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Highlights from research on the progression of Key Stage 4 and 5 cohorts impacted by the COVID-19 pandemic

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Abstract:
The Research Division at Cambridge University Press & Assessment has an ongoing programme of research that tracks the Key Stage 4 and Key Stage 5 cohorts of students impacted by the COVID-19 pandemic. The findings from this work can help inform us regarding whether these students were negatively affected by the pandemic and whether they might require any further support while in education.

In this article, we present a summary of findings from research conducted to date using data from the June 2020 student cohorts, drawn from the National Pupil Database, a longitudinal dataset maintained by the Department for Education in England. We examined various progression outcomes and compared them with those of a pre-pandemic cohort of students to assess whether, and in what ways, these outcomes have changed for students affected by the pandemic. Findings from the research have suggested that the students from the June 2020 cohorts were not disadvantaged in their transitions to post-16 study or to higher or further education. However, there was some evidence suggesting that different subgroups of students had progressed slightly differently. This implies that while overall the pandemic cohorts were not disadvantaged, the actual experience of different groups of students may have differed.

Highlights from research on the progression of Key Stage 4 and 5 cohorts impacted by the COVID-19 pandemic

Carmen L. Vidal Rodeiro (Research Division) **and Carmen H. J. Lim** (Research Division)

Introduction

The COVID-19 pandemic caused unprecedented disruption to education systems around the world. In England, as part of the government's response to the pandemic, schools and colleges were closed and lessons were moved partially or entirely online. School closures, initially considered to be short-term measures, continued over a period of months. Furthermore, public examinations in June 2020 were cancelled, meaning that alternative methods had to be developed to award qualifications in the absence of external assessments[1].

In April 2020, Ofqual published information for schools, students, and parents on how qualifications such as GCSEs and A Levels would be awarded in summer 2020 (https://ofqual.blog.gov.uk/2020/04/09/arrangements-for-summer-2020/). Students in Key Stages 4 and 5 due to sit exams would be awarded a grade based on "an assessment of the grade they would have been most likely to achieve had exams gone ahead". This would give the majority of students the opportunity to progress to further study or employment as expected, despite the cancellation of exams.

Teachers were asked to provide, for each student and for each subject they were entered for, a centre assessment grade (CAG) which represented the grade that the student would have been most likely to achieve if teaching and learning had continued and the student had taken the exams as planned. To do this, teachers were instructed to take into account all available evidence including school and college records, mock exams, and non-exam assessments (NEA) that a student had done. Teachers were also asked to provide a rank order of students for each grade for each subject.

1 Due to the COVID-19 pandemic, public examinations were also cancelled in June 2021. The focus of this article is, however, on the learners whose exams were affected in June 2020.

A method of statistical moderation, to align the CAGs across centres and with the standards set in previous years, was developed by Ofqual and implemented by exam boards to issue students with a final "calculated" grade (see Ofqual, 2020, for more details). Maintaining standards, both between centres and over time, meant that colleges, universities, and employers could be confident that the June 2020 results carried the same currency, and students could compete on a level playing field for opportunities with students from previous and future years.

Following the release of A Level results, many students were disappointed with their grades, which in many cases (e.g., 40 per cent of A Level results) were lower than the teachers' CAGs (Ofqual, 2020). Many concerns were subsequently raised by different stakeholders (e.g., teachers, students, parents, researchers). Some schools and students felt unfairly penalised by the moderation process and feared that the downgraded results would hinder progression to the next stage of education during an already exceptionally challenging period (Coughlan et al., 2020). There were also concerns about fairness, particularly regarding the disproportionate impact of calculated grades on different demographic and socio-economic groups of students (Adams & McIntyre, 2020) as well as on students who were outliers in their schools (i.e., students with very high prior attainment in low-performing schools).

In the end, awarding bodies were instructed by Ofqual to re-issue grades for A Levels (with GCSEs then following the same procedure). Instead of the calculated grades, students were awarded whatever was higher, CAG or calculated grade, despite warnings that such a move could undermine the credibility of the results through grade inflation and have an impact on students' futures. In fact, analyses of the final grades showed that the overall outcomes for both GCSE and A Level qualifications in England increased significantly in summer 2020 compared to 2019. For instance, in 2019, 25.2 per cent of the grades given to A Level students were A or above, but this rose to 38.1 per cent in summer 2020 (JCQ, 2020).

Given that the outcomes for the June 2020 cohorts noticeably increased relative to the previous cohorts, and in ways that did not necessarily reflect improvements in learning, it was important to investigate how students might have been impacted in their progression to the next stages of learning, training or employment.

Cambridge University Press & Assessment research

The Research Division at Cambridge University Press & Assessment has an ongoing programme of research that tracks the Key Stage 4 and Key Stage 5 cohorts of students impacted by the COVID-19 pandemic. The main aim of this work is to investigate the progression, retention and performance outcomes of these students in their next stage of education. The findings from this programme can help inform us regarding whether students were negatively affected by the pandemic compared to pre-pandemic cohorts of students and whether they require any further support in education or the workplace.

To date, three research reports have been published: Vidal Rodeiro and Williamson (2022)[2] and Vidal Rodeiro (2024) tracked the progression, retention and performance outcomes of the June 2020 Key Stage 4 cohort, and Lim (2024) tracked the progression of the June 2020 Key Stage 5 cohort. These reports looked at the outcomes for the whole cohort as well as the outcomes for subgroups of students such as those with different prior attainment or in different types of schools, and their key findings are summarised in this article.

The following research questions have been addressed in the research reported here:

Progression of the June 2020 Key Stage 4 cohort

1. Was the uptake of qualifications during Key Stage 5 different for the cohort of students who were awarded their GCSEs (or equivalent qualifications) in June 2020 compared to the previous cohort of students not affected by the COVID-19 pandemic (June 2017[3])?
2. Were the drop-out rates from qualifications taken during Key Stage 5 different for the cohort of students who were awarded their GCSEs (or equivalent qualifications) in June 2020 compared to the previous cohort?
3. Was the performance at Key Stage 5 similar for the cohort of students who were awarded their GCSEs (or equivalent qualifications) in June 2020 compared to the previous cohort?

Progression of the June 2020 Key Stage 5 cohort

1. Were the progression rates to further and higher education different for the cohort of students who completed Key Stage 5 in June 2020 compared to the previous cohort of students not affected by the COVID-19 pandemic (June 2019)?
2. Were the types of higher education institutions students attended different for the cohort of students who completed Key Stage 5 in June 2020 compared to the previous cohort?
3. Were the subject areas students enrolled in at higher education different for the cohort of students who completed Key Stage 5 in June 2020 compared to the previous cohort?

Data and methods

A brief description of the data and methods used in the research is provided in this section of the article. Full details can be found in Vidal Rodeiro (2024) and Lim (2024).

2 Note that Vidal Rodeiro and Williamson (2022) offered a first look at the progress of students in England awarded CAGs in 2020 following the cancellation of their GCSEs. Vidal Rodeiro (2024) provided a more comprehensive account and is the focus of the Key Stage 4 cohort analysis in this article.

3 For the Key Stage 4 analyses, the 2017 (instead of the 2019) cohort was used as a comparator. Students in the 2017 cohort were the last Key Stage 4 cohort to complete Key Stage 5 (in 2019), before the COVID-19 pandemic.

Data

The research used National Pupil Database (NPD) data for pupils who completed Key Stage 4 and Key Stage 5 in 2020. The NPD is a longitudinal dataset maintained by the Department for Education in England, containing detailed information on pupils' attainment, demographics, and school history.

