Analysis of the trends in early entry at GCSE

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Overview

The following paper aims to outline the trends in early entry to GCSE over recent years, drawing upon data available in the literature and reporting on an analysis of all awarding body data from 2007 to 2011. The analysis summarises the trends in early entry for a number of subjects by considering the number of students who enter early and how this has changed over time, before providing a more detailed analysis for the subjects where early entry is most prevalent: specifically, GCSE English and mathematics. This analysis explores the type of students that enter early in terms of their prior attainment, their tier of entry[1] and the type and characteristics of the schools that they attend. Furthermore, it investigates the performance of students who enter early and how this has changed over time, as well as comparing the performance of students that enter early with the performance of older students with the same prior attainment. The first section provides an overview of the key trends in early entry that have been reported in the literature and the perceived limitations of these findings, before discussing how the current analysis aims to build upon and extend previous reports. The literature concerning early entry is currently fairly limited, meaning that the following section is restricted to the discussion of a small number of published reports.

Evidence of the trends in early entry from the literature

Summary of previous findings

One of the key pieces of evidence concerning early entry that has recently been published is a report by the Department for Education (DfE, 2011) that aimed to explore the impact of early entry on performance, with a view to informing stakeholders of the possible effects. Focusing on GCSE English and mathematics, the report first highlights the increase in early entries over recent years. Whilst around 2% of the GCSE English and 5% of the GCSE mathematics national cohorts in England were early entries in 2007 (across all examination series), these figures had risen to around 25% in 2010. These findings are supported by a report exploring the age of GCSE students (Gill, 2010), where the percentage of early entries across all subjects and for English and mathematics were shown to have increased dramatically between 2004 and 2009.

Although there is evidence of early entry being used prior to this, the sharp increase in early entries appears to have mainly been a recent occurrence. As shown by Gill (2010), the percentage of GCSE entries across all subjects from 15 year old students remained relatively stable between 2000 and 2004 (at 1.2% and 1.7% of the total entries, respectively), yet increased dramatically in the subsequent five years to reach 5.1% of the total entries in 2009.

[1] Some GCSE specifications are tiered, allowing question papers that target different ranges of ability. Typically, the higher tier allows access to the higher grades (A*-E), whilst the foundation tier allows access to the lower grades (C-G).

During this time, the number of 15 year old GCSE students as a percentage of the overall number of GCSE students also increased, from 7.5% to 19.2%. The greater percentage of 15 year old students, relative to the percentage of 15 year old entries, suggests that the younger students have only been entering a small number of GCSE subjects early. Indeed, as discussed by Gill (2010), there is evidence that the number of GCSE subjects that younger students take has remained stable over time, suggesting that schools are only using early entry for certain subjects. In addition to the increase in 15 year old students certificating at GCSE, it is worth noting that the number of even younger students sitting GCSEs has also increased (see Gill, 2010), although these numbers remain small.

Similar patterns in the percentage of early entries are observed for GCSE English and mathematics (Gill, 2010), with the DfE (2011) reporting that the greatest increase in early entry occurred between 2008 and 2010. These increases coincide with the abolishment of KS3 tests (announced in October 2008; Balls, 2008), the introduction of modular assessments at GCSE (first teaching from September 2009)[2] and the inclusion of GCSE English and mathematics as a requirement in performance league tables (Department for Education and Skills (DfES), 2005). This implies that policy changes are likely to be one of the drivers behind the increases in early entry, particularly given that the needs of students are unlikely to have changed to a great extent during this period.

In addition to highlighting the increases in early entries for GCSE English and mathematics, further key findings from the DfE (2011) concern the performance of students entering early, re-sitting behaviour and the type of schools that enter students early. In terms of performance, the analysis showed that the cumulative percentage outcomes for early entrants in GCSE mathematics declined between 2008 and 2010, suggesting a shift in the ability profile of students entering early, or, a change in the performance of younger students. Alongside this decrease in outcomes, there was also evidence that students entering early tended to perform worse than those entering at the end of year 11 in terms of achieving the highest grades (A*-B; DfE, 2011), thus suggesting that early entry has a potentially detrimental effect on performance (in terms of a student's outcome on this particular assessment). This effect seemed to be related to when a student entered early, particularly for mathematics, where students entering mid-way through year 11 tended to perform poorer than those entering at the end of year 10 or the end of year 11 (DfE, 2011). It should be noted, however, that these findings do not account for the prior attainment of students; hence, the findings could simply be due to differences in the ability profile of the students entering at different time points. Despite this, there was some evidence that fewer students who entered early made the expected level of progress from KS2 to GCSE, relative to those not entering early. This suggests a detrimental effect of early entry on performance once a student's prior attainment is accounted for.

The tendency for students entering early to under-perform is also likely to be related to re-sitting behaviour. Of those students entering GCSE mathematics early in 2010, 68% re-took in a later examination series, with 45% improving their final grade. As would be expected, a greater proportion of those achieving the lower grades re-sat both GCSE English and mathematics, regardless of when their initial entry was (i.e. at the end of year 10 or mid-way through year 11), with re-sitting being concentrated around the grade C/D borderline. For example, 98% of students achieving a grade D in GCSE mathematics at either the end of year 10 or mid-way through year 11 re-took in a subsequent series (DfE, 2011). The desire to ensure that students achieve at least a grade C in English and mathematics is likely to stem from the forced inclusion of these subjects in performance league tables (used to evaluate the effectiveness of schools),

[2] Note that throughout this paper the term early entry refers to early certification, rather than early entry to modular assessments.

as well as the perception that a grade C is deemed a 'good' pass at GCSE (e.g. see DfE, 2010), meaning that it is often required by employers and higher education institutions. Thus, if increases in early entry are mainly being driven by policy changes, it is perhaps not surprising that it is the lower attaining schools and under-performing schools that tend to enter a higher proportion of students early (DfE, 2011)[3], with independent schools less likely to adopt this approach. For example, whilst only 11% of academies/comprehensive schools entered no students early for GCSE English and mathematics in June 2010, the figure for independent schools was 58% (DfE, 2011). In addition to these trends by school type, there was also evidence that the proportion of early entries was greater amongst those schools that had a higher percentage of students eligible for free school meals (FSM; DfE, 2011). Given that, on average, FSM students tend to perform worse than non-FSM students (DfE, 2011), this again suggests that it is the lower attaining schools who are increasingly entering students early.

The findings discussed above constitute the main published literature concerning the trends in early entry. In addition to this, there have been efforts to explore the performance of 15 and 16 year old students by the awarding bodies (see Pinot de Moira, 2009; Heinrich & Pinot de Moira, 2012), with a view to exploring the effects of maturation on performance, mainly for the purpose of setting and maintaining standards. These analyses suggest that, whilst performance at unit and subject level tends to differ across age groups (specifically across 15 and 16 year olds), these differences are not consistent between subjects. For example, in some subjects, 16 year olds out-performed their younger counterparts, whilst in others, the opposite effect was observed. These differences could be a reflection of the content of each subject and the structure of the assessments within each qualification, as it is possible that differential performance by age is associated with certain content or question/assessment types.

Limitations of previous findings and proposed analyses

Whilst the literature discussed above provides a useful insight into the trends in early entry that has previously been lacking, there are some limitations. Such limitations are not intended as criticisms of the previous analyses; indeed, given the paucity of evidence regarding early entry the report by the DfE, in particular, gives a much needed overview. Rather, they are used to inform what further analysis will add to the literature.

One limitation of the analysis reported by the DfE (2011) concerns the level of detail at which the findings are reported, particularly those exploring trends over time. Here, the analysis is undertaken at a high level, hence can only provide an overview of the patterns in early entry. For example, the analyses exploring the number of early entries over time includes data from all examination series within a particular academic year and for all early entries, regardless of the time at which students certificated (i.e. students certificating at any time before the end of year 11 could be considered an early entry). Consequently, whilst this shows that early entry is increasing, it does not provide information on the sources of such trends. For instance, the rise in early entry could be due to an increase in year 11 students certificating in the November examination series or an increase in year 10 students entering in the June examination series. Similarly, the analyses exploring the performance of early entries over time includes data for all students, regardless of when they entered early (e.g. at the end of year 10, mid-way through year 11 etc.). Thus, as students entering at different time points might perform differently (see DfE, 2011), it is difficult to draw conclusions regarding how the performance of early entrants has changed over time, particularly if there have been changes in entry patterns. If this were the case, any comparisons between years are unlikely to be sensitive to changes in the nature of those students that enter early.

[3] Note that this analysis only includes maintained schools.

Given this, the current analysis intends to provide a more focused analysis than has previously been available, by exploring the trends in early entry within one examination series and by concentrating on students certificating at the end of year 10. Arguably, early entry for these students is more likely to stem from a strategic decision by schools than for those students entering part-way through year 11. Hence, obtaining a greater understanding of the trends in early entry for this particular age group is likely to be of most interest. In addition to the focus on students entering at the end of year 10, the analysis also aims to explore trends in early entry over a longer time period and in greater depth than has previously been available. For example, it will explore further the type of students that enter early in terms of their tier of entry and prior attainment and how this might have changed over time. In addition, it will also seek to identify any trends in early entries from each school type and explore further the characteristics of schools that enter students early, thus replicating and updating previous findings.

