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in entrance rates and the association with
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Quantitative Social Science
Working Paper No. 20-11
August 2020

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Grammar schools: Socio-economic differences in entrance rates and the association with socio-emotional outcomes

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Background

Selective education in the United Kingdom remains a contentious issue. Although most grammar schools in England were closed during the 1960s and 1970s, they were never completely phased out, with around 160 remaining in 2019. In Northern Ireland, academic selection in the form of grammar schools remains throughout the country, though they are often highly segregated not only by academic achievement, but also by religion. Such schools retain support amongst some groups, who argue that they increase social mobility. Yet most existing academic research suggests that this is not the case, with little evidence of an increase in average levels of achievement, but signs that selective education may increase educational and labour market inequalities (Hanushek and Woßmann 2006; Burgess, Dickson and Macmillan 2014; Burgess, Crawford and Macmillan 2017, Gorard and Siddiqui 2018).

This report provides new evidence on socio-economic inequalities in grammar school entrance rates and the potential impact that access to grammar schools is having upon young people's lives. Much of the existing contemporary research on grammar schools focuses upon academic achievement outcomes alone. In contrast, the focus of this report is a broader array of socio-emotional measures, such as motivation and engagement in school, wellbeing, educational expectations and mental health. These are all issues that are important to parents and young people when selecting a secondary school (Wespieser, Durbin and Sims 2015), and to labour market outcomes, social mobility and wellbeing more generally (Blanden, Gregg and Macmillan 2007). Our analysis considers whether such outcomes are, on average, better in selective versus comprehensive education areas in England, and if there are particular benefits for certain groups, e.g. those from high-income backgrounds. We also consider the link between family income and grammar school attendance, investigating the potential mechanisms that may drive this relationship.

Methodology

Using data from the Millennium Cohort Study (a nationally-representative survey that has followed a sample of children from birth through to age 14), our analysis begins by modelling the relationship between family income and the probability that a child attends a grammar school. Results are presented separately for England and Northern Ireland, where we explore the extent to which socio-economic differences in grammar school entry rates can be explained by a wide array of factors, including prior academic achievement, private tuition and parental school preferences. We then turn our attention to whether a range of socio-emotional outcomes, e.g. motivation at school, behaviour, wellbeing, future aspirations, differ between children who live in academically-selective parts of England where grammar schools are still prevalent, e.g. Kent, to comparable children who live in areas with a comprehensive education system where grammar schools are not present, e.g. Norfolk. Statistical techniques such as regression and matching, where each child who lives in a selective area is matched to a child with similar characteristics who lives in a non-selective area, are used to ensure a fair basis for comparison. A similar analytic approach is then used to compare socio-emotional and academic outcomes between grammar and non-grammar pupils, amongst the sub-set of children who live within selective education areas in England such as Kent, and Northern Ireland.

Findings

Our key findings can be summarised as follows:

- There is a strong relationship between family income and the probability of attending a grammar school in England and Northern Ireland. Although this can be partially explained by differences in prior achievement, young people from lower-income family backgrounds remain significantly less likely to attend a grammar school than their high-income peers, even when they have similar academic abilities.

- High-income families are more likely to pay for private tuition and coaching for grammar school entrance tests than low-income families. Children who receive private tuition are more likely to go on to attend a grammar school than those who do not, regardless of their background.
- There is no evidence that academic and socio-emotional outcomes differ between selective and comprehensive education areas in England. Limited evidence emerges that selective education areas have greater levels of inequalities than comprehensive areas (in terms of academic and socio-emotional outcomes) within our research.
- We find no evidence that children who attend a grammar school develop stronger socio-emotional skills than those who do not. This is consistent across a wide range of outcomes, including their engagement in school, wellbeing and self-confidence in their academic abilities. Within selective education areas, grammar school pupils do however go on to obtain better GCSE grades than their peers who attend a non-selective state school (this difference is equivalent to around three-quarters of a GCSE mathematics grade).

Recommendations

In combination with previous academic evidence, these findings have important policy implications. Our results are consistent with a now wide body of research that suggests the overall effect of grammar school systems is essentially zero when compared with comprehensive education systems (Hanushek and Woßmann 2006; Burgess; Atkinson, Gregg and McConnell 2006, Gorard and Siddiqui 2018). Our contribution has been to illustrate how this continues to hold true when using a particularly rich dataset and for a much wider array of outcomes than has previously been considered. Together, this suggests that there is very little to be gained from policies designed to increase between-school academic selection in England. Moreover, we have highlighted some significant issues with the selective elements of the education system in England that are currently in place, most notably the extensive use of private tutoring and coaching for the entrance test.

Nevertheless, we cannot rule out the possibility that grammar schools may offer longer-term advantages (e.g. increasing the chances of attending a selective university) and parents may still want their child to attend a grammar school, even if this does not lead to vast improvements in educational and socio-emotional outcomes. Consequently, in parts of the country where academic selection is still widespread, the government should do more to reduce barriers to grammar schools. For instance, they might seek to address high-income families' disproportionate use of private tuition by introducing a tax upon such services, with the revenue this generates used to subsidise extra lessons for pupils from lower-income backgrounds.

Academic papers

Three academic papers have been produced within this project, which provide further detail to the results provided in this report. The references to these journal papers are as follows:

Jerrim, J., & Sims, S. (2019). How do academically selective school systems affect pupils' social-emotional competencies? New evidence from the Millennium Cohort Study. *American Educational Research Journal*, 56, 1769–1799. <https://doi.org/10.3102/0002831219830965>

Jerrim, J. and Sims, S. (2019). Why do so few low- and middle-income children attend a grammar school? New evidence from the Millennium Cohort Study. *British Educational Research Journal*, 45, 425-457. doi:[10.1002/berj.3502](https://doi.org/10.1002/berj.3502)

Jerrim, J. and Sims, S. (2020). The association between attending a grammar school and children's socio-emotional outcomes. New evidence from the millennium cohort study. *British Journal of Educational Studies*, 68, 25-42. DOI: [10.1080/00071005.2018.1518513](https://doi.org/10.1080/00071005.2018.1518513)

Acknowledgements

The Nuffield Foundation is an independent charitable trust with a mission to advance social wellbeing. It funds research that informs social policy, primarily in Education, Welfare, and Justice. It also funds student programmes that provide opportunities for young people to develop skills in quantitative and scientific methods. The Nuffield Foundation is the founder and co-funder of the Nuffield Council on Bioethics and the Ada Lovelace Institute. The Foundation has funded this project, but the views expressed are those of the authors and not necessarily the Foundation. Visit www.nuffieldfoundation.org. We are grateful for their support. Helpful comments have been received on the draft from our project advisory group, whom we would like to thank for their input and support.



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1. Introduction

Selective education within the United Kingdom remains a contentious issue. Prior to the 1960s, England had an academically-selective grammar school system, where 11-year-old pupils were segregated into different schools depending upon their performance in an aptitude test known as the eleven-plus. Although this system was replaced in large parts of the country during the 1960s and 1970s, it was never completely phased out. Consequently, around 160 grammar schools, educating approximately five percent of pupils, remain in England in 2019. Moreover, in other parts of the United Kingdom, most notably Northern Ireland, the grammar school system remains firmly in place. Hence, despite often being characterised as a comprehensive education system, with low levels of between-school tracking, the use of segregation-by-ability varies greatly across the UK. While in most parts of the country selective education ended almost half a century ago, in other parts it remains prevalent.

Despite being phased out in most of the UK, grammar schools retain support among some policymakers, who argue that they increase social mobility. Whether grammar schools do indeed provide low- and middle-income pupils with better life opportunities is, however, open to debate. Indeed, a wide-ranging literature, both within the UK and internationally, suggests that this may not be the case (Hanushek and Woßmann 2006; Burgess, Dickson and Macmillan 2014; Burgess, Crawford and Macmillan 2017).

One often-cited reason is that not enough low- and middle-income children enter grammar schools. They are hence unable to reap the rewards that attending such a selective school may bring. For instance, research has illustrated how just three percent of pupils eligible for Free School Meals (FSM) are educated in a grammar school in England, despite accounting for 13 percent of the pupil population (Andrews, Hutchinson and Johnes 2016). If low- and middle-income children are to benefit from grammar schools, more need to attend them. Yet we currently know surprisingly little about the relationship between family background and grammar school attendance in contemporary times³. Indeed, there is currently very little quantitative research into the potential mechanisms that may drive the relationship between family income and grammar school attendance.

There has also recently been a renaissance in research investigating how gaining entry to grammar schools affects pupils' life chances (Cribb *et al.*, 2013; Burgess *et al.*, 2014; Allen,

³ Previous work has considered this issue using data from the 1958 National Child Development Study (e.g. Sullivan and Heath 2002). However, these children would have been entering grammar schools in the late 1960s, with limited policy relevance for any plans to expand grammar schools today. For instance, the phenomenon of widespread and intensive private tutoring may be more significant now than for earlier cohorts.

Bartley and Nye, 2017; Burgess *et al.*, 2017). One strand of this literature has considered whether children who attend grammar schools have higher subsequent educational attainment. Some of these studies suggest that attending a grammar school has non-trivial benefits. For instance, Guyon *et al.* (2012) found that expanding selective schools in Northern Ireland in 1989 improved pupil attainment. Likewise, Sullivan and Heath (2002) used data on a cohort of pupils born in 1958 and found grammar school pupils achieved superior educational outcomes relative to their comprehensive school peers. Studies using more recent data, by contrast, have found little or no benefit in terms of later academic attainment (Gorard and Siddiqui, 2018; Smith-Woolley *et al.*, 2018). Research also shows that non-selective schools near to grammar schools have lower levels of attainment (Atkinson *et al.*, 2006).

While important, academic attainment is not the only way in which gaining, or failing to gain, entry to grammar schools affects pupils. In particular, research suggests a number of ways in which socio-emotional or non-cognitive skills might also be affected by selection. For example, it is plausible that failure to get into grammar school has a long-term scarring effect upon young people's self-confidence, wellbeing and self-esteem (Ahmavaara and Houston, 2007; Gallagher and Smith, 2000; Remedios *et al.*, 2005). Byrne and Gallagher (2004, p.171) conducted extensive qualitative research with teachers in Northern Ireland and found that pupils who did not gain entry to selective schools were affected in a number of ways: "their reluctance to speak in class; their lack of motivation and attitude to work; the low targets that they set for themselves; and, in many cases, the increased incidence of discipline problems." This was attributed directly to the experience of the selection process.

