever their stream placement, were interested in their child's education and had high aspirations for their children, although there were differences in the extent to which they aspired for their child to remain in education beyond the compulsory phase. In addition, the activities

and resources which their children had the opportunity to engage with at home were not appropriate to support them in attaining at the highest academic levels. A challenge for educators and policy-makers is how to change parental behaviour to support children's learning and raise educational aspirations.

To conclude, this research based on MCS4, has raised issues relating to the proportion of children in streamed classes in the UK which had previously been undetected. In the long term it will also provide the opportunity to follow these children as they progress through their education and into the work force. This will provide the opportunity to answer questions about the long term impact of streaming which earlier research has been unable to do.

Notes

1. 0.1% of teachers completed the questionnaire between January and May 2008, 42% of teachers completed the questionnaire towards the end of Year 1/Primary 2 (June to August 2008), 57.8% of teachers during Year 2/Primary 3 (September 2008 to June 2009 and 0.1% between July and October 2009).
2. For 351 children, teachers reported they did not know if they were streamed and for a further 55 children whether they were in the 'top', 'middle' or 'bottom' stream. These children made up 4.5% of all children in the Teacher Survey and were excluded from the analysis.
3. Children in the Millennium cohort were born between 1 September 2000 and 31 August 2001 in England and Wales; between 1 November 2000 and 14 January 2002 in Scotland and Northern Ireland.
4. Elliott (1996).
5. Children in the reception class are assessed using the FSP scales by the class teacher/support assistant during the year with the judgements collated at the end of the year. This is for the reporting of data, to inform parents' reports and to inform the planning of work by the Year 1 teacher. There are 13 scales, each divided into nine points or descriptions of attainment. Points one to eight can be achieved in any order as they are not necessarily incremental, but point nine of each of the thirteen scales can only be achieved when all the previous eight points in that scale have been achieved. The overall score is a composite of scores on the 13 separate scales, e.g., social development, emotional development, physical development, knowledge and understanding of the world.
6. This is the standard OECD measure. Note: there is a slight overestimation of the number of families experiencing poverty as the amount of housing benefit being received was not always recorded as this benefit does not come directly to the recipient.
7. Interpreting Odds Ratios (OR): for those who are not familiar with the interpretation of logistic regression models, it is important to clarify the meaning of the odds ratios reported. Using the example of the relative chances of boys being in the bottom stream, we can see that 31.7% of boys were in the bottom stream compared with 19.1% of girls. Expressing this in terms of odds rather than probabilities or percentages we obtain odds of 31.7: 68.3 or 0.47:1 that boys would be in the

bottom stream and 19.1:80.9 or 0.24:1 that girls would be in the bottom stream. The odds of boys being in the bottom stream are therefore almost double that of girls; however, this does not mean that boys are twice as likely as girls to be in the bottom stream.

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