As well as highlighting the trends in early entry, previous findings have suggested a detrimental effect of early entry on attainment, with younger students reportedly performing worse than their older peers. However, such findings have not always controlled for prior attainment. Therefore, to address this, the current analysis will use data held by the awarding bodies to explore the possible effect of age on performance whilst accounting for a student's prior attainment. Further, it will seek to explore whether such effects differ according to a student's ability. This will add to previous findings adopting similar methods (e.g. Heinrich & Pinot de Moira, 2012).

Further analysis of the trends in early entry

The remainder of this paper reports on the findings of quantitative analyses exploring the trends in early entry, using data from the UK awarding bodies. Specifically, the analysis seeks to explore i) the trends in the number of early entries between 2007 and 2011 as a percentage of the overall cohort, ii) the performance of students who enter early and whether this has changed over time, iii) the type of students who enter early (in terms of their prior attainment and centre type) and whether this has changed over time, and iv) the effects of early entry on attainment. The analysis focuses on 15 year old students certificating at the end of year 10 (i.e. a year early); hence, the term 'early entry' is used to refer to this group throughout.

Note that shortly after completing this analysis the Department for Education announced that, from 29th September 2013, only a student's first GCSE attempt would be included in performance measures (for EBacc subjects initially). Hence, it is unclear at present how early entry will be used in the future.

Method

Data was collected from the five UK awarding bodies for all students in England who sat any full course GCSE subject in a June examination series between 2007 and 2011[4]. The five UK awarding bodies include the three English awarding bodies (AQA, Edexcel, and Oxford, Cambridge and RSA Examinations (OCR)), the Welsh board (WJEC) and the Northern Irish board (CCEA). Data collection was restricted to the June examination series only. Whilst certification for English and mathematics was also available in a November series between 2007 and 2011, the majority of entries occur in the June series, hence the trends in this series were considered to be the most insightful. Additionally, this was in keeping with the desire to provide a more focused analysis than has previously been available and the desire to focus on students entering a year early.

[4] Permission was received from the inter-board Standards and Technical Advisory Group (STAG) to use the data.

For each student, information was collected on the number of GCSE subjects taken, their performance on each subject (i.e. their grade at certification[5]), their date of birth[6], their school/school type (see details below) and, where possible, their prior attainment at KS2 (see details below). Data was available on every GCSE subject offered by the five UK awarding bodies, a total of 31 subjects[7]. In addition to the student level data available via the awarding bodies, further information on each school's characteristics was obtained via the DfE (see details below) and matched to the awarding body data.

To ensure consistency throughout, the analysis was restricted to students based in England only. This was due to prior attainment data (i.e. KS2 data, see below) and information on school characteristics (via the DfE, see below) only being available for establishments based in England. Thus, to ensure that the same students were included in each section of the analysis, students from Wales and Northern Ireland were excluded[8]. In addition, the analysis was restricted to students studying in schools only (see below for further information on institution types), who comprise the majority of the entries for the largest GCSE subjects, English and mathematics[9]. This was due to there being limited data available on the characteristics of establishments that are not classed as schools and, again, seeks to ensure consistency throughout the analysis.

Whilst the majority of the analyses focus on all-awarding body data, thus providing evidence of the trends at the national level, some sections were restricted to data from one awarding body (AQA). Where appropriate, this is noted in the text and an explanation provided. With the exception of these sections, however, the remaining analysis should be assumed to represent the situation at the national level.

As the trends in early entry are likely to differ by subject (see Gill, 2010), the initial analysis exploring the age profile of each cohort over time focuses on those subjects where early entry is considered most likely to occur. These include the subjects required for performance league tables – English and mathematics – as well as the other subjects that are required for the EBacc (see DfE, 2010), including the sciences (combined science, biology, chemistry and physics), the modern foreign languages with the largest entries (French and Spanish), geography and history. Following this, further analyses were only undertaken for those subjects where early entry is particularly prevalent and increasing over time – specifically, GCSE English and mathematics. This is due to the low proportion of early entries in the other subjects.

[5] GCSE qualifications are graded from A* to G.

[6] Due to some errors in the data, students who were aged under 14 were grouped together with students aged 14. Likewise, students over the age of 19 were grouped together with students aged 19. These students represent a small proportion of the overall entries, however, and are not the focus of analysis throughout the paper.

[7] Note that some specifications were grouped together in the data. For example, there are multiple Design and Technology specifications that were considered as one subject. Hence, the number of subjects given here should not be considered representative of the total number of specifications available.

[8] It is likely that there are schools based in England entering examinations with non-English awarding bodies, hence the inclusion of data from the five awarding bodies.

[9] For GCSE English and mathematics in 2011, around 98% of the 15 and 16 year old entries were from schools.

Prior attainment data

To obtain a measure of prior attainment, KS2 data was sought and matched to students via their name and date of birth[10]. KS2 data is used by the awarding bodies when generating statistical predictions to aid the maintenance of standards. Hence, it was used as a proxy for students' ability throughout this analysis.

KS2 data is available to the awarding bodies detailing each student's performance in the three available assessments; English, mathematics and science. The data is reported as the level that each student received in the KS2 test, as well as a teacher assessment level. These levels can range from 2 to 5, with a higher score representing greater ability in a subject. KS2 data was only used for students with complete data for all three tests. Furthermore, the KS2 data relating to the test scores was used, rather than the teacher assessment scores. This, inevitably, limits the number of students that can be matched to their prior attainment (the match rates are discussed later), meaning that students who were not matched were excluded from parts of the analysis. These students were likely to be those who had only completed a sub-set of the three KS2 tests or those who attended schools that did not sit KS2 assessments, meaning that they were likely to be missing for similar reasons each year.

For each student, a mean KS2 score was generated by averaging scores across the three tests, giving mean values between 2 and 5 (table 1 provides an example of the KS2 profile of 16 year old students within schools in England sitting a GCSE in 2011). Students with scores equal to or lower than 2.67 were grouped together, due to the low numbers of students with these scores (for example, see table 1).

Table 1: KS2 scores and 2011 profile of 16 year old students (n = 601,421)

Mean KS2	Cumulative percentage of students
5.00	20.36
4.67	32.86
4.33	47.86
4.00	75.50
3.67	84.69
3.33	91.50
3.00	97.84
<= 2.67	100.00

School level data

To obtain further information on the characteristics of schools that enter students early, the student level data was matched to the type of institution that each student attended (using data held by the awarding bodies) and further information on each school (using data held by the DfE). Currently, educational establishments are classified as one of thirteen institution types by the UK awarding bodies, depending upon their type and their nature of control, using information provided for the National Centre Number Register (NCN). This results in thirteen classifications of centre type, although there is some overlap between centres of the same type that have different funding (i.e. they are either community/voluntary, aided/controlled or foundation schools). Hence, for the purposes of this analysis, these centres were grouped together, resulting in the following ten classifications of establishments; Secondary Comprehensive, Secondary Selective, Secondary Modern, Independent and City Academy (all classed as schools), Further Education establishment, Sixth Form college and Tertiary college

[10] Permission was sought from the DfE to use KS2 data for this purpose.

(all classed as further education centres), other UK centres and overseas centres. As this analysis focuses on schools only (including Academies), the following centre types were excluded; colleges, Further Education establishments, overseas centres and other UK centres (including pupil referral units).

In addition to school type, further information on each school was obtained from the DfE, via the Edubase dataset and performance league table data. Edubase contains up to date descriptive data on all educational establishments in England and Wales. This includes, amongst other data, information on special educational needs, the intake of male/female students in each year group, the religious affiliation of the institution and the percentage of pupils receiving free school meals. The Edubase dataset only includes data from the most recent academic year for each school; therefore, matching the awarding body data to school characteristics was only undertaken for one academic year, i.e. for schools with students certificating in GCSE English or mathematics in June 2011. Performance table information is also available via the DfE, detailing the percentage of students in each institution achieving five grade A*-C GCSEs in the preceding five academic years.

To match the awarding body data to the Edubase dataset and performance data, the student level data was initially aggregated to school level data. This provided a list of all schools entering students early and/or entering students at the end of year 11 for GCSE English and mathematics in June 2011[11], as well as an indication of the number of entries from each school. Each of these schools was then matched to their school type, name, address and LAESTAB[12] number using data held by the awarding bodies. This resulted in a total of 3829 unique schools with entries in June 2011 from 15 and/or 16 year olds in GCSE English and/or mathematics. Of these, it was possible to match 3610 schools with the Edubase data/performance data, via their LAESTAB number. The unmatched schools tended to be small independent bodies with few entries or schools where the Edubase data related to an earlier academic year (e.g. 2009-2010).

Whilst this resulted in a high percentage of the initial population of schools being matched to school characteristics/performance data (94.28%), upon further investigation it was apparent that a proportion of the matched schools were missing certain data in Edubase. Importantly, around a quarter of the schools were missing data corresponding to the number of 15 year old students that they had registered, information that was intended to be used to calculate the percentage of students in each school that were entered early[13]. Following enquiries, it was apparent that this information was missing for data protection reasons; for example, the Edubase database masks certain pieces of information for each school, including the number of students in year groups where schools have fewer than five students, as well as the two year groups for each gender in each school that have the lowest number of students. Inevitably, for some schools, this corresponds to the number of 15 year old students, meaning that complete data was only available for a sample of 2770 schools (72.34% of the initial number of schools). Therefore, aggregated data on student numbers by year group was generated from the January 2011 school census to allow the missing schools to be included. This resulted in a total of 3458

[11] Schools only entering 16 year olds students were identified to ensure that schools entering no students early were included in the analysis.