For the analysis looking at progression of the Key Stage 4 cohort, the Key Stage 4 NPD data was linked to the Spring School Census[4] in 2020, the Post-16 Learning Aims (PLAMS)[5] in 2021 and the Key Stage 5 results, available in the 2022 NPD extracts. In order to highlight changes in uptake, drop-out rates and performance, equivalent NPD data for the pupils who completed Key Stage 4 in 2017 was also used[3]. In particular, their NPD data was linked to the Spring School Census in 2017, the PLAMS in 2018 and the Key Stage 5 results in 2019.

For the analysis looking at the progression of the Key Stage 5 cohort, the Key Stage 5 NPD data was linked to the Spring School Census in 2020 and students' background data (available in the NPD) collected when they were in Key Stage 4 (e.g., prior attainment). In addition, the NPD data for the pupils who completed Key Stage 5 in 2020 was linked to the Individualised Learner Record (ILR)[6] in 2021 and to Higher Education Statistics Agency (HESA) data[7] in 2021 for information about students' progression outcomes to further and higher education, respectively. Similarly, NPD data for pupils who completed Key Stage 5 in 2019 (i.e., pre-pandemic), was linked to the 2019 Spring School Census, the 2020 ILR and 2020 HESA data.

All data was accessed and used in line with the requirements of the organisations that administer these databases. This work was carried out in the Secure Research Service, part of the Office for National Statistics (ONS).

Students' characteristics

For the students included in the research, detailed information such as socio-demographic characteristics and general attainment in school was available in the NPD. In particular, the following background information was used in the analyses: gender[8], level of prior (or concurrent) attainment[9], the combination

4 The Spring School Census is conducted annually by the Department for Education in schools across England. It gathers detailed information about pupils and their characteristics as well as other school-level data.

5 The PLAMS dataset tracks learning aims and qualifications for students aged 16 and over.

6 The ILR contains data on learners in further and vocational education in England such as learning aims undertaken and attainment.

7 The HESA data contains information about students who studied at a higher education institution in the UK. It includes data, for example, on student enrolment, qualifications, subject choices, institution types, and degree outcomes.

8 Throughout this article (and both research reports) the word "gender" has been used instead of "sex". This approach is taken to follow the terminology used in the NPD extracts. It is acknowledged that this assumption may not accurately represent all individuals, but it is hoped that it is sufficiently accurate to identify, interpret and discuss large-scale patterns in the data.

9 Key Stage 2 scores (only available for the Key Stage 4 cohorts), attainment at Key Stage 4, and attainment at Key Stage 5 (only available for the Key Stage 5 cohorts).

of qualifications taken during Key Stage 5 (only available for the Key Stage 5 cohorts), socio-economic background (measured by the IDACI[10] and a free school meals (FSM) eligibility indicator), disadvantaged status (only available for the Key Stage 5 cohorts), special educational needs (SEN), ethnicity and type of school.

Students' outcomes

The main student outcome explored in the research was students' progression to the next stage of education. However, specific destinations were investigated depending on the cohort.

- Progression of the June 2020 Key Stage 4 cohort
    - Qualifications / subjects completed during Key Stage 5 by students in the 2020 Key Stage 4 cohort were first investigated. This included qualifications at any level, Level 3 qualifications[11] and A Levels specifically.
    - In a second step, drop-out rates were calculated by comparing the qualifications students planned to study (available in the PLAMS dataset) with the qualifications for which students had results at the end of Key Stage 5. If no results were available for a planned qualification, it was assumed the student withdrew from it (i.e., dropped out).
    - The final outcome was performance in Key Stage 5. This was defined using two different measures: Key Stage 5 attainment in Level 3 qualifications (average performance points students achieved per entry) and average A Level point score per entry.
- Progression of the June 2020 Key Stage 5 cohort
    - In the first instance, progression destinations were investigated. Using the ILR and HESA data, the progression of Key Stage 5 students was grouped into the following four destinations: sustained higher education participation, sustained further education participation, non-sustained higher or further education, no information on higher or further education.

      In this research, "sustained participation" refers to continuous engagement in a higher or further education programme for at least six months. Students who withdrew within six months were therefore classified under "non-sustained" participation.
    - The second progression outcome investigated was the type of higher education institution students progressed to, for students

10 The Income Deprivation Affecting Children Index (IDACI) is based on the student's home postcode and describes the percentage of children in a very small geographical area (Lower Layer Super Output Area or LSOA) living in low income families. It varies between 0 and 1 and indicates how income deprived the area in which a student lives is. It cannot, however, indicate how income deprived the student actually is.

11 Level 3 qualifications are academic or vocational qualifications, such as A Levels, BTECs, T Levels, and the International Baccalaureate, that are typically taken after completing GCSEs or equivalent qualifications.

with sustained higher education participation. The higher education institutions were classified into Russell Group[12], University Alliance[13], and other (universities not in the former two groups).

- The final progression outcome this research considered was the subject area the students pursued in their higher education study (as above, this outcome was only investigated for students with sustained higher education participation).

Statistical analyses

To answer the research questions, a combination of descriptive statistics and regression analyses was carried out.

Descriptive statistics

The number and percentage of students who achieved each outcome (e.g., progressed to Key Stage 5, dropped out of a qualification during Key Stage 5, progressed to higher education, studied in a Russell Group university) were presented for both the cohorts of interest (June 2020 Key Stage 4 cohort and June 2020 Key Stage 5 cohort).

Analyses were carried out for the whole cohorts of students and for individual groups of students based on their demographic and socio-economic background (e.g., by school type, socio-economic deprivation measures, prior attainment, ethnicity, special educational needs). The same analyses were carried out for the students in pre-pandemic cohorts, as described earlier. The comparison of results between the cohorts was used to highlight any changes in the outcomes.

Regression analyses

To better understand the differences in outcomes (if any) between the 2020 cohorts and the pre-pandemic cohorts, regression analyses were carried out to account for any changes in cohort characteristics.

The majority of the regression models used in this research were logistic models, predicting the probability of students achieving the outcome of interest given their observable characteristics. Given that students within a school are likely to have more similar outcomes than those in different schools, this was accounted for using multilevel regression models with the school as a random effect.

A significance level of 5 per cent was used for all the regression analyses.

Key findings

The key findings from the research carried out to date are summarised below. Our intention in this article is to bring together findings for the June 2020 Key Stage 4 and 5 cohorts in order to provide readers with an overview of the progression outcomes of these students. For reasons of brevity, this means that while we

12 The Russell Group is a group of 24 research-focused universities in the UK known for their academic excellence. It includes, for example, the University of Cambridge, the University of Oxford, and the London School of Economics.

13 The University Alliance is a group of UK universities focused on applied research and professional education, and with strong links to the industry. This includes universities such as Anglia Ruskin University, Oxford Brookes University and Coventry University.

provide full information for some aspects of the analysis, for other elements of the analysis we summarise the findings in the text and refer the reader to the relevant reports if they would like to see full information. For example, for most sections:

- tables are included to show descriptive statistics at the overall level in full
- findings from the descriptive statistics regarding student background characteristics are summarised in the text (tables are available in the reports)
- overall findings from the regression modelling are briefly summarised, sometimes simply in terms of their alignment with the descriptive analyses (tables showing output from the regression modelling are available in the reports)
- graphs are used to show the most pertinent patterns that emerged from the regression modelling.

Progression, retention and performance outcomes of the June 2020 Key Stage 4 cohort

As described earlier, the following three progression outcomes of the June 2020 Key Stage 4 cohort were considered in the research: (I) progression to (or qualification uptake in) Key Stage 5; (2) qualification drop-out rates (retention) during Key Stage 5; and (3) performance at Key Stage 5.

