

Office for  
Students



# **Analysis of degree classifications over time**

**Changes in graduate attainment from  
2010-11 to 2018-19**

**Reference** OfS 2020.52

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# Summary

1. The proportion of UK-domiciled, full-time first degree graduates attaining a first class honours degree from an English higher education provider has increased from 16 per cent in 2010-11 to 30 per cent in 2018-19, an overall increase of 88 per cent over the period. For the same graduate population, the proportion attaining a first or an upper second class degree has increased from 67 per cent in 2010-11 to 79 per cent in 2018-19.
2. In July 2019, the Office for Students (OfS) published 'Analysis of degree classifications over time: Changes in graduate attainment from 2010-11 to 2017-18' (OfS 2019.28), which uses statistical modelling to investigate changes in the proportions of graduates attaining first or upper second class degrees over the academic years from 2010-11 to 2017-18.<sup>1</sup> This report builds on OfS 2019.28 by expanding the time series considered to include academic years from 2010-11 to 2018-19 inclusive.
3. Our new analysis finds that in 2018-19, across the 147 providers considered, 14.3 percentage points of first class degree<sup>2</sup> attainment change since 2010-11 are unexplained<sup>3</sup> by changes in the graduate population. This is an increase of 0.4 percentage points from the unexplained attainment in 2017-18, which is the smallest increase observed since 2010-11.
4. Considering the distribution of provider-level unexplained attainment, provider attainment was compared both with the sector mean in 2010-11 and with the same provider in 2010-11. In respect of both first and upper second class degrees combined and first class degrees alone, the 2018-19 provider-level comparison shows:
  - a. Most providers exhibited unexplained attainment significantly above the 2010-11 sector mean attainment.
  - b. All providers had more unexplained attainment in 2018-19 than in 2010-11.
5. We performed additional analyses to try to address comments made after previous releases reporting on sector unexplained attainment changes. The findings include:
  - a. The effect of closing (reducing to zero) attainment gaps between individuals of differing sex, ethnicity, declared disability status and Participation of Local Areas (POLAR4) quintile on the sector-level unexplained attainment of first and upper second class degrees combined, and first class degrees alone. In a hypothetical sector where attainment gaps within the aforementioned groups do not exist the sector-level unexplained attainment of first class

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<sup>1</sup> Available at [www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time/](http://www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time/).

<sup>2</sup> The equivalent finding for first and upper second class degrees was that, across 147 providers, 13.7 percentage points of attainment change since 2010-11 is unexplained by changes in the graduate population. This is an increase of 0.3 percentage points from the unexplained attainment in 2018-19, which is the smallest increase observed since 2010-11.

<sup>3</sup> For an explanation of 'unexplained' in this context, see paragraph 12.

degrees in 2018-19 is estimated to be 11.2 percentage points (compared with 14.3 percentage points for the sector where attainment gaps exist).<sup>4</sup>

- b. The effect of artificially inflating entry qualifications for entrants entering after the 'comparable outcomes' policy was implemented (see paragraph 40), on sector-level unexplained attainment of first and upper second class degrees combined, and first class degrees alone. In this hypothetical scenario, where post-2010 A-Level qualifiers' data was modified to assign students one grade higher than was originally recorded, the sector-level increase in unexplained attainment of first class degrees in 2018-19 was estimated to be 11.9 percentage points (compared with 14.3 percentage points for the original sector estimate).<sup>5</sup>

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<sup>4</sup> In this same scenario for first and upper second class degrees combined, the unexplained sector-level attainment in 2018-19 is estimated to be 6.1 percentage points (compared with 13.7 percentage points for the sector where attainment gaps exist).

<sup>5</sup> For first and upper second class degrees combined, the unexplained increase in attainment in 2018-19 was estimated to be 11.2 percentage points (compared with 13.7 percentage points for the original sector estimate).

# Introduction

6. This report sets out the results of our analysis of changes in the proportion of first and upper second class degrees awarded between 2010-11 and 2018-19. We report on how graduate attainment has changed over this period, and the extent to which these changes can be statistically accounted for by changes in certain characteristics<sup>6</sup> of the graduate population. This analysis has been undertaken at both the sector level and the provider level. The sector-level analysis and a summary of the provider-level analysis are in the main body of this report, with detailed results of the provider-level analysis available separately (in Annex A and in full provider tables available to download alongside this document at [www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/](http://www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/)).
7. The graduate population considered in this report comprises UK-domiciled first degree graduates<sup>7</sup> who studied full-time, were registered at higher education providers in England and graduated in the academic years from 2010-11 to 2018-19.
8. We further limit the graduate population included in this analysis to only include those who qualified from English providers awarding at least 10 classified honours degrees in each of the academic years considered. We therefore use data from 147 providers (hereafter collectively referred to as 'the sector', for the purposes of this report only) with 261,230 graduates in 2018-19. Comparisons of key aspects of this population with the population of graduates from all English providers are presented in Annex B.
9. We have used statistical modelling of individual-level graduate data to estimate expected patterns in degree classification attainment between 2010-11 to 2018-19, accounting for following graduate characteristics (explanatory variables):
  - the provider at which the graduate was registered
  - year of graduation
  - subject of study
  - qualifications on entry into higher education
  - age
  - additional contextual variables:
    - declared disability status
    - ethnicity

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<sup>6</sup> These are student and course characteristics associated with degree outcomes, which are derived and available from administrative data for the whole sector.

<sup>7</sup> Limited to those receiving a classified honours degree.

- sex
- POLAR4 quintile.