Selection may also have indirect effects on socio-emotional outcomes. For example, entry into a grammar school will change a child's peer group. Previous work has illustrated how high-achieving peers can positively influence personality traits (Comi *et al.*, 2017) which are themselves important predictors of outcomes in later life (Borghans *et al.*, 2008). Peer groups also provide a reference point against which pupils judge their own ability. Research from both psychology (e.g. Marsh and Parker, 1984) and economics (Murphy and Weinhardt, 2016) into 'Big Fish Little Pond' effects finds that grammar school pupils may actually develop *lower* levels of academic self-concept and self-efficacy, as their main reference point will be their high-achieving peers. Grammar and non-grammar pupils may also be exposed to different levels of bullying, peer pressure and misbehaviour (Gallagher and Smith, 2000; Byrne and Gallagher, 2004) which may in turn influence young people's mental health (Basu *et al.*, 2014). For example, Byrne and Gallagher (2004) found that the concentration of low attaining pupils in non-selective schools created an anti-authority culture which negatively affected behaviour.

The combination of the factors above provides clear reasons to believe that studying in a grammar school may have an impact upon young people's socio-emotional outcomes.

Within this report we summarise findings from a set of recent research papers about socio-economic differences in entry into grammar schools and the link that they have with pupils' socio-emotional outcomes, sometimes referred to as 'non-cognitive skills'. The first paper illustrates the strong link between family income and the chances of attending grammar school, as well as investigating several of the key mechanisms thought to be driving this relationship. We find that children from low-income backgrounds are much less likely to attend grammar schools than their high-income peers, even when they have similar levels of prior academic achievement, with differences in private tuition one potentially important explanation. The second paper considers differences in socio-emotional outcomes between young people who live within selective and comprehensive education areas in England. No evidence emerges that academic selection has a positive net effect upon socio-emotional outcomes of secondary school pupils, with only weak evidence of any increase in socio-economic inequality. The third paper then investigates whether those children who enter grammar schools achieve better socio-emotional outcomes than those children whose parents applied for their child to go to a grammar school, but who then did not attend one. We find little evidence that attending a grammar school is significantly associated with improvements in young people's socio-emotional skills, once a wide range of background factors have been accounted for. Finally, we add further evidence on differences in GCSE outcomes between young people who live in selective and comprehensive education areas in England. Consistent with previous research, we find no evidence that selective education systems raise overall levels of GCSE achievement. The rest of this report is structured as follows: Chapter 2 discusses the location of grammar school pupils and their intake in England. The third chapter provides an overview of the Millennium Cohort Study (MCS) data. Chapter 4 provides results from our investigations of the link between family income and grammar schools entrance rates. In Chapters 5 and 6 we turn to the link between selective schooling and young people's socio-emotional outcomes. Chapter 7 presents findings from a similar analysis, focusing upon the link between academic selection and young people's GCSE grades. Conclusions and policy recommendations follow in Chapter 8.

2. Selective and comprehensive education areas in England

Academic selection in England refers to the grammar school system. At the start of the final year of primary school (Year 6) parents can choose to apply for their child to attend a grammar school. These children must then sit the eleven-plus entrance test⁴. Only those who pass this test gain access to the academically-selective grammar secondary schools. Those who fail the test attend non-selective secondary schools. Movement into and out of grammar schools during secondary education is relatively rare, with the vast majority remaining in their allocated school until the end of Year 11 (age 15/16). By international standards, this form of academic selection is early (the average age of selection among OECD countries is 14) and binding in the sense that there is little opportunity to move into the academic grammar school track once in secondary school (OECD 2013).

Selective schooling in England dates back to the 1944 Education Act, which established a three-track education system consisting of academically-selective grammar schools, non-selective secondary moderns and technical (vocational) colleges. At that time, there were around 1,200 grammar schools operating in all areas of the country, educating just over a third of pupils in England and Wales (Bolton 2015). In 1965 the government issued a directive encouraging local education authorities to move to non-selective, comprehensive school systems. By the end of the 1970s there were only around 200 grammar schools left in England, educating just under 5 percent of pupils. Although opening new grammar schools was outlawed in 1998, grammar schools were never abolished by the central government. As a result, academically-selective schools still remain in certain parts of the country. Specifically, there are ten Local Education Authorities (LEAs) in England where a fully academically-selective schooling system remains⁵. Moreover, a number of ‘isolated’ grammar schools still exist in other parts of England, i.e. single grammar schools within a largely comprehensive area, with no other selective schools around. This effectively means that there is an element of academic selectivity affecting some local education areas, even within supposedly ‘comprehensive’ parts of the country.

Figure 2.1 illustrates how England’s 163 grammar schools are distributed across the country (left-hand panel) along with the home location of the children who attend (right-hand panel). Darker shading refers to more intense concentration of academic selection. There are two key points of note. First, it demonstrates how academic selection in England continues to be

⁴ For further details on the grammar school selection process, see Allen, Bartley and Nye (2017).

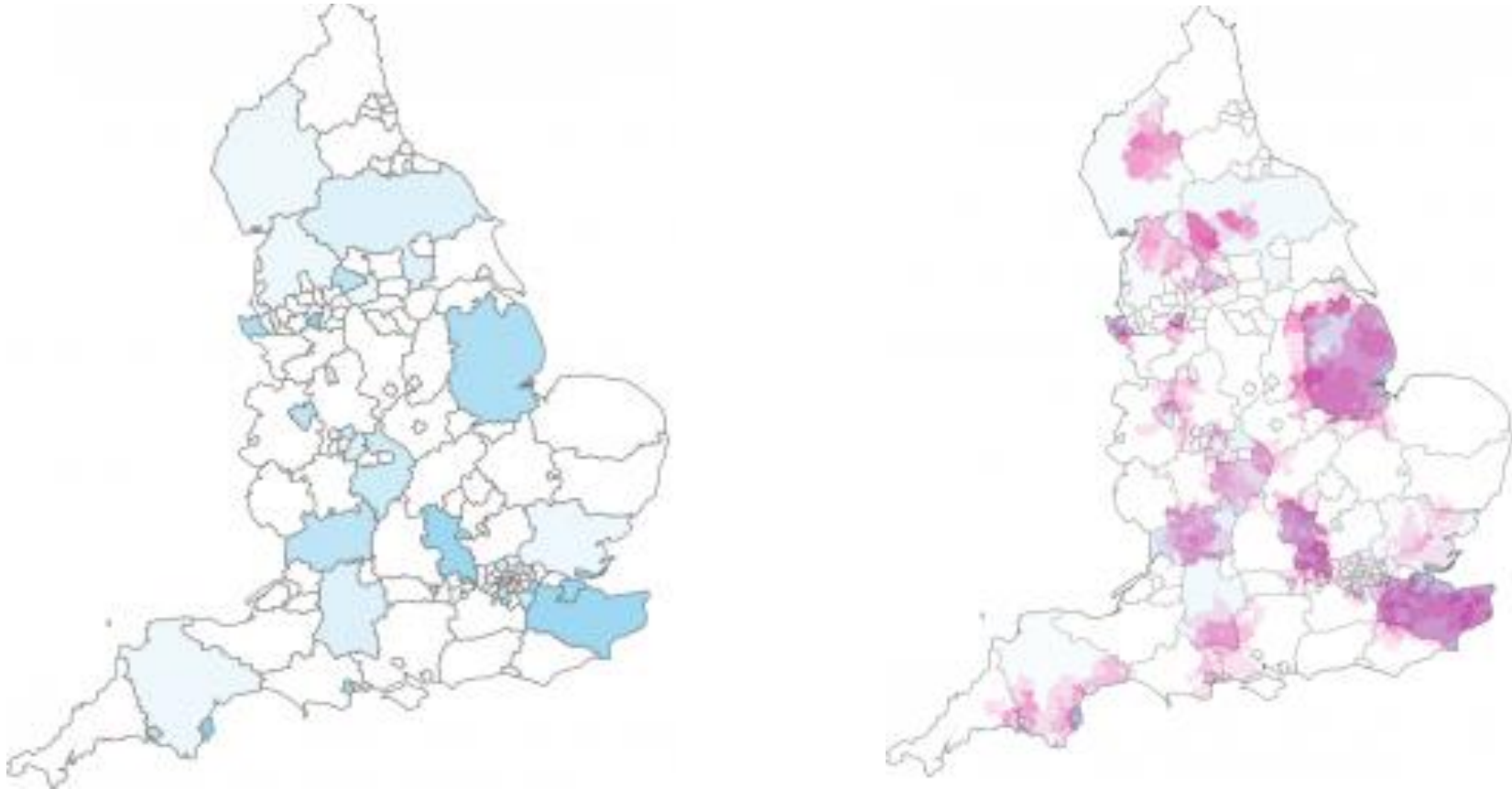
⁵ The 10 fully selective LEAs in England are Bexley, Buckinghamshire, Kent, Lincolnshire, Medway, Slough, Southend-on-Sea, Torbay, Trafford and Sutton.

prominent in a non-trivial proportion of the country. Indeed, nine percent of secondary pupils attend school in what can be considered an academically-selective education area, with around five percent of secondary school pupils currently enrolled in a grammar school nationwide⁶. Second, the right-hand panel shows that roughly one in five children who attend a grammar school travel across a local education authority (LEA) boundary to do so (Allen 2016). There is hence evidence of contamination between selective and non-selective education areas in England.

Of course, it should also be remembered that even within comprehensive education areas in England, some form of academic selection is still used. It is just that this occurs by sorting children into different classes *within* schools (i.e. setting/streaming) rather than explicitly placing children into *different* schools (i.e. ‘tracking’ as per the grammar school system). Hence comparisons of selective and comprehensive education areas in England are implicitly comparing the effect of one type of academic selection versus another, i.e. the effect of between-school tracking versus the counterfactual effect of within-school setting/streaming.

⁶ Schools, Pupils and Their Characteristics – Local Authority Tables. SFR 28/17.

Figure 2.1. The local of grammar schools in England and where their pupils live
(a) Location of grammar schools **(b) Where grammar school pupils live**



Source: Allen (2016). Notes: Darker shading refers to a greater concentration of grammar schools (panel a) or proportion of pupils who attend a grammar school.

3. Data

3.1 Definition of ‘selective’ and ‘comprehensive’ education areas

Throughout this report, we define selective areas in England as the ten fully-selective LEAs where the vast majority of England’s grammar schools are located, plus those children living in Middle Super Output Areas (MSOA)⁷ where at least ten percent of children have attended a grammar school over the last five years. Comprehensive areas are, on the other hand, specified as those MSOAs where no child has attended a grammar school in the past five years. In other words, we are comparing the dark red shaded areas in Figure 2.1 to those that are completely white. The advantage of this definition, versus just defining ‘selective areas’ using the ten LEAs where most of England’s grammar schools are located, is that it captures children who cross over LEA boundaries to attend a selective school, while also including those who are affected by the ‘isolated’ grammar schools spread across the country.

