Comparing international GCSEs and GCSEs in England, 2018

Ad hoc notice

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Contents

Introduction

In England pupils at key stage 4 (age 14-16) can take a range of types of qualifications, including GCSEs and international GCSEs.

International GCSEs are offered overseas by several different awarding organisations. Two awarding organisations ([Cambridge Assessment International Education](#)[1] and [Pearson](#)) provide international GCSE qualifications[2] which are also used in England and it is these that are covered in this analysis. GCSEs are offered by four awarding organisations in England and this analysis includes data from all four of these awarding organisations.

International GCSEs have not counted in [school performance tables](#) since the corresponding reformed GCSEs became available, from 2017 onwards, depending on the subject.[3] For this reason, in 2018, the majority of entries into international GCSEs in England were from pupils in independent schools: 94% (163,971) under the definitions used in this analysis). Total entries into GCSEs and international GCSEs in England by pupils from independent schools at the end of key stage 4 in 2018 included in this analysis were 361,581,[4] meaning international GCSE entries represent 45% of entries.

[Ofqual](#), the independent qualifications regulator in England, regulate all GCSE qualifications offered in England. All these qualifications must meet their expectations which are in place both for the qualification overall and for each subject offered: see [GCSEs (9 to 1): requirements and guidance](#). Their work ensures that all GCSEs meet common subject content and assessment requirements, and that grade standards between GCSEs offered by different exam boards are aligned and that standards in them are maintained over time.

In 2018, some of the international GCSEs from Cambridge covered in this analysis were regulated by Ofqual. Regulated international GCSEs are required to meet Ofqual's general rules for regulated qualifications, though not the additional rules about content and assessment that apply to GCSEs. As GCSEs and international GCSEs are not the same qualifications, Ofqual has said that the grading standards of the two suites of qualifications might not necessarily align.[5] Almost all of the international GCSEs from Pearson covered in this analysis were not regulated by Ofqual.

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[1] Referred to in the remainder of this document as 'Cambridge'
[2] Excluding level 1/level 2 certificates. There were under 200 entries into these qualifications by independent school pupils in England at the end of key stage 4 in 2018, and as such we have not included these in our analysis.
[3] For a full timeline, see: [Get the facts: GCSE reform](#)
[4] This may differ from other published figures due to differences in definitions and methodology e.g. here we have excluded short course and double award qualifications
[5] Please see the Ofqual blog: [Some facts about International GCSEs](#)

This publication looks at attainment in GCSEs and international GCSEs and progress to key stage 5 by pupils sitting these qualifications, for independent school pupils in England. It covers three separate strands of analysis from the Department for Education (DfE):

1. Pupil level analysis – looking at differences in grades for pupils who take both GCSEs and international GCSEs, and looking at average grades by key stage 2 prior attainment group;
2. Subject level analysis – looking at differences in the average grade achieved in GCSEs and international GCSEs by subject, for the main EBacc subjects;[6]
3. Progression to key stage 5 – looking at differences in the average A level grade achieved in a subject, between pupils who previously entered GCSE and those who previously entered international GCSE qualifications at key stage 4, for the main EBacc subjects. This analysis necessarily considers key stage 4 performance in years prior to 2018 and predominantly in 2016

It is important to note that GCSEs and international GCSEs differ in a number of ways, including their content and their assessment arrangements. The awarding organisations that offer international GCSEs each decide the content for those qualifications and how that content is assessed, which may legitimately be different from GCSEs. These differences make it difficult to make precise judgements about how standards of GCSEs and international GCSEs compare.

However, by considering a range of analytical methodologies, we can provide a comparative assessment of how grades achieved vary across the different qualification types. We have also considered how pupils who took each qualification type went on to perform at A level.

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[6] See Table 2 for a list of subjects included is this definition

Main findings

IGCSEs (Cambridge)[7]

- On average, independent school pupils at the end of key stage 4 in 2018 achieved similar grades in their IGCSEs (Cambridge) and their GCSEs, with an average difference of less than a tenth of a grade (higher in GCSEs)[8]
- Although grades did not appear to be systematically higher or lower for IGCSEs (Cambridge), some variations in results were seen at a subject level:
  - Pupils achieved higher grades than expected in IGCSEs (Cambridge) relative to GCSEs in English language and English literature, which represent around half of entries in IGCSEs (Cambridge) by independent school pupils in the main EBacc subjects[9]
  - Pupils achieved lower grades than expected in IGCSEs (Cambridge) relative to GCSEs in the sciences, where there are relatively fewer entries, and also in French and geography
  - There were no clear differences between IGCSEs (Cambridge) and GCSEs in mathematics, German, Spanish and history
- Looking at progression to individual A level subjects in the main EBacc subjects for a previous cohort of independent school pupils who were mostly at the end of key stage 4 in 2016, pupils who entered IGCSEs (Cambridge) in a subject achieved, on average, around a sixth of a grade lower than expected at A level than pupils who entered a GCSE in that subject[10]

International GCSEs (Pearson)

- Independent school pupils at the end of key stage 4 in 2018, on average, achieved higher grades in their International GCSEs (Pearson) than their GCSEs, by around a quarter of a grade[11]
- For International GCSEs (Pearson) there is variation by subject:
  - Pupils achieved higher grades than expected in International GCSEs (Pearson) relative to GCSEs in English language, English literature, mathematics, German and Spanish
  - For some subjects the evidence is mixed: using some analytical methodologies we find pupils achieved slightly lower grades in biology, physics and geography than expected in International GCSEs (Pearson) relative to GCSEs, and, using others, we find pupils achieved slightly higher grades than expected

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[7] IGCSE is the trademarked name of Cambridge Assessment International Education's international GCSEs
[8] We look at all pupils who took both types of qualification, calculate the difference between their average point score (adjusting for subject variation) in the two qualification types, and then take the average of these differences across pupils who took both types of qualification
[9] See Table 2 for a list of subjects included in this definition
[10] This is based on a weighted average across EBacc subjects, with insignificant results treated as representing no difference
[11] See footnote 8

- o There were no clear differences between International GCSEs (Pearson) and GCSEs in chemistry, French and history
- Looking at progression to individual A level subjects in the main EBacc subjects for a previous cohort of independent school pupils who were mostly at the end of key stage 4 in 2016: pupils who entered International GCSEs (Pearson) in a subject achieved, on average, over a quarter of a grade lower than expected in A level than pupils who entered a GCSE in the same subject.[12]

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[12] See footnote 10

Definitions used in this report

In this report, we group qualifications into three categories:

1. GCSEs
2. IGCSEs awarded by Cambridge[13]
3. International GCSEs awarded by Pearson[14]

We define GCSEs as all GCSE Full Course and GCSE (9-1) Full Course qualifications[15] that are regulated by Ofqual and awarded in England. IGCSEs (Cambridge) include the regulated Cambridge International Level 1/Level 2 Certificates and unregulated IGCSEs. International GCSEs (Pearson) include the regulated Pearson Edexcel International GCSEs and unregulated International GCSEs.[16]

In our pupil level and subject level analysis, we focus on pupils in independent schools in England at the end of key stage 4 in 2018, and the majority of entries by pupils will be in this year. For the progression to key stage 5 analysis, we look at pupils who took A levels in 2018 in independent schools, who entered GCSEs and international GCSEs in years prior to 2018, most commonly in 2016. This means there are very few entries in reformed GCSEs in the progression to key stage 5 analysis.

We focus on independent schools so that, when making comparisons between GCSE and international GCSE candidates, we are looking at pupils who are similar and attend similar types of school. This helps us to separate out differences between different qualification types from the differences in the pupil and school characteristics of those taking these qualifications.

As we are focusing on results for pupils at the end of key stage 4, or taking A levels, in 2018, the exact findings from our analysis are specific to these cohorts of pupils, and the range of qualifications offered at this point in time, and we would expect to see some fluctuations in the patterns of results between cohorts.

In our pupil and subject level analyses all three qualification type categories include both qualifications which are graded on a 9 to 1 scale and qualifications which are graded on an A* to G scale (we exclude short course and double award qualifications). For the purposes of comparing qualifications on different grading scales, we convert qualifications on the A* to G scale onto a numerical scale: based on the number of points these grades receive in performance table calculations; see Table 1 below. Reformed (9-1) GCSEs are graded on a numerical scale from 9 to 1, with one grade equal to one point. When we refer to differences in terms of grades in this analysis, this is based on this 9-1 scale.

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[13] Referred to in this analysis as IGCSEs (Cambridge)
[14] Referred to in this analysis as International GCSEs (Pearson)
[15] For more information about the reforms to GCSE qualifications, see: GCSE 9 to 1 grades
[16] For more information, including on regulation, see: Some facts about International GCSEs

Table 1: Point score scales for GCSEs and international GCSEs graded A*-G

Grade	Key stage 4 points
A*	8.5
A	7.0
B	5.5
C	4.0
D	3.0
E	2.0
F	1.5
G	1.0

For results presented by subject, we focus on the main English Baccalaureate (EBacc) subjects. For other analysis, we look at all subjects that can be taken as both a GCSE or an international GCSE.[17] Table 2 below sets out the subjects covered by these definitions, as well as the number of entries in each qualification category.