10. We present sector-level results from modelling where the additional contextual variables have been included (the 'full model') and omitted (the 'simplified model') as explanatory variables for graduate attainment (see Annex D for details).
11. The modelling estimates little variation in the proportion of students attaining first and upper second class degrees between 2010-11 and 2018-19, meaning that the observed sector-level increase of 14.3 percentage points in first class degree attainment over this time period is considered unexplained by these factors alone.
12. The term 'unexplained' in this context means that changes in attainment over the time period cannot be statistically accounted for by changes in the characteristics of the graduating cohort in terms of the explanatory variables included in the statistical modelling. It is not possible to deduce from this analysis what factors not included in the modelling (such as improvements in teaching quality, more diligent students or changes to assessment approaches) are driving the observed changes in degree attainment.
13. We first present a sector-level overview of the changes in the observed proportion of graduates who attained a first or an upper second class degree, and of those who attained a first class degree, in the academic years 2010-11 to 2018-19. We then disaggregate these changes and present the attainment of graduates by qualifications held on entry into higher education.
14. We then present sector-level findings from statistical modelling and the associated analysis that allows us to determine how much of the observed increase in attainment of first and upper second degree classifications over time can be attributed to changes in the characteristics (explanatory variables) of the graduate population, and how much remains statistically unexplained, as defined in paragraph 12.
15. Next, we present estimates of the unexplained attainment of first and upper second class degrees combined, and of first class degrees alone, in a 'hypothetical' sector where attainment gaps between individuals of differing sex, ethnicity, declared disability status and POLAR4 quintile do not exist in the academic year 2018-19 (see Annex C for details).
16. We also investigated the possible impact that a change in A-Level awarding policy could have had on our estimates of the sector unexplained attainment of first and upper second class degrees combined, and of first class degrees alone.
17. Finally, summaries of the provider-level analysis are presented (based on the full model, see paragraph 10), where for first and upper second class degrees combined, and for first class degrees alone, we have calculated Z-scores<sup>8</sup> comparing provider attainment with the sector mean in 2010-11 and with the same provider in 2010-11.

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<sup>8</sup> Z-scores measure the distance a provider's attainment is from a comparator mean (the sector or same provider attainment in 2010-11). The distance is measured in standard deviations so that differences are comparable across academic years and providers.

# Results

## Sector-level analysis

### Sector overview

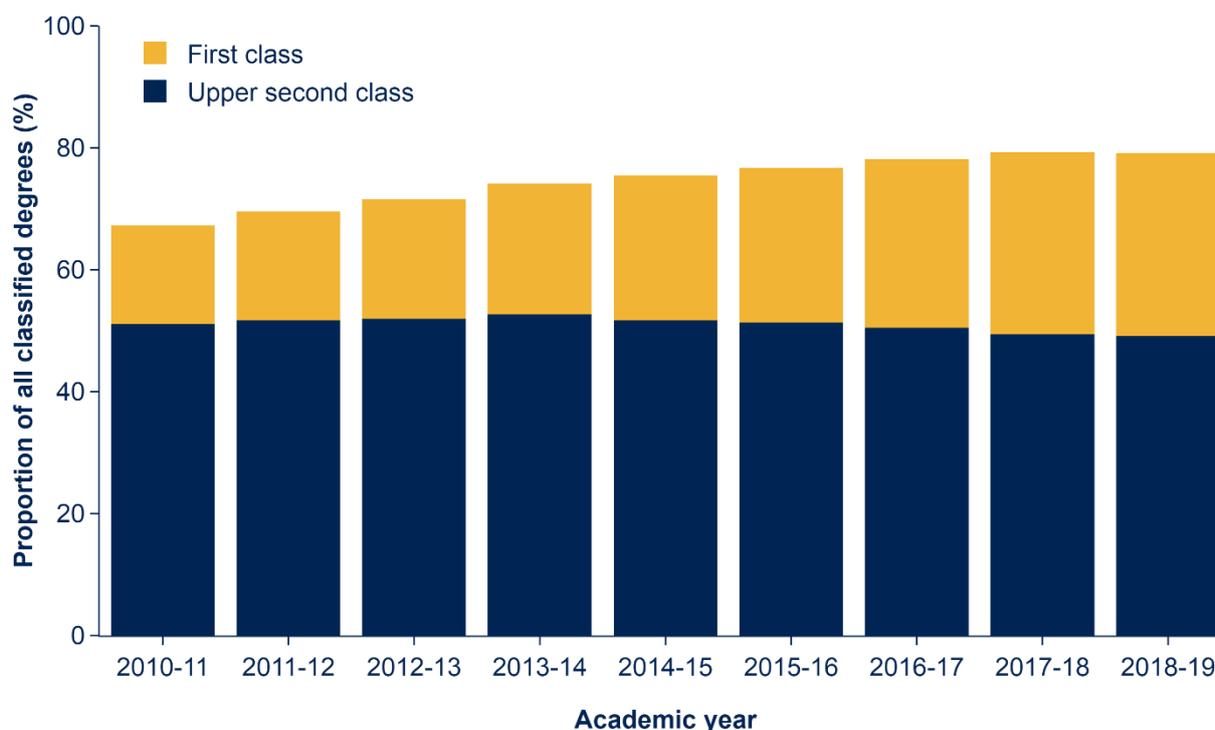
18. Table 1 shows a breakdown of the proportions of graduates attaining different classified degrees in the academic years 2010-11, 2017-18 and 2018-19.