[12] The LAESTAB number is a unique seven digit number allocated to all maintained schools. It contains a local authority number allocated by the Office for National Statistics (first three digits) and an establishment number allocated by the Department for Education (last four digits).

[13] It was necessary to calculate the percentage of students entering early from each school, rather than using the raw entry figures, due to differences in the overall number of students within each school.

schools with complete data for use in the analysis, representing 90.31% of the initial population of schools. Consideration of the missing schools revealed that these were all Independent schools that tended to have a low number of students, were high performing and had no students eligible for FSM, thus were likely to be a distinct group of schools compared to the remaining sample. Therefore, the findings reported here are unlikely to be generalisable to this small subset of schools[14].

Results

The number of early entries

To provide an overview of the trends in early entry and how these have changed over time, initial analyses explored the entries by age group nationally between 2007 and 2011 for each of the GCSE subjects required for the EBacc. Entries were expressed as a percentage of the overall cohort, thus ensuring that changes to the number of students entering each subject in each year did not confound the analysis.

The entries for English and mathematics were considered first (see tables 2 and 3). As shown, for both subjects, the percentage of entries from 15 year old students in the June examination series has tended to increase over time, thus concurring with findings in the literature (e.g. see DfE, 2011; Gill, 2010). Furthermore, although the percentage of entries from students aged 14 and under have remained small, they have also increased marginally since 2007, most noticeably for GCSE mathematics. These increases have been coupled with a decrease in the percentage of entries from 16 year old students, suggesting a shift towards entering students early, rather than at the end of year 11.

Although the increasing trends for early entry appear largely consistent over time, it is noted that there has been a drop in the percentage of 15 year olds entering GCSE English between 2010 and 2011. This decrease has been coupled with a fairly significant drop in the overall entry for English, suggesting that it may stem from schools opting to enter certain students for alternative qualifications, such as the iGCSE[15].

Table 2: GCSE English percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.04	0.04	0.10	0.24	0.29
15	2.66	3.69	6.55	10.39	8.89
16	94.15	92.99	89.75	85.58	86.91
17	2.52	2.59	2.81	2.86	2.85
18	0.41	0.46	0.52	0.61	0.68
>=19	0.22	0.24	0.27	0.32	0.37
n	603,359	592,899	581,789	588,896	541,466

[14] Note that the analysis was conducted twice; once including all schools with available data and once excluding all Independent schools. As the findings were comparable, the analysis for the whole set of schools is reported.

[15] This assumes that the size of the national cohort was comparable between 2010 and 2011.

Table 3: GCSE mathematics percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.40	0.47	1.25	1.88	2.24
15	8.44	8.95	12.15	13.74	17.53
16	87.31	86.84	82.49	80.05	75.90
17	2.85	2.75	2.89	2.92	2.76
18	0.61	0.62	0.71	0.80	0.89
>=19	0.39	0.37	0.52	0.60	0.68
N	654,171	650,304	663,372	670,401	675,505

The entries by age group for the remaining subjects required for the EBacc are provided in the appendix (see appendix, tables 1 - 8). As illustrated, for the majority of these subjects, the number of early entries as a percentage of the overall cohort has remained low and stable since 2007, with only GCSE geography and history showing a slight trend towards an increase in early entry[16]. Of the other subjects, there has tended to be a higher percentage of entries from younger students for the modern foreign languages (French and Spanish), although this has remained stable over time and there appears to be no noticeable shift in entry patterns between 2007 and 2011. The higher percentage of early entries for languages may be due to native speakers sitting the qualification early, or, schools seeking to complete these subjects early in order to focus elsewhere, since they are no longer compulsory at KS4.

The difference in entry patterns between subjects is likely to be a reflection of the perceived importance of different subjects, particularly in relation to performance league tables and accountability measures, as it is the key subjects of English and mathematics where early entry is more prevalent. Despite this, the prevalence of early entry for English and mathematics is not comparable, with mathematics typically having a higher percentage of early entries (see tables 2 and 3). Given that both subjects share the common requirement for inclusion in accountability measures, the explanation for these differences is not immediately obvious. However, there are a number of possibilities. First, these differences might be due to the structure of the qualifications; whilst GCSE English adopted a linear structure until June 2012, mathematics has been available in a modular format for a number of years. It is possible that a modular structure will lend itself more readily to early entry, as students sit the qualification in smaller parts. Thus, entering a younger student for a module may be more feasible than entering them for the whole assessment. An alternative explanation is that the nature of the assessment renders mathematics more susceptible to early entry. For example, it is possible that the extended writing required in English is perceived to be less suitable for younger students. Furthermore, English has typically involved coursework (or, latterly, controlled assessment), whereas this was discontinued in mathematics from 2008. It is possible that the completion of coursework with younger students is less feasible or that students are not considered to have developed the necessary skills to undertake this early. Finally, the entry patterns might be related to the success of the entry strategies that schools adopt; it is possible that the higher percentage of early entries for mathematics reflects the greater success of students previously entered early for this subject, thus encouraging the use of early entry further.

As shown in the appendix, early entry has remained low for other subjects that are not required for accountability measures. Therefore, the remainder of this paper focuses on GCSE English and mathematics, as it is here where the increase in early entry is currently most prevalent.

[16] Note that for GCSE science the trends are likely to be difficult to identify due to shifts in entries between the combined and separate sciences over the past few years, as well as the changes to the structure of the GCSE qualifications.

The number of early entries by tier

In addition to considering the overall entries by age group, as detailed above, the analysis was replicated for English and mathematics focusing upon a student's tier of entry. Currently, a number of GCSE examinations, including English and mathematics, have tiered entry, whereby students can enter higher tier examinations that allow access to the higher grades (A*-E)[17], or foundation tier examinations that allow access to the lower grades (C-G)[18]. Thus, exploring the entry trends by tier aims to ascertain whether there is a tendency towards the more or less able students entering early. However, as the inter-awarding body data only contains a student's final grade and not their tier of entry, this analysis was restricted to data from a single awarding body (AQA)[19]. Furthermore, this analysis was only possible for linear specifications, as students are able to combine modules of different tiers when certificating in a modular structure, thus do not certificate at a particular tier. Consequently, there are limitations to the findings, particularly for GCSE mathematics where the entries for the AQA linear specification are small (e.g. in June 2011, the AQA linear entries constituted less than 6% of the overall national cohort). In addition, the sample is unlikely to be representative of the overall national cohort, as certain types of schools and/or students are likely to choose to enter the AQA linear specification. Nonetheless, it aims to offer an insight into early entry patterns over time that has not previously been available.

The entries by age group across tiers between 2007 and 2011 for the largest AQA linear GCSE English specification (English A) and the linear AQA mathematics specification (Mathematics A) are illustrated in tables 4 and 5[20], where the number of students is presented as a percentage of the overall entry. As shown, whilst the entries from 15 year old students at each tier was relatively comparable in 2007 (2008 for mathematics), over time there has been a gradual shift towards an increase in early entries on the foundation tier, relative to the higher tier. For mathematics, there appears to have been a particular shift between 2008 and 2009, although this may be a reflection of schools adjusting their entry policies following the first sitting of a two tiered mathematics specification in 2008.

There are likely to be several factors that may have influenced these entry patterns at tier level. First, schools may be increasingly entering their weaker students early to allow them multiple attempts at achieving a particular grade, hence the greater proportion of younger students on the foundation tier. This may be a result of the pressure on schools to ensure that their students achieve at least a grade C for performance league tables; indeed, schools might enter a wider range of students early at foundation tier, including the more able, with the aim of securing a grade C. Additionally, schools may enter their borderline grade C students early at foundation tier, with the intention of re-entering those who achieve a grade C at higher tier in a later examination series. This approach might seek to ensure that students achieve a grade C, whilst also allowing access to the higher grades in a later examination series and again, may result from the pressure experienced by schools.

[17] Note that for the new modular qualifications, students are able to combine units across different tiers, thus do not certificate at a particular tier.

[18] Until 2008, GCSE mathematics had three tiers of entry; higher, intermediate and foundation.

[19] In June 2011, AQA had approximately 64.2% of the market share for GCSE English and 25.4% for GCSE mathematics (note that this includes entries from the modular mathematics specification).

[20] The analysis for mathematics is restricted to 2008-2011, as the specification was three tiered in 2007.