Table 2: Subject definitions and entry numbers[18] in this analysis

	Main EBacc subjects[19]	All subjects
Entries	biology, chemistry, English language, English literature, French, geography, German, history, mathematics, physics and Spanish	applied business, art & design, biology, business studies, chemistry, Chinese, computer studies/computing, design & technology, drama & theatre studies, Dutch, economics, English language, English literature, French, geography, German, history, home economics, information & communications technology, Italian, Latin, mathematics, music, physical education/sports studies, physics, Portuguese, religious studies, sociology and Spanish
GCSE	124,590 (45%)	197,610 (55%)
IGCSE (Cambridge)	45,436 (16%)	51,700 (14%)
International GCSE (Pearson)	108,853 (39%)	112,271 (31%)
Total	278,879 (100%)	361,581 (100%)

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[17] This has been determined by looking at subjects where there were entries by independent school pupils in England at the end of key stage 4 in 2018

[18] By independent school pupils in England at the end of key stage 4 in 2018

[19] Please note, this is based on the *subjects* included in the EBacc, and not *qualifications* included in the EBacc, which will exclude international GCSEs. For more information, please refer to the following page: English Baccalaureate (EBacc). This only includes subjects where there were entries in both IGCSEs (Cambridge) and International GCSEs (Pearson) by independent school pupils at the end of key stage 4 in 2018, and smaller languages subjects (i.e. those other than French, German and Spanish) are excluded

Pupil level analysis

Within-pupil variation analysis

Methodology

Using key stage 4 attainment data[20] and looking at each awarding organisation that offers international GCSEs separately, we compare pupils' average point score in GCSEs and international GCSEs for each independent school pupil at the end of key stage 4 in 2018 who took at least one GCSE and at least one international GCSE.[21] We aggregate the results to assess the proportion of pupils who achieved a higher/lower average point score in their international GCSEs, compared with their GCSEs. In our analysis, we include all subjects where there were entries in both GCSEs and one of the two international GCSE categories.[22]

We look at the results using both the key stage 4 point scores in Table 1, and also point scores after adjusting for subject variation. For each subject, this adjustment is calculated by (using physics as an example): [23]

1. Calculating the average point score achieved in physics
2. Calculating the average point score achieved across entries in all other subjects (i.e. excluding physics), by pupils who entered physics
3. Subtracting the average point score across entries in all other subjects by pupils who entered physics in step 2 from the average point score in physics in step 1

If, on average, pupils score lower in a subject relative to others they take, this difference will be negative; if the opposite is true it will be positive. We adjust the point scores achieved in a subject to account for this difference, i.e. if the difference is -0.1, we add 0.1 onto the point scores achieved in the subject. This means the point scores are no longer bound between 1 and 9.

Findings

- After adjusting for subject variation:
  - For pupils who took both IGCSEs (Cambridge) and GCSEs:
    - 47% achieved a higher average point score in their IGCSEs (Cambridge): see Chart 1 and Table 3
    - 53% achieved a higher average point score in their GCSEs

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[20] Please see the Key stage 4 methodology information document for information on the data sources, their coverage and quality
[21] Where a pupil has taken the same qualification multiple times we only count the best result, this is therefore different from the discounting and early entry rules used in key stage 4 statistics
[22] See Table 2 for a list of subjects included in this definition
[23] This is known as the unbiased mean total (UBMT) method, for more information see: Chapter 9: Common examinee methods - Robert Coe

- On average, pupils had an average point score 0.08 points higher in their GCSEs[24]
  - For pupils who took both International GCSEs (Pearson) and GCSEs:
    - 59% achieved a higher average point score in their International GCSEs (Pearson)
    - 41% achieved a higher average point score in their GCSEs
    - On average, pupils had an average point score 0.24 points higher in their International GCSEs (Pearson)[25]

Table 3: Difference in average point score, adjusted for subject variation, between GCSEs and international GCSEs pupils at the end of key stage 4

England, Independent schools, 2018

Difference in key stage 4 point score between international GCSEs and GCSEs	IGCSEs (Cambridge)		International GCSEs (Pearson)	
	Number of pupils	% of pupils	Number of pupils	% of pupils
-10 to -9	0	0%	0	0%
-9 to <-8	1	0%	1	0%
-8 to <-7	2	0%	0	0%
-7 to <-6	6	0%	8	0%
-6 to <-5	14	0%	16	0%
-5 to <-4	43	0%	49	0%
-4 to <-3	200	1%	201	1%
-3 to <-2	852	4%	632	2%
-2 to <-1	2,820	13%	2,443	8%
-1 to <0	7,238	35%	8,958	30%
0 to <1	6,485	31%	11,299	37%
1 to <2	2,498	12%	4,826	16%
2 to <3	624	3%	1,292	4%
3 to <4	133	1%	307	1%
4 to <5	21	0%	87	0%
5 to <6	7	0%	27	0%
6 to <7	2	0%	5	0%
7 to <8	1	0%	2	0%
8 to <9	0	0%	2	0%
9 to <10	1	0%	0	0%
Total	20,948	100%	30,155	100%

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[24] Before adjusting for subject variation, 36% achieved a higher average point score in their IGCSEs (Cambridge), 58% achieved a higher average point score in their GCSEs, and on average pupils had an average point score 0.27 points higher in their GCSEs
[25] Before adjusting for subject variation, 55% achieved a higher average point score in their International GCSEs (Pearson), 41% achieved a higher average point score in their GCSEs, on average pupils had an average point score 0.21 higher in their International GCSEs (Pearson)

Chart 1: Difference in average point score between GCSEs and international GCSES by pupils at the end of key stage 4 (adjusted for subject variation)

England, Independent schools, 2018
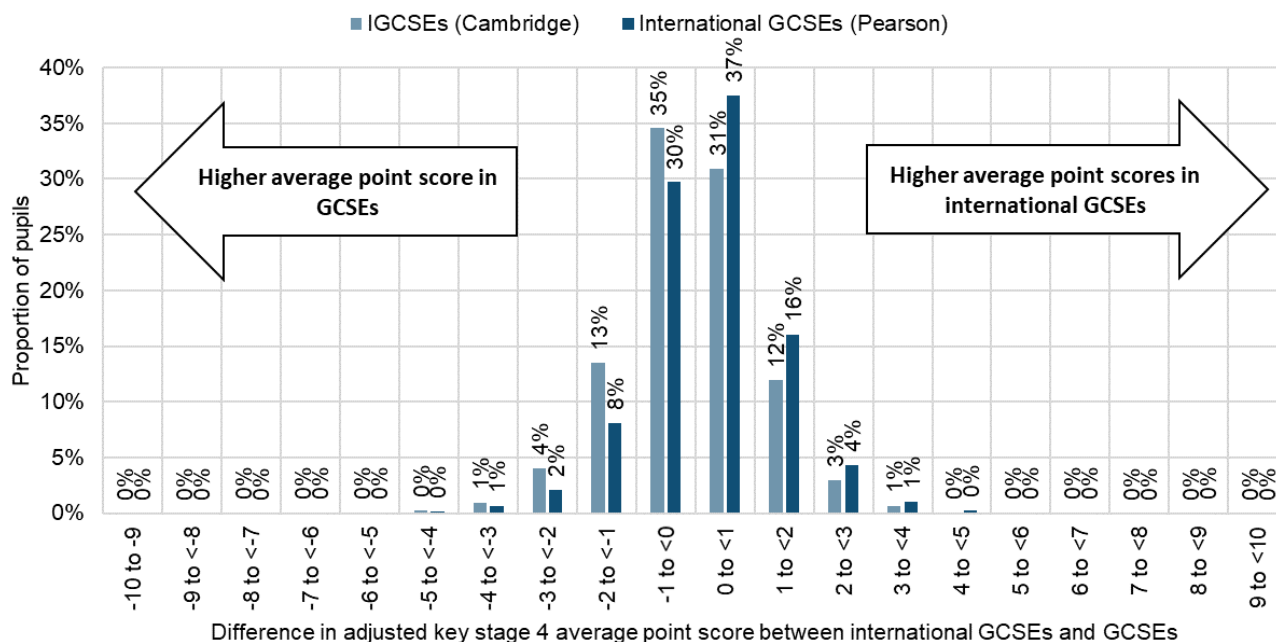
Average point score by prior attainment analysis

Methodology

We have calculated the average point score in each of our three qualification types for the main subjects included in the EBacc,[26] by key stage 2 prior attainment group. A pupil's key stage 2 prior attainment group is based on their attainment in reading and mathematics at key stage 2, and we present results for pupils in groups 2 up to 5A.[27]

This analysis, therefore, only includes entries by pupils where key stage 2 prior attainment information is available, which covers 42% of entries in these subjects in GCSEs, 30% in IGCSEs (Cambridge) and 32% in International GCSEs (Pearson): see Table 8. For pupils where prior attainment information is present, the majority of entries in each qualification type are in the top three groups we report on (5A, 5B and 5C): 71% in GCSEs, 85% in IGCSEs (Cambridge) and 84% in International GCSEs (Pearson).

To account for the difference in grading structure of qualifications (i.e. 9 to 1 and A* to G), we use other outcome measures alongside average point score. These are the percentage

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[26] See Table 2 for a list of subjects included in this definition

[27] This follows the same methodology as the transition matrices for key stage 4, which can be found here: Ready reckoners and transition matrices for key stage 4

of entries at grade 4/C and above, and the percentage of entries at grade 7/A and above. We use these grades as they map across the two structures and are directly comparable.