Analysis of the Millennium Cohort Study suggests that selective education areas in England are generally more affluent than comprehensive areas, with higher levels of parental education and income. There are also notable differences in crime, health and deprivation, with better outcomes in selective education areas. In terms of children’s characteristics before entering secondary school, those who live in selective parts of the country tend to have slightly stronger cognitive skills, and fewer behavioural problems.

3.2 The Millennium Cohort Study (MCS) data

The Millennium Cohort Study (MCS) is a rich, nationally-representative longitudinal study of UK children. After restricting the data for England to only those pupils who live in selective and comprehensive areas (as defined in Section 3.1), the sample size is 4,785 (1,095 children in selective areas and 3,690 in a comprehensive area). The sample size for Northern Ireland is 1,039.

In the age 14 sweep of the MCS, parents were asked to name their child’s school. Using this information, a binary indicator has been derived, taking a value of one for grammar school and zero otherwise. Note that, in England, state school children classified as non-grammar school pupils could be attending either a ‘secondary modern’ or a comprehensive school.

The MCS has collected rich information about children’s schooling. In the final year of primary school, this included asking the child’s parents about the factors influencing the choice of

⁷ Middle Super Output Areas (MSOAs) are small geographic areas within England. The minimum population within an MSOA is 5,000 individuals, maximum of 15,000 individuals, with a mean of 7,200. In total, there are 6,781 MSOAs in England.

secondary school. For instance, they were asked how important it was that the school was close to their home, that their child wanted to go there, its academic reputation and whether it has good facilities. They were also asked about the steps they had taken to get their child into a particular secondary school, such as moving house, joining a church, using a different address and, importantly, whether they had arranged extra tuition or coaching for their child. Some additional information on private tuition is also available within the MCS, with parents asked whether their child has attended additional lessons in English, mathematics and science⁸.

In the age 11 MCS survey sweep, young people were asked a battery of questions capturing their attitudes towards school, along with a number of modules designed to capture their social and emotional competencies. From responses to these questions, a set of socio-emotional scales has been derived; throughout this report, higher scores on these scales always refer to better outcomes. The age 11 socio-emotional outcome scales used in this report are as follows (with further details available in Appendix A):

- Academic self-concept
- Wellbeing
- Academic wellbeing
- Rosenberg self-esteem scale
- Strengths and Difficulties Questionnaire.

Note that, for children living in selective education areas, they typically completed the age 11 MCS survey sweep, having already taken the eleven-plus exam, and would be in the process of applying, and being accepted into, a secondary school.

A number of the outcome scales children completed at age 11 were also repeated in the age 14 survey. Moreover, several other socio-emotional outcome measures are also available from the age 14 survey, including:

- School motivation
- Mental health scale
- English vocabulary skills as measured by the WORD test.
- Young person's university expectations
- Parental aspirations for their child to attend university, measured on a binary yes/no scale.

⁸ Note that English and mathematics are subjects typically included in grammar school entrance tests, while science is not.

Data from the MCS has also been linked to the National Pupil Database (NPD). In this paper we make use of (a) pupils' total point score across all of their GCSE subjects and (b) their GCSE mathematics grade⁹.

4. Unpicking the relationship between family income and entry into grammar schools

The first part of the empirical analysis focuses upon the relationship between family income and the probability that a child attends a grammar school. It begins by providing an overview on the reasons why children from high-income families might be more likely to enter a grammar school than their peers from low-income families. New empirical evidence is then presented on the strength of the association between family income and grammar school entrance rates in England and Northern Ireland, including the factors that can help explain this relationship. This includes whether differences by family income remain amongst children with similar levels of prior achievement, and the role of private tutoring. Implications for education policy, including an idea to change taxation rules to equalise access to private tuition, are then introduced.

4.1 What mechanisms might drive the relationship between family income and grammar school attendance?

A. Prior achievement.

There is a substantial literature in the UK and internationally documenting large disparities in academic achievement between socio-economic groups (Jerrim and Vignoles 2013). It is widely recognised that these disparities emerge early, being visible as young as age three. Hence by the time secondary school choices are made, low- and middle-income children will have significantly lower levels of academic achievement than their high-income peers. Lower-income families may reason that the chances of their offspring passing the entrance exam are likely to be low, and so therefore decide not to enter them to take this test. Alternatively, even if lower-income families want their child to go to a grammar school, their lower academic attainment means that they are less likely to pass the entrance test. Regardless of which of the above holds true, prior achievement is likely to be a critical factor in the grammar school application and entry process.

⁹ As this cohort of pupils took their GCSEs before the recent reforms, this information is based upon the old alphabetic (A*-U) scale. Throughout the analysis we treat this as a nine-point scale.

B. Parental school preferences

When applying to a secondary school, high-income parents may place more emphasis on certain qualities than their low- and middle-income peers. For instance, affluent families may be particularly keen for their offspring to attend a school which has a strong track record of high grades and which can offer pupils a wide range of extra-curricular activities (Burgess et al. 2015). Lower- and middle-income families, on the other hand, may prefer their child to attend the nearest school and to maintain their existing friendship groups (National Foundation for Educational Research 2016). Likewise, lower socio-economic groups may associate grammar schools with tradition, middle-class values and elitism, creating a social barrier that stops them from applying to a grammar school (Sutton Trust 2013). This may, in turn, partially explain why there continues to be a relationship between household income and grammar school attendance rates, even after socio-economic differences in young people's skills have been considered.

C. Location / distance

Rather than having different preferences about the qualities of a school, lower and middle-income families may struggle to gain access due to issues of distance (National Foundation for Educational Research 2016). These are likely to operate through two inter-related channels. First, house prices tend to be higher in neighbourhoods surrounding higher quality schools (Gibbons and Machin 2008). Hence higher-income families may be more likely to live within an easily commutable distance of a grammar school. Second, affluent families are better able to cope with the costs of their children having to commute to school, such as being able to afford bus passes or train tickets, or being able to drive their children to school. Geographical factors may therefore be partly responsible for the association between household income and grammar school attendance.

D. Parents' and teachers' recognition of academic potential

Low- and middle-income parents, who are less likely to have attended grammar school themselves, may be less likely to correctly identify the potential of their high-achieving child, lacking the understanding that they have what it takes to gain entry and to succeed at such a school. Similarly, teachers in primary schools with more disadvantaged intakes may have less experience in advising, and encouraging, parents with regards to the grammar school admissions process. Indeed, qualitative research by the Sutton Trust has suggested that "*some primary school teachers do not think that grammar schools are suitable for children from*

poorer families” and that some lower-income parents “*might prefer a more ‘rounded’ education for their child*” (Sutton Trust 2013). The relationship between household income and grammar school entry may consequently partly reflect parents’ and teachers’ misjudging some children’s academic potential, while also being less likely to encourage low-income families to go down the selective education route.

E. Parental aspirations and expectations for their child

An extensive literature has illustrated how educational and occupational aspirations are linked to young people’s academic attainment (Khattab 2015). With regards to grammar school access, it may be that low- and middle-income parents have different education and career aspirations for their offspring (Schoon and Parsons 2002). They may, for instance, be less likely to want or expect their child to enter university or to work in a professional job (Goodman, Gregg and Washbrook 2011). This in turn may mean that they are less likely to apply for a grammar school place for their child. Alternatively, these lower aspirations may be internalised by their child, leading low- and middle-income pupils to be less likely to want to go to a grammar school, which then makes their parents less likely to apply. Such possibilities are consistent with previous qualitative research which found that headteachers felt “*families from disadvantaged backgrounds had lower educational aspirations for their children*”, which in turn makes them less likely to apply for a grammar school place (Sutton Trust 2013).

F. Coaching / tutoring for the entrance examination

One way high-income families might use their resources to gain an advantage is by paying for tutoring or coaching services that specifically target the grammar school entrance exam. The admission tests typically involve mathematics, English and non-verbal reasoning components, and include material that is not aligned with the National Curriculum taught in English and Northern Irish schools. There are several companies which explicitly market their services at helping children to pass this selection test¹⁰, often involving lessons to familiarise and train young people specifically for this exam. These services, however, do not come cheap and are likely to be disproportionately used by families with higher incomes (Kirby 2016; Ireson and Rushforth 2011). Consequently, such services are likely to help high-income families gain a place at grammar schools over lower and middle-income groups, even when their children are of equal academic potential.

G. Private primary schooling

¹⁰ See, for instance, <http://www.11plusguide.com/11-plus-exam-preparation/11-plus-private-tutors/kent-11-plus-tutors/>

Within selective education areas, parents may send their child to a private primary school in order to improve their chances of attending a grammar secondary school. For instance, whereas state primary schools are prohibited by government or local education authority rules from ‘coaching’ or tutoring children directly for the entrance test, independent primary schools tend to have greater freedom over what they teach. More generally, high-income parents may send their child to a private primary school because they deem them to provide higher quality teaching and instruction, and will improve their prospects of entering grammar school that way.

4.2 Methodology overview

Within this chapter we restrict the MCS sample for England to children who live in the selective education areas (see Section 3.1), with young people who go on to attend a fee-paying independent secondary school excluded.

To estimate the association between family income and the chances of children entering grammar school, a set of statistical models will attempt to explain why children from high-income families are more likely to attend a grammar school than their low- and middle-income peers. These models will be built up sequentially, each adding an additional set of controls. The models can be summarised as follows (see Jerrim and Sims 2018a for further technical details):

- Model M1. This includes household income as the only explanatory factor. Results from this model will capture all the mechanisms via which children from higher-income backgrounds are more likely to gain entry to grammar school (as set out in Section 4.1 above).
- Model M2. Adds a control for prior achievement to age seven. Results from this model will illustrate differences in grammar school entrance rates between high- and low-income children who have similar levels of prior academic achievement.
- Model M3. Controls for geographic location. This will strip out the effect of distance, and other local neighbourhood factors, e.g. quality of local primary schools, from the link between family income and grammar school entrance rates.
- Model M4. Adds controls for entrance exam coaching and private tuition. This will help quantify the advantages that high-income families gain in the race for a grammar school place by purchasing these additional educational services, over and above the role of prior achievement and local area characteristics.
- Models M5 + M6. Adds controls for the importance parents place upon sending their child to a school with good grades (M5) and a wider set of parental secondary school

preferences (M6). Together, these models will help us understand whether parental school preferences have a role in explaining why children from high-income families are more likely to attend a grammar school.