Progression to Key Stage 5

The research found small differences in the qualifications completed by the end of Key Stage 5 between those students whose exams were cancelled in 2020 due the pandemic and those who sat them in 2017. In particular, Table I below shows that the proportion of Key Stage 4 students who completed any qualifications during Key Stage 5 after being in Year II in summer 2 020, was slightly higher than the proportion of those who were in Year II in summer 2 017 (84.5 per cent compared to 81. 3 per cent). In terms of completing Level 3 qualifications, Table I reports similar findings, with students at the end of Key Stage 4 in 2020 being more likely to complete qualifications at Level 3 in Key Stage 5 than those at the end of Key Stage 4 in 2017 (57.9 per cent compared to 49.8 per cent).

Table I: Uptake of qualifications in Key Stage 5

Uptake of ...	N students		% students (out of KS4 cohort)		Difference (2020 – 2017)
	2017 cohort	2020 cohort	2017 cohort	2020 cohort	
Any qualification	458 405	505 952	81. 3	84.5	3.2
At least one Level 3 qualification	360 034	412 560	63.9	68.9	5.0
Level 3 qualifications only	280 618	346 598	49.8	57.9	8.1
Key Stage 4 candidates	*563 577*	*598 823*			

As there was already some evidence that the effect of the cancellation of exams on the uptake of qualifications at Key Stage 5 was different for different groups of students (e.g., Lee et al., 2020; Hunt et al., 2022; Vidal Rodeiro & Williamson, 2022),

it was important that students' background characteristics were considered in this work. Several key observations from the descriptive analyses of progression for different groups of students are summarised here (see Vidal Rodeiro, 2024, for full details).

The percentage of students completing at least one qualification at the end of Key Stage 5 increased over time (i.e., pre- versus post-pandemic) for both male and female students, although the increase was slightly larger among females. There were also increases in uptake post-pandemic across all centre types considered in the research, with the exception of independent schools.

Among the 2020 cohort, the percentage of low and medium attainers with at least one qualification at the end of Key Stage 5 was higher compared to the 2017 cohort. However, there was just a slight increase in uptake among high attainers in the 2020 cohort compared to the 2017 cohort. Generally, the lower the prior attainment, the greater the increase in uptake in the 2020 cohort with respect to the 2017 cohort.

While uptake of qualifications at Key Stage 5 increased for all students in the 2020 Key Stage 4 cohort (compared to the 2017 cohort) regardless of their socio-economic background, the increase was slightly higher for the most deprived students than for the least deprived students.

Very similar patterns of uptake by students' background characteristics emerged when considering completion of at least one qualification at Level 3 by the end of Key Stage 5. However, there were a few differences. For independent school students, there was a post-pandemic increase in the uptake of Level 3 only qualifications, instead of the decrease seen in the uptake of any qualifications during Key Stage 5. Additionally, uptake increased the most among the medium attainers, while the results for any Key Stage 5 qualification uptake discussed above had shown the highest increase in uptake was among the low-attaining students.

To further explore if the uptake of qualifications at Key Stage 5 changed post-pandemic after taking into account students' background characteristics, multilevel logistic regression modelling was carried out, as described in the "Data and methods" section of this article. The results from the regression analyses supported the results from the descriptive analyses. For example, the results of the regression model looking at progression to Key Stage 5 (any qualification) showed that females progressed at significantly higher rates than males, and the progression of students from independent schools was significantly lower than of those studying in a comprehensive school. Furthermore, although the probability of progression was higher post-pandemic than pre-pandemic for all students, independently of their prior attainment, the difference in such probability was higher among students with low prior attainment than among students with high attainment, even after controlling for their background characteristics. Readers can refer to the full report (Vidal Rodeiro, 2024) for a detailed account of the outputs of the regression analysis.

The research also looked at the specific qualifications completed by the end of Key Stage 5. Figure 1 shows the changes in the uptake of the different qualification types taken during Key Stage 5 (including some specific subjects such as GCSE English and Maths) between the June 2020 and June 2017 Key Stage 4 cohorts. Students in the 2020 cohort were more likely to take Applied Generals or A Levels than students in the 2017 cohort but were less likely to take other general qualifications (GQs), or other vocational technical qualifications / vocationally related qualifications (VTQs / VRQs) at Level 3. Note, however, that the Key Stage 5 data might show a different balance of Applied Generals and other VTQ / VRQ Level 3 qualifications in the later cohort, due to changes to BTECs and Cambridge Technicals which would have impacted the way they are categorised in the NPD[14].

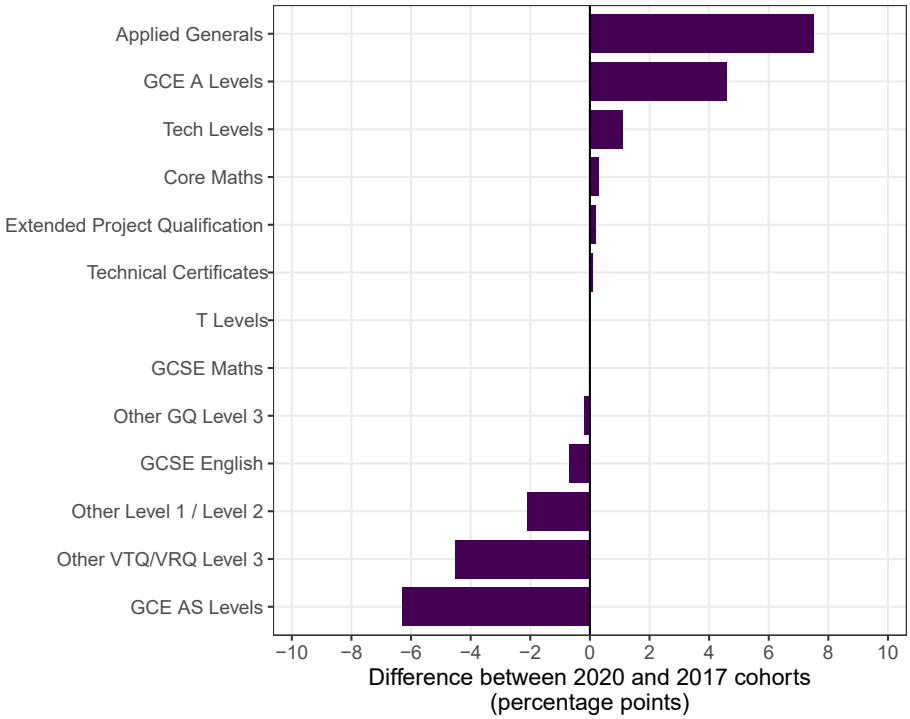


Figure 1: Key Stage 5 qualifications – difference, between 2020 and 2017 Key Stage 4 cohorts, in the percentage (out of total number of qualifications taken by all students at Key Stage 5) completing the qualification type

Students in the 2020 cohort were also slightly less likely to take a GCSE in English during Key Stage 5. This could be partly due to more pupils getting the GCSE grades they needed in this subject in summer 2020 (due to the CAGs being "generous") and not needing to re-sit the qualification in a post-16 education setting. However, students in the 2020 cohort were just as likely as those in the earlier cohort to take a GCSE in Maths.

Progression to individual subjects was investigated next. For A Levels in particular, the differences in uptake between cohorts were not big (below 2.5 percentage points in all cases). The subjects with the highest increase in 2022 (i.e., taken by the 2020 Key Stage 4 cohort) with respect to the cohort pre-pandemic (i.e., taken in 2019 by the 2017 Key Stage 4 cohort) were: Psychology, Business Studies, Sociology, Economics, Mathematics and Computer Science. On the other hand, the

14 In 2017 some BTECs and Cambridge Technicals might have been included in the "Other VTQ / VRQ Level 3" category rather than in the "Applied Generals" category.