Findings

- For entries in main EBacc subjects[28] by independent school pupils at the end of key stage 4 in 2018:
  - Pupil entries in IGCSEs (Cambridge) achieved:
    - A higher average point score than in GCSEs for all key stage 2 prior attainment groups at or above level 4C, by between +0.1 and +0.4, i.e. between 0.1 and 0.4 of a grade higher in IGCSEs (Cambridge): see Chart 3 and Table 6
    - A higher percentage of entries achieving grade 4/C and above than GCSEs for all prior attainment groups: see Table 7
    - A higher percentage of entries achieving grade 7/A and above than GCSEs for all prior attainment groups at or above level 4C: see Table 7
  - Pupil entries in International GCSEs (Pearson) achieved:
    - A higher average point score than in GCSEs for all key stage 2 prior attainment groups, by between +0.7 and +0.8, i.e. between 0.7 and 0.8 of a grade higher in International GCSEs (Pearson), with the exception of level 5A where the difference was +0.4
    - A higher percentage of entries achieving grade 4/C and above than GCSEs for all prior attainment groups
    - A higher percentage of entries achieving grade 7/A and above than GCSEs for all prior attainment groups
  - However, importantly, when looking at pupil entries to GCSEs only, pupils who also took at least one international GCSE achieved a higher average point score in their GCSEs than pupils who did not: see Chart 2
    - For prior attainment groups at level 4C and above, this difference was between +0.3 and +0.6 for both international GCSE categories, i.e. international GCSE pupils achieved 0.3 to 0.6 grades higher in their GCSEs than non-international GCSE pupils

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[28] See Table 2 for a list of subjects included in this definition

Some of the differences between performance in GCSEs and international GCSEs may be due to differences in the pupils taking them

The information in Chart 2 suggests pupils taking international GCSEs scored higher on average regardless of the type of qualification taken, which means some of the differences seen in Chart 3, Table 6 and Table 7 may be due to differences in pupils as opposed to differences in types of qualifications. In the other methodology in this section we have looked at within-pupil variation to help to control for this effect.

Chart 2: Average point score in EBacc subjects in GCSEs only by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment group
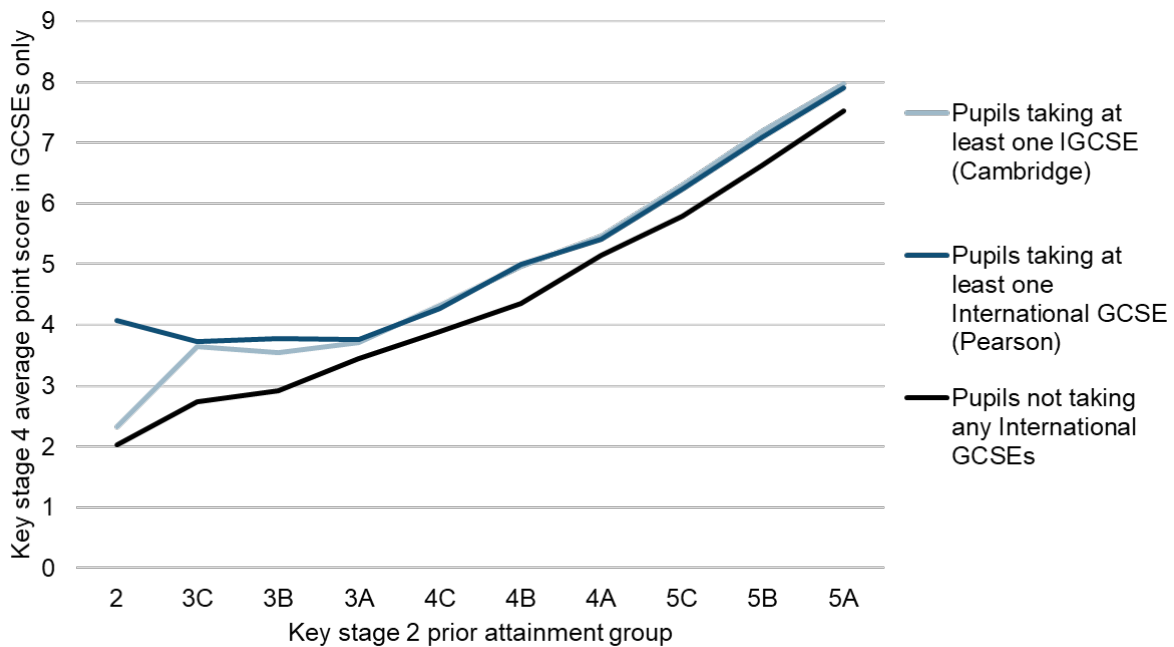
England, Independent schools, 2018

Chart 3: Average point score in EBacc subjects by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment group
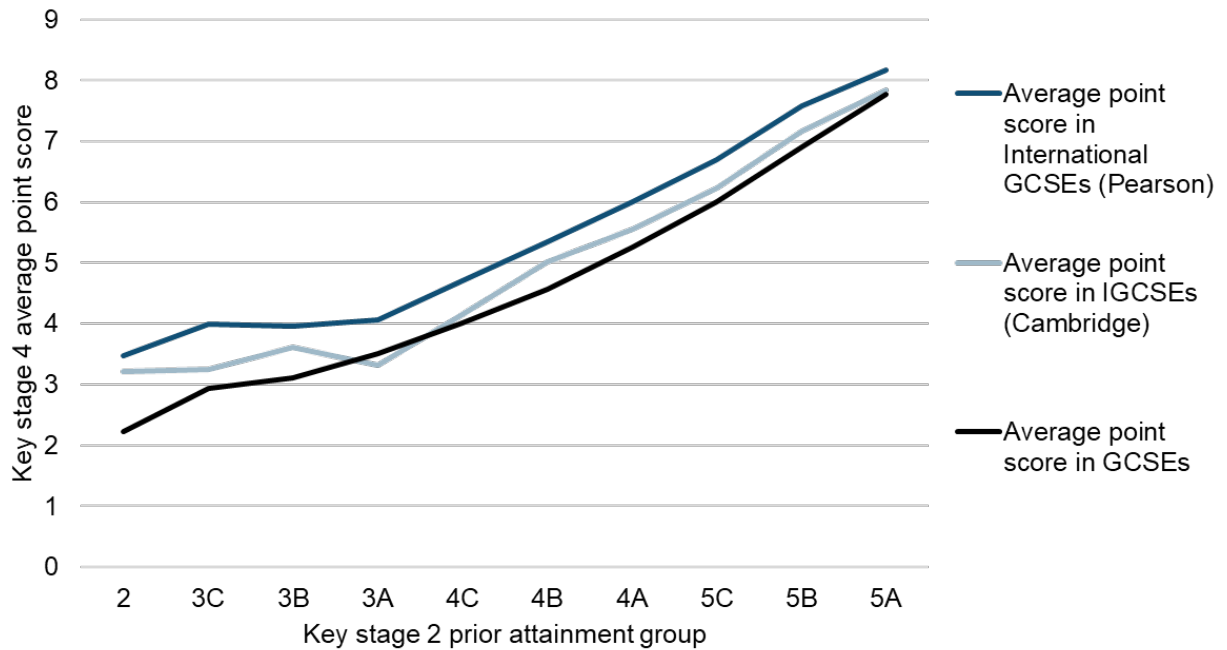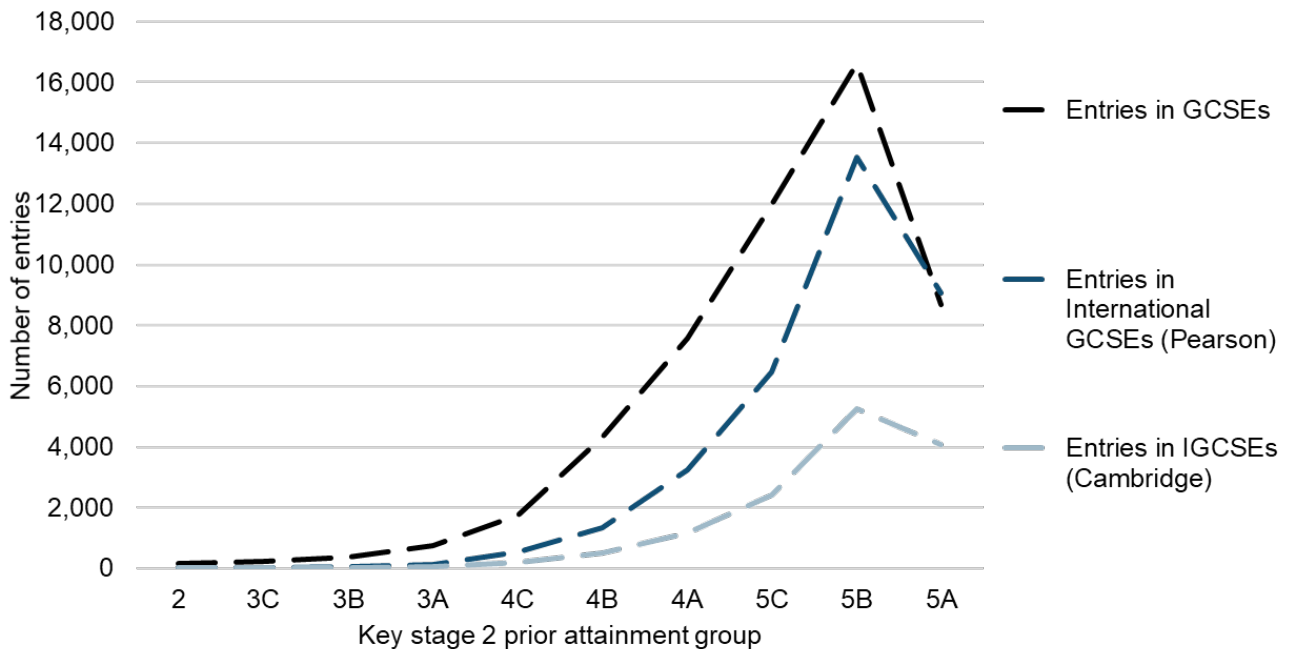
England, Independent schools, 2018

Chart 4: Entries in EBacc subjects by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment group

England, Independent schools, 2018

Subject level analysis

Subject average point score comparison analysis

Methodology[29]

Firstly, we look at entries by pupils at the end of key stage 4 in 2018 in independent schools and calculate the difference: between the average point score in IGCSEs (Cambridge) and the average point score in GCSEs, and between the average point score in International GCSEs (Pearson) and the average point score in GCSEs. This is done at a subject-level for all subjects[30] where there were more than 100 entries by these pupils in both GCSEs and the relevant international GCSE category.