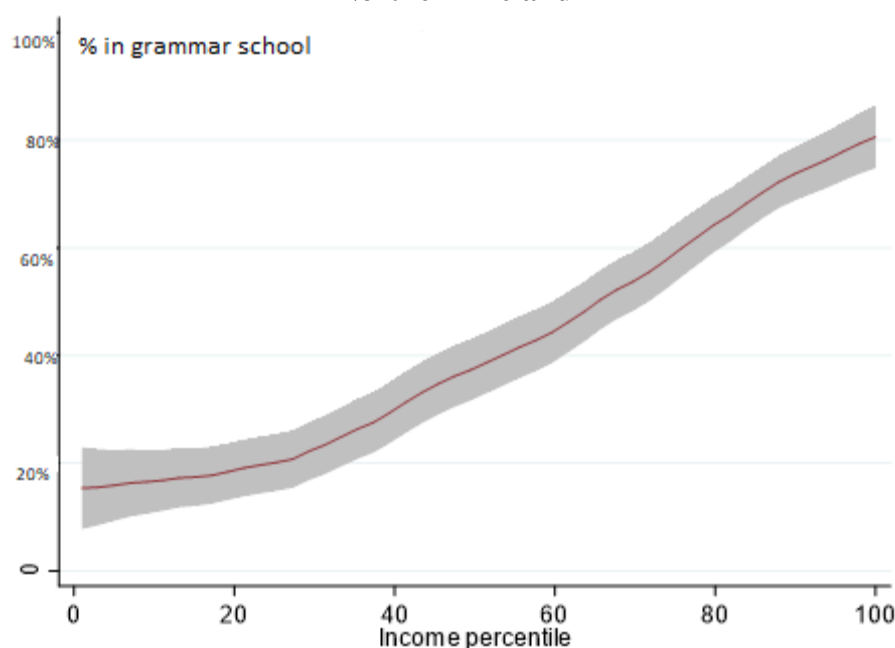
- Models M7 + M8. These models add controls for parent (M7) and teacher (M8) views of the child's cognitive and non-cognitive skills. As discussed above, it could be that low and middle-income parents, and their child's teachers, are less likely to recognise their child's suitability for grammar school than higher-income families. Results from these models will provide some evidence as to whether this is indeed the case.

Results from these models will first be presented for Northern Ireland and then for England. As Northern Ireland is a 'sealed' system, it is easier to analyse and interpret these results first, before moving onto the more complex situation in England, where grammar schools exist only in certain geographic areas.

4.3 Results for Northern Ireland

Figure 4.1 illustrates the relationship between family income and grammar school attendance in Northern Ireland. The association is positive and linear above the 25th percentile. There is, for instance, around a 20 percent chance of all children below the 25th percentile attending a grammar school. This probability then steadily increases, up to around 40 percent at the 50th percentile and around 70 percent at the 90th percentile. There is hence evidence of a steady incline in grammar school attendance rates as family income increases.

Figure 4.1 The relationship between family income and grammar school attendance in Northern Ireland



Notes: Graph illustrates how the probability of attending a grammar school increases with family income. These results are formalised in model M1 (see Table 4.1), where the link between family income and grammar school attendance is estimated including just basic demographic controls. Compared to the lowest income quartile (reference group), young people whose families are in the top income quartile are 53 percentage points more likely to attend a grammar school.

Table 4.1. The association between family income and grammar school entrance rates in Northern Ireland

	M1	M2	M3	M4	M5	M6	M7	M8
Household income								
Bottom 25% of family income (Reference)	-	-	-	-	-	-	-	-
Second quartile	11%*	6%	7%	7%	5%	5%	4%	-1%
Third quartile	31%*	18%*	15%*	14%*	10%*	11%*	10%*	8%
Top 25% of family income	53%*	33%*	25%*	22%*	18%*	18%*	17%*	15%*

Notes: A star indicates statistical significance at the 5 percent level. Estimates refer to the percentage point increase in the likelihood of grammar school entry, relative to the lowest income group. Models include different sets of controls, as set out in Section 4.2.

To what extent is this result a reflection of differences in children’s prior academic achievement between family income groups? Model M2 addresses this issue by adding a host of academic achievement controls up to when children are age seven. The difference in grammar school entrance rates between the top and bottom income group falls from 53 to 33 percentage points. Hence, although prior achievement can explain a sizeable amount of the family income gap in grammar school entrance rates, results from model M2 also makes clear how a number of able

children from disadvantaged family backgrounds do not attend a grammar school in Northern Ireland.

The third model (M3) adds in additional controls for geographic location¹¹. Interestingly, this helps to further explain some of the socio-economic gap in grammar school entrance rates in Northern Ireland, particularly the difference between families in the top income quartile and the other income groups. Specifically, the difference between the top and bottom income groups has fallen by a further eight percentage points, from 33 to 25 percentage points. Our interpretation is that this suggests distance and local community factors, potentially including religion, are helping to exacerbate socio-economic inequalities in grammar school access in Northern Ireland.

What else, other than location and prior achievement, can explain the socio-economic gap in grammar school entrance rates? Table 4.2 provides some descriptive evidence on the steps high-income parents take to get their child into their chosen school. The key factor that stands out is private tuition, with high-income families much more likely to use tutoring/coaching to get their child into the school of their choice. Specifically, families are around six to seven percentage points more likely to report using private tutors as a method of gaining access to a particular school for each £100 increase in family income. Moreover, high-income families are also selective in the subjects that their offspring are tutored in. Note, for instance, how there is a seven-percentage-point increase in English and mathematics tuition per £100 increase in family income, but essentially no association in science. This is consistent with the content of grammar school entrance tests, which do not include science, but have a strong English and mathematics component. Together, this points towards private tuition being a key tactic which high-income parents use to maximise their child's chances of getting a place at a grammar school.

¹¹ These capture the effect of distance, and other local neighbourhood factors (e.g. quality of local primary schools) in the link between family income and grammar school entrance rates.

Table 4.2. The relationship between family income and parental actions to boost their children’s chances of entering grammar school in Northern Ireland

(a) Relationship between family income and actions parents take to get their child into their chosen school

Action taken	% point change per £100 increase in weekly income
Taken entrance exam	6.9%*
Extra lessons in Maths	6.7%*
Extra lessons in English	6.6%*
Arranged tuition / coaching	6.0%*
Other steps	3.1%*
Attend after school club	-2.2%*
Help with homework	-2.0%*
Extra lessons in science	0.1%

(b) Relationship between coaching and grammar school entrance

Attend grammar	Northern Ireland	
	Not coached	Coached
No	59% (476)	22% (33)
Yes	41% (334)	78% (114)

Notes: * indicates statistical significance at the 5 percent level. In Panel (b), the number of observations are reported in parentheses.

Table 4.2 Panel (b) provides some descriptive evidence illustrating the association between receiving coaching/tuition and grammar school entrance rates. In Northern Ireland, 78 percent of children who received coaching/tuition for the entrance test entered a grammar school, compared to 41 percent of those who did not receive any coaching/tuition. This result continues to hold even when we enter these private tuition variables into our grammar school entrance model (Model M4 in Table 4.1), which is conditional on prior achievement and local area characteristics. Specifically, parents who said that they used coaching to get their offspring into their chosen school, and who paid for private maths and English tuition, were around 18 percentage points more likely to get their child into a Northern Irish grammar school (conditional upon the host of other variables already included in the model)¹². In other words, paying for private tutoring is strongly associated with children’s chances of going to a grammar school, over and above young people’s academic ability. As high-income families are

¹² These results are not formally reported, but the joint impact of the private tutoring variables included in the model are statistically significant.

disproportionately likely to pay for private tutors, the difference in grammar school entrance rates between the top and bottom income group reported in Table 4.1 fall between Model M3 and Model M4; from around 25 percentage points down to around 22 percentage points.

We therefore find some evidence that equalising access to private tutoring may be an effective policy lever to increase the number of low and middle-income children at Northern Irish grammar schools. For instance, the rate of taxation could be increased on private tuition, with the proceeds allocated to schemes to raise the attainment of disadvantaged pupils. This point is discussed in further detail below.

The next factor we add into our grammar school entrance model is parental school preferences. However, before discussing these results, we provide some descriptive evidence on how such preferences vary with family income in Northern Ireland in Table 4.3.

Table 4.3. The relationship between family income and parental school preferences in Northern Ireland

Reason for choosing school	% point change per £100 increase in weekly income
Good exam results / reputation	9.0% *
Good range of extra-curricular activities	5.7% *
Has good facilities	5.3% *
General good impression of school	5.0% *
Religious grounds	2.8% *
Child wanted to go there	2.6% *
Friends intending to go there	2.0%
Nearest school to home	1.4%
Has a specialist curriculum	1.1%
Strong anti-bullying policy	0.6%
Other relative went there	0.3%
Other	0.1%
Don't know	0.0%
Brother/sister goes there	-1.0%

Notes: All variables are binary responses (yes/no). * indicates statistical significance at the 5 percent level. Parental income has a strong and significant association with a number of school preferences. Two of the most notable are good examination results and a general good impression of the school. Specifically, in Northern Ireland, each £100 increase in weekly income leads parents to express a nine percentage point increase in good school examination results and a five percentage point increase in good impression of the school. The two other factors which high-income parents tend to value more than lower-income parents in Northern Ireland are school facilities and the provision of extra-curricular activities. The results in Table 4.3 therefore lead

us to conclude that high-income parents in Northern Ireland have particularly strong preferences for schools with a good reputation and whose pupils get good grades.

What happens when these variables capturing parental school preferences are included in our grammar school entrance model? (See Table 4.1). The difference between the top and bottom income groups is reduced by a further four percentage points between Model M4 and Model M5 (which includes parental school preferences for a school with good grades as the only additional control). Interestingly, no further change in the income parameter estimates occurs between Model M5 and Model M6, when the full range of parental school preference variables (as reported in Table 4.3) are also added into the model.

The final two models include additional controls for parents' (Model M7) and teachers' (Model M8) views of their child's cognitive and non-cognitive skills. Together, these variables help to further explain why children from high-income families are disproportionately likely to attend a grammar school. Specifically, the difference between high- and low-income groups falls from 18 percentage points in Model M6 to around 15 percentage points in Model M8. Hence parents' and teachers' views of children's strengths and weaknesses do make some contribution to the socio-economic gap in grammar school attendance rates, over and above independent measures of children's actual academic ability.

The other important point to note from Model M8 is that, even after an extensive range of controls have been included, a reasonably large difference in grammar school attendance between family income groups remains. In other words, there are other factors not included in our models which help to drive this relationship. Indeed, we have only been able to explain approximately 70 percent of the socio-economic gap in grammar school entrance rates¹³.