**Table 1: Degree classifications summary for academic years 2010-11, 2017-18 and 2018-19**

Degree classification	2010-11 number	2010-11 proportion	2017-18 number	2017-18 proportion	2018-19 number	2018-19 proportion
First	34,885	15.7%	75,830	29.3%	77,110	29.5%
Upper second	113,975	51.3%	128,780	49.7%	129,105	49.4%
Other classifications	73,400	33.0%	54,535	21.0%	55,010	21.1%
Total	222,260	100.0%	259,145	100.0%	261,225	100.0%

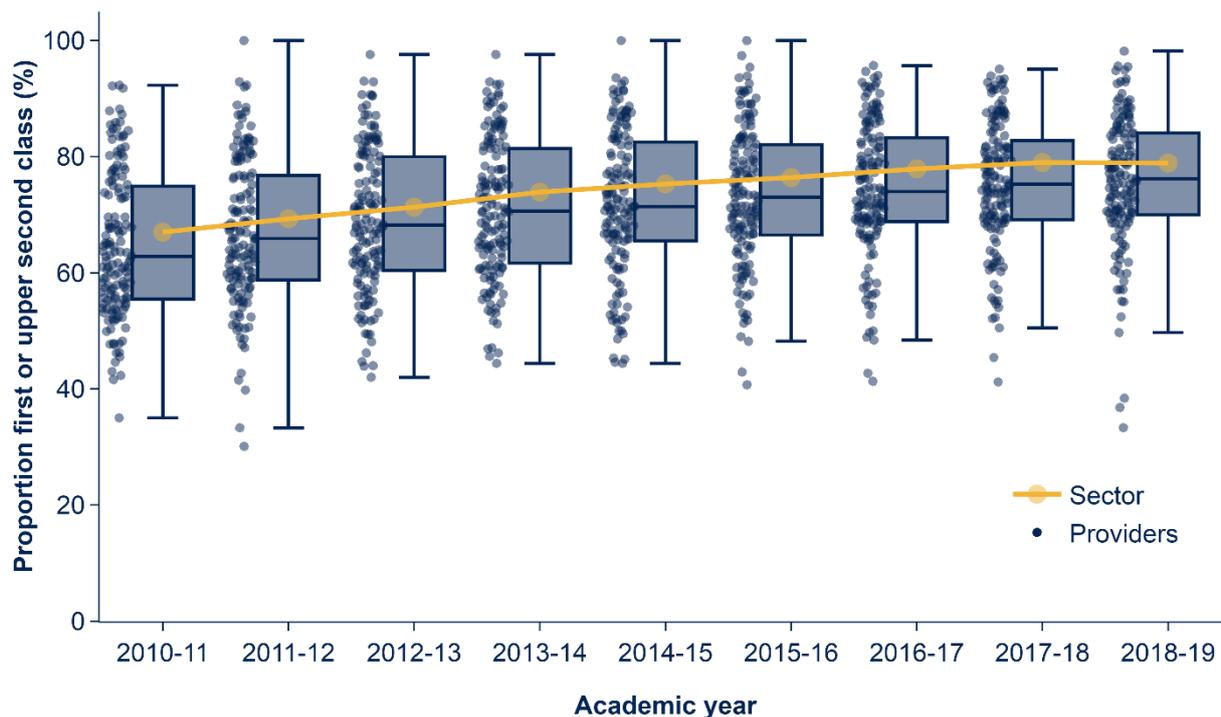
19. Figure 1 shows the changes in the proportions of all classified honours degrees awarded as first and upper second class from 2010-11 to 2018-19. The proportion of graduates attaining an upper second class degree over the period has remained relatively constant at around 50 per cent. The proportion attaining a first class degree saw year on year growth between 2010-11 and 2017-18, but has remained stable in 2018-19.

**Figure 1: Changes in proportions of classified degrees awarded as first and upper second class from 2010-11 to 2018-19**



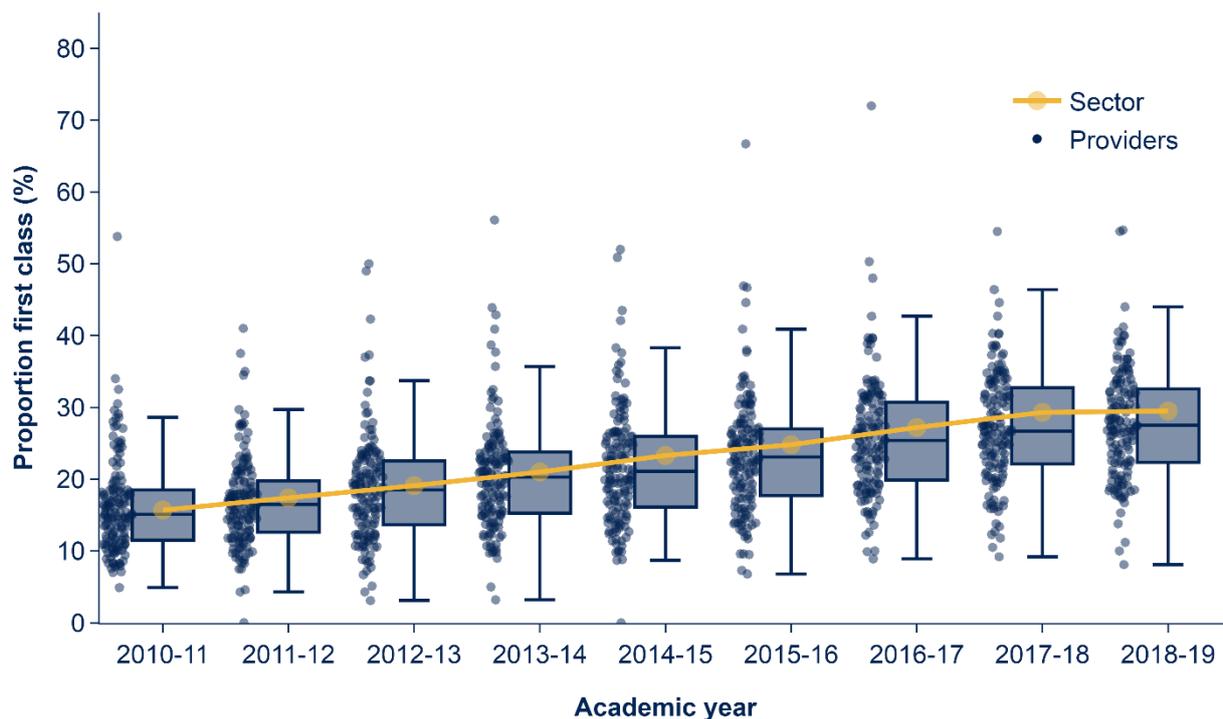
20. Figures 2 to 5 present 'box-and-whisker' summary plots of degree attainment at individual providers and across the sector. In each of these figures the solid horizontal line spanning the interior of the shaded box indicates the median attainment across all the providers, while the upper and lower bounds of the shaded box indicate the third (Q3) and first (Q1) quartiles of attainment across providers, respectively. The shaded region indicates the inter-quartile range (IQR) of attainment across providers, and the caps on the 'whiskers' (vertical lines extending out from the shaded box) indicate the value of the data point nearest to, but lower than,  $Q3+1.5*IQR$  for the upper whisker cap, and nearest to, but greater than,  $Q1-1.5*IQR$  for the lower whisker cap. Data points outside the range between the upper and lower whisker caps are considered 'outliers'.
21. Figure 2 shows a summary of the proportion of classified degrees awarded as first or upper second class for academic years 2010-11 to 2018-19 across the 147 providers included in this analysis. This shows large variation in attainment of upper second and first class degrees across providers, but for the latest years of data a levelling out in attainment levels and provider variation. Some outliers are identified, all exhibiting attainment levels below the lower whisker cap of the respective year.