A Level subjects with the highest decrease in 2022 compared to 2019 were English Literature and History.

Retention

Table 2 shows the proportion of students in each Key Stage 4 cohort who, having stated which learning aims to pursue during Key Stage 5, dropped at least one of them – that is, they did not complete at least one of the qualifications they intended to take[15].

The drop-out rates (both for any qualifications during Key Stage 5 and for A Levels specifically) were lower among students in the 2020 cohort than among students in the 2017 cohort. This is somewhat contrary to what might have been expected. Because June 2020 GCSE grades may have been slightly generous, it was plausible that some students might have gained access to a post-16 course for which they were not sufficiently well prepared and that this could have led to higher drop-out rates. The evidence does not confirm this expectation.

Table 2: Students dropping at least one qualification

Key Stage 4 cohort	Qualifications	N students (in KS4 and PLAMS)	Dropping out	
			N	%
2017	At least one qualification	206 237	121 142	58.7
2020		223 758	106 054	47.4
2017	At least one A Level	147 650	63 881	43.3
2020		185 748	66 499	35.8

When looking at retention by students' characteristics, the research showed that drop-out rates decreased over time (i.e., pre- versus post-pandemic) across all the different groups of students, with slightly larger decreases among medium-attaining students compared to their low- and high-achieving counterparts, and in independent schools compared to other types of schools.

To further explore the relationship between drop-out rates during Key Stage 5 and students' ability (measured by prior attainment) while controlling for students' backgrounds, multilevel regression analyses were carried out. The results of such analyses show that the year students completed Key Stage 4 was a statistically significant predictor of dropping out of at least one qualification by the end of Key Stage 5 (similar results were found for the probability of dropping at least one A Level). This "year effect" varied slightly by their Key Stage 4 attainment – specifically, although the probability (according to the regression model) of dropping out of at least one qualification was higher pre-pandemic than post-pandemic for all students, the difference in such probability was higher among students with medium prior attainment than among students with low or high attainment, even after controlling for their background characteristics (Figure 2). In particular:

- A student with their Key Stage 4 attainment in the first decile (fairly low) had a probability of dropping out of at least one qualification by the end of Key Stage 5 of 0.87 pre-pandemic and 0.82 post-pandemic (difference = 0.05).

15 Schools with a sixth form provide details about their students' learning aims in the Autumn School Census (which is usually completed in early October). Only "active" aims at that point were included in the research and checked against students' results two years later.

- A student with their Key Stage 4 attainment in the fifth decile (medium attainment) had a probability of dropping out of at least one qualification by the end of Key Stage 5 of 0.69 pre-pandemic and 0.53 post-pandemic (difference = 0.16).

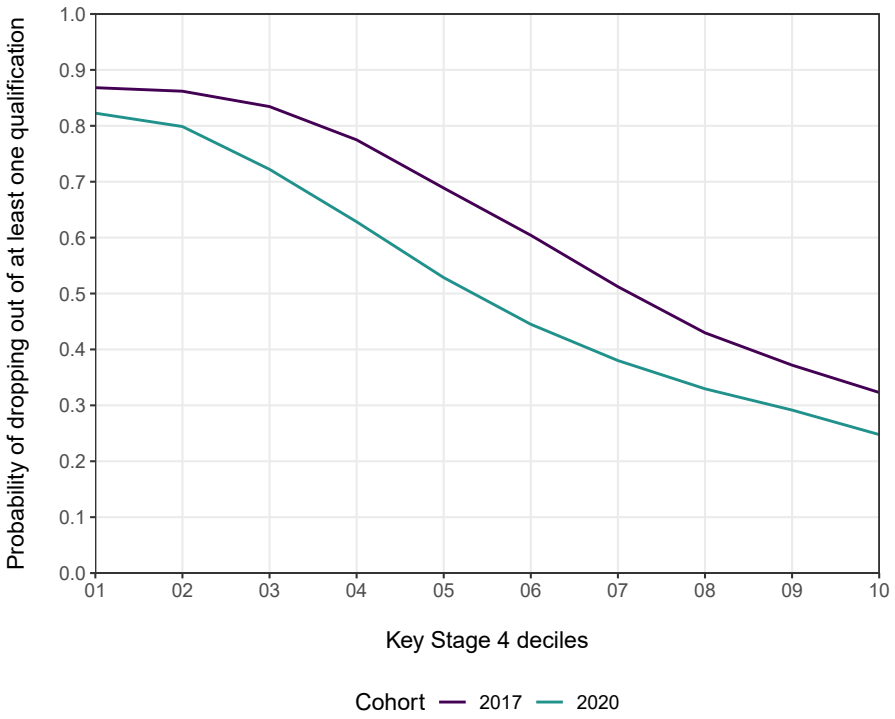


Figure 2: Predictive probabilities of dropping out of at least one qualification by the end of Key Stage 5, by Key Stage 4 prior attainment and cohort. The calculated probabilities are for a white male, with a medium level of deprivation, no special educational needs, in a comprehensive school and taking three qualifications.

Performance

This section reports key findings regarding whether A Level performance was similar between the 2020 and 2017 Key Stage 4 cohorts, including patterns for grades in individual subjects. Vidal Rodeiro (2024) also investigated performance in Key Stage 5 overall, but in this article, we focus on A Levels as these are the most popular qualifications taken by students during Key Stage 5.

As expected, due to the more generous grading in 2022[16], performance was, on average, higher for the 2020 Key Stage 4 cohort than for the 2017 cohort. In particular, Table 3 shows that there was an increase in mean A Level of 3.5 points (one third of a grade).

16 Grade boundaries in June 2022 were set to reflect a midpoint between 2021 and pre-pandemic grading. As a result, A Level results in 2022 were overall higher than in 2019, but not as high as in 2020 or 2021 (for more details about the June 2022 grading approach see https://www.gov.uk/government/speeches/ofquals-approach-to-grading-exams-and-assessments-in-summer-2022-and-autumn-2021).

Table 3: Performance[17] of students in A Level qualifications

Key Stage 4 cohort	Number of students with A Levels	Overall A Level performance				
		Mean	Standard deviation	25% percentile	75% percentile	90% percentile
2017	236 330	34.1	12.7	25.0	43.3	50.0
2020	269 287	37.6	13.2	30.0	46.7	55.0

Figure 3 shows the performance in some of the most popular A Level subjects – in particular, the difference between the 2020 and 2017 percentages of students achieving at least a grade A in the subjects. As for overall A Level performance, higher percentages of students achieved grade A or above post-pandemic than pre-pandemic. But the differences between cohorts varied slightly by subject. The largest increase was for English Literature, followed by Psychology and History and the lowest for Mathematics and Sociology. Similar patterns were found for performance at grade C or above.