4.4 Results for England

In Table 4.4 we present results from our grammar school entrance model for England. This is accompanied by Figure 4.2, which illustrates the relationship between family income percentile and the probability of attending a grammar school in England.

¹³ This is the change in the high-income estimate between model M1 and M8 reported in Table 4.1. This is calculated as $(53\% - 13\%) / 53\%$.

Table 4.4 The association between family income and grammar school entrance rates in England

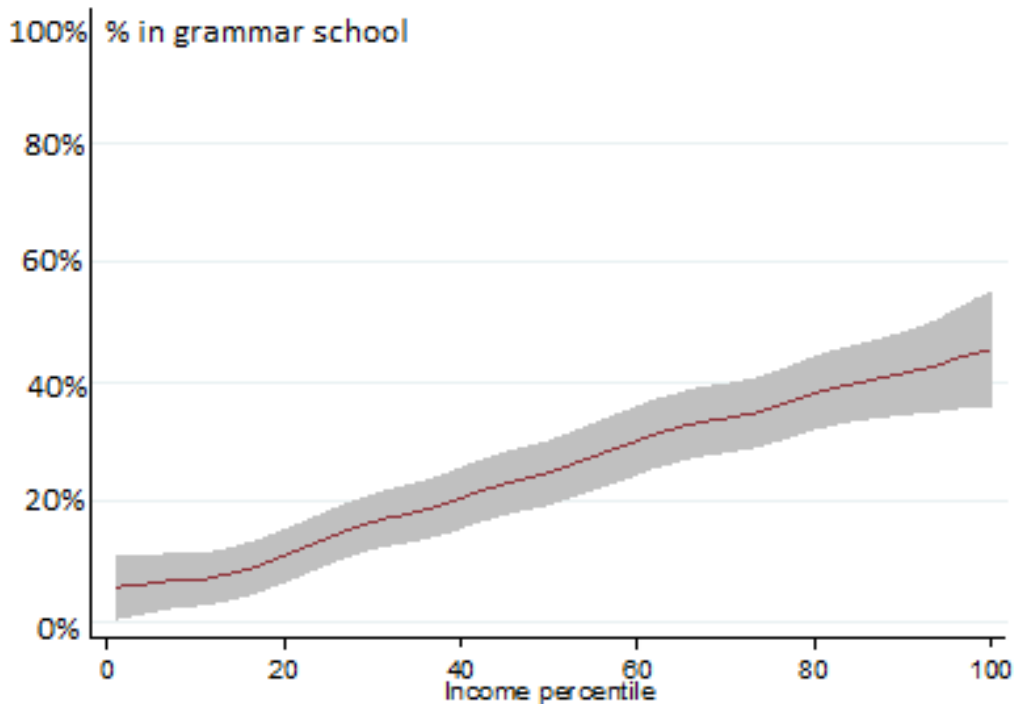
	M1	M2	M3	M4	M5	M6	M7	M8
Household income								
Bottom 25% of family income (Reference)	-	-	-	-	-	-	-	-
Second quartile	14%*	9%*	9%*	7%	8%*	8%	8%	8%
Third quartile	20%*	12%*	13%*	6%	7%	6%	7%	6%
Top 25% of family income	36%*	21%*	24%*	13%*	13%*	12%*	12%*	12%*

Notes: Estimates refer to the percentage point difference in the likelihood of grammar school entry, relative to the lowest income group. * indicates statistical significance at the 5 percent level. Models include different sets of controls, as set out in Section 4.2.

The first notable feature of these results is that family income differences in grammar school attendance is not as large in selective areas of England as in Northern Ireland. For instance, the overall gap between the high- and low-income groups is around 35 percentage points in England, compared to more than 50 percentage points in Northern Ireland. Indeed, in England, only around 40 percent of children from high-income families in selective areas attend a grammar school, compared to around 70 percent in Northern Ireland. We put this difference down to the different structure of the education system in these two countries and, in particular, the quite different alternatives to attending a grammar school. Specifically, failure to gain entry to a grammar school in Northern Ireland means that children will enter the equivalent of a ‘secondary modern’, i.e. a school track designed specifically for lower academic achievers, with greater proportions of children from lower socio-economic backgrounds. The same is not true in England due to (a) the opportunity to travel across local education authority borders to attend a comprehensive school and (b) the presence of a more extensive independent, i.e. private, school sector¹⁴. Consequently, high-income parents in England have more viable alternative school options available than parents in Northern Ireland, with it therefore making sense that socio-economic differences in grammar school attendance are not quite as large.

¹⁴ Recall that we have excluded children who go on to attend a private secondary school in England. We have created an alternative version of this graph for England where we illustrate the link between family income and the probability of attending *either* a grammar or independent school. The income gradient then becomes somewhat steeper in England; around 50 percent of high-income children attend either a grammar or a private school.

Figure 4.2 Family income and enrolment in a grammar school in England



Returning to estimates from the grammar school entrance model for England presented in Table 4.4, a number of consistent findings with the Northern Irish results emerge. For instance, note how prior academic achievement explains a substantial proportion of the grammar school entrance gap between high- and low-income children. Specifically, the difference between high- and low-income groups falls by just over one-third, from around 36 percentage points in Model M1 to around 21 percentage points in Model M2, once prior achievement controls are included. Nevertheless, as in Northern Ireland, substantial differences between income groups remain, even taking into consideration children’s prior achievement.

Although the inclusion of geographic location in Model M3 does little to change our results, we do find evidence that private tutoring and coaching for school entrance test plays a pivotal role in explaining socio-economic differences in grammar school attendance. Table 4.5 presents descriptive evidence on this issue, with Panel (a) illustrating how every £100 in weekly equivalised household income is associated with a six percentage point increase in the probability that the child receives coaching for the entrance test, and an extra four to five percentage point increase in private maths and English tuition. Note how the same is not true for tutoring in science, which is not part of the grammar school entrance test, and that the relationship between family income and private tuition is a lot shallower in comprehensive education areas in England (as compared to selective education areas). This is complemented by Table 4.5b, which illustrates how coaching for the entrance test is almost a prerequisite for

gaining access to grammar school: almost three-quarters of children living in a selective education area in England who were coached to pass the test gained entry, compared to only 14 percent of those who were not coached. Together, these factors combine to drive a large decline in the difference between high- and low-income groups between Model M3 and Model M4: private tutoring is a key reason why academically able pupils from low- and middle-income families are less likely to attend a grammar school than their high-income peers. Specifically, the difference between high- and low-income pupils in grammar school entrance rates falls from around 24 to 13 percentage points after private tuition has been considered.

Table 4.5. The relationship between family income and parental actions to boost their children’s chances of entering their chosen school (England)

(a) Relationship between family income and actions parents take to get their child into their chosen school

Action taken	% point change per £100 increase in weekly income	
	Selective area	Comprehensive area
Extra lessons in English	3.7%*	1.7%*
Extra lessons in Maths	4.8%*	1.7%*
Arranged tuition / coaching	5.9%*	1.5%*
Other steps	0.0%	-0.1%
Taken entrance exam	6.2%*	3.6%*
Help with homework	-1.9%*	0.2%
Extra lessons in science	0.1%	0.1%
Attend after school club	-1.1%	1.1%*

(b) Relationship between coaching and grammar school entrance

Attend grammar	England	
	Not coached	Coached
No	86% (567)	27% (42)
Yes	14% (94)	73% (116)

Notes: The number of observations is included in parentheses. ‘Coaching’ refers to a single variable, based upon whether parents arranged tuition/coaching to get their child into their chosen secondary school. Total number of observations differs from Table 4.4 due to missing data. * indicates significantly different from zero at the 5 percent level.

Otherwise, the inclusion of additional controls does relatively little to further reduce the family income gap in grammar school entrance rates for England. Table 4.6, for instance, illustrates how most parental school preferences in selective education areas in England do not vary substantially with household income, with the exception of good exam results and general

impressions of the school, with this result continuing to hold if we control for children’s level of academic achievement. Consequently, their inclusion within Models M5 and M6 does relatively little to change our results (see Table 4.4). Likewise, the grammar school entrance gap between high- and low-income pupils does not decline much after we control for parent and primary school teacher views of the child’s behaviour and academic abilities (Models M7 and M8). Consequently, even after we include a full set of quite extensive controls, around a third of the raw family income gap in grammar school entrance rates in England remains unexplained, which is consistent with the results obtained for Northern Ireland¹⁵.

Table 4.6. Family income and parental school preferences in England

Reason for choosing school	% point change per £100 increase in weekly income	
	Selective	Comprehensive
Good exam results / reputation	4.4% *	6.4% *
General good impression of school	4.4% *	5.1% *
Good range of extra-curricular activities	1.0%	4.7% *
Religious grounds	1.0%	0.8%
Child wanted to go there	0.8%	1.9% *
Strong anti-bullying policy	0.6%	1.1% *
Has good facilities	0.2%	4.3% *
Other	0.0%	0%
Nearest school to home	-0.5%	-0.8%
Has a specialist curriculum	-0.9%	0.4%
Other relative went there	-1.1%	-1.6% *
Friends intending to go there	-1.2%	1.0% *
Brother/sister goes there	-1.3%	-1.6% *

Notes: * indicates significantly different from zero at the 5 percent level.

4.5 What are the implications for policy and practice?

A major implication of these results for education policy stems from the large socio-economic gap that exists in the use of private tutoring amongst parents of primary school pupils within selective education areas in England. With affluent families being much more likely to pay for tutoring services, this makes an important contribution to socio-economic differences in grammar school entrance rates in both England and Northern Ireland.

What could be done to level the playing field? One option could be to raise the tax rate on private tutoring services, particularly those that are specifically geared towards passing

¹⁵ This is the difference between high- and low-income families from models M1 and M8 from in Table 4.4. The calculation is $(36\% - 12\%) / 36\%$.

grammar school entrance exams. The extra finance raised could be used to support children from disadvantaged backgrounds, including via subsidising the cost of private tuition for low-income groups. Such a system would be likely to reduce demand for tutoring amongst higher-income families, while simultaneously increasing use of private tutoring for families on lower incomes. This would, in turn, contribute to narrowing socio-economic gaps in educational achievement and equalising access to grammar schools.

5. The link between selective education and young people’s socio-emotional skills

While the previous section explored socio-economic differences in grammar school entry rates, attention is now turned to differences in socio-emotional outcomes between children who live in educationally selective and comprehensive parts of England. This analysis will start to reveal whether between-school academic selection in England in the form of grammar schools is associated with better or worse socio-emotional outcomes for children, including their motivation at school, wellbeing, mental health and behaviour.