**Figure 2: Provider-level summary distributions for proportions of first or upper second class degrees awarded from 2010-11 to 2018-19**



22. Figure 3 shows the equivalent summary, for first class degrees only, over the same time period. This shows a large variation in the attainment of first class degrees across providers, but the latest data shows that increases in attainment and variation previously observed are levelling off. More outliers are identified across the time series when we consider first class attainment, the vast majority exhibiting attainment higher than the upper whisker cap, but outlier numbers are reducing over time.

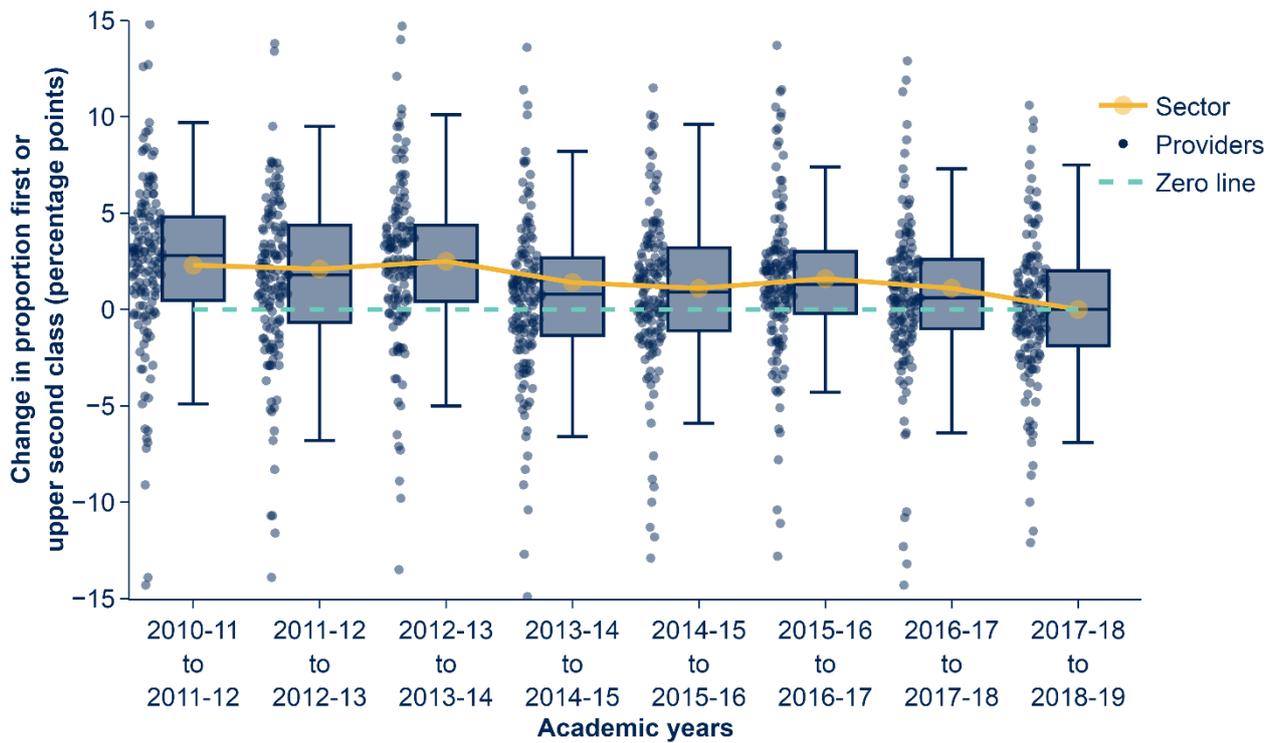
**Figure 3: Provider-level summary distributions for proportions of first class degrees awarded from 2010-11 to 2018-19**



23. Figure 4 shows the year-on-year changes in the attainment of upper second or first class degrees for the 147 providers and the mean for the sector. The year-on-year increase for the sector was zero for 2017-18 to 2018-19, after years of being greater than zero. The greatest fluctuations in year-on-year attainment changes occur in providers with small numbers, where changes in the outcomes for a small number of students can greatly change the proportion attaining a particular degree outcome.<sup>9</sup>