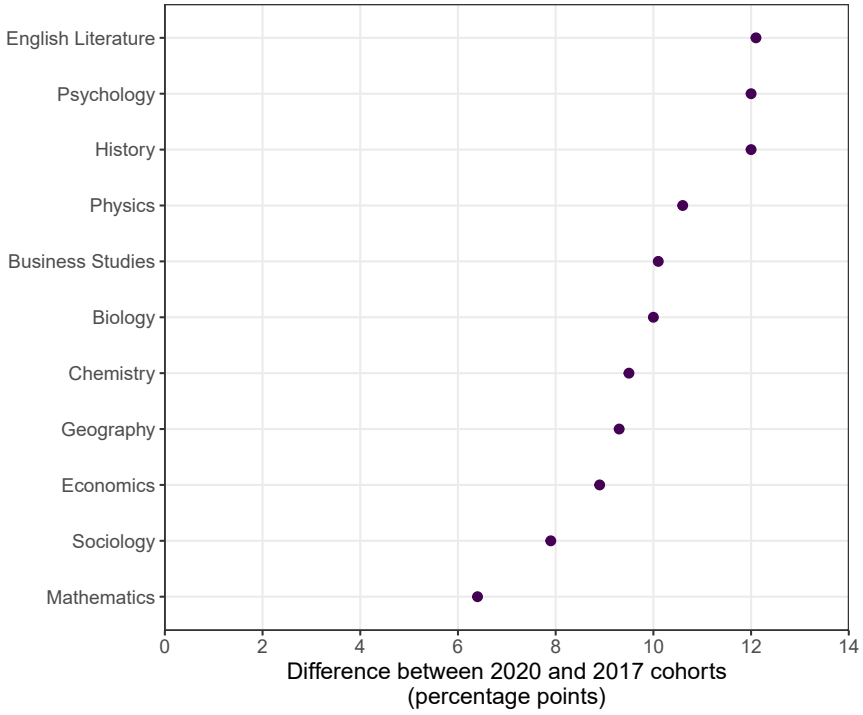


Figure 3: Difference between the 2020 and 2017 Key Stage 4 cohorts in the percentage of students (as a percentage of the total entry in the subject) who achieved at least grade A in A Level subjects

Regarding differences in A Level performance by different groups of students, both descriptive and regression analyses carried out in Vidal Rodeiro (2024) showed similar results. In particular, the results of the regression model looking at the average performance in A Level qualifications showed that the year students completed Key Stage 4 was a statistically significant predictor of performance

17 A Level performance was measured by the average A Level point score per entry. For each student, this score was calculated aggregating the points achieved in all A Levels (A* being 60 points, A being 50, and so on) and dividing that by the total number of A Levels. It ranges from 0 to 60.

at A Level (performance at A Level was higher post-pandemic, as shown in Table 3). Furthermore, A Level performance was significantly better post-pandemic than pre-pandemic for both male and female students, but the increase in performance was slightly higher for females than for males.

A Level performance increased significantly post-pandemic for students in all types of schools. Additionally, differences between cohorts pre- and post-pandemic in the average A Level performance were similar for students with different levels of socio-economic deprivation (i.e., the difference between the different groups was not statistically significant).

When looking at changes in performance at A Level by students' prior attainment, the research found that once students' background characteristics were taken into account, students with low levels of prior attainment performed better (or similarly) pre-pandemic, but students with high levels of attainment achieved higher grades post-pandemic. This finding is shown in Figure 4 below.

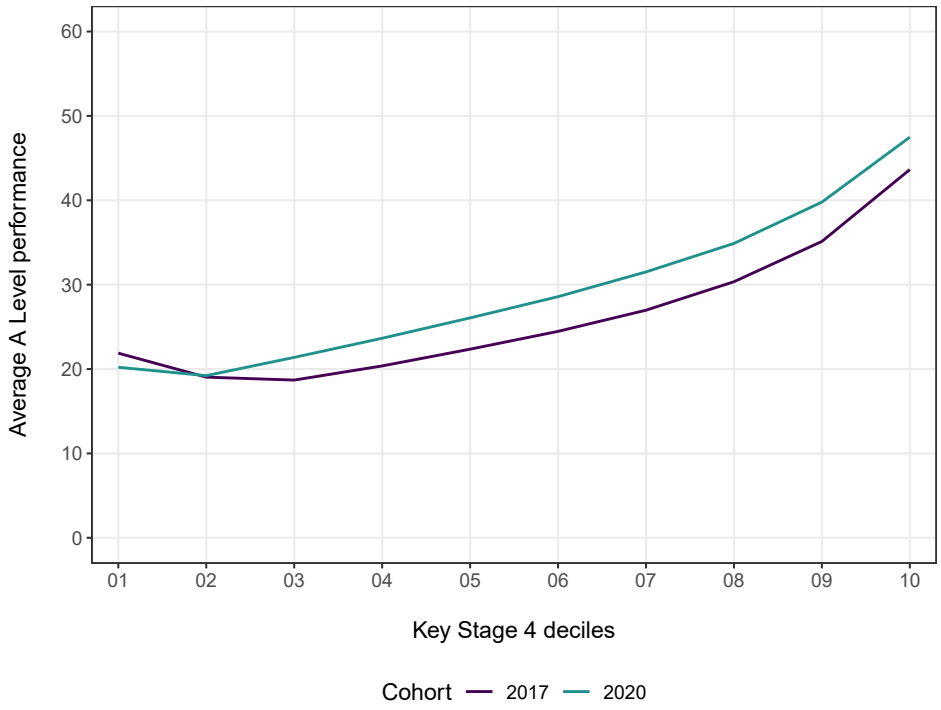


Figure 4: Average performance in A Level qualifications, by Key Stage 4 prior attainment and cohort. The average performance is for a white male, with a medium level of deprivation, no special educational needs, in a comprehensive school.

Progression of the June 2020 Key Stage 5 cohort

Three key progression outcomes of the June 2020 Key Stage 5 cohort were tracked: (I) the type of progression destination, such as higher education, further education, or no recorded progression destination; (2) the type of higher education institution attended; and (3) the subject area studied in higher education.

Progression destination

The analyses suggest that there were no substantial changes between the June 2019 and June 2020 cohorts in the proportions of Key Stage 5 students progressing to various destinations immediately after completing their Key Stage 5 studies. This finding is presented in Table 4, which shows the rate of immediate progression to four possible destinations: (1) sustained higher education, (2) sustained further education, (3) non-sustained participation in higher or further education, and (4) no recorded progression to higher or further education. The last category included students who may have taken a gap year or entered the workforce.

Table 4: Progression destinations of Key Stage 5 students, by cohort

Progression destination	N students		% students		Difference (2020–2019)
	2019 cohort	2020 cohort	2019 cohort	2020 cohort	
Sustained higher education (HE)	161 505	170 810	59.1	59.9	0.8
Sustained further education (FE)	21 880	22 900	8.0	8.0	0.0
Non-sustained HE or FE	8 275	9 365	3.0	3.3	0.3
No HE or FE information	81 730	82 140	29.9	28.8	-1.1
Total	273 390	285 215	100.0	100.0	

As shown in the table, the overall differences between the two cohorts were minimal. The 2020 cohort saw a slight increase of 0.8 percentage points in sustained higher education participation and a 0.3 percentage point rise in non-sustained participation. Correspondingly, the proportion of students with no progression information was 1.1 percentage points lower, suggesting that proportionally fewer students in 2020 delayed their further study compared to the 2019 cohort.

Although the overall progression rates remained relatively similar between the 2019 and 2020 cohorts, the findings revealed that changes in progression rates varied across several student groups. Several key observations are summarised here. For a detailed breakdown of these results, see Lim (2024).

Firstly, analysis by ethnicity revealed some nuanced changes. For instance, Chinese students in the 2020 cohort were less likely to progress to sustained higher education and more likely to have no recorded progression information compared to Chinese students from the 2019 cohort. A similar, though less pronounced, pattern was also observed among Asian (non-Chinese) students. In contrast, most other ethnic groups showed the opposite trend: an increase in sustained higher education participation and a decrease in the proportion of students with no progression information.