5.1 Methodology overview

We begin by restricting the MCS to only those pupils who live in selective and comprehensive areas in England (see Section 3.1). We then use regression and propensity score matching to compare outcomes between children who live in selective and comprehensive parts of the country. These account for potential differences in a range of parent, child and local area characteristics measured at or before age seven.

The analyses are first conducted for all pupils using the full sample, and then for the following sub-groups:

- Low- versus high-income pupils (above / below median income)
- Low versus high achievers (above / below median maths achievement at age 7).
- Whether children in selective areas attended a grammar school or not.

Further details about our methodology can be found in Jerrim and Sims (2018b).

5.2 The effect on average

Table 5.1 presents the results for outcomes on average. Positive figures indicate better outcomes for children in selective areas than comprehensive areas. Across all outcome measures, effect sizes for all outcomes are small (less than 0.1 standard deviation difference). Indeed, only school engagement at age 11 and self-efficacy at age 14 reach statistical

significance at the five percent level, though even for these outcomes the effects are small (0.08 standard deviations). Propensity score matching and difference-in-difference analyses leads to similar substantive conclusions, as do the various robustness tests we have conducted (see Jerrim and Sims (2018b) for these auxiliary results).

The key finding to be taken from Table 5.1 hence is that there is no evidence that socio-emotional outcomes differ, on average, between children who live in selective and comprehensive education areas in England. This is important because it provides no evidence of there being any lasting impact of academic selection upon young people’s socio-emotional outcomes such as their wellbeing, self-confidence and, behaviour or mental health.

Table 5.1. The association between selective education systems and children’s outcomes at ages 11 and 14. Regression results including all children.

	Effect size
<u>Age 11 outcomes</u>	
Academic motivation and beliefs	
School engagement	0.08
Academic self-concept	0.01
Academic wellbeing	0.06
Behaviour and wellbeing	
Wellbeing	0.05
Rosenberg self-efficacy	0.03
SDQ total score	0.01
<u>Age 14 outcomes</u>	
Academic motivation and beliefs	
School engagement	0.05
Academic self-concept	-0.02
Academic wellbeing	0.03
Behaviour and wellbeing	
Wellbeing	0.05
Rosenberg self-efficacy	0.08*
SDQ total score	0.01
Mental Health	0.01
Academic achievement	
English vocabulary skills	0.01
Educational expectations	
Child expects to stay in school post-16	-0.02
Child expects to go to university	-0.04
Parent expects child to stay in school post-16 (binary)	0.00
Parent expects child to go to university (binary)	-0.03

Notes: All outcome measures have been re-scaled so that higher values indicate a better outcome. * indicates statistical significance at the 5 percent level.

5.3 Low versus high-income children and the socio-economic gap

Although living in a selective education area may have no impact on average, it could affect the outcomes of particular sub-groups. Table 5.2 hence considers differences in the effect by family income.

Living within a selective education area does not seem to have a major impact upon the academic, social, emotional and behavioural outcomes of low-income pupils, compared to living within a comprehensive education area. Of the 18 outcomes considered, the effect size is above 0.1 and statistically significant on only two occasions: for wellbeing and academic wellbeing at age 11. However, even these positive effects do not last through to age 14, when the wellbeing (-0.03) and academic wellbeing (-0.08) estimates turn negative. Hence, in terms of socio-emotional outcomes, there is no obvious advantage, or disadvantage, for low-income children from living in a selective or a comprehensive education area.

Table 5.2 The association between selective education systems and children's outcomes at ages 11 and 14. Results by income group.

	Low income	High- income
<u>Age 11 outcomes</u>		
Academic motivation and beliefs		
School engagement	-0.01	0.10*
Academic self-concept	-0.13	0.06
Academic wellbeing	0.19*	0.03
Behaviour and wellbeing		
Wellbeing	0.14*	0.02
Rosenberg self-efficacy	0.00	0.03
SDQ total score	0.07	0.02
<u>Age 14 outcomes</u>		
Academic motivation and beliefs		
School engagement	-0.08	0.12*
Academic self-concept	-0.07	0.01
Academic wellbeing	-0.08	0.09
Behaviour and wellbeing		
Wellbeing	-0.03	0.10
Rosenberg self-efficacy	-0.03	0.11*
SDQ total score	0.00	0.04
Mental Health	-0.08	0.07
Academic achievement		
English vocabulary skills	0.01	0.03
Educational expectations		
Child expects to stay in school post-16	-0.01	-0.02
Child expects to go to university	-0.08	-0.03
Parent expects child to stay in school post-16 (binary)	0.00	0.01
Parent expects child to go to university (binary)	-0.03	-0.04

Notes: Low/high income defined as below/above median. Estimates refer to effect sizes. * indicates statistical significance at the 5 percent level.

For most outcomes considered, high-income children do not particularly benefit from living in a selective education area either. At both age 11 and age 14, most of the effects reported for high-income pupils in Table 5.2 are small (less than 0.1 standard deviation). Out of the 18 outcomes considered, on only three occasions (school engagement at age 11 and 14 and self-efficacy at age 14) is the effect size 0.1 or above, and even then, only marginally. Thus, in summary, for most socio-emotional outcomes high-income children also do not benefit from living in a selective education area. The only slight exception is perhaps school engagement, where there is a small, positive effect.

5.4 Low versus high-achieving children and inequality in achievement

Table 5.3 turns to differences in outcomes by prior achievement, as measured by performance on the age 7 MCS mathematics test. For low-achievers there are some modest effects of living in a selective education area at age 11. This includes a small positive impact upon school engagement (0.13 standard deviations), wellbeing (0.15 standard deviations) and academic wellbeing (0.11 standard deviations). These effects are, however, small in terms of magnitude and not sustained through to age 14. For high achievers, there is no statistically significant effect upon any outcome, with all estimates below 0.10 standard deviations. Our analysis hence provides little evidence that living in a selective education area harms the social, emotional and behavioural outcomes of low-achieving pupils. Likewise, the negative impacts upon higher-achievers are minimal.

Table 5.3. The association between selective education systems and children’s outcomes at ages 11 and 14. OLS regression results by prior achievement group.

	Low-achievers	High achievers
<u>Age 11 outcomes</u>		
Academic motivation and beliefs		
School engagement	0.13*	-0.03
Academic self-concept	0.02	-0.05
Academic wellbeing	0.11	0.03
Behaviour and wellbeing		
Wellbeing	0.15*	-0.03
Rosenberg self-efficacy	0.07	-0.04
SDQ total score	0.06	-0.02
<u>Age 14 outcomes</u>		
Academic motivation and beliefs		
School engagement	0.09	-0.01
Academic self-concept	0.05	-0.09
Academic wellbeing	0.03	-0.04
Behaviour and wellbeing		
Wellbeing	0.07	-0.03
Rosenberg self-efficacy	0.18*	-0.04
SDQ total score	0.07	-0.09
Mental Health	0.03	-0.03
Academic achievement		
English vocabulary skills	0.04	0.03
Educational expectations		
Child expects to stay in school post-16	0.00	-0.04
Child expects to go to university	-0.10	-0.03
Parent expects child to stay in school post-16 (binary)	0.00	0.00
Parent expects child to go to university (binary)	-0.04	-0.04

Notes: Low/high achievers defined as those scoring below/above median in the age 7 mathematics test. Estimates refer to effect sizes. * indicates statistical significance at the 5 percent level.

5.5 Grammar versus non-grammar pupils

Table 5.4 presents a selection of results from matching models, where pupils who go on to attend a grammar school in a selective education area have been matched to a comparable pupil in a comprehensive area. Likewise, pupils who live in a selective area but who do not make it into grammar school have also been matched to comparable children living in a comprehensive area.

Table 5.4. The association between selective education systems and children’s outcomes at ages 11 and 14. Propensity score matching results by whether the child attends a grammar school.

	Non- grammar	Grammar
<u>Age 11 outcomes</u>		
Academic motivation and beliefs		
School engagement	0.09	0.14
Academic self-concept	0.06	-0.06
Academic wellbeing	0.10	0.17
Behaviour and wellbeing		
Wellbeing	0.06	0.04
Rosenberg self-efficacy	-0.01	0.08
SDQ total score	0.00	-0.06
<u>Age 14 outcomes</u>		
Academic motivation and beliefs		
School engagement	0.08	0.00
Academic self-concept	0.06	-0.06
Academic wellbeing	0.04	0.00
Behaviour and wellbeing		
Wellbeing	0.07	-0.04
Rosenberg self-efficacy	0.08	-0.09
SDQ total score	-0.03	0.02
Mental Health	0.04	-0.02
Academic achievement		
English vocabulary skills	-0.08	0.19
Educational expectations		
Child expects to stay in school post-16	-0.07	0.15*
Child expects to go to university	-0.05	0.17*
Parent expects child to stay in school post-16 (binary)	-0.01	0.04
Parent expects child to go to university (binary)	-0.05	0.05

Notes: Figures refer to effect sizes * indicates statistical significance at the 5 percent level.

For most outcomes, the effect sizes are small and statistically insignificant. There are, however, a few notable exceptions. The most prominent is with respect to educational expectations. Children who attend a grammar school in a selective education area are around 0.15 standard deviations more likely to expect to stay in school and go to university than a comparable pupil living in a comprehensive education area. Moreover, the difference in educational expectations between grammar and non-grammar pupils is around 0.20 standard deviations greater than the analogous gap for their matched peers within a comprehensive area. Overall, we therefore find some limited evidence that academic selection leads to greater disparities in educational expectations between the winners and losers of the grammar school system than in comprehensive parts of England.

5.6 What are the implications for policy and practise?

There has long been concern that academic selection has a negative impact upon young people's socio-emotional outcomes, such as academic self-confidence, wellbeing, motivation at school and mental health. Our analysis does not support this view, with little evidence that such socio-emotional outcomes differ, on average, between children who live in selective and comprehensive education areas in England. There is also little to suggest that outcomes differ between children living in selective and comprehensive education areas for key sub-groups, e.g. children from low-income backgrounds. Any policy to expand grammar school places can therefore *not* be justified by claims it would aid the development of these important skills.

6. Is there a link between attending a grammar school and children's socio-emotional outcomes?

The previous chapter investigated differences in socio-emotional outcomes between children living in selective versus comprehensive education areas in England. We now turn our attention to the association between attending a grammar school versus a non-grammar state school, and young people's socio-emotional outcomes. In other words, for children who live in a selective education area, are socio-emotional outcomes higher amongst those who attend a grammar school, compared to those who do not?