Table 4: AQA GCSE English A percentage of entries by age group across tiers (n = total entries)

Age	2007		2008		2009		2010		2011	
	F	H	F	H	F	H	F	H	F	H
<=14	0.05	0.03	0.06	0.04	0.04	0.08	0.30	0.24	0.51	0.14
15	2.86	2.51	3.96	3.30	6.99	5.57	11.38	8.62	10.86	7.34
16	92.28	96.17	90.55	95.38	86.65	92.86	81.26	89.57	81.15	90.87
17	3.89	1.07	4.33	1.09	4.98	1.23	5.35	1.26	5.59	1.28
18	0.67	0.12	0.81	0.11	0.98	0.15	1.25	0.17	1.39	0.21
>=19	0.25	0.10	0.29	0.08	0.36	0.11	0.47	0.14	0.51	0.16
n	187,679	240,112	179,968	241,184	168,874	237,806	166,348	236,668	147,967	215,615

Table 5: AQA GCSE Mathematics A percentage of entries by age group across tiers (n = total entries)

Age	2008		2009		2010		2011	
	F	H	F	H	F	H	F	H
<=14	0.51	0.16	2.23	0.32	3.92	0.28	3.21	1.19
15	4.22	3.65	14.07	4.37	15.12	7.51	20.94	9.52
16	83.46	93.14	69.18	91.17	64.53	87.54	61.46	84.51
17	7.87	2.09	9.47	2.34	9.67	2.37	7.66	2.04
18	2.19	0.23	2.67	0.35	3.57	0.53	3.07	0.35
>=19	1.74	0.73	2.38	1.46	3.19	1.77	3.66	2.40
n	27,001	30,424	28,684	22,264	24,619	18,439	23,352	16,698

To summarise, there have been increases in the number of students entering early as a percentage of the overall cohort, particularly for GCSE English and mathematics. These increases appear to have been most prevalent on the foundation tier, suggesting that schools might be increasingly entering their weaker students early. To consider this further, the following sections discuss the performance of early entries over time and the type of students that enter early, in terms of their prior attainment and school type.

The performance of early entry students

If, as suggested above, schools are increasingly entering their weaker students early, it is likely that this will be reflected in the performance outcomes of early entry students. To explore this, the cumulative percentage outcomes for 15 year old students sitting GCSE English and mathematics across all awarding bodies in the June examination series between 2007 and 2011 were calculated. Whilst this does not account for any differences in the prior attainment profile of the students each year, it aims to provide an indication of whether the type of students entering early may have changed over time. A similar analysis reported by the DfE (2011) for GCSE English and mathematics (albeit over a shorter time period), suggested a decline in the performance of students entering early over time. However, the limitations of this have been discussed above. To overcome these, the current analysis focuses on the June examination series and presents the outcomes for 15 year olds only, with the aim of providing an indication of how this particular age group has performed over time.

Tables 6 and 7 summarise the cumulative percentage outcomes for 15 year old students at subject level for GCSE English and mathematics, respectively. As illustrated, for both subjects, the percentage of 15 year old students achieving the highest grades (i.e. A*-B) has steadily decreased between 2007 and 2011, whilst the number of entries from this age group has continued to rise (see tables 2 and 3). This suggests that it is the weaker students who are increasingly being entered early, hence the decrease in outcomes, or, that there is an underlying factor resulting in this decline in performance. The fall in the percentage of students

achieving grades A*-B is likely to be linked, to a certain extent, to the increasing proportion of early entries on the foundation tier, as these students are unable to achieve above a grade C. For mathematics, there has also been a decline in the percentage of early entries achieving a grade C or above since 2007 (table 7), although for English, the outcomes have remained relatively stable (table 6).

Whilst the number of early entries for GCSE geography and history has only increased marginally over time (see appendix, tables 1 and 2), a similar decline in performance is observed (see appendix, tables 9-10). Here, the percentage of 15 year old students achieving grades A*-C has decreased from 78.97% and 73.43% in 2007, to 65.34% and 62.68% in 2011, respectively. One explanation for this decline in performance is that there has been a shift in the type of students that have entered early, in terms of their ability profile and the schools that they attend. The following sections explore this further, firstly by considering the prior attainment of those students that enter early.

Table 6: GCSE English cumulative percentage outcomes for 15 year olds

Year	*	A	B	C	D	E	F	G	n
2007	3.89	15.44	33.69	56.62	75.12	87.23	93.83	97.22	16,032
2008	3.57	14.14	32.97	57.63	76.46	87.47	94.05	97.46	21,853
2009	2.23	9.45	25.54	52.56	75.77	87.76	93.85	97.19	38,136
2010	1.79	9.21	25.52	55.43	78.88	89.86	95.03	97.71	61,186
2011	2.31	9.74	25.88	54.11	77.90	89.62	95.10	97.69	48,150

Table 7: GCSE mathematics cumulative percentage outcomes for 15 year olds

Year	*	A	B	C	D	E	F	G	n
2007	7.17	23.39	39.86	65.68	78.76	86.27	91.83	95.48	55,211
2008	7.73	23.15	39.80	65.49	79.49	87.04	92.49	96.32	58,197
2009	5.97	19.95	34.83	60.35	76.10	85.31	91.94	96.50	80,575
2010	6.02	18.43	32.48	58.35	74.64	84.92	92.51	97.21	92,124
2011	4.93	15.30	28.57	54.64	71.80	83.56	92.40	97.61	118,425

The prior attainment of early entries

One feature that may explain the decline in performance of early entry students is a change in their ability. Throughout this paper, prior attainment at KS2 has been used as a proxy for ability and is defined as a student's mean performance across the three KS2 assessments in English, mathematics and science. As such, for this section of the analysis, the sample was reduced to just those 15 year old students certificating in GCSE English and mathematics that could be matched to their prior attainment (see table 8 for match rates for GCSE English and mathematics). As shown, this represented a high percentage of the overall 15 year old entry each year; hence, the final sample was considered representative of the overall entry for this age group. Furthermore, given that the match rates were similar across years and subjects, it is anticipated that the matched students will be comparable from one year to the next, in the sense that those missing from the analysis each year will be missing for the same reasons. For example, they did not sit all three KS2 assessments (most likely through absence) or they attended schools that did not sit KS2 assessments.

Table 8: Percentage of 15 year old GCSE students matched to prior KS2 attainment

	English		Mathematics	
	Matched %	n (total)	Matched %	n (total)
2007	80.14	16,032	83.98	55,211
2008	81.80	21,853	84.65	58,197
2009	83.47	38,136	84.84	80,575
2010	84.62	61,186	84.61	92,124
2011	83.40	48,150	84.97	118,425

Figures 1 and 2 show the distribution of 15 year old students according to their mean KS2 score between 2007 and 2011, for GCSE English and mathematics. The change in the KS2 profile of students entering early is perhaps most straightforward to interpret for GCSE mathematics. Here, there has been a gradual decrease over time in the percentage of early entry students with the highest KS2 mean scores (i.e. KS2 mean = 4.67 and 5.00). These declines are (inevitably) offset by an increase in the percentage of students with mid and lower range KS2 scores, thus suggesting that there has been a shift in the ability profile of early entries. For English, the trends are less straightforward. Whilst there has been a decrease in the percentage of early entry students with the highest KS2 score (i.e. KS2 mean = 5.00), across the remainder of the ability range the changes over time are less consistent, with non-uniform fluctuations between years.

Despite this, these trends are likely to provide some explanation for the decline in performance of students who enter early over time and suggest a shift in school's entry policies. Furthermore, they also suggest that the entry profile (in terms of the prior attainment of the students) has seen a greater shift for mathematics than English. This would concur with the analysis exploring the outcomes for 15 year old students over time, where mathematics has seen the greatest changes in outcomes, particularly at grade C (see tables 6 and 7). These differences could be a reflection of the entry strategies adopted by schools for different subjects, or, indeed, the effectiveness of such strategies.

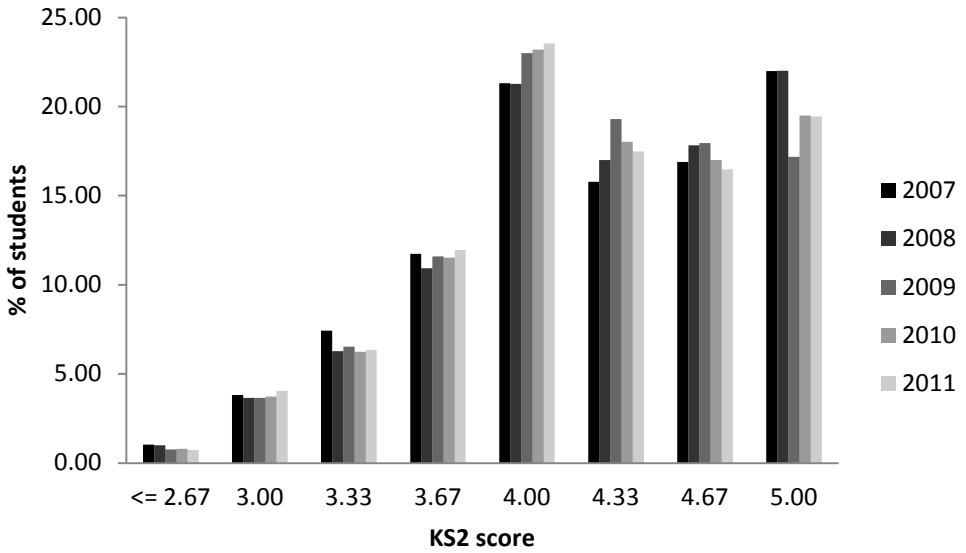

Figure 1: KS2 profile of 15 year old GCSE English entries between 2007 and 2011 (%)