The analysis does not control for differences, such as differences in prior attainment or in concurrent attainment, between the candidates entered for each qualification type. Later in this section we look at subject-level regression analysis and chained equating, in which we do account for some of the differences between candidates.

Findings

- In 13 out of 21 subjects analysed with more than 100 entries, independent school pupils at the end of key stage 4 in 2018 achieved a higher average point score in IGCSEs (Cambridge) than the equivalent GCSE: see Chart 5 and Table 9.
  - These were: business studies, computer studies/computing, design & technology, economics, English language, English literature, French, German, history, mathematics, music, physical education/sports studies and Spanish
- In 14 out of 15 subjects analysed with more than 100 entries, independent school pupils at the end of key stage 4 in 2018 achieved a higher average point score in International GCSEs (Pearson) than the equivalent GCSE. This applied to all subjects except business studies: see Chart 5 and Table 9

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[29] This uses the same data sources and discounting methodology as the 'within-pupil variation' analysis in the previous section.
[30] See Table 2 for a list of subjects included in this definition

Chart 5: Difference in average point score between GCSEs and international GCSEs by pupils at the end of key stage 4, in selected subjects

England, Independent schools, 2018
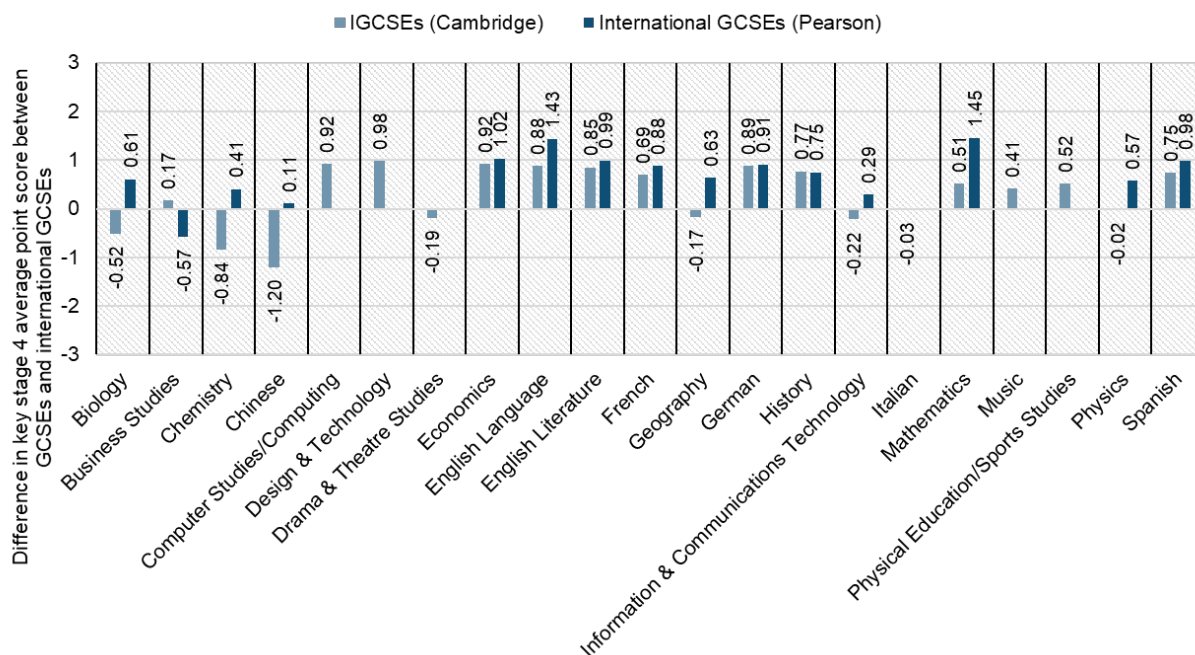
Subject regression analysis

Methodology

For each of the main EBacc subjects,[31] we carry out multiple linear regression analysis, estimated by Ordinary Least Squares (OLS). This is a statistical technique that uses several factors (for example, pupil and school characteristics and type of qualification taken) to predict outcomes (for example, grade achieved). In our subject regressions, we account for the clustering of pupils within schools using clustered standard errors.

In this analysis the dependent variable is key stage 4 point score, and we control for prior attainment and for the following pupil characteristics: gender, ethnicity, disadvantage status, special educational needs (SEN) status and whether the pupil speaks English as an additional language (EAL).[32] As this information is not available for independent school pupils at key stage 4, these are taken from data collected when the pupil was in key stage 2, where this exists.

We also include a proxy measure of school quality, estimated using a separate regression model. This model includes results in all the main EBacc subjects[33] and controls for prior

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[31] See Table 2 for a list of subjects included is this definition
[32] For more information about these characteristics and how they are defined, please see the 'Pupil characteristics definitions and historical changes' section of the following document: Key stage 4 methodology
[33] See Table 2 for a list of subjects included is this definition

attainment and the pupil characteristics mentioned above, as well as for subject, qualification type and the school a pupil attends (denoted by its Unique Reference Number), modelled as a random effect. We then extract this random effect and include it is an additional variable in our subject level regressions. Additionally, we have run sensitivity analysis where school quality is estimated using a fixed effects model.

Incorporating the school quality measure increases the amount of variation in results that we are able to explain analytically. However, we can only control for observable characteristics and there will be characteristics not included in our regressions that will also explain results, as the progress a pupil makes between key stage 2 and key stage 4 will be influenced by a wide range of factors.[34]

Therefore, users should interpret the results as a comparison of point score for pupils taking different types of qualification, when controlling for the characteristics mentioned. The associations that we identify do not allow us to infer causality and although a finding might support a particular hypothesis, it is not, on its own, absolute proof.

Findings[35]

- Compared to pupils taking GCSEs, pupils in independent schools at the end of key stage 4 in 2018 taking IGCSEs (Cambridge) achieved:
  - Statistically significantly higher grades in English literature and English language, by around 0.2-0.3 grades: see Table 12 and Table 13. These subjects have the highest number of entries in IGCSEs (Cambridge), and together represent 54% of IGCSE (Cambridge) entries in this analysis.
  - Statistically significantly lower grades in geography, history and French by 0.2-0.4 grades, with entries in these subjects together representing 31% of entries in IGCSEs (Cambridge) in this analysis
  - Statistically significantly lower grades in biology, chemistry and physics by 0.5-0.7 grades, but entries were relatively small with these subjects together representing 5% of entries in IGCSEs (Cambridge) in this analysis
  - No statistically significant difference in mathematics, German and Spanish
  - In our sensitivity analysis, where school quality is modelled as a fixed effect, we saw small changes in the size of some coefficients in absolute value, by an average of 0.08 grades and a maximum of 0.13 grades. However, there were no changes to the significance of coefficients at the 5% significance level.
- Compared to pupils taking GCSEs, independent school pupils at the end of key stage 4 in 2018 taking International GCSEs (Pearson) achieved:
  - Statistically significantly higher grades in English language by around one grade, and in mathematics, English literature, German and Spanish by around 0.4-0.6

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[34] In Table 12 and Table 13 we present the R^2 values for all our regressions, which gives the proportion of variation in the dependent variable that is explained by the independent variables. These range from 34% to 65%.
[35] When we refer to statistical significance in this section, this is based on results that are significant at the 5% level, at least

grades: see Table 12 and Table 13. Together, these subjects represent 51% of entries in International GCSEs (Pearson) in this analysis.

- o Statistically significantly lower grades in biology, chemistry and physics by 0.1-0.2 grades, which together represent 38% of entries in International GCSEs (Pearson) in this analysis.
- o No statistically significant difference in French, geography and history
- o In our sensitivity analysis, where school quality is modelled as a fixed effect, we saw small changes in the size of some coefficients in absolute value, by an average of 0.06 grades and maximum of 0.10 grades. In this analysis we found that pupils achieved statistically significantly lower grades in International GCSEs (Pearson) in geography by around 0.05 grades. 2% of entries in International GCSEs (Pearson) in this analysis are in geography.

Chained equating analysis

Methodology

For each of the main EBacc subjects,[36] we have carried out chained equipercentile equating analysis. Methodologically, this means using mean GCSE grade as an anchor to compare the proportion of candidates that achieved grade 7/A or above and grade 4/C or above in GCSEs with the proportion of candidates that achieved at or above these grades in international GCSEs.

In contrast to our regression analysis, which uses prior attainment as the main predictor of attainment at key stage 4, we are here using concurrent attainment at key stage 4 by looking at mean GCSE grade. This helps to overcome some of the limitations outlined in the previous section when looking at progression from key stage 2 to key stage 4.