Secondly, students from low socio-economic backgrounds (e.g., those eligible for free school meals), students with special educational needs, those attending further education colleges, and those who only took Applied Generals or Tech Levels, were less likely to progress to sustained higher education in 2020. However, these same groups experienced an increase in progression to sustained *further* education, diverging from the trends seen in other student groups.

Lastly, while all student groups in the 2020 cohort experienced an increase in sustained higher education progression regardless of their prior attainment, the rise was more pronounced among those with low and medium prior attainment compared to their high-attaining peers. This pattern suggests that students with lower prior academic performance may have had a better chance of accessing higher education in 2020 relative to 2019.

However, after accounting for changes in student characteristics through regression modelling, the differences in progression rates between the two cohorts were relatively small across all prior attainment groups (although statistically significant). As illustrated in Figure 5, the largest observed difference was only a two-percentage point gap in the predicted probability of progressing to sustained higher education, seen among students with low and medium prior attainment. This suggests that, once background factors were controlled for, the apparent gains in progression for the low and medium attainment groups were modest and not indicative of a substantial shift. Most variables in this regression model were statistically significant predictors of progression to higher education, except that students from independent or selective schools showed no significant difference compared to those from sixth forms, and there was also no significant difference between girls' and boys' schools.

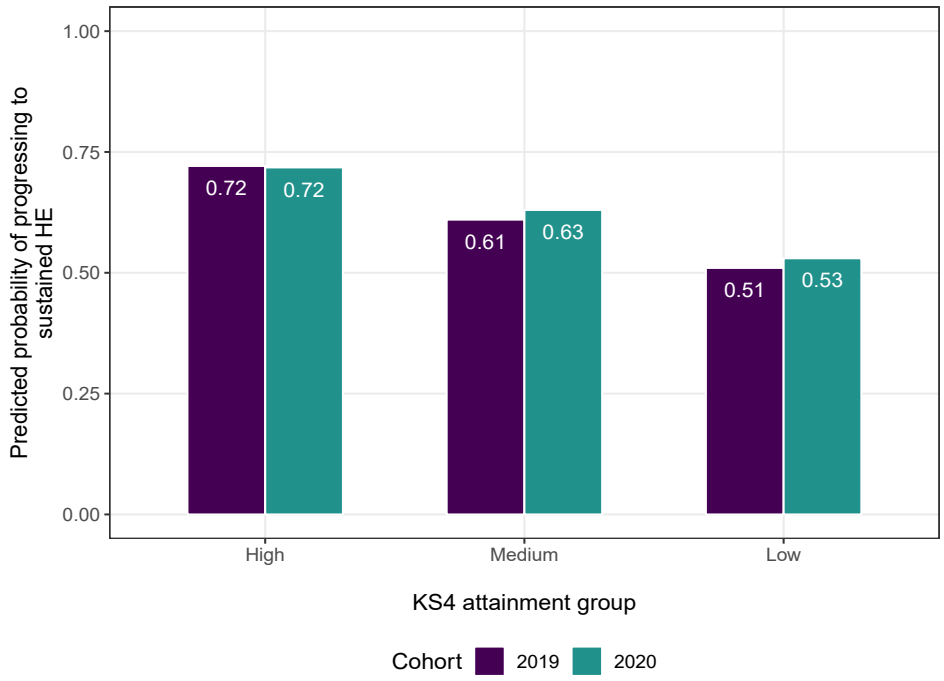


Figure 5: Predicted probabilities of sustained higher education (HE) participation, by Key Stage 4 attainment group and cohort. The calculated probabilities are for a white female, not disadvantaged, with no special educational needs, in a non-selective, mixed-sex school, and taking either A Levels or Extended Project Qualification (or both) only.

Higher education institutions

Although the percentage of Key Stage 5 students who progressed to a sustained higher education destination was only slightly higher among the 2020 cohort than among the 2019 cohort, the analysis found that a noticeably higher percentage of these students progressed to a Russell Group university in 2020 than in 2019.

This finding is shown in Table 5, which indicated that the percentage of students who attended a Russell Group university increased by 3.5 percentage points in 2020 relative to the 2019 cohort. Consequently, the percentage of students who attended a university in the University Alliance group and other universities was lower in the 2020 cohort.

Table 5: Type of institutions attended by Key Stage 5 students who progressed to sustained higher education (HE), by cohort

Higher education institution type	N students		% students		Difference (2020–2019)
	2019 cohort	2020 cohort	2019 cohort	2020 cohort	
Russell Group	53 025	62 120	32.8	36.4	3.5
University Alliance	41 255	40 330	25.5	23.6	-1.9
Other	67 220	68 360	41.6	40.0	-1.6
Total students progressed to HE	161 505	170 810	100.0	100.0	

The progression rate to Russell Group universities increased across all student groups in the 2020 cohort, regardless of their background characteristics. However, the magnitude of this increase varied among different student groups. As before, only several key observations are summarised below and readers can refer to Lim (2024) for a detailed breakdown.

Firstly, when analysed by students' ethnicity, the findings revealed that students from minority ethnic backgrounds – specifically Asian, Chinese, and Black students – experienced a greater increase in progression to Russell Group universities in 2020 compared to white students and those from mixed ethnic backgrounds.

Secondly, in terms of school type, the increase in progression to Russell Group was more pronounced among students who attended independent schools, selective schools, and non-selective schools, compared to those from sixth form colleges and further education colleges. Additionally, the rise was also slightly more noticeable among those from single-sex schools compared to their peers in mixed-sex schools.

Lastly, students in the high prior attainment group experienced the largest increase in progression to Russell Group universities compared to those in the medium and low attainment groups. As shown in Figure 6, after adjusting for changes in cohort characteristics through regression modelling, the predicted probability of progressing to a Russell Group university was five percentage points higher for high attainers in 2020 compared to 2019, four percentage points for medium attainers, and only two percentage points for low attainers.

Most variables in this regression model were statistically significant predictors of progression to a Russell Group university, except that the probability of: (1) students from non-selective schools and other school types showed no significant difference compared to those from sixth forms; (2) Black students and students of other ethnicity (not Black, Asian, Mixed, or white) were not significantly different compared to those of Asian students; and (3) there was also no significant difference between girls' and boys' schools.