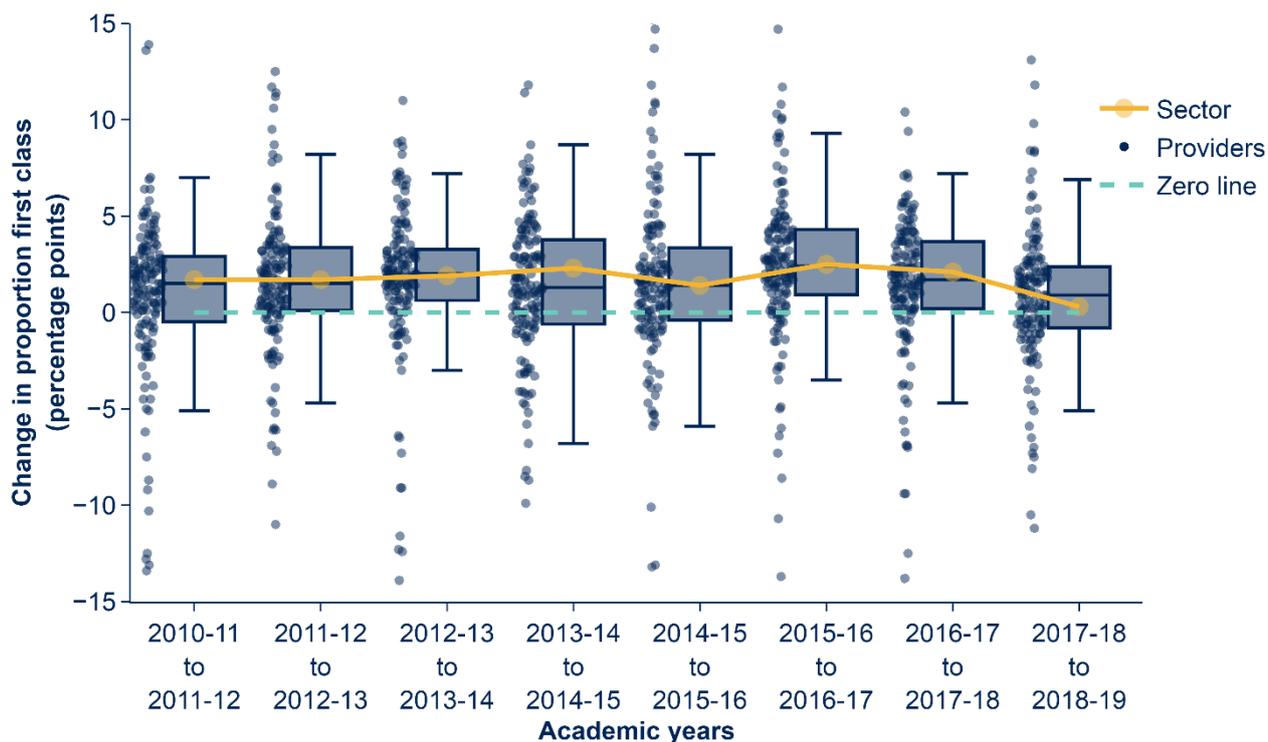
<sup>9</sup> Note: The y-axis range in Figures 4 and 5 has been selected to focus on the majority of providers. A small number of providers exhibit year-on-year attainment changes outside this range, so do not appear in the plots.

**Figure 4: Provider-level summaries for year-by-year changes in proportions of first or upper second class degrees awarded from 2010-11 to 2018-19**



24. Figure 5 shows the same data as Figure 4 but for first class degrees alone, exhibiting similar features. The year-on-year change for the sector between 2017-18 and 2018-19 was 0.3 percentage points.

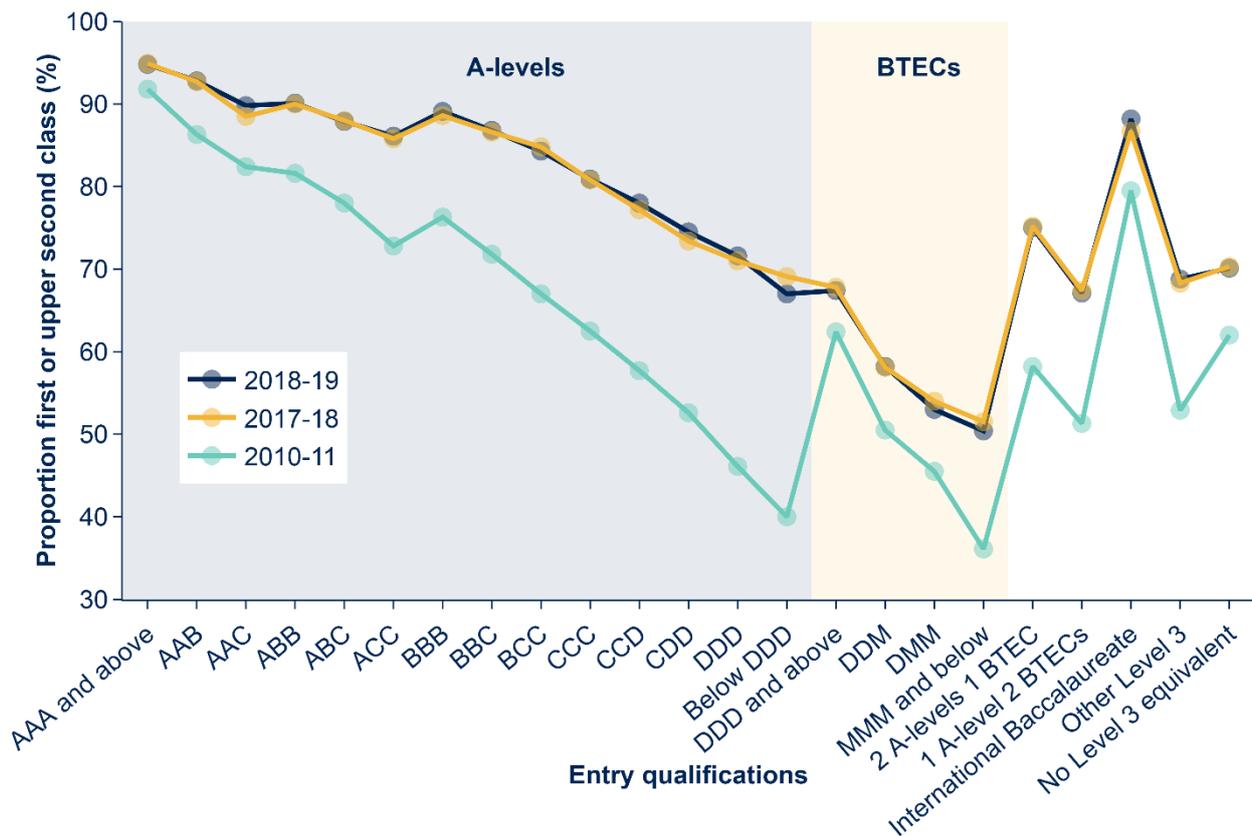
**Figure 5: Provider-level summaries for year-by-year changes in proportions of first class degrees awarded from 2010-11 to 2018-19**