Even using concurrent attainment however, there will be some variation we are unable to explain, but the two methodologies complement each other by approaching the same question from different angles. If we find results that are similar across the two methodologies, this will increase confidence in the findings and we are more able to draw robust conclusions from these.

For all independent school pupils taking both a GCSE in a subject and at least one other GCSE, we calculate the percentage achieving at or above these grades, and we calculate the equivalent percentile for these candidates' mean GCSE score. For example, if 20% of candidates achieve grade 7/A or above, we look at the 80th percentile for mean GCSE score.

To estimate the expected proportion of candidates taking an international GCSE in a subject achieving at or above these grades, we look at the percentage of these candidates who have a mean GCSE score at or above this percentile. We compare the actual

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[36] See Table 2 for a list of the subjects included in this definition

proportion of international GCSE candidates who achieve this grade to this expected proportion, to see whether it is above or below.

Given our earlier findings in Chart 2, showing that pupils who entered at least one international GCSE, on average, achieve higher GCSE grades, we have carried out sensitivity analysis. Through this, we restrict our sample to pupils who took at least one international GCSE and one GCSE, to make the cohort we are looking at more similar. Furthermore, when calculating mean GCSE grades in our sensitivity analysis we have accounted for subject variation, using the same method as in the within-pupil variation analysis in the previous section.[37]

Findings

Here, reporting on differences refers to situations where the difference between the expected proportion and the actual proportion of candidates achieving a grade or above is greater than 2 percentage points. We report on the results at both the 7/A and 4/C boundaries but, given the number of small number of candidates achieving below 4/C in international GCSEs in the main EBacc subjects,[38] we would expect differences at this boundary to be smaller. Therefore, our main findings are based on the analysis at the 7/A boundary.

- Using chained equating analysis carried out for the main EBacc subjects[39] for independent school pupils at the end of key stage 4 in 2018, we found:
  - For pupils taking IGCSEs (Cambridge):
    - A greater than expected proportion achieved grade 7/A or above in English language and English literature, by around 5 to 6 percentage points, see Table 4. Together these represent 51% of entries in IGCSEs (Cambridge) in this analysis.
    - A smaller than expected proportion achieved grade 7/A or above in biology and chemistry by around 14 to 15 percentage points, in mathematics and physics by around 5 to 7 percentage points, and in French, Spanish and geography by around 3 to 4 percentage points. Together these subjects represent 29% of entries in IGCSEs (Cambridge) in this analysis.
    - No difference with the expected proportion at grade 7/A for German and history
    - A smaller than expected proportion achieved grade 4/C or above in mathematics, biology, chemistry and physics, by between 2 and 6 percentage points. Together these subjects represent 6% of entries in IGCSEs (Cambridge) in this analysis.
    - For all other subjects, we see no significant difference with the expected proportion at grade 4/C

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[37] This is known as the unbiased mean total (UBMT) method, for more information see: Chapter 9: Common examinee methods - Robert Coe
[38] See Table 2 for a list of subjects included in this definition
[39] See Table 2 for a list of subjects included in this definition

- In our sensitivity analysis, we found a greater than expected proportion of pupils achieved grade 7/A or above in IGCSEs (Cambridge) in German by around 3 percentage points
- For pupils taking International GCSEs (Pearson):
  - A greater than expected proportion achieved grade 7/A or above in English language by around 25 percentage points, in English literature, mathematics, Spanish and German by between 8 and 13 percentage points, and in biology, physics, French and geography by around 2 to 4 percentage points: see Table 5. Together these subjects represent 81% of entries in International GCSEs (Pearson) in this analysis.
  - No difference with the expected proportion at grade 7/A for chemistry and history
  - A greater than expected proportion achieved grade 4/C or above in English language and Spanish, by around 2 to 4 percentage points. Together these subjects represent 13% of entries in International GCSEs (Pearson) in this analysis.
  - In no main EBacc subjects did a smaller than expected proportion achieve either grade 7/A or above or grade 4/C or above in International GCSEs (Pearson)
  - In our sensitivity analysis, we found a greater than expected proportion of pupils achieved grade 7/A or above in International GCSEs (Pearson) in history by around 4 percentage points, and a greater than expected proportion of pupils achieved grade 4/C or above in International GCSEs (Pearson) in English literature by around 3%, but for Spanish the difference with the expected proportion at this grade boundary reduced to below 2 percentage points

Table 4: Chained equating of GCSEs and IGCSEs (Cambridge) in EBacc subjects, by pupils at the end of key stage 4

England, Independent schools, 2018

Subject	Number of candidates		Grade 7/A			Grade 4/C		
	IGCSEs (Cambridge)	GCSE	Actual %[40]	Expected %[41]	Difference	Actual %[40]	Expected %[41]	Difference
English language	10,333	20,029	67.1%	61.4%	5.7%	97.3%	97.2%	0.1%
English literature	11,021	17,155	72.3%	67.1%	5.2%	98.1%	98.4%	-0.3%
Mathematics	197	14,988	71.6%	76.6%	-5.1%	92.4%	98.0%	-5.6%
Biology	1,003	10,505	55.5%	70.7%	-15.2%	92.8%	96.9%	-4.1%
Chemistry	491	9,876	53.0%	67.2%	-14.3%	92.1%	96.3%	-4.3%
Physics	769	9,636	66.3%	73.3%	-7.0%	95.3%	97.7%	-2.3%
French	4,377	6,983	71.7%	75.6%	-3.9%	96.0%	97.1%	-1.1%
Spanish	2,843	5,993	71.1%	74.7%	-3.7%	95.8%	96.7%	-0.9%
German	1,314	2,396	74.7%	76.3%	-1.7%	97.4%	96.6%	0.8%
History	6,998	8,265	72.7%	74.3%	-1.6%	95.4%	95.4%	0.0%
Geography	2,647	15,065	60.7%	64.1%	-3.4%	95.0%	95.7%	-0.7%

Table 5: Chained equating of GCSEs and International GCSEs (Pearson) in EBacc subjects, by pupils at the end of key stage 4

England, Independent schools, 2018

Subject	Number of candidates		Grade 7/A			Grade 4/C		
	International GCSEs (Pearson)	GCSE	Actual %[42]	Expected %[43]	Difference	Actual %[42]	Expected %[43]	Difference
English language	9,864	20,029	74.8%	49.5%	25.3%	98.5%	94.9%	3.6%
English literature	8,981	17,155	69.1%	55.8%	13.3%	98.4%	96.8%	1.6%
Mathematics	25,882	14,988	71.1%	60.4%	10.7%	97.7%	96.5%	1.2%
Biology	13,298	10,505	83.2%	79.0%	4.1%	97.7%	99.2%	-1.5%
Chemistry	13,605	9,876	81.0%	80.3%	0.7%	98.4%	99.4%	-1.0%
Physics	13,466	9,636	82.7%	80.1%	2.7%	97.5%	99.3%	-1.7%
French	4,440	6,983	73.0%	70.4%	2.6%	96.2%	96.1%	0.1%
Spanish	4,153	5,993	74.1%	66.0%	8.2%	96.9%	94.9%	2.0%
German	1,959	2,396	76.6%	64.6%	12.0%	97.3%	95.8%	1.5%
History	6,086	8,265	73.4%	71.7%	1.7%	95.7%	95.5%	0.2%
Geography	2,339	15,065	78.6%	76.3%	2.3%	96.5%	97.5%	-1.0%

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[40] This column shows the proportion of candidates in the international GCSE sample who actually achieved the grade (or better)
[41] This column shows the proportion of candidates in the international GCSE sample expected to achieve this grade or better, based on their main GCSE grade
[42] See footnote 40
[43] See footnote 41

Progression to key stage 5

Progression to key stage 5 average point score analysis

Methodology

Using 16-18 attainment data,[44] we look at A level entries by independent school pupils aged 16 to 18 in 2018, in the main EBacc subjects,[45] and calculate the average A level point score[46] for those who took the subject as an international GCSE at key stage 4, and those who took a GCSE. This is to test whether pupils who take international GCSEs are better prepared for A level, and make more progress between key stage 4 and key stage 5 as a result, but this analysis is necessarily based on different years of key stage 4 performance to analyses in previous sections.

As we look at entries into A levels[47] in 2018, pupils will have entered GCSEs and international GCSEs[48] in years prior to 2018, and most commonly in 2016. This means there are very few entries into reformed GCSEs in this analysis, with a small number of entries in reformed GCSEs in 2017 included.

In presenting our results we group pupils by their key stage 4 point score in the subject, giving us a range of subject-grade pairs for each qualification type. We focus on those subject-grade pairs with more than 100 A level entries. Care should be taken when comparing figures due to large variability in the number of entries.

We focus on subject-specific progression, i.e. looking at the point score achieved in, for example, A level physics for those who took physics at key stage 4. An alternative measure would be to look at A level performance across all the subjects a pupil takes. This would capture any potential spillover benefits from taking an international GCSE in one subject at key stage 4 on progression to other subjects at key stage 5. However, this may also falsely attribute better progression to qualification type when it is caused mainly by other factors.

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[44] Please see the Quality and methodology: A level and other 16 to 18 results: 2017 to 2018 (revised) information document which provides information on the data sources, their coverage and quality
[45] See Table 2 for a list of subjects included in this definition
[46] See Table 10 for more information about this measure
[47] Simple discounting rules apply, taking the best result a pupil achieved in a subject at A level.
[48] Simple discounting rules apply, taking the best result a pupil achieved in subject at key stage 4. If a pupil achieved the same result in GCSE and an international GCSE, discounting is not applied and both results are reported.