6.1 Methodology overview

Within this part of our analysis we restrict the sample to only those pupils whose families applied for them to attend a grammar school. The sample size is therefore 883 children in England and 733 in Northern Ireland. Approximately 40 percent of these children then went on to attend a grammar school in England, and 78 percent in Northern Ireland.

Using this sample, we use propensity score matching (PSM) to estimate the impact of attending a grammar school upon children's outcomes. This method essentially matches each grammar school pupil to an equivalent non-grammar school pupil, who is similar in terms of their demographic characteristics, prior academic achievement, prior socio-emotional outcomes and parental secondary school preferences and whether they have used private tutoring/coaching. The outcomes of grammar school pupils are then compared to those of their matched non-grammar school peers. Further methodological details can be found in Jerrim and Sims (2018c).

6.2 Results

Table 6.1 presents the results for England. All continuous measures have been standardised to have mean 0 and standard deviation 1, with higher values reflecting better outcomes. Results for binary outcomes are presented in terms of proportional differences¹⁶.

Table 6.1 The association between attending a grammar school and children’s outcomes in England

Outcome	Effect size
Attitudes towards school	
Academic self-concept scale	-0.15
School engagement scale	0.01
Academic wellbeing	-0.01
Friends behaviour at school	-0.06
Believe qualification needed to get a good job (binary)	-0.05
Played truant (binary)	-0.04
Mental health, wellbeing and self-esteem	
Mental health scale	-0.10
Wellbeing scale	-0.04
Self-esteem scale	-0.20
Bullied	-0.08
SDQ scale	0.02
Young people's aspirations and expectations	
Go to university scale	0.01
Aspire to work in a professional job (binary)	-0.01
Parental aspirations and investments	
Parent thinks will stay in school post 16 (binary)	0.02
Parent thinks will go to university (binary)	-0.01
Receives tutoring (binary)	0.00
Receives English tutoring (binary)	0.01
Receives maths tutoring (binary)	0.02
Academic achievement	
English vocabulary scale	0.16

Notes: Effect for binary variables refers to a proportional increase. Effect for continuous outcome variables refer to effect sizes. Negative coefficient indicates worse outcomes for grammar school pupils than their matched non-grammar school peers.

The results for England highlight a clear and consistent message: across a wide range of outcomes there is little benefit of going to a grammar school amongst the sub-set who initially applied. The vast majority of estimates are small in terms of magnitude. For instance, there is no evidence that grammar school children are more engaged in their school work (effect size 0.01) or are more likely to expect to go to university (effect size 0.01). Similar results hold for academic self-concept (effect size -0.15) and SDQ scores (effect size 0.02). Indeed, the only

¹⁶ For instance, a value of 0.05 for a binary measure would indicate that grammar school pupils are five percentage points more likely to experience the outcome in question than their matched non-grammar peers.

outcome with a sizeable effect is teenagers' self-esteem, though this actually seems *worse* for grammar school pupils. The one exception is our measure of vocabulary skills, for which grammar school pupils perform better (effect size 0.20) than the matched comparison group. In sum, however, Table 6.1 suggests that gaining access to a grammar school confers little, if any, advantage amongst those who initially applied, in terms of the socio-emotional outcomes that are the main focus of this report.

Table 6.2 The association between attending a grammar school and children's outcomes in Northern Ireland

Outcome	Effect size
Attitudes towards school	
Academic self-concept scale	-0.38*
School engagement scale	-0.28
Academic wellbeing	-0.25
Friends behaviour at school	-0.07
Believe qualification needed to get a good job (binary)	-0.03
Played truant (binary)	0.00
Mental health, wellbeing and self-esteem	
Mental health scale	-0.25
Wellbeing scale	-0.14
Self-esteem scale	-0.24
Bullied	0.07
SDQ scale	-0.11
Young people's aspirations and expectations	
Go to university scale	0.00
Aspire to work in a professional job (binary)	-0.19
Parental aspirations and investments	
Parent thinks will stay in school post 16 (binary)	0.00
Parent thinks will go to university (binary)	0.13
Receives tutoring (binary)	0.06*
Receives English tutoring (binary)	0.00
Receives maths tutoring (binary)	0.06*
Academic achievement	
English vocabulary scale	-0.11

Notes: Effect for binary variables refers to a proportional increase. Effect for continuous outcome variables refers to effect sizes. Negative coefficient indicates worse outcomes for grammar school pupils than their matched non-grammar school peers. * indicates statistical significance at the 5 percent level.

The equivalent results for Northern Ireland can be found in Table 6.2. Again, most of the coefficients are close to zero, indicating that there is little or no difference between grammar and non-grammar school pupils. Academic self-concept, i.e. children's responses to questions such as '*I am good at maths*', is a notable exception, with grammar school pupils having *worse* outcomes than their matched peers (effect size = -0.38). On the other hand, Northern Irish parents are six percentage points more likely to continue to pay for their child to have private

tuition, particularly in mathematics, than their matched comparators after they have begun attending secondary school. Hence there is some suggestion that parents are somewhat more likely to continue to pay for educational investments for their offspring if they attend a grammar school. Yet the above should not distract from the central message of Table 6.2. After restricting the sample to children who applied to grammar school, and comparing those who got in to those who did not, we find little difference in their socio-emotional skills once they are in secondary school. This is consistent with the results presented above for England.

6.3 What are the implications for policy and practise?

Within selective education areas, many parents go to great lengths to secure their child a place at a grammar school. Yet the results presented in this section suggest that getting your child a place at a grammar school may not be as important as many parents and policymakers suspect, at least in terms of improving children's wider non-academic outcomes. Indeed, our results provide no evidence that grammar schools raise children's self-confidence, wellbeing or improve their behaviour in selective education areas. This further suggests that any expansion of grammar school places cannot be justified by claims that this would help promote such wider outcomes.

7. Differences in young people's GCSE outcomes between those living in selective and comprehensive education areas

Thus far, this report has focused upon the link between selective education and children's non-academic, socio-emotional outcomes. While these are undoubtedly important, investigating the link between academic selection and GCSE attainment is also key. This chapter hence explores whether:

- Children who live in selective education areas in England achieve better GCSE grades than children who live in comprehensive education areas.
- For children who live in selective education areas, whether those who attend a grammar school achieve better GCSE grades than children who attend other non-grammar state schools.

7.1 Methodology overview

The MCS data is restricted to those pupils who live in selective and comprehensive areas in England (see Section 3.1). Three OLS regression models are then estimated, including different sets of controls:

- Model M1. Controls for demographic background only.
- Model M2. Adds controls for pupils' prior achievement up to age 7.
- Model M3. Adds controls for pupils' achievement through to age 11 (including Key Stage 2 test scores).

We also present separate results for (a) young people from families above/below median income backgrounds and (b) young people with above/below median levels of mathematics achievement at age seven. These results will illustrate whether GCSE attainment is higher, or lower, in selective education areas than in comprehensive education areas, conditional upon young people's prior achievement and background characteristics.

The second part of this analysis focuses upon young people living within selective education areas in England only. This reduces the sample size to 805 observations (198 grammar school pupils and 607 non-grammar pupils). We then compare GCSE outcomes (total points score and mathematics grades) between these two groups, using the same three statistical models as outlined above. These results will illustrate whether grammar school pupils make more progress at secondary school than non-grammar pupils, conditional upon the factors controlled within the models.

7.2 Results 1. Differences in GCSE outcomes between young people living in selective and comprehensive education areas

Table 7.1 presents differences in GCSE outcomes between young people living in selective and comprehensive education areas. All estimates are presented in terms of effect sizes, with standard deviation differences. Overall, there is little difference in overall GCSE grades between young people who live in selective and comprehensive education areas in England. Across all three models in the 'all pupils' row, differences in achievement are small, less than 0.1 standard deviations. This suggests that selective education areas are, on average, no better or worse at raising overall levels of educational attainment than comprehensive education areas.

Table 7.1 The difference in GCSE total points score between young people living in selective and comprehensive education areas
(a) GCSE total points

	M1. Demographic controls	M2. Age 7 controls	M3. Age 11 controls
All pupils	0.080	0.071	0.03
Low income	0.024	0.005	-0.027
High income	0.117*	0.120*	0.074
Low ability	0.042	0.041	0.031
High ability	0.109	0.096	0.023

(b) GCSE mathematics grades

	M1. Demographic controls	M2. Age 7 controls	M3. Age 11 controls
All pupils	0.050	0.051	-0.018
Low income	-0.036	-0.048	-0.085*
High income	0.157*	0.157*	0.082*
Low ability	-0.014	-0.006	-0.033
High ability	0.115	0.096	-0.002

Notes: All estimates presented in terms of effect sizes. Mathematics grades A*-U have been treated as a continuous nine-point scale. * indicates statistical significance at the 5 percent level.

There is, however, some limited evidence that selective education systems lead to a slight increase in inequality in educational achievement between young people from different family income backgrounds. For instance, take the results from Model M2 in Table 7.1 (total GCSE points scores). The estimated difference in achievement between low-income pupils who live in selective and comprehensive education areas is essentially zero (effect size = 0.005). Yet, for pupils with parents with above average earnings, there is a small positive effect (effect size = 0.120). A similar result emerges for GCSE mathematics grades, with small negative effects of living in a selective education area for low-income pupils, and a small positive effect for those with parents with above average earnings. Table 7.1 hence provides some tentative evidence of a small increase in socio-economic inequality in GCSE achievement if a child lives in a selective rather than a comprehensive education area.

The same finding is not replicated, however, for inequality by prior academic achievement. There is no evidence from Table 7.1 that higher-achieving pupils do any better or worse in their GCSEs if they live in a selective education area. Likewise, pupils with low levels of prior achievement do no better or worse depending upon the selectivity of the school system in which they live.

7.3 Results 2. Differences in GCSE outcomes between grammar and non-grammar pupils living within selective education areas

Table 7.2 presents differences in GCSE outcomes between grammar and non-grammar school pupils. Recall that ‘non-grammar’ pupils include children who applied to grammar but did not gain entry, as well as those who did not apply. It also includes children who attend secondary moderns as well as those who attend other state non-grammar schools. In Model M1, where only demographic background characteristics are controlled, large differences are found in GCSE performance. In terms of effect sizes, the gap in achievement between grammar and non-grammar pupils is around one standard deviation. This difference is substantially reduced in Models M2 and M3, where we add rich controls for prior academic achievement, though the gap is not entirely eliminated. For instance, for GCSE mathematics the difference between grammar and non-grammar pupils falls from 1.02 standard deviations in M1 to 0.29 standard deviations in M3. Yet this still represents a reasonable difference in performance between grammar and non-grammar pupils, equivalent to around three-quarters of a GCSE maths grade. A similar result holds for the difference in total GCSE point scores. Together this suggests that, within selective education areas, young people are likely to make more academic progress if they gain entry to a grammar school, after prior achievement has been controlled.