### Changes by entry qualifications

25. Figure 6 presents the changes in degree attainment of first and upper second class degrees combined, in relation to graduates' entry qualifications for the academic years 2010-11, 2017-18 and 2018-19. A mean increase in degree attainment of 13.8 percentage points for all entry qualifications is observed from 2010-11 to 2018-19, and a mean increase in degree attainment of 0.3 percentage points from 2017-18 to 2018-19.
26. Figure 6 shows little change in attainment for graduates between 2017-18 and 2018-19 for different entry qualifications. However, a slight decrease in attainment is observed for graduates who entered higher education with the equivalent of below grades DDD at A-level, with a 2.1 percentage point decrease from 2017-18 to 2018-19. Previously, graduates in this entry qualifications category had seen the greatest increase in attainment of any of the categories, with a 29.1 percentage point increase between 2010-11 and 2017-18.

**Figure 6: First and upper second class degree attainment by entry qualifications for academic years 2010-11, 2017-18 and 2018-19**

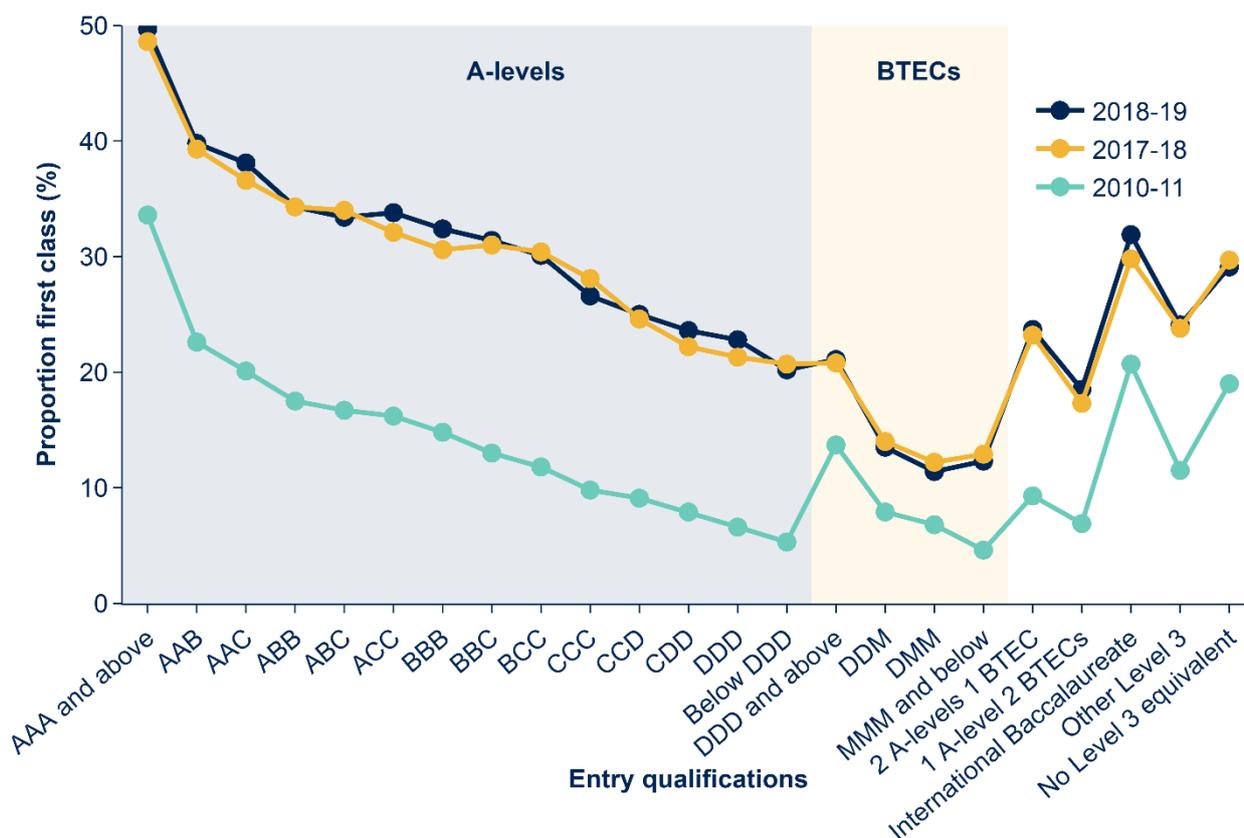


27. Figure 7 shows first class degree attainment only by entry qualifications.

28. The largest absolute increase from 2010-11 to 2018-19, of 18.4 percentage points, is seen among graduates who entered with BBC at A-level (or equivalent). In terms of relative change, for some entry qualification groups the percentage point increases equate to more than a tripling in the proportion of graduates attaining a first class degree in 2018-19 compared with 2010-11. For example, graduates who entered with grades below DDD at A-level (or equivalent) were almost four times as likely to receive a first class degree in 2018-19 as their counterparts in 2010-11. The likelihood for those entering with the following entry qualifications (or equivalent) at least doubled from 2010-11 to 2018-19: ABC, ACC, BBB, BBC, BCC, CCC, CCD, CDD, DDD and below at A-level; BTEC MMM and below; combinations of A-levels and BTECs; and other Level 3 qualifications.