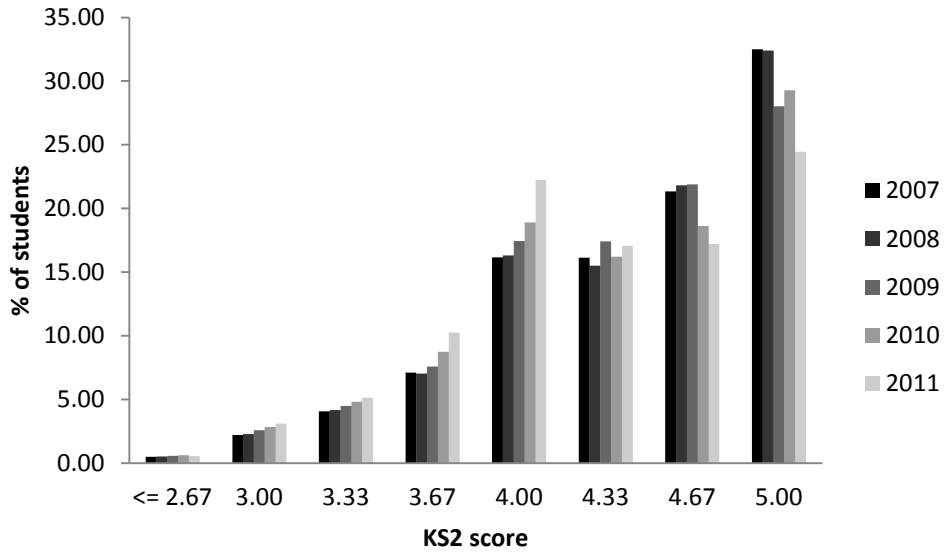

Figure 2: KS2 profile of 15 year old GCSE mathematics entries between 2007 and 2011 (%)

Early entries by school type

The decline in the prior attainment of students entering early suggests that there may have been a shift in the type of students that enter early, particularly for mathematics. To understand this further, consideration was given to the characteristics of schools that enter students early. This analysis intended to replicate and extend the findings reported by the DfE (2011) by providing an overview of trends at the school level. First, the school type was considered; this is based on categories used by the awarding bodies and offers a relatively crude method of classifying schools into different types. Therefore, to explore school characteristics further, additional information on each school was obtained from the DfE via the Edubase dataset. As discussed, this includes a high proportion of the schools with early entries in June 2011, although the findings might not generalise to the small subset of Independent schools that were excluded from the analysis due to missing data.

To explore the entries by school type and how trends might have changed over time, the number of 15 year old students as a percentage of the overall entry for each school type was calculated for GCSE English and mathematics between 2007 and 2011 (tables 9 and 10). This aims to consider whether, over time, there has been a shift towards an increase in the percentage of students entering early within certain school types. As shown in tables 9 and 10, this does seem to be the case. For both English and mathematics, there has been a steady increase in the percentage of early entries from Comprehensive schools, Secondary Modern schools and Academies. In contrast, the percentage of early entries from Independent schools has tended to remain relatively stable over time, or has increased at a slower rate. Further analyses at the school level support these findings, showing that of the schools that entered students early, Independent schools, on average, entered a lower percentage of their students early in June 2011 relative to the other school types (see figure 3). These findings concur with those reported by the DfE (2011) relating to the previous academic year, where Independent schools were the least likely to enter students early for GCSE English and mathematics.

Table 9: GCSE English percentage of 15 year old entries by school type (n = total 15 year olds)

Year	Comprehensive	Selective	Secondary Modern	Independent	Academy	n
2007	2.70	2.85	2.80	1.96	2.73	16,032
2008	3.53	4.16	5.66	2.94	3.97	21,853
2009	6.82	2.95	9.52	3.43	6.74	38,136
2010	10.80	6.33	15.17	3.70	11.09	61,186
2011	9.03	7.41	12.59	2.49	10.05	48,150

Table 10: GCSE mathematics percentage of 15 year old entries by school type (n = total 15 year olds)

Year	Comprehensive	Selective	Secondary Modern	Independent	Academy	n
2007	8.43	13.39	11.01	5.36	8.44	55,211
2008	9.00	13.40	11.03	6.87	8.67	58,197
2009	11.80	14.71	15.29	8.40	13.01	80,575
2010	13.50	16.22	17.55	7.78	14.65	92,124
2011	17.34	15.47	21.50	9.56	18.93	118,425

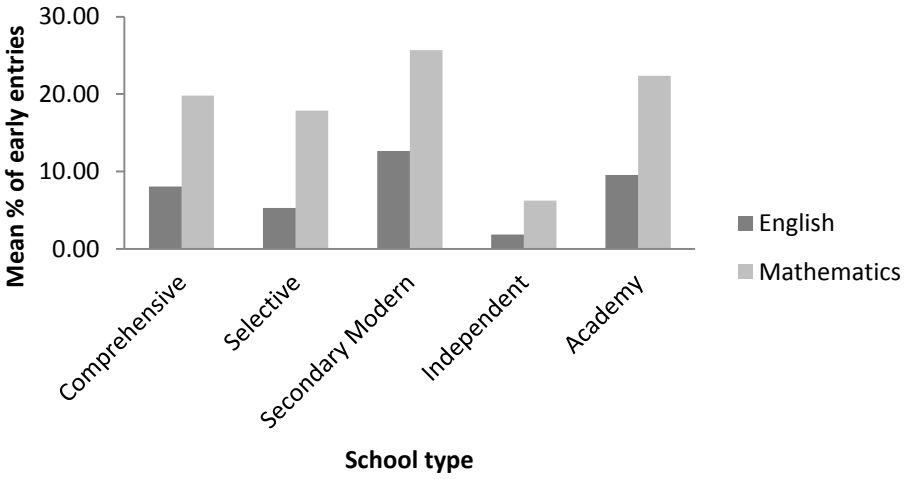

Figure 3: Mean percentage of early entries for GCSE English and mathematics by school type

Whilst there appears to be different early entry patterns amongst school types, it is anticipated that the characteristics of the schools within each group are likely to differ. Therefore, further analyses considered the characteristics of schools that enter students early, with the aim of replicating and updating the findings reported by the DfE (2011). First, consideration was given to the percentage of 15 year old students who were entered early, according to the percentage of students eligible for free school meals (FSM) in each school. FSM is often considered as a measure of deprivation in education studies, although the appropriateness of this has been debated (e.g. Kounali, Robinson, Goldstein & Lauder, 2008). Despite this, there is evidence that, on average, students eligible for FSM perform worse than students not eligible for FSM (DfE, 2011).

The findings reported by the DfE (2011) suggested that schools with a higher percentage of students eligible for FSM tended, on average, to enter a greater number of students early for GCSE mathematics in 2010. The current analysis aimed to replicate these findings using data from the following academic year (June 2011) and extend the analysis, by additionally

considering GCSE English[21]. Figure 4 indicates that, as previously reported, there is a trend towards schools with a higher percentage of students eligible for FSM, on average, entering a greater percentage of students early for GCSE mathematics. Furthermore, this analysis suggested a similar effect for GCSE English. Despite this, there are noticeable differences between subjects, with schools, on average, entering a greater percentage of students early for mathematics than English, regardless of FSM eligibility. Nonetheless, these trends suggest that it is likely to be the lower performing schools that are entering students early, based on evidence that FSM eligibility tends, on average, to be associated with poorer performance outcomes (see DfE, 2011).

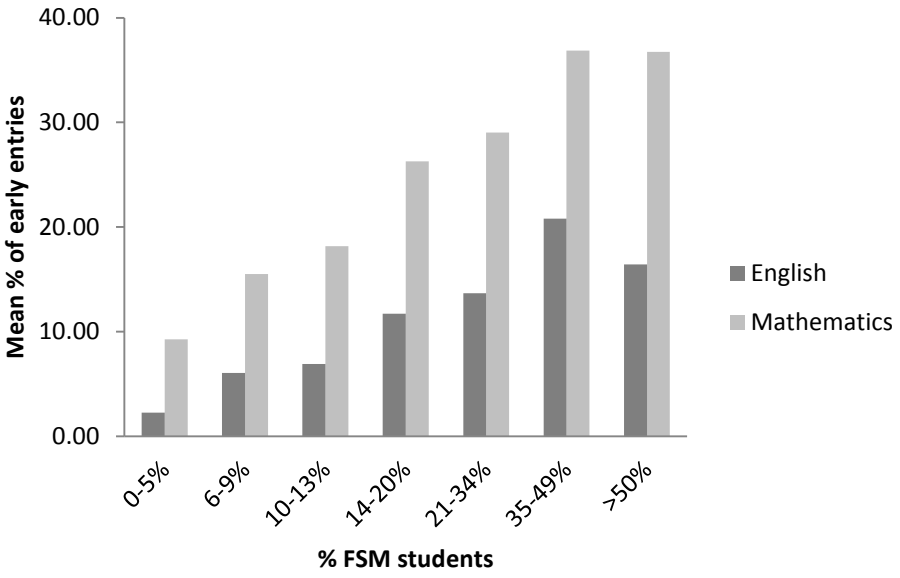

Figure 4: Mean percentage of early entries for GCSE English and mathematics by FSM eligibility

To explore this further, consideration was given to the performance of schools that enter students early, as measured by the percentage of students within each school achieving 5 grade A*-C GCSEs including English and mathematics (i.e. one of the measures used in performance league tables). Schools were grouped according to their performance outcomes in June 2011[22] and the mean percentage of early entries calculated for each group. This revealed that, with the exception of the lowest performing schools[23], on average, the higher attaining schools entered a lower percentage of their students early for both GCSE English and mathematics than the lower attaining schools (see figure 5), thus supporting findings reported by the DfE (2011). An exception to this trend was the group containing the lowest attaining schools, who appear to enter a relatively low percentage of students early. However, this might be due to these schools having fewer of their students reach GCSE level, regardless of their age. Indeed, of these schools with entry information available for 16 year olds, the mean percentage of this age group entering GCSE English or mathematics was low for both subjects (34.74% for English and 50.88% for mathematics). However, due to the low number of schools

[21] Schools were grouped according to the percentage of students eligible for FSM using, for consistency, the categories reported by the DfE.