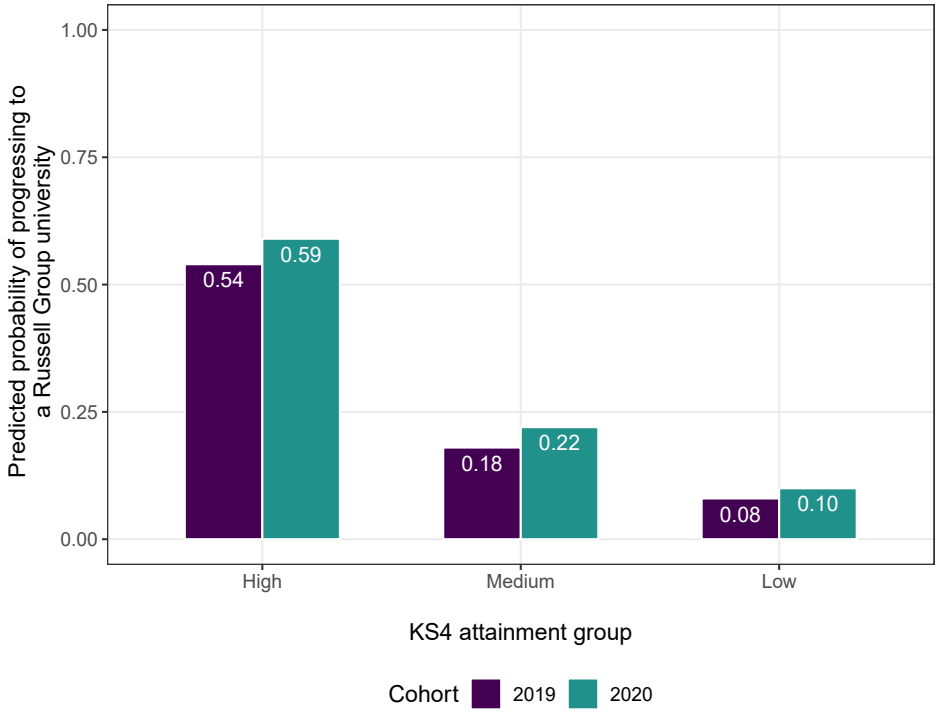
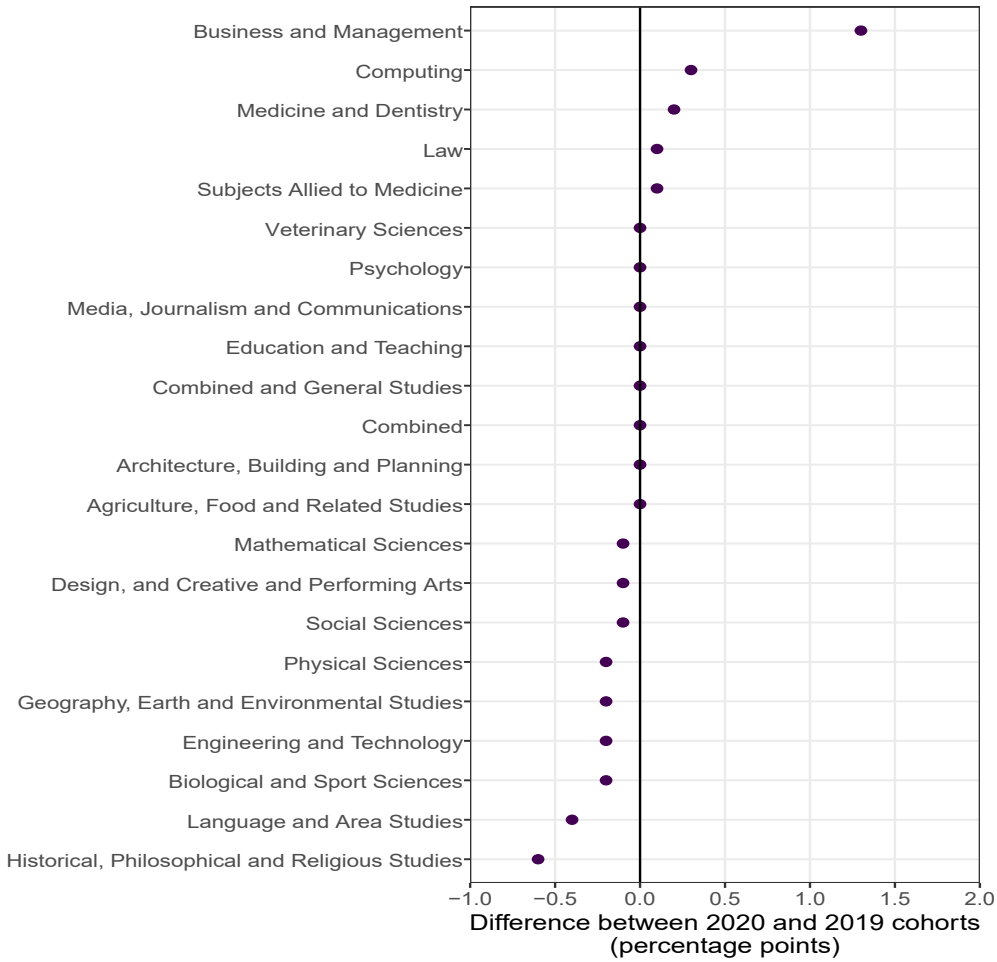


Figure 6: Predicted probabilities of progressing to a Russell Group university, by Key Stage 4 attainment group and cohort. The calculated probabilities are for a white female, not disadvantaged, with no special educational needs, in a non-selective, mixed-sex school, and taking either A Levels or Extended Project Qualification (or both) only.

Subject area studied in higher education

When examining which subject areas students pursued in higher education, the analysis found that the overall uptake remained largely similar between the 2019 and 2020 cohorts, suggesting that students' subject uptake did not change considerably during this period. The only notable exception was in "Business and Management," where a higher proportion of students from the 2020 cohort chose this subject compared to those in 2019, although the increase was only 1.25 percentage points. This finding is shown in Figure 7, which illustrates the differences in subject uptake rates between the two cohorts. Positive values indicate a higher uptake rate in 2020 relative to those in 2019, while negative values reflect a drop in uptake.



Note: For students who studied a combination of subjects within their course, the subject area that accounted for more than 50% of the total course time was used to classify them in the analysis. If no single subject area made up more than 50% of the course time, students were placed in a newly created category called "Combined" for the purposes of analysis.

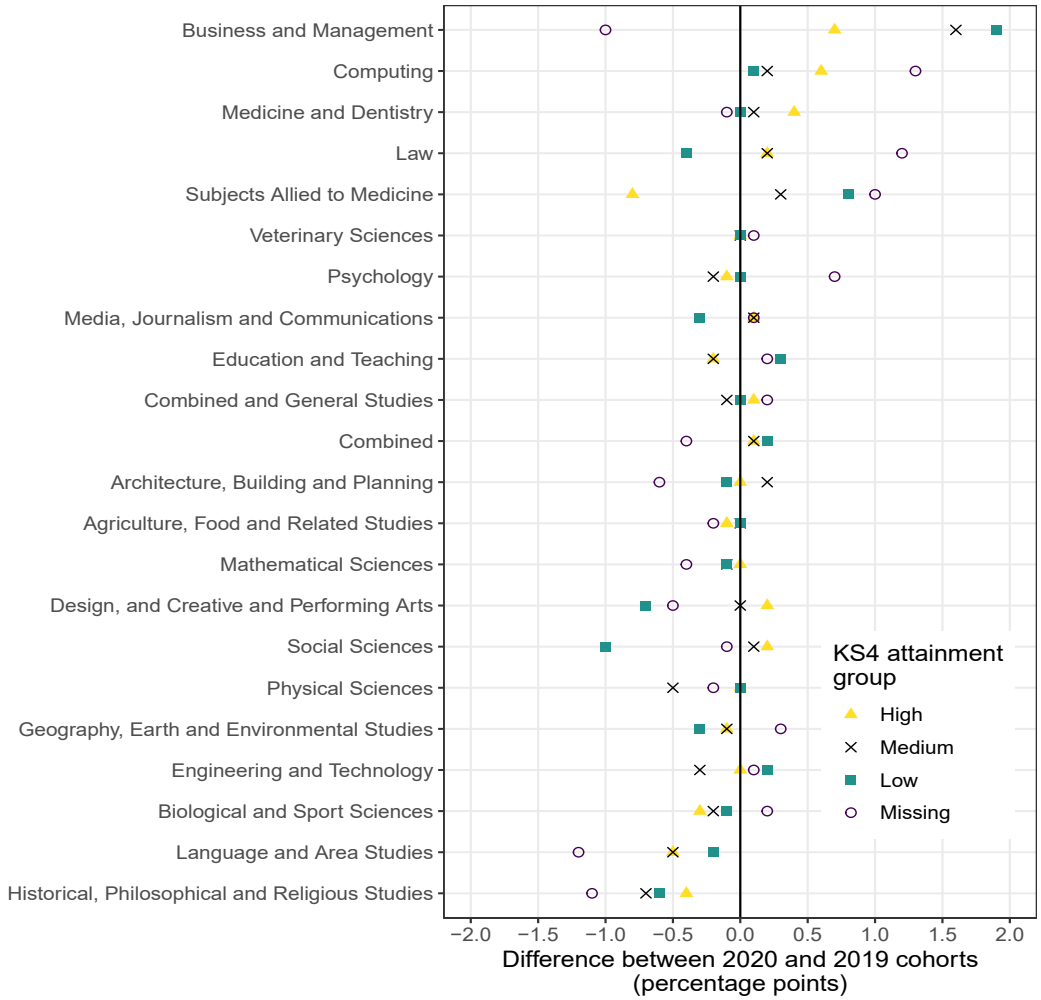
Figure 7: Difference in percentages of students who progressed to each higher education subject area – based on Higher Education Classification of Subjects coding system (Higher Education Statistics Agency, n.d.) – between 2020 and 2019 Key Stage 5 cohorts