29. In terms of the change in attainment from 2017-18 to 2018-19, the distribution of first class attainment across the different entry qualifications is similar in both years.

**Figure 7: First class degree attainment by entry qualifications for academic years 2010-11, 2017-18 and 2018-19**



### Results from statistical modelling

30. Tables 2 and 3 present sector-level changes in the attainment of first and upper second class degrees combined and of first class degrees alone, respectively, from 2010-11 through to 2018-19. The tables show the observed proportion of graduates attaining the respective degree classification ('Observed'), the percentage point ('pp') change in the observed attainment relative to 2010-11 ('Change from 2010-11') and the percentage point change which is unexplained once changes in the characteristics of the graduate population included in the modelling have been accounted for ('Unexplained change'). These results are shown for the modelling where additional contextual variables have been included ('full model') and when they have been omitted ('simplified model'). Details of the methodology used to determine unexplained attainment can be found in Annex C. Full model specifications can be found in Annex D.

**Table 2: Summary of observed and unexplained sector-level changes in first and upper second class degree attainment combined for the 'full' and 'simplified' models**

Academic year	Observed (%)	Change from 2010-11 (pp)	Unexplained change (full model) (pp)	Unexplained change (simplified model) (pp)
2010-11 (ref.)	67.0	0.0	0.0	0.0
2011-12	69.3	2.3	2.4	2.3

<b>2012-13</b>	71.3	4.3	4.2	4.0
<b>2013-14</b>	73.9	6.9	6.4	6.1
<b>2014-15</b>	75.3	8.3	8.2	7.7
<b>2015-16</b>	76.4	9.4	9.8	9.3
<b>2016-17</b>	77.9	10.9	11.9	11.3
<b>2017-18</b>	79.0	12.0	13.4	12.7
<b>2018-19</b>	78.9	11.9	13.7	12.8

**Table 3: Summary of observed and unexplained sector-level changes in first class degree attainment for the ‘full’ and ‘simplified’ models**

<b>Academic year</b>	<b>Observed (%)</b>	<b>Change from 2010-11 (pp)</b>	<b>Unexplained change (full model) (pp)</b>	<b>Unexplained change (simplified model) (pp)</b>
<b>2010-11 (ref.)</b>	15.7	0.0	0.0	0.0
<b>2011-12</b>	17.4	1.7	1.6	1.6
<b>2012-13</b>	19.1	3.4	3.0	2.9
<b>2013-14</b>	21.0	5.3	4.6	4.5
<b>2014-15</b>	23.3	7.6	7.0	6.7
<b>2015-16</b>	24.8	9.1	8.8	8.6
<b>2016-17</b>	27.2	11.5	11.5	11.3
<b>2017-18</b>	29.3	13.6	13.9	13.5
<b>2018-19</b>	29.5	13.8	14.3	13.9

31. Table 2 shows an unexplained percentage point increase in attainment of 13.7 for first and upper second class degrees in 2018-19 (full model), compared with the observed change of 11.9 percentage points. As in all years the majority of the observed change in percentage point increase is unexplained. In fact, both models predicted that attainment for first and upper second class degrees in 2018-19 should be lower than that observed in 2010-11.

32. Table 3 also shows that the 13.8 percentage point increase in first class degree attainment between 2010-11 and 2018-19 is entirely unexplained by student and course characteristics. Again, both models predicted that attainment for first class degrees in 2018-19 should be lower than the observed attainment in 2010-11.

### **Additional analysis – hypothetically closed attainment gaps**

33. As was reported in previous releases of this analysis, we have produced estimates of the effect of closing (reducing to zero) the existing attainment gaps between individuals of differing sex, ethnicity, disability and POLAR4 quintile (additional contextual variable groups) on the sector-

level unexplained attainment of first and upper second class degrees combined, and first class degrees alone, for 2018-19 (see Annex C for details).<sup>10</sup>

34. The highest attaining individual characteristics in the additional contextual variable groups were considered to be those showing the greatest (most positive) regression coefficient estimates in the full model<sup>11</sup> (regression coefficient estimates can be found in Annex D).
35. For upper second and first class degrees combined, the highest attaining graduates for the additional contextual variable groups were white, non-disabled women from POLAR4 quintile 5 areas.
36. Table 2 showed that 13.7 percentage points of sector attainment of first and upper second class degrees combined were 'unexplained'. However, when we removed attainment gaps for these characteristics and assumed all graduates attained at the highest levels predicted by the model, the estimated 2018-19 sector unexplained attainment reduced to 6.1 percentage points.
37. For first class degrees alone, the highest attaining graduates for the additional contextual variable groups were white, non-disabled women from POLAR4 quintile 4 areas.
38. Table 3 showed that 14.3 percentage points of sector attainment of first class degrees alone was 'unexplained'. However, when we removed attainment gaps for these characteristics and assumed all graduates attained at the highest levels predicted by the model, the estimated 2018-19 sector unexplained attainment reduced to 11.2 percentage points.
39. For both first and upper second class degrees combined, and first class degrees alone, these hypothetical sector results show that, even if the sector succeeded in closing attainment gaps for the groups specified, there would still be unexplained sector attainment.

### **Additional analysis – investigating the effect of A-Level awarding policy changes**

40. It has been reported that the introduction of a 'comparable outcomes' policy by the qualifications and examinations regulator (the Office of Qualifications and Examinations Regulation) in 2010 could be masking a genuine increase in the ability of A-Level qualifiers.<sup>12</sup> The policy sets an expectation that if the cohort's prior attainment is similar to that of cohorts in previous years, then the year-on-year distribution of grades awarded should be similar. Prior to 2010, the proportion of qualifiers achieving the highest A-Level grades had been increasing and it is unclear whether this was due to grade inflation or an increase in ability.
41. If the new policy did mask a genuine increase in the ability of A-Level qualifiers, this would violate one of the assumptions underlying our modelling, that the A-Level entry qualifications

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<sup>10</sup> These attainment gaps exist in the sector (see, for example [www.officeforstudents.org.uk/data-and-analysis/access-and-participation-data-dashboard/](http://www.officeforstudents.org.uk/data-and-analysis/access-and-participation-data-dashboard/)), and are apparent from these groups having significantly different regression coefficients in our statistical modelling. The unexplained attainment estimates produced here are based on a hypothetical sector where we have used our statistical modelling to artificially close the attainment gaps and assume only the highest attainment levels for all additional contextual variable groups.