[22] As there was no reason to suggest particular groupings, the following were used: 0-20%, 21-40%, 41-60%, 61-80%, 81-100%.

[23] Note that there were only 16 schools in this group.

(only 13 of the 16 schools had complete data), this explanation is merely speculative. Interestingly though, if it were the case that the lower attaining schools had fewer students reaching GCSE level, then the higher percentage of early entries from the lower attaining schools could be considered more surprising.

Although the findings discussed above suggest some interesting patterns in the data, there are limitations worth noting. First, the analysis may not generalise to a small subset of Independent schools that were excluded from the analysis. Second, this analysis has only focused on a June examination series. It is possible that different school types adopt different entry policies and some, for example, may choose to enter their students early but at a different time point, such as in the November series. Nonetheless, the findings support those reported by the DfE (2011) and offer an insight into the factors that may influence early entry. For example, accountability measures are likely to be particularly pertinent for the lower performing schools, whose performance may be below floor targets, and it seems likely that such measures are influencing the entry strategies of these schools. This may particularly be the case since the raising of floor targets in recent years. For example, in 2010, schools below floor targets were identified as those where fewer than 30% of students achieved five GCSEs at grade A*-C (including English and mathematics). This figure was increased to 35% in 2011 (Gove, 2011a), and more recently, to 40% from 2012 (Gove, 2011b).

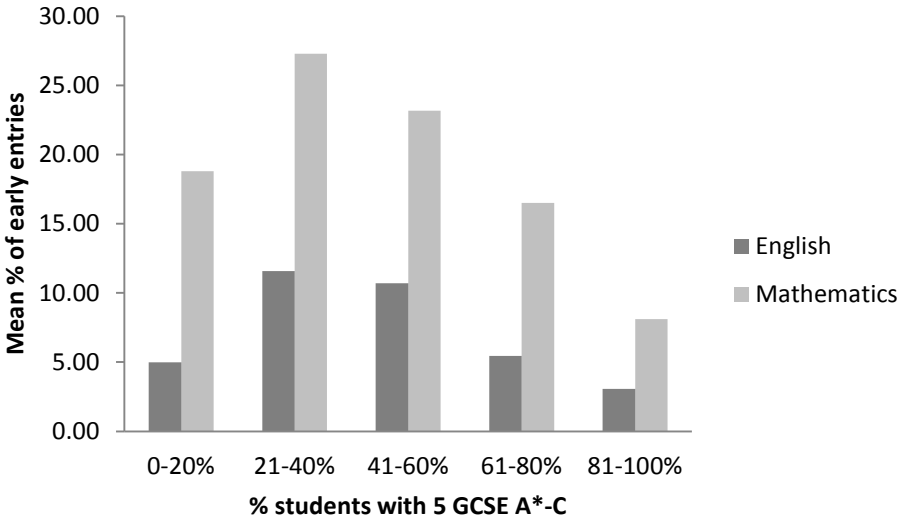

Figure 5: Mean percentage of early entries for GCSE English and mathematics by school performance

The performance of early entries whilst accounting for prior attainment

Thus far, this paper has explored the trends in early entry, with the intention of identifying changes in the number and performance of early entrants over time, as well the type of students that enter early. This final section aims to explore one of the potential effects of early entry for students, specifically, the effect it may have on a student's attainment. Whilst there are concerns that early entry will result in under-achievement (e.g. Advisory Committee on Mathematics Education (ACME), 2011; Winter, 2001; Noyes, Drake, Wake & Murphy, 2010), the empirical evidence for these claims is limited. Thus, the following analysis aims to explore the performance of students entering early relative to their older peers, whilst taking into account a student's prior attainment. Additionally, it aims to explore whether the effects of early entry differ depending on a student's ability. For example, is it the case that certain students are particularly likely to under or over-perform if they enter early? The analysis was restricted to

AQA data only to allow comparisons between students of different ages who were sitting a particular specification.

To identify any differences in performance, the mean total uniform mark (UMS)[24] or raw mark achieved by 15 and 16 year old students certificating in the main GCSE English and mathematics specifications in June 2011 was calculated for students according to their KS2 score. A student's total mark was deemed preferable to their overall grade, since this gives a greater level of detail regarding a student's performance and facilitates comparisons across groups. For example, a student achieving a grade C may only achieve one additional mark to a student achieving a grade D; hence, differences may appear more or less extreme when using the final grade as the outcome. For each specification, the analysis was conducted at tier level[25]. This was for two reasons: first, in a linear specification that does not use UMS, the total marks are not comparable across tiers, and second, even if they were, the value added relationship between KS2 and GCSE cannot be assumed to be the same across tiers. The analysis excluded students with the top three KS2 scores for the foundation tier and the lowest three KS2 scores for the higher tier[26] due to there being too few students in these categories for some specifications. Furthermore, the students with these scores could be considered as outliers or atypical since it would be anticipated that the less able students would enter the foundation tier and the more able would enter the higher tier.

Figures 6-8 show the mean total mark by tier for 15 and 16 year olds across the three specifications, according to their KS2 score (see appendix, tables 11-16, for a summary of the means). These suggest that, for all specifications, there is a tendency for the 16 year olds to out-perform the 15 year olds across the ability range, thus providing evidence of a difference in performance between the two age groups. Furthermore, it suggests a trend towards there being a greater difference in performance at the lower end of the ability range, where the 16 year olds appear to out-perform their younger peers to a greater extent.

To explore the effects of age, prior attainment and the interaction between age and prior attainment on performance, multiple regression analyses were conducted separately for each subject/tier. With the exception of the higher tier of Mathematics A, this revealed a significant effect of age and prior attainment on performance (see appendix, table 17, for a summary of the output). Additionally, the interaction between age and prior attainment was statistically significant. Examination of figures 6-8 suggests that age had a greater effect on performance for those students at the lower end of the ability range. Therefore, entering weaker students early appears to be the most detrimental in terms of how students perform on this particular assessment.

[24] For modular assessments, students' raw marks are converted to uniform marks (UMS) to ensure comparability across series and between tiers when calculating the final grades. For example, a raw mark of 24 out of 30 in one series may represent the same standard as a raw mark of 26 out of 30 in a different series. Similarly, a raw mark of 24 out of 30 on foundation tier may represent the same standard as a raw mark of 15 out of 30 on the higher tier. For a full explanation of the UMS system see http://store.aqa.org.uk/over/stat_pdf/UNIFORMMARKS-LEAFLET.PDF.

[25] Mathematics B students were able to combine modules of different tiers when certificating, hence do not certificate to a particular tier. However, their tier of entry on the final module dictated the grades that they could achieve, hence was used in this analysis to define their tier of entry. Within each group there are likely to be students who had combined modules of different tiers though.

[26] For Mathematics A, the higher tier analysis excluded students with the lowest four KS2 scores, due to there being an inadequate number of 15 year olds in the fourth lowest category.

To summarise, this analysis suggests that 15 year olds tend to perform poorer than 16 year olds certificating in the same specification. Whilst this might suggest that early entry has a detrimental effect on performance, it is worth noting that this analysis is only comparing the performance of students on one particular assessment at one time point. It is possible that students entering early may re-sit and benefit from the experience of entering early, thus may improve their final grade at age 16. Additionally, students entering early may study an enriched curriculum following their early entry, thus may perform better in future assessments than students who certificated at age 16. Furthermore, it is also worth considering the educational significance of these findings (see appendix, tables 11-16, for the mean scores by age). For example, on Mathematics B, there are 60 uniform marks between each grade boundary, meaning that in the context of awarding grades, the differences between 15 and 16 year olds could be considered relatively minor. However, the significance of these differences will largely depend upon a student's proximity to the grade thresholds, as here, a difference of a small number of marks could prove significant in terms of the grade awarded.

Finally, it is also worth considering the limitations of using KS2 data as a proxy for ability in this context. As the data is supplied to the awarding bodies as an overall level rather than a raw mark, then averaged across the three subjects, there are likely to be differences in the ability of individual students with the same mean score. Indeed, this is why the raw marks were prioritised over grades when considering the GCSE outcomes. Unfortunately, students' KS2 scores were not available, meaning that the levels must be used instead. Nonetheless, there is no reason to assume that the distribution of abilities within a particular KS2 category is likely to differ significantly between the two age cohorts. For example, it is unlikely that all the 16 year olds are at the top of a particular KS2 level, whilst all the 15 year olds are at the bottom. Hence, it seems reasonable to assume that the students with a particular mean KS2 score are of similar ability across the two age cohorts, although this limitation is worth bearing in mind.