Table 7.2 The difference in GCSE total points score between grammar and non-grammar school pupils who live in a selective education area

	M1. Demographic controls	M2. Age 7 controls	M3. Age 11 controls
GCSE total point score	1.08*	0.76*	0.48*
GCSE maths grades	1.02*	0.69*	0.29*

Notes: All estimates presented in terms of effect sizes. * indicates statistical significance at the 5 percent level.

7.4 What are the implications for policy and practice?

There is no evidence that GCSE outcomes are better overall in selective education areas in England compared to comprehensive areas. Meanwhile, academic selection is associated with slightly slower rates of academic progress by low-income pupils, and slightly faster progress by high-income pupils, compared to children who live in comprehensive areas.

Any policy to expand grammar school places can therefore not be justified on the basis that it would raise educational achievement overall or amongst disadvantaged socio-economic groups. At the same time, forcing England’s remaining grammar schools to become comprehensives would be unlikely to raise educational standards. It would also be unlikely to improve educational inequality, particularly as within selective education areas children who enter grammar school seem to make somewhat more academic progress than those who do not.

8. Conclusions

Academic selection remains a sensitive issue in England, particularly in recent years when it has been suggested that grammar schools would be encouraged to expand. Throughout this report we have presented new evidence on socio-economic differences in access to grammar schools in England, and how such schools influence young people's socio-emotional development. Key findings, based upon our analysis of the Millennium Cohort Study dataset, can be summarised as follows:

- There is a strong relationship between family income and the probability of attending a grammar school in Northern Ireland (see Section 4.3) and England (see Section 4.4). Although this can be partially explained by differences in prior achievement, young people from disadvantaged backgrounds remain significantly less likely to attend a grammar school than their high-income peers, even when they have similar academic abilities.
- High-income families are more likely to pay for private tuition and coaching for grammar school entrance tests than low-income families. Children who receive private tuition are much more likely to go on to attend a grammar school than those who do not (see Sections 4.3 and 4.4).
- There is no evidence that academic or socio-emotional outcomes differ between selective or comprehensive education areas in England (see Section 5.2). Any policy to expand grammar school places can therefore not be justified on the basis that it will improve young people's outcomes overall.
- Evidence of any increase in inequalities within selective education areas is only weak in our research (see Sections 5.3-5.5). Nevertheless, any policy to expand grammar school places cannot be justified on the basis that it will equalise opportunities and support the development of young people from low-income backgrounds.
- Amongst families who apply, we find no evidence that children who go on to attend a grammar school develop stronger socio-emotional skills than those who do not (see Section 6.2). This is consistent across a wide range of outcomes, including their engagement in school, wellbeing and self-confidence in their academic abilities.
- There is no evidence that GCSE outcomes are better in selective education areas in England than in comprehensive education areas, conditional upon pupils' background characteristics and prior achievement (see Section 7.2). Selective education areas may, however, lead to a small increase in socio-economic inequality in educational

achievement. This is consistent with previous research by Atkinson, Gregg and McConnell (2006), who also found that that GCSE outcomes did not differ between selective and comprehensive areas, though there were differences in educational inequality. It is also consistent with international evidence on the effects of between-school tracking, which suggests that more selective education systems do not have higher levels of academic achievement, but are more unequal (Hanushek and Wossmann 2006).

- Within selective education areas, children who attend a grammar school achieve higher GCSE grades than their peers who attend a non-grammar state school, after prior achievement has been controlled (see Section 7.3). In mathematics, the difference in terms of an effect size is 0.29 standard deviations; this is equivalent to around three-quarters of a GCSE maths grade. This is consistent with some recent work by Andrews, Hutchinson and Johnes (2016), who find evidence of a grammar school bonus. It is however counter to some other research which has questioned the magnitude of differences in achievement between selective and non-selective pupils (Smith-Woolley et al. 2018).

These findings should, of course, be interpreted in light of the limitations of this research and the need for further work in this area. First, it should be remembered that even within comprehensive education areas in England, some form of academic selection is still used. It is just that this occurs by sorting children into different classes *within* schools, e.g. setting and streaming, rather than explicitly placing children into *different* schools, i.e. ‘tracking’ as per the grammar school system. Hence one may argue that comparisons of selective and comprehensive education areas in England are actually comparing the effect of one type of academic selection versus another, i.e. the effect of between-school tracking versus the effect of within-school setting/streaming.

Second, despite the many important advantages of the MCS dataset, the sample size available for our analysis is limited. Finally, the limited sample size available for certain sub-groups, e.g. low-income pupils who attend a grammar school, means we have been unable to explore potential effects of attending a grammar school for these pupils. Although this is clearly an important and policy-relevant issue, we unfortunately cannot provide a credible investigation into such effects.

Nevertheless, we believe that this report makes an important contribution to the debate about the impact of between-school segregation upon young people’s outcomes. Many parents and

families place great emphasis upon their child getting a place at a grammar school, in the belief that this will have a substantial impact upon their future wellbeing. However, our analysis has shown how many of the things parents hold most dear, such as their children's wellbeing, self-confidence and behaviour, are largely unaffected by going to a grammar school. Consequently, getting your child into a grammar school may not be as pivotal as so many believe.

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10. Appendix A. The questions included within each of the age 11 and age 14 outcome scales

Age 11

Academic self-concept. How much do you agree or disagree with each of the following statements about you? (Responses to each statement on a four point scale from ‘strongly agree’ to ‘strongly disagree’).

- I am good at English
- I am good at Maths
- I am good at Science

School motivation / engagement. (Responses to each statement on a four point scale from ‘all of the time’ to ‘never’)

- How often do you try your best at school?
- How often do you find school interesting?
- How often do you feel unhappy at school?
- How often do you get tired at school?
- How often do you feel school is a waste of time?

Wellbeing scale. On a scale of 1 to 7, where ‘1’ means completely happy and ‘7’ means not at all happy, how do you feel about the following parts of your life?

- Your school work?
- The way you look?
- Your family?
- Your friends?
- The school you go to?
- Your life as a whole?

Academic wellbeing scale. On a scale of 1 to 7, where ‘1’ means ‘completely happy’ and ‘7’ means ‘not at all happy’, how do you feel about the following parts of your life?

- Your school work?
- The school you go to?

Rosenberg self-esteem scale. How much do you agree or disagree with the following statements about you? (Responses to each statement on a four point scale from ‘strongly agree’ to ‘strongly disagree’).

- On the whole, I am satisfied with myself
- I feel I have a number of good qualities
- I am able to do things as well as most other people
- I am a person of value
- I feel good about myself

Strengths and Difficulties questionnaire. For each item, please mark the box for 'Not True', 'Somewhat True' or 'Certainly True'. Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Emotional problems subscale

- Often complains of headaches, stomach-aches or sickness
- Many worries, often seems worried
- Often unhappy, down-hearted or tearful
- Nervous or clingy in new situations, easily loses confidence
- Many fears, easily scared

Conduct problems subscale

- Often has temper tantrums or hot tempers
- Generally obedient, usually does what adults request
- Often fights with other children or bullies them
- Often lies or cheats
- Steals from home, school or elsewhere

Hyper-activity subscale

- Restless, overactive, cannot stay still for long
- Constantly fidgeting or squirming
- Easily distracted, concentration wanders
- Thinks things out before acting
- Sees tasks through to the end, good attention span

Peer-problems subscale

- Rather solitary, tends to play alone
- Has at least one good friend
- Generally liked by other children
- Picked on or bullied by other children
- Gets on better with adults than with other children

Pro-social subscale

- Considerate of other people's feelings
- Shares readily with other children (treats, toys, pencils etc.)
- Helpful if someone is hurt, upset or feeling ill
- Kind to younger children
- Often volunteers to help others (parents, teachers, other children)

Age 14

Academic self-concept. How much do you agree or disagree with each of the following statements about you? (Responses to each statement on a four point scale from 'strongly agree' to 'strongly disagree').

- I am good at English
- I am good at Maths
- I am good at Science

School motivation / engagement. (Responses to each statement on a four point scale from ‘all of the time’ to ‘never’)

- How often do you try your best at school?
- How often do you find school interesting?
- How often do you feel unhappy at school?
- How often do you get tired at school?
- How often do you find it difficult to keep your mind on your work at school?

Wellbeing scale. On a scale of 1 to 7, where ‘1’ means ‘completely happy’ and ‘7’ means ‘not at all happy’, how do you feel about the following parts of your life?

- Your school work?
- The way you look?
- Your family?
- Your friends?
- The school you go to?
- Your life as a whole?

Academic wellbeing scale. On a scale of 1 to 7, where ‘1’ means ‘completely happy’ and ‘7’ means ‘not at all happy’, how do you feel about the following parts of your life?

- Your school work?
- The school you go to?

Rosenberg self-esteem scale. How much do you agree or disagree with the following statements about you? (Responses to each statement on a four point scale from ‘strongly agree’ to ‘strongly disagree’).

- On the whole, I am satisfied with myself
- I feel I have a number of good qualities
- I am able to do things as well as most other people
- I am a person of value
- I feel good about myself

Mental Health scale. The next few questions are about how you have been feeling or acting recently. For each question please select the answer which reflects how you have been feeling or acting in the past two weeks. (Responses to each statement on a three point scale: ‘not true’; ‘sometimes true’; ‘always true’).

- I felt miserable or unhappy
- I didn’t enjoy anything at all
- I felt so tired I just sat around and did nothing
- I was very restless
- I felt I was no good any more
- I cried a lot
- I found it hard to think properly or concentrate
- I hated myself
- I was a bad person

- I felt lonely
- I thought nobody really loved me
- I thought I could never be as good as other kids
- I did everything wrong

Strengths and Difficulties questionnaire. For each item, please mark the box for ‘Not True’, ‘Somewhat True’ or ‘Certainly True’. Please give your answers on the basis of the child’s behaviour over the last six months or this school year.

Emotional problems subscale

- Often complains of headaches, stomach-aches or sickness
- Many worries, often seems worried
- Often unhappy, down-hearted or tearful
- Nervous or clingy in new situations, easily loses confidence
- Many fears, easily scared

Conduct problems subscale

- Often has temper tantrums or hot tempers
- Generally obedient, usually does what adults request
- Often fights with other children or bullies them
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- Steals from home, school or elsewhere

Hyper-activity subscale

- Restless, overactive, cannot stay still for long
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