Not all the student groups experienced the same magnitude of increase in the uptake of "Business and Management". As shown in Figure 8, which presents the changes in subject uptake by prior attainment group for each subject area, the increase was most pronounced among students with low prior attainment, who saw a greater rise in uptake in this subject compared to students from medium and high attainment groups. Similarly, uptake was notably higher in 2020 than in 2019 among Asian students compared to students from other ethnic backgrounds, and among students attending sixth form colleges compared to those from other school types.

Another finding worth noting is that although the overall percentage of students enrolling in degrees within the "Subjects Allied to Medicine" category remained similar between the 2019 and 2020 cohorts, there was a slight shift in the characteristics of students who chose this subject. As can be seen in Figure 8, the proportion of low-attaining students pursuing this subject increased in 2020, while the proportion of high-attaining students declined. Additionally, the

analysis found that the percentage of male students enrolling in this subject area decreased in 2020, whereas the proportion of female students increased. There were also ethnic group differences: fewer Asian and Chinese students enrolled in this subject area in 2020, while the proportion of Black students increased.

Taken together, these findings suggest that while the overall uptake of subject areas in higher education remained similar, there may have been a slight shift in the profile of students in some subject areas in 2020 compared to 2019.



Note: For students who studied a combination of subjects within their course, the subject area that accounted for more than 50% of the total course time was used to classify them in the analysis. If no single subject area made up more than 50% of the course time, students were placed in a newly created category called "Combined" for the purposes of analysis.

Figure 8: Difference in percentages of students who progressed to each higher education subject area between 2020 and 2019 Key Stage 5 cohorts, by Key Stage 4 attainment group

Conclusions and implications

Cambridge University Press & Assessment's programme of research tracking the cohorts of students impacted by the COVID-19 pandemic has, to date, provided evidence on the short- and medium-term impact of the alternative assessment processes implemented due to the pandemic on students' progression. In particular, the progression to post-16 study (qualifications taken, retention and performance at the end of Key Stage 5) and to further and higher education (destinations, type of higher education institution attended, subject area in higher education), of students who were at the end of Key Stage 4 or Key Stage 5 in June 2020 was investigated. The progression outcomes of these cohorts were compared to the outcomes of pre-pandemic cohorts to understand whether students had been disadvantaged.

Before drawing any conclusions from the findings of the research, it is worth noting that it is reasonable to expect progression outcomes to fluctuate between cohorts even during normal years. We can only attribute the entire difference observed between the 2020 cohort and the previous cohorts looked at in the research (2017 Key Stage 4 cohort and 2019 Key Stage 5 cohort) to the effects of the pandemic if we are willing to assume that there would have been no change in its absence. It should also be taken into account that the cancellation of exams and the awarding of CAGs did not happen in isolation and the COVID-19 pandemic also had a differential impact, for example, on teaching and learning (see, for example, Isaacs and Murphy, 2022, for details on the impact of the pandemic on learning) and on admissions to further and higher education.

Some key insights from this work are summarised below:

- There was no strong evidence to suggest that the June 2020 cohorts of students (both at Key Stage 4 and 5) were disadvantaged in terms of their progression by the cancellation of exams and the COVID-19 pandemic disruptions. This means that the policy intention in 2020 to facilitate students' onwards progression seems to have worked.
  It should be noted, though, that the increase in uptake of qualifications during Key Stage 5 for the 2020 Key Stage 4 cohort compared to the 2017 cohort might not all be attributed to the pandemic. For example, A Level uptake increased from 2017 to 2020, but this increase could be a continuation of a trend already present pre-pandemic (e.g., uptake of A Level qualifications had been increasing in the years before the pandemic, see https://epi.org.uk/publications-and-research/a-level-results-2019/).
- For both the 2020 Key Stage 4 and Key Stage 5 cohorts, there was some evidence suggesting that certain groups of students (e.g., those with low attainment or those from some ethnic minority groups) may have had different progression experiences depending on their backgrounds. Therefore, any future policy response to exam cancellations should consider tailoring support based on students' backgrounds or identifying groups that may require additional support.
- Drop-out rates (both for Level 3 qualifications and for A Levels specifically) for the 2020 Key Stage 4 cohort were lower compared to the 2017 Key Stage

4 cohort. Additionally, performance in Key Stage 5 was higher for the 2020 Key Stage 4 cohort, although this may have been at least partly due to the intentionally slightly generous grading standards used in 2022. This evidence suggests that onward progression to further or higher education of the Key Stage 4 2020 cohort was generally not an issue.

- There were higher rates of progression to higher education for the June 2020 Key Stage 5 cohort compared to the 2019 cohort, most likely due to more Key Stage 5 students from lower prior attainment groups enrolling at university. On the contrary, there was some evidence that indicated that, proportionally, fewer students among the June 2020 cohort joined the labour market or took a gap year immediately after completing their Key Stage 5.
- There were higher rates of progression to Russell Group universities for the June 2020 Key Stage 5 cohort compared to the 2019 cohort. This finding aligns with the fact that the total number of accepted applicants among Russell Group universities (specifically for English applicants) increased in 2020 by 15 per cent relative to 2019 (UCAS, 2020). The total number of accepted applicants for other non-Russell Group universities had, however, only increased by 1.5 per cent from 2019 to 2020.
- In most of the degree subject areas students pursued in higher education, the research found no noticeable change between the 2020 and 2019 Key Stage 5 cohorts. However, students' composition changed differently depending on the degree subjects.

The findings provided by this research are just a snapshot of the wider picture of how the pandemic affected the progression of the June 2020 Key Stage 4 and Key Stage 5 cohorts. However, many questions remain about the long-term consequences of this disruption. For example, have the June 2020 Key Stage 5 students performed well in higher education? How are they transitioning into employment, and are they facing challenges in life that may stem from their disrupted learning experiences? Furthermore, the June 2021 cohorts arguably experienced an even greater disruption, having endured a longer period of interrupted learning. This research programme will continue to investigate the impact of the disruption on students' progression beyond the June 2020 cohort.

The impact of the pandemic was not limited to these cohorts alone. As highlighted by Oates (2024), learners across all stages of education were affected, whether or not their exams were cancelled. As mentioned in Elliott (2021) and Vidal Rodeiro and Williamson (2022), the effects of the disruption will be felt for years to come. Therefore, continued support and monitoring are essential, not only for those whose exams were cancelled, but for all learners whose educational journeys were disrupted, to ensure that every student has the opportunity to acquire the skills and knowledge they need to thrive in schools and beyond.

Acknowledgements

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