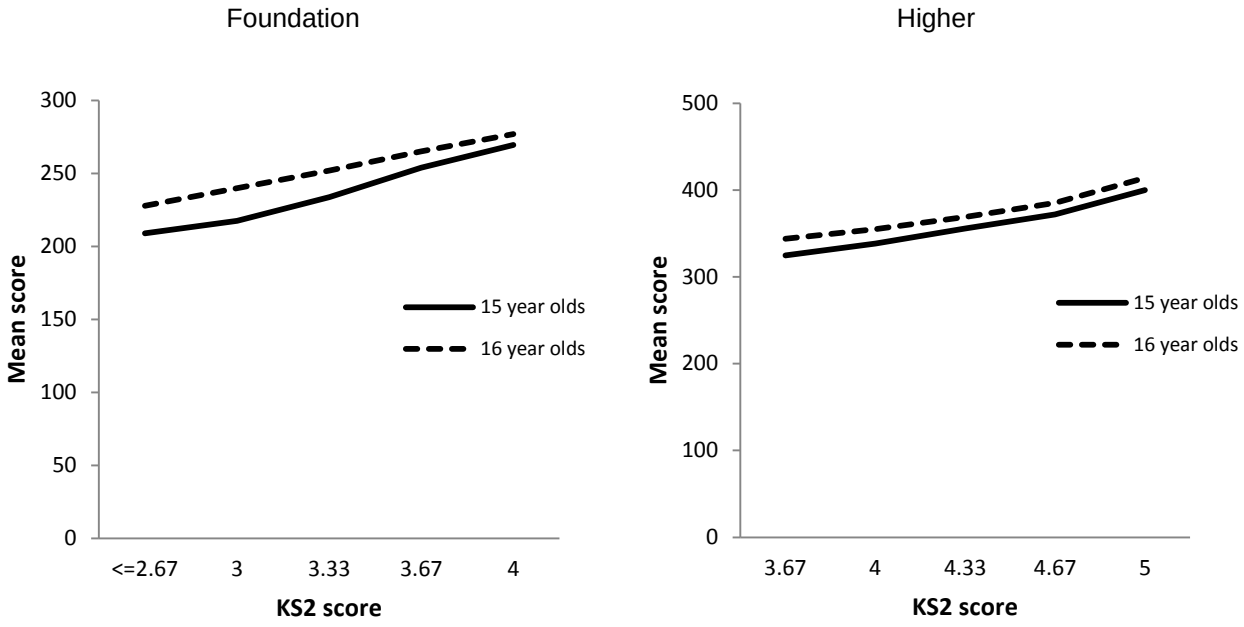

Figure 6: 15 and 16 year olds GCSE English A foundation and higher tier mean mark by KS2 score

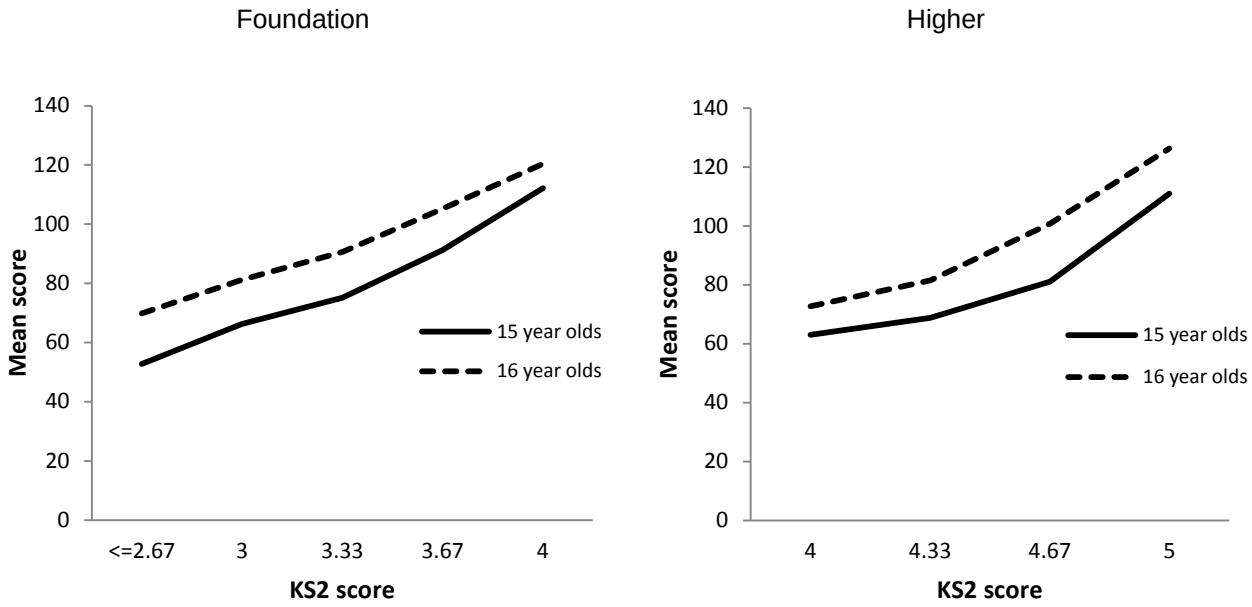

Figure 7: 15 and 16 year olds GCSE Mathematics A foundation and higher tier mean mark by KS2 score

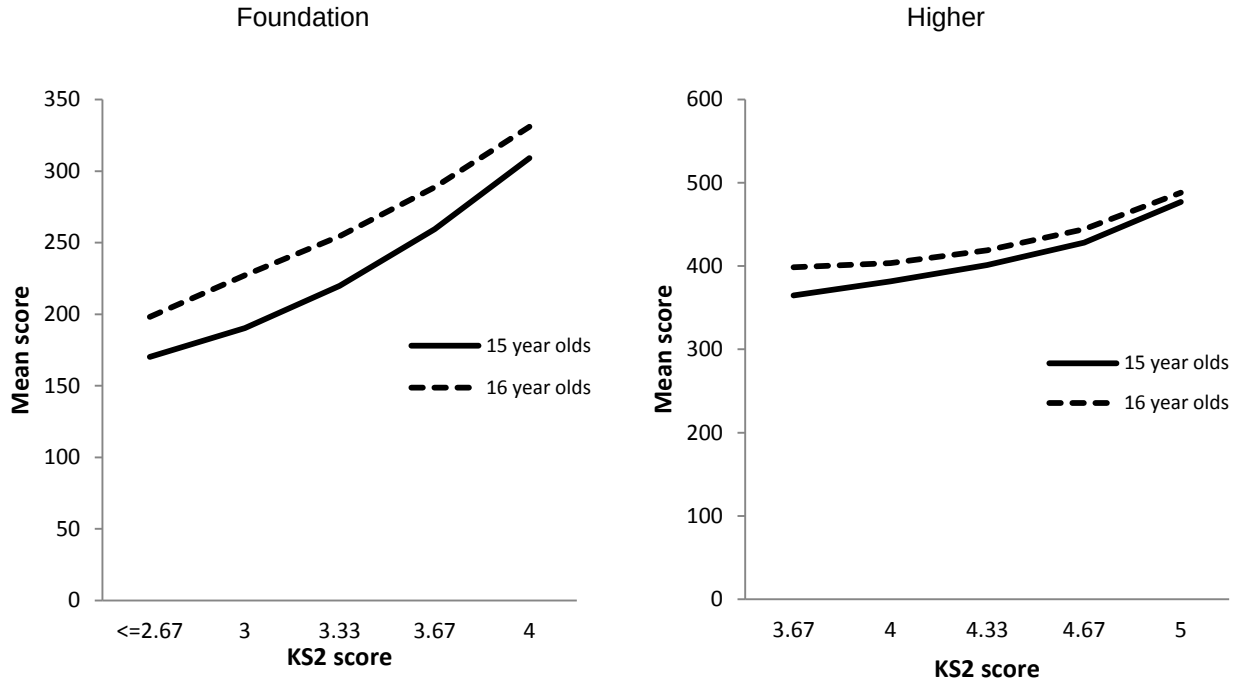

Figure 8: 15 and 16 year olds GCSE Mathematics B foundation and higher tier mean UMS mark by KS2 score

Summary

In summary, this analysis has sought to extend previous findings by exploring the trends in early entry over time. This has revealed an increasing trend for students to enter GCSE English and mathematics early, at foundation and higher tier, as well as a slight increase in early entries for other subjects that contribute to the EBacc. The increase in early entry for English and mathematics has been coupled with a decline in the achievement of students entering early, as well as a decline in their prior attainment, suggesting that the cohort of students who enter early

has changed over time. This is further supported by evidence showing that it is the Comprehensive schools, Secondary Modern schools and Academies that are increasingly entering a greater percentage of their students early, with fewer early entries from Independent schools. In addition, there is also evidence that early entry is more prevalent in schools with a higher percentage of students eligible for FSM and those schools with a lower percentage of students achieving five GCSEs at grades A*-C (including English and mathematics).