Findings[49]

- In our average point score analysis focusing on progression from key stage 4 to A level within the main EBacc subjects:[50]
    - Pupils taking IGCSEs (Cambridge) achieved:
        - The same A level fine grade[51] as GCSE pupils in 8 of 9 key stage 4 subject-grade pairs analysed with more than 100 entries: see Chart 6 and Table 11
        - One A level fine grade lower than GCSE pupils, for pupils attaining grade 8.5/A* at key stage 4[52] in biology
    - Pupils taking International GCSEs (Pearson) achieved:
        - The same A level fine grade as GCSE pupils in 9 out of the 18 key stage 4 subject-grade pairs analysed with more than 100 entries
        - One A level fine grade lower than GCSE pupils in 7 out of 18 pairs:
            - Grades 5.5/B in English literature at key stage 4
            - Grades 7/A in biology, chemistry, physics and mathematics at key stage 4
            - Grades 8.5/A* in biology, mathematics and history at key stage 4
        - Two A level fine grades lower than GCSE, for pupils attaining grade in 7/A in mathematics at key stage 4
        - One A level fine grade higher than GCSE, for pupils attaining grade in 5.5/B in history at key stage 4

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[49] When we refer to statistical significance in this section, this is based on results that are significant at the 5% level, at least

[50] See Table 2 for a list of subjects included in this definition

[51] See Table 10 for more information about this measure. Fine grades such as B-, B and B+ are assigned by evenly distributing the points around the point score i.e. 40 points for a grade B. These are reported to help interpret the average point score per entry in terms of grades that are meaningful for the types of qualification reported within each performance cohort

[52] See Table 1 for more information about the conversion between key stage 4 grades and points

Chart 6: A level average point score by subject, qualification type and key stage 4 points

England, Independent schools, 2018
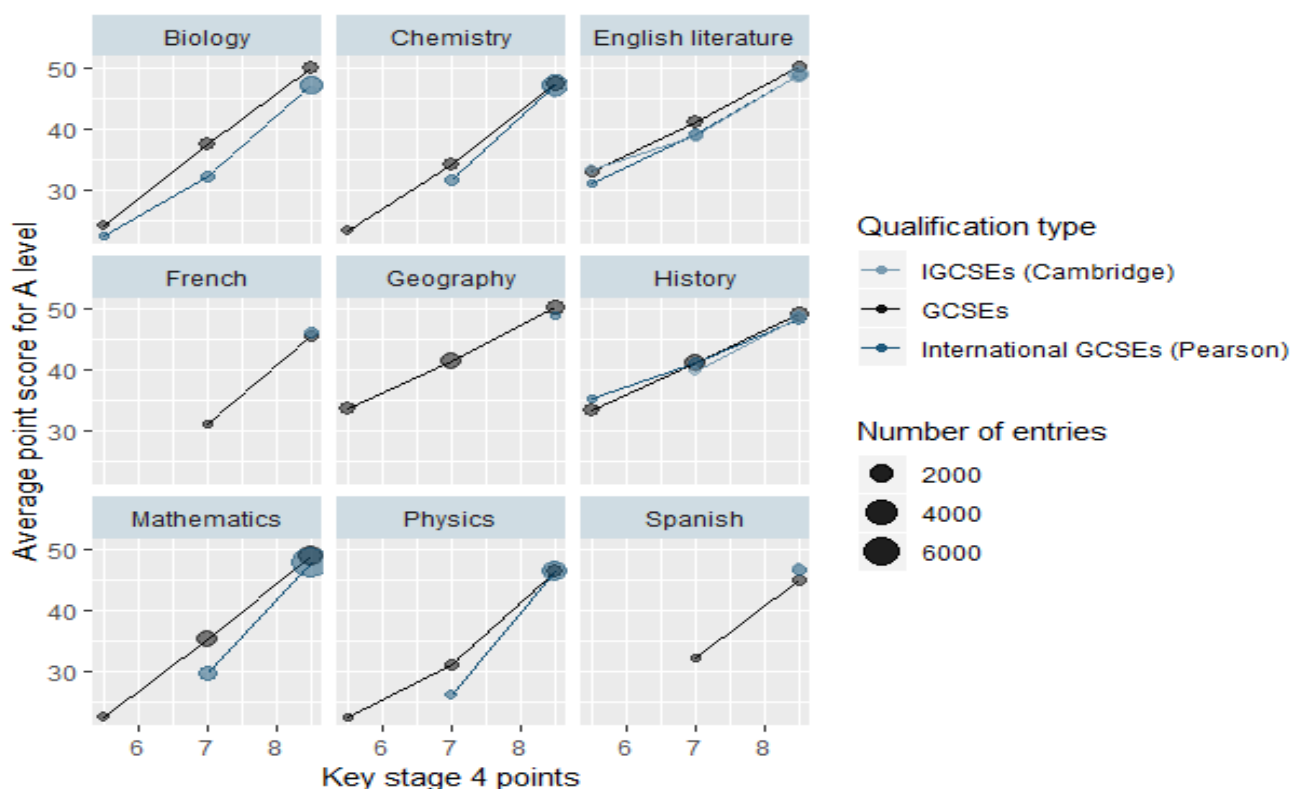
Progression to key stage 5 regression analysis

Methodology

For the main EBacc subjects[53] we carry out multiple linear regression analysis, estimated by Ordinary Least Squares (OLS). This is a statistical technique that uses several factors (for example, pupil and school characteristics and type of qualification taken) to predict outcomes (for example, grade achieved). In our subject regressions, we account for the clustering of pupils within schools using clustered standard errors.

In this analysis, the dependent variable is A level point score achieved in a subject, with 10 points representing the difference between A level grades.[54] We control for: the qualification type a pupil took for that subject at key stage 4, and the key stage 4 points achieved by the pupil in that subject.

As in the key stage 4 subject regression analysis, we also include a proxy measure of school quality, estimated in a separate regression model. This model includes results in all A level subjects by pupils who also took this subject at key stage 4, and controls for key

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[53] See Table 2 for a list of subjects included in this definition
[54] See Table 10 for more information

stage 4 point score, subject, an interaction term between point score and subject, key stage 4 qualification type and the school a pupil attends (denoted by its Unique Reference Number), modelled as a random effect. We then extract this random effect and include it is an additional variable in our subject regressions. Additionally, we have run sensitivity analysis where school quality is estimated using a fixed effect model.

Again, incorporating the school quality measure increases the amount of variation in results that we are able to explain analytically. However, we can only control for observable characteristics and there will be characteristics not included in our regressions that will also explain results.[55]

Therefore again, users should interpret the results as a comparison of A level point score for pupils taking different types of qualifications at key stage 4, when controlling for the characteristics mentioned. The associations that we identify do not allow us to infer causality and although a finding might support a particular hypothesis, it is not, on its own, absolute proof.

Findings[56]

- In our regression analysis focusing on progression from key stage 4 to A level within the main EBacc subjects:[57]
  - Pupils taking IGCSEs (Cambridge) achieved lower A level grades than expected relative to GCSE pupils, by around a sixth of a grade on average:[58] see Table 14 and Table 15:
    - They achieved statistically significantly lower A level grades than GCSE pupils in English literature, English language, history, geography, French and biology by around 0.2-0.4 grades. Together, these subjects represent 84% of entries in IGCSEs (Cambridge) in this analysis
    - They achieved statistically significantly higher A level grades than GCSE pupils in mathematics (by 0.7 grades) and physics (by 0.2 grades), but entries in these subjects were small, together representing 4% of entries in IGCSEs (Cambridge) in this analysis
    - There was no statistically significant difference in chemistry, German and Spanish
    - In our sensitivity analysis, where school quality is modelled as a fixed effect, we saw small changes in the size of some coefficients in absolute value, by an

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[55] In Table 14 and Table 15 we present the R^2 values for all our regressions, which gives the proportion of variation in the dependent variable that is explained by the independent variables. These range from 35% to 49%.
[56] When we refer to statistical significance in this section, this is based on results that are significant at the 5% level, at least
[57] See Table 2 for a list of subjects included in this definition
[58] This is derived from taking a weighted average across EBacc subjects, with statistically insignificant results treated as representing no difference

average of 0.01 grades and a maximum of 0.03 grades. However, there were no changes to the significance of coefficients, at the 5% significance level.

o Pupils taking International GCSEs (Pearson) pupils achieved lower A level grades than expected relative to GCSE pupils, by more than a quarter of a grade on average,[59] see Table 14 and Table 15:

- They achieved lower A level grades than GCSE pupils in mathematics and the sciences by 0.2-0.4 grades. Together, these subjects represent 80% of entries in International GCSEs (Pearson) in this analysis

- They also achieved lower A level grades than GCSE pupils in English language, English literature, German, history and geography, by around 0.1-0.3 grades. Together, these subjects represent 15% of entries in International GCSEs (Pearson) in this analysis

- There was no statistically significant difference for French and Spanish

- In no subjects did pupils taking International GCSEs (Pearson) attain statistically significantly higher A level grades than pupils taking GCSEs

- In our sensitivity analysis, where school quality is modelled as a fixed effect, we saw small changes in the size of some coefficients in absolute value, by an average of 0.01 grades and a maximum of 0.02 grades. In this analysis we found that pupils taking International GCSEs (Pearson) did not achieve statistically significantly different A level grades in history to pupils taking GCSEs.