These findings, particularly those at the school level, suggest that one of the drivers of early entry is likely to be the pressure placed on schools due to performance and accountability measures. Such pressures are likely to result in strategic decisions being made by individual schools in terms of their entry policies to maximise the chances of students achieving a particular grade, most likely a grade C. Despite this, there was evidence from this analysis that 15 year old students certificating early performed worse than 16 year old students certificating at the end of year 11, suggesting an effect of early entry on performance. This effect tended to be greater for the lower ability students, which seems at odds with the increase in early entry for weaker students.

Whilst early entry is prevalent in both English and mathematics, the key subjects required for performance league tables, there is a greater percentage of early entries in mathematics than English. This suggests that schools might be adopting different entry strategies for different subjects, possibly due to the nature of the subject content and/or the qualification, or, due to the success of previous early entry strategies. Furthermore, the centre level analysis suggests that there are likely to be different strategies adopted by different types of schools. Given these findings, further research is planned to establish a deeper understanding of school level strategies and the drivers that guide approaches to early entry. This will aim to explain the trends in early entry observed here, including the differences by subject and between schools.

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APPENDIX

Table 1: GCSE geography – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.08	0.10	0.13	0.28	0.62
15	0.90	1.13	1.45	1.96	2.54
16	98.03	97.73	97.37	96.77	95.85
17	0.94	1.00	1.00	0.96	0.95
18	0.04	0.03	0.04	0.03	0.03
>=19	0.01	0.01	0.01	0.02	0.01
n	181,162	174,505	168,779	168,938	161,874

Table 2: GCSE history – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.02	0.02	0.14	0.34	0.73
15	0.96	1.12	1.36	1.73	2.60
16	98.23	98.08	97.68	97.18	95.96
17	0.76	0.74	0.76	0.71	0.68
18	0.02	0.02	0.02	0.02	0.02
>=19	0.01	0.02	0.03	0.03	0.02
n	200,092	201,034	195,789	198,052	197,027

Table 3: GCSE French – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	3.29	4.41	4.60	4.66	4.10
15	4.89	5.48	6.00	5.57	5.30
16	91.04	89.31	88.55	89.04	89.89
17	0.69	0.71	0.73	0.64	0.64
18	0.03	0.03	0.03	0.02	0.02
>=19	0.06	0.06	0.09	0.07	0.04
n	191,560	179,826	169,216	159,762	139,082

Table 4: GCSE Spanish – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	2.94	2.85	3.97	3.73	3.94
15	3.49	3.78	4.28	5.00	4.37
16	91.41	91.48	89.81	89.59	90.40
17	1.12	1.12	1.14	0.97	0.88
18	0.32	0.26	0.24	0.17	0.11
>=19	0.72	0.52	0.57	0.55	0.30
n	55,058	58,470	59,201	60,339	59,184

Table 5: GCSE chemistry – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.03	0.02	0.04	0.03	0.03
15	1.59	0.99	0.94	0.76	0.86
16	96.60	97.75	97.83	98.24	98.14
17	1.60	1.13	1.07	0.88	0.89
18	0.13	0.07	0.07	0.05	0.04
>=19	0.06	0.04	0.05	0.04	0.04
n	50,879	67,860	82,653	112,704	132,053

Table 6: GCSE biology – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.14	0.09	0.08	0.08	0.18
15	1.82	1.12	1.01	0.83	1.14
16	95.37	97.18	97.40	97.84	97.50
17	2.03	1.26	1.14	0.98	0.95
18	0.21	0.11	0.11	0.06	0.07
>=19	0.41	0.23	0.27	0.21	0.16
n	53,909	73,381	87,704	116,237	134,784

Table 7: GCSE physics – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.03	0.08	0.03	0.03	0.02
15	1.41	1.06	0.97	0.74	0.81
16	96.84	97.61	97.80	98.26	98.26
17	1.54	1.12	1.07	0.88	0.84
18	0.11	0.08	0.08	0.05	0.04
>=19	0.07	0.04	0.05	0.04	0.04
n	50,332	66,913	81,904	111,668	130,835

Table 8: GCSE science – percentage of entries by age group (n = total entries)

Age	2007	2008	2009	2010	2011
<=14	0.22	0.10	0.13	0.38	0.76
15	9.46	8.93	8.00	7.67	8.70
16	89.08	89.92	90.55	90.64	89.06
17	1.08	0.88	1.09	1.03	1.10
18	0.10	0.07	0.11	0.10	0.14
>=19	0.07	0.09	0.11	0.18	0.25
n	547,858	527,736	483,813	434,866	384,339

Table 9: GCSE geography – cumulative percentage outcomes for 15 year olds

Year	*	A	B	C	D	E	F	G	N
2007	11.49	38.26	60.51	78.97	89.79	94.80	96.58	97.98	1,636
2008	15.05	36.64	55.40	73.69	85.71	90.47	93.11	95.24	1,973
2009	8.42	27.58	48.22	70.78	84.76	91.42	95.22	97.26	2,447
2010	5.90	25.11	43.75	65.26	83.21	90.95	95.22	97.52	3,305
2011	0.95	23.43	43.07	65.34	81.82	91.30	96.18	98.64	4,114

Table 10: GCSE history – cumulative percentage outcomes for 15 year olds

Year	*	A	B	C	D	E	F	G	N
2007	6.37	35.59	57.10	73.43	86.59	93.68	96.71	98.75	1,916
2008	14.04	36.38	57.69	74.94	87.20	93.89	96.75	98.44	2,243
2009	5.56	30.37	48.65	67.04	81.83	90.58	95.12	98.05	2,664
2010	10.07	29.31	48.70	66.13	80.23	88.06	93.72	97.11	3,425
2011	0.76	23.91	43.16	62.68	78.74	88.00	93.91	97.25	5,123

Table 11: Mean scores by age and KS2 score - English A foundation tier

KS2 category	15 year old mean	16 year old mean	Difference
<=2.67	208.91	227.90	18.99
3.00	217.47	239.90	22.43
3.33	233.76	251.99	18.23
3.67	253.89	265.04	11.15
4.00	269.38	276.83	7.45

Table 12: Mean scores by age and KS2 score - English A higher tier

KS2 category	15 year old mean	16 year old mean	Difference
3.67	324.68	344.16	19.48
4.00	338.62	354.95	16.33
4.33	355.79	368.92	13.13
4.67	372.20	385.23	13.03
5.00	400.15	414.14	13.99

Table 13: Mean scores by age and KS2 score - Mathematics A foundation tier

KS2 category	15 year old mean	16 year old mean	Difference
<=2.67	52.77	69.87	17.10
3.00	66.31	81.23	14.92
3.33	75.14	90.65	15.51
3.67	91.22	105.28	14.06
4.00	112.18	120.33	8.15

Table 14: Mean scores by age and KS2 score - Mathematics A higher tier

KS2 category	15 year old mean	16 year old mean	Difference
4.00	63.03	72.67	9.64
4.33	68.80	81.52	12.72
4.67	81.03	100.72	19.69
5.00	110.99	126.29	15.30

Table 15: Mean scores by age and KS2 score - Mathematics B foundation tier

KS2 category	15 year old mean	16 year old mean	Difference
<=2.67	170.12	198.07	27.95
3.00	190.26	227.24	36.98
3.33	219.82	254.52	34.70
3.67	259.41	288.69	29.28
4.00	309.03	331.07	22.04

Table 16: Mean scores by age and KS2 score - Mathematics B higher tier

KS2 category	15 year old mean	16 year old mean	Difference
3.67	364.55	398.66	34.11
4.00	381.59	403.66	22.07
4.33	401.30	419.04	17.74
4.67	428.22	444.40	16.18
5.00	476.98	488.23	11.25

Table 17: Regression output predicting total scores

Subject	Variable	*B*	*SE B*	*β*
English A – foundation	Age	63.53	5.14	0.42*
	KS2 score	261.55	22.20	2.05*
	Age * KS2 score	-14.04	1.40	-1.77*
R^2 = 0.10, * p < 0.01				
English A – higher	Age	29.38	4.78	0.15*
	KS2 score	108.83	16.70	0.86*
	Age * KS2 score	-3.31	1.05	-0.42*
R^2 = 0.20, * p < 0.01				
Mathematics A – foundation	Age	45.14	6.95	0.60*
	KS2 score	185.81	29.51	2.08*
	Age * KS2 score	-9.10	1.87	-1.63*
R^2 = 0.24, * p < 0.01				
Mathematics A – higher	Age	10.17	15.15	0.08
	KS2 score	38.01	51.04	0.36
	Age * KS2 score	1.04	3.21	0.16
R^2 = 0.28, * p < 0.01				
Mathematics B – foundation	Age	85.74	11.85	0.40*
	KS2 score	360.23	50.28	1.66*
	Age * KS2 score	-15.87	3.17	-1.18*
R^2 = 0.26 , * p < 0.01				
Mathematics B – higher	Age	98.53	12.13	0.47*
	KS2 score	371.32	40.70	1.98*
	Age * KS2 score	-17.88	2.56	-1.53*
R^2 = 0.22, * p < 0.01				