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[59] Simple discounting rules apply, taking the best result a pupil achieved in subject at key stage 4. If a pupil achieved the same result in GCSE and international GCSE, discounting is not applied and both results are reported.

Additional Tables

Table 6: Average point score in main EBacc subjects by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment group

England, Independent schools, 2018

Qualification type	Key stage 2 prior attainment group									
	2	3C	3B	3A	4C	4B	4A	5C	5B	5A
GCSEs	2.2	2.9	3.1	3.5	4.0	4.6	5.3	6.0	6.9	7.8
IGCSEs (Cambridge)	3.2	3.3	3.6	3.3	4.1	5.0	5.6	6.2	7.2	7.8
International GCSEs (Pearson)	3.5	4.0	4.0	4.1	4.7	5.3	6.0	6.7	7.6	8.2

Table 7: Percentage of entries at grade 4/C and above, and 7/A and above, in main EBacc subjects by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment group

England, Independent schools, 2018

Qualification type	Grade	2	3C	3B	3A	4C	4B	4A	5C	5B	5A
GCSEs	4/C and above	19%	31%	35%	47%	63%	75%	87%	95%	98%	100%
	7/A and above	3%	1%	2%	4%	5%	12%	21%	38%	62%	83%
IGCSEs (Cambridge)	4/C and above	57%	45%	52%	52%	72%	82%	92%	96%	99%	100%
	7/A and above	0%	0%	7%	3%	11%	24%	33%	50%	76%	91%
International GCSEs (Pearson)	4/C and above	53%	59%	63%	58%	76%	85%	93%	97%	99%	100%
	7/A and above	13%	10%	3%	11%	20%	31%	43%	61%	83%	94%

Table 8: Entries in main EBacc subjects by pupils at the end of key stage 4 by qualification type and key stage 2 prior attainment (PA) group

England, Independent schools, 2018

Qualification type	1	2	3C	3B	3A	4C	4B	4A	5C	5B	5A	PA info Missing	Total
GCSEs	1	159	216	371	743	1,757	4,314	7,590	11,985	16,620	8,695	72,140	124,592
	0%	0%	0%	0%	1%	1%	3%	6%	10%	13%	7%	58%	100%
IGCSEs (Cambridge)	0	7	22	29	69	189	500	1,177	2,399	5,252	4,071	31,721	45,436
	0%	0%	0%	0%	0%	0%	1%	3%	5%	12%	9%	70%	100%
International GCSEs (Pearson)	0	15	29	59	132	525	1,346	3,235	6,452	13,533	9,080	74,447	108,853
	0%	0%	0%	0%	0%	0%	1%	3%	6%	12%	8%	68%	100%

Table 9: Difference in average point score between GCSEs and international GCSES by pupils at the end of key stage 4, in selected subjects

England, Independent schools, 2018

Subject	IGCSEs (Cambridge)		International GCSEs (Pearson)	
	Entries	Difference in average point score with GCSEs	Entries	Difference in average point score with GCSEs
Biology	1,049	-0.52	13,899	0.61
Business Studies	720	0.17	406	-0.57
Chemistry	520	-0.84	14,157	0.41
Chinese	283	-1.20	754	0.11
Computer Studies/Computing	1,370	0.92	-	-
Design & Technology	466	0.98	-	-
Drama & Theatre Studies	610	-0.19	-	-
Economics	315	0.92	342	1.02
English Language	10,747	0.88	10,294	1.43
English Literature	11,402	0.85	9,124	0.99
French	4,609	0.69	4,650	0.88
Geography	2,912	-0.17	2,540	0.63
German	1,416	0.89	2,023	0.91
History	7,329	0.77	6,284	0.75
Information & Communications Technology	407	-0.22	242	0.29
Italian	355	-0.03	-	-
Mathematics	271	0.51	27,630	1.45
Music	537	0.41	-	-
Physical Education/Sports Studies	808	0.52	-	-
Physics	811	-0.02	14,019	0.57
Spanish	3,030	0.75	4,318	0.98

Table 10: A level performance measures

A level grade	A level point score (for comparison only)	Average point score (APS) band[60]	Fine grade[61]
A*	60	58.34 - 60.00	A*
		55.00 - 58.33	A*-
A	50	51.67 - 54.99	A+
		48.34 - 51.66	A
		45.00 - 48.33	A-
B	40	41.67 - 44.99	B+
		38.34 - 41.66	B
		35.00 - 38.33	B-
C	30	31.67 - 34.99	C+
		28.34 - 31.66	C
		25.00 - 28.33	C-
D	20	21.67 - 24.99	D+
		18.34 - 21.66	D
		15.00 - 18.33	D-
E	10	11.67 - 14.99	E+
		8.34 - 11.66	E
		5.00 - 8.33	E-
U	0	Below 5.00	U

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[60] The average point score per entry is calculated by dividing the total number of points achieved by students in a particular cohort by the total size of entries for those students

[61] Fine grades such as B-, B and B+ are assigned by evenly distributing the points around the point score i.e. 40 points for a grade B. These are reported to help interpret the average point score per entry in terms of grades that are meaningful for the types of qualification reported within each performance cohort.

Table 11: A level average point score by key stage 4 subject and qualification type

England, Independent schools, 2018

Subject	Key stage 4 points	Number of entries			A level average point score (fine grade)		
		GCSE	IGCSEs (Cambridge)	International GCSEs (Pearson)	GCSE	IGCSEs (Cambridge)	International GCSEs (Pearson)
Biology	5.5/B	335		151	24.03 (D+)		22.52 (D+)
	7/A	830		559	37.43 (B-)		32.08 (C+)
	8.5/A*	806	136	2,035	49.89 (A)	46.32 (A-)	47.06 (A-)
Chemistry	5.5/B	213			23.33 (D+)		
	7/A	659		450	33.98 (C+)		31.47 (C)
	8.5/A*	934	110	2,856	47.48 (A-)	45.45 (A-)	47.20 (A-)
Physics	5.5/B	137			22.55 (D+)		
	7/A	406		327	31.18 (C)		26.21 (C-)
	8.5/A*	575		2,131	46.38 (A-)		46.44 (A-)
English literature	5.5/B	431	233	143	32.95 (C+)	33.30 (C+)	30.91 (C)
	7/A	709	558	397	40.93 (B)	38.85 (B)	39.07 (B)
	8.5/A*	546	1258	559	50.31 (A)	48.75 (A)	48.75 (A)
Mathematics	5.5/B	322			22.52 (D+)		
	7/A	1,407		1,008	35.25 (B-)		29.69 (C)
	8.5/A*	2,137		6,851	48.84 (A)		47.66 (A-)
Geography	5.5/B	827			33.64 (C+)		
	7/A	1,285			41.45 (B)		
	8.5/A*	988		202	50.14 (A)		48.81 (A)
History	5.5/B	670		151	33.18 (C+)		35.17 (B-)
	7/A	1,233	260	404	40.93 (B)	39.73 (B)	41.14 (B)
	8.5/A*	1,179	638	708	49.02 (A)	48.45 (A)	48.16 (A-)
French	5.5/B						
	7/A	159			31.19 (C)		
	8.5/A*	491	338	356	45.56 (A-)	46.09 (A-)	46.01 (A-)
Spanish	5.5/B						
	7/A	166			32.35 (C+)		
	8.5/A*	484	283	403	45.06 (A-)	46.89 (A-)	46.58 (A-)

Table 12: Key stage 4 EBacc subject regression analysis outputs (Mathematics, English and the sciences)

England, Independent schools, 2018

Independent Variable	Mathematics			English Literature			English Language			Biology			Chemistry			Physics		
	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.
Qualification type (base = GCSE)																		
IGCSE (Cambridge)	-0.49	0.40		0.21	0.03	***	0.31	0.03	***	-0.66	0.09	***	-0.70	0.12	***	-0.49	0.10	***
International GCSE (Pearson)	0.48	0.03	***	0.63	0.03	***	1.03	0.03	***	-0.07	0.03	*	-0.24	0.03	***	-0.11	0.04	**
KS2 average point score	2.23	0.03	***	1.51	0.03	***	1.54	0.03	***	2.06	0.05	***	2.09	0.06	***	2.13	0.06	***
Gender (base = female)	0.09	0.02	***	-0.63	0.02	***	-0.56	0.02	***	-0.29	0.03	***	-0.14	0.03	***	0.01	0.03	
Age at the end of KS4	-0.21	0.04	***	0.03	0.04		-0.01	0.04		-0.17	0.05	**	-0.21	0.06	***	-0.18	0.06	**
SEN statement (base = no SEN)	0.00	0.07		-0.09	0.09		-0.07	0.07		-0.08	0.11		-0.04	0.13		-0.03	0.16	
Ethnicity (base = White British)																		
Any Other Ethnic group	0.22	0.10	*	0.08	0.10		0.05	0.09		0.22	0.12		0.28	0.12	*	0.31	0.12	**
Asian Bangladeshi	0.30	0.08	***	0.32	0.08	***	0.25	0.07	***	0.30	0.15	*	0.55	0.15	***	0.36	0.14	**
Asian Indian	0.32	0.06	***	0.19	0.06	**	0.04	0.06		0.26	0.07	***	0.30	0.08	***	0.31	0.07	***
Asian Other	0.37	0.07	***	0.01	0.08		-0.17	0.07	*	0.16	0.09		0.22	0.09	*	0.27	0.09	**
Asian Pakistani	0.04	0.06		0.14	0.06	*	0.07	0.06		0.09	0.08		0.20	0.09	*	0.00	0.09	
Black African	0.07	0.07		0.08	0.08		-0.11	0.07		-0.03	0.10		0.07	0.10		-0.14	0.10	
Black Caribbean	-0.23	0.15		0.08	0.17		-0.19	0.14		-0.14	0.19		-0.11	0.24		-0.06	0.21	
Black Other	-0.23	0.17		0.07	0.17		0.10	0.15		-0.08	0.26		-0.08	0.27		-0.18	0.23	
Chinese	0.53	0.09	***	0.28	0.10	**	0.20	0.10	*	0.38	0.11	***	0.37	0.11	***	0.31	0.11	**
Mixed Other	0.08	0.07		0.27	0.09	**	0.13	0.08		0.05	0.09		0.05	0.10		0.04	0.10	
Mixed White and Asian	0.18	0.07	*	0.16	0.08		0.08	0.08		0.12	0.10		0.01	0.10		0.12	0.10	
Mixed White and Black African	-0.18	0.16		0.33	0.14	*	0.23	0.14		0.32	0.21		0.07	0.28		-0.12	0.32	
Mixed White and Black Caribbean	-0.26	0.16		-0.38	0.14	**	-0.14	0.14		-0.05	0.21		0.19	0.24		-0.05	0.24	
Unclassified	0.12	0.14		0.14	0.14		0.13	0.13		-0.24	0.21		-0.26	0.18		0.03	0.17	
White Gypsy Roma	-0.75	0.41		-	-	-	-0.80	1.07		-	-	-	-	-	-	-	-	-
White Irish	-0.36	0.14	**	-0.12	0.13		-0.15	0.13		-0.25	0.21		-0.17	0.23		-0.37	0.25	
White Other	-0.07	0.06		-0.02	0.06		-0.01	0.06		-0.08	0.07		-0.11	0.07		-0.04	0.07	
White Traveller of Irish Heritage	-2.44	0.08	***	-	-	-	-1.68	0.08	***	-	-	-	-	-	-	-	-	-
EAL (base = not EAL)	0.22	0.04	***	0.01	0.05		0.03	0.04		0.06	0.05		0.11	0.05	*	0.07	0.05	
Disadvantage (base = all other pupils)	-0.21	0.04	***	-0.11	0.05	*	-0.15	0.04	***	-0.23	0.07	***	-0.30	0.07	***	-0.25	0.07	***
School quality measure	0.97	0.02	***	1.05	0.03	***	0.95	0.02	***	1.17	0.03	***	1.16	0.04	***	1.15	0.04	***
R^2 value of regression			0.65			0.45			0.56			0.50			0.39			0.38
Number of observations			12,294			11,184			12,069			6,958			6,631			6,551
GCSE			5,367			6,054			6,914			3,437			3,115			3,026
IGCSE (Cambridge)			20			2,822			2,659			241			113			167
International GCSE (Pearson)			6,907			2,308			2,496			3,280			3,403			3,358

Table 13: Key stage 4 EBacc subject regression analysis outputs (languages and humanities)

England, Independent schools, 2018

Independent Variable	French			German			Spanish			Geography			History		
	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.
Qualification type (base = GCSE)															
IGCSE (Cambridge)	-0.22	0.07	***	0.13	0.10		0.04	0.07		-0.36	0.05	***	-0.16	0.05	***
International GCSE (Pearson)	0.07	0.06		0.52	0.08	***	0.45	0.06	***	-0.05	0.07		-0.03	0.05	
KS2 average point score	2.12	0.08	***	1.82	0.12	***	1.99	0.08	***	2.06	0.05	***	1.97	0.05	***
Gender (base = female)	-0.65	0.05	***	-0.58	0.07	***	-0.69	0.05	***	-0.39	0.03	***	-0.32	0.04	***
Age at the end of KS4	-0.26	0.08	**	-0.05	0.12		-0.18	0.08	*	-0.11	0.06	**	-0.18	0.06	
SEN statement (base = no SEN)	0.32	0.21		0.54	0.30		-0.25	0.24		-0.04	0.13		0.12	0.13	
Ethnicity (base = White British)															
Any Other Ethnic group	-0.16	0.20		0.34	0.27		0.52	0.27		-0.03	0.15		-0.12	0.15	
Asian Bangladeshi	-0.02	0.30		0.09	0.36		-0.19	0.30		-0.44	0.17	**	-0.30	0.11	*
Asian Indian	0.15	0.12		0.29	0.17		0.06	0.14		0.11	0.10		0.07	0.09	
Asian Other	-0.04	0.15		0.18	0.17		-0.20	0.17		-0.08	0.12		-0.21	0.13	
Asian Pakistani	-0.03	0.13		0.04	0.21		-0.10	0.15		-0.26	0.10		-0.11	0.09	**
Black African	-0.15	0.16		0.23	0.23		-0.14	0.16		-0.51	0.13		0.00	0.12	***
Black Caribbean	-0.07	0.33		-0.44	0.41		0.26	0.29		-0.34	0.25	*	-0.62	0.26	
Black Other	-0.33	0.39		-0.62	0.86		-0.11	0.45		-0.66	0.23		0.21	0.26	**
Chinese	0.11	0.16		0.47	0.22	*	0.06	0.19		0.28	0.14	*	0.29	0.13	*
Mixed Other	0.44	0.17	**	0.22	0.24		0.11	0.16		-0.10	0.12		0.01	0.12	
Mixed White and Asian	0.31	0.16	*	0.32	0.23		0.29	0.14	*	0.06	0.13		0.05	0.13	
Mixed White and Black African	0.08	0.28		1.29	0.73		-0.06	0.31		-0.24	0.26		0.18	0.23	
Mixed White and Black Caribbean	-0.49	0.28		-0.36	0.34		-0.34	0.34		-0.04	0.28		-0.25	0.32	
Unclassified	0.30	0.18		0.10	0.30		-0.26	0.36		-0.18	0.18		0.13	0.20	
White Gypsy Roma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
White Irish	-0.26	0.26		-0.09	0.38		-0.44	0.25		-0.21	0.18		0.25	0.18	
White Other	0.65	0.10	***	0.79	0.16	***	0.42	0.11	***	-0.01	0.08		0.07	0.09	
White Traveller of Irish Heritage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EAL (base = not EAL)	0.37	0.08	***	0.10	0.13		0.53	0.09	***	-0.15	0.07		-0.03	0.07	*
Disadvantage (base = all other pupils)	-0.09	0.12		-0.27	0.15		0.00	0.11		-0.36	0.08	***	-0.40	0.07	***
School quality measure	1.15	0.06	***	1.10	0.10	***	1.09	0.07	***	1.11	0.04	***	1.19	0.04	***
R² value of regression			0.40			0.34			0.39			0.51			0.45
Number of observations			3,616			1,844			3,693			5,415			6,287
GCSE			1,984			830			1,924			4,139			3,046
IGCSE (Cambridge)			712			348			627			742			1,752
International GCSE (Pearson)			920			666			1,142			534			1,489

Table 14: A level EBacc subject regression analysis outputs (Mathematics, English and the sciences)

England, Independent schools, 2018

Independent Variable	Mathematics			English Literature			English Language			Biology			Chemistry			Physics		
	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.
Qualification type (base = GCSE)																		
IGCSE (Cambridge)	6.84	1.51	***	-1.94	0.33	***	-3.39	0.84	***	-2.64	0.78	***	-0.39	0.86		2.10	0.87	*
International GCSE (Pearson)	-3.58	0.23	***	-1.53	0.38	***	-3.52	0.90	***	-4.36	0.31	***	-1.99	0.32	***	-2.84	0.44	***
School quality measure	1.26	0.04	***	1.35	0.05	***	1.09	0.09	***	1.14	0.06	***	1.20	0.05	***	1.42	0.07	***
KS4 point score	8.52	0.17	***	4.71	0.12	***	3.93	0.28	***	7.79	0.15	***	7.34	0.20	***	8.05	0.26	***
R^2 value of regression			0.35			0.38			0.37			0.46			0.39			0.40
Number of observations			11,962			4,969			718			4,989			5,410			3,812
GCSE			3,941			1,762			246			2,008			1,821			1,135
IGCSE (Cambridge)			70			2,091			245			221			173			152
International GCSE (Pearson)			7,951			1,116			227			2,760			3,416			2,525

Table 15: A level EBacc subject regression analysis outputs (languages and humanities)

England, Independent schools, 2018

Independent Variable	French			German			Spanish			Geography			History		
	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.	Coef.	SE	Sig.
Qualification type (base = GCSE)															
IGCSE (Cambridge)	-1.4	0.61	*	-2.2	1.24		-0.85	0.65		-2.21	0.63	***	-1.99	0.34	***
International GCSE (Pearson)	-0.81	0.63		-2.41	1.09	*	-0.93	0.57		-2.18	0.53	***	-0.63	0.3	*
School quality measure	1.23	0.10	***	1.06	0.17	***	1.42	0.09	***	1.15	0.05	***	1.09	0.05	***
KS4 point score	7.21	0.33	***	9.02	0.57	***	7.05	0.31	***	4.87	0.11	***	4.39	0.11	***
R^2 value of regression			0.38			0.49			0.43			0.46			0.38
Number of observations			1,523			415			1,524			3,900			5,516
GCSE			701			178			711			3,322			3,236
IGCSE (Cambridge)			394			90			336			237			987
International GCSE (Pearson)			428			147			477			341			1,293

Reference: DFE-00234-2019

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