<sup>11</sup> We recognise that the highest attaining individual characteristics in the additional contextual variable groups for the sector may not be the same as the highest attaining groups at an individual provider. This figure is included as a guide only.

<sup>12</sup> See <https://wonkhe.com/blogs/grade-inflation-run-wild/>.

are equivalent over time (so the model assumes that degree qualifiers with AAA A-Level qualifications are comparable whether qualifying in 2010-11 or 2018-19).

42. Analysis was carried out to consider what the impact would be on sector unexplained attainment if we artificially inflated entry qualifications. Post-2010 A-Level qualifiers' data was modified to assign students one grade higher than was originally recorded (an upper estimate) and run through our statistical models (see Annex D). This indicated that the unexplained increase in attainment of 13.7 percentage points for first and upper second class degrees in 2018-19 (see Table 2) would reduce to 11.2 percentage points under this scenario. For first class degrees alone, the unexplained increase in attainment of 14.3 percentage points (see Table 3) would reduce to 11.9 percentage points using the inflated entry qualifications data.
43. This suggests that while some of the reported unexplained attainment could be explained by the change in A-Level grading policy, there is still strong evidence of significant unexplained sector attainment increases between 2010-11 and 2018-19.

## **Provider-level analysis**

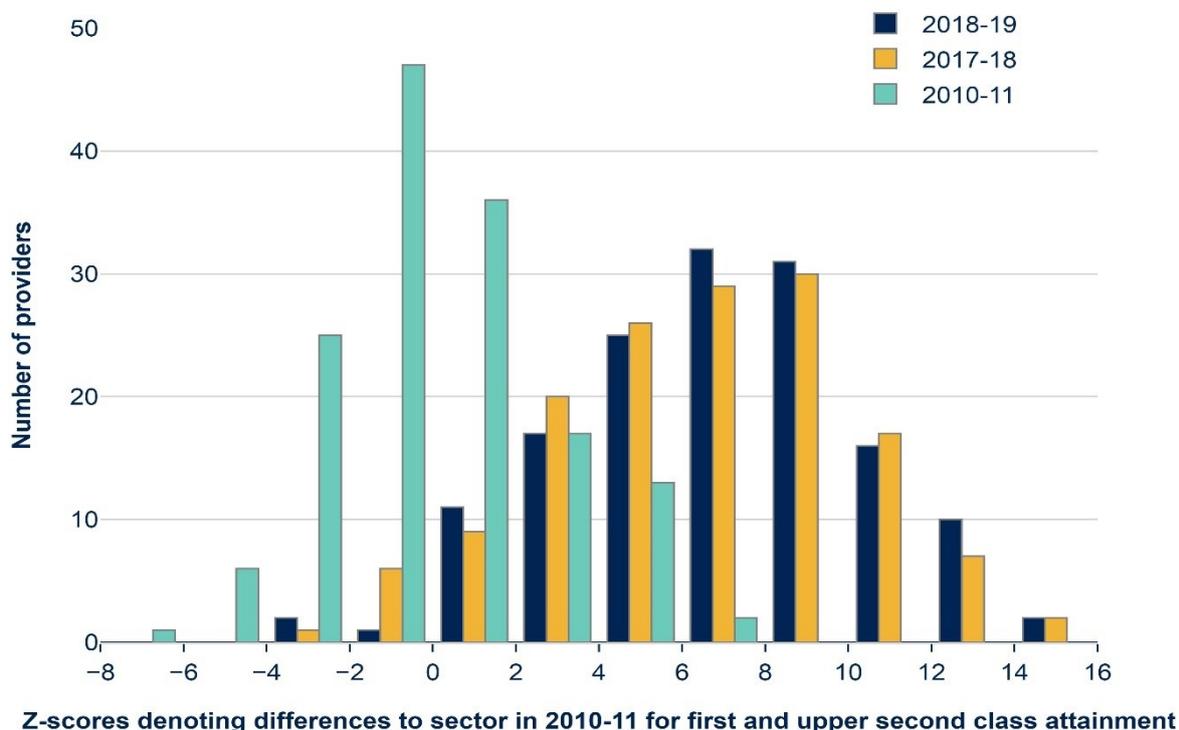
### **Changes in attainment at providers relative to the sector in 2010-11**

44. We have also investigated changes in graduate attainment at individual providers, relative both to the mean graduate attainment in the sector in 2010-11 and to the same provider in 2010-11. Provider differences are presented as Z-scores and are derived from the 'full model'.
45. Z-scores measure the distance a provider's attainment is from a comparator mean (the sector or same provider attainment in 2010-11). The distance is measured in standard deviations so that differences are comparable across academic years and providers.
46. Figures 8 and 9 present the distribution of Z-scores denoting the changes in graduate attainment between the sector in 2010-11 and providers in 2018-19, 2017-18 and 2010-11, for first and upper second class degrees combined and first class degrees alone respectively. This demonstrates that in 2010-11 providers were fairly evenly distributed around the sector average (where the Z-score is 0) with a small proportion of providers exhibiting attainment significantly higher or lower than the sector mean. Over time, the difference between the sector average in 2010-11 and the provider averages has increased, with most providers exhibiting unexplained attainment significantly<sup>13</sup> above the sector mean in both 2017-18 and 2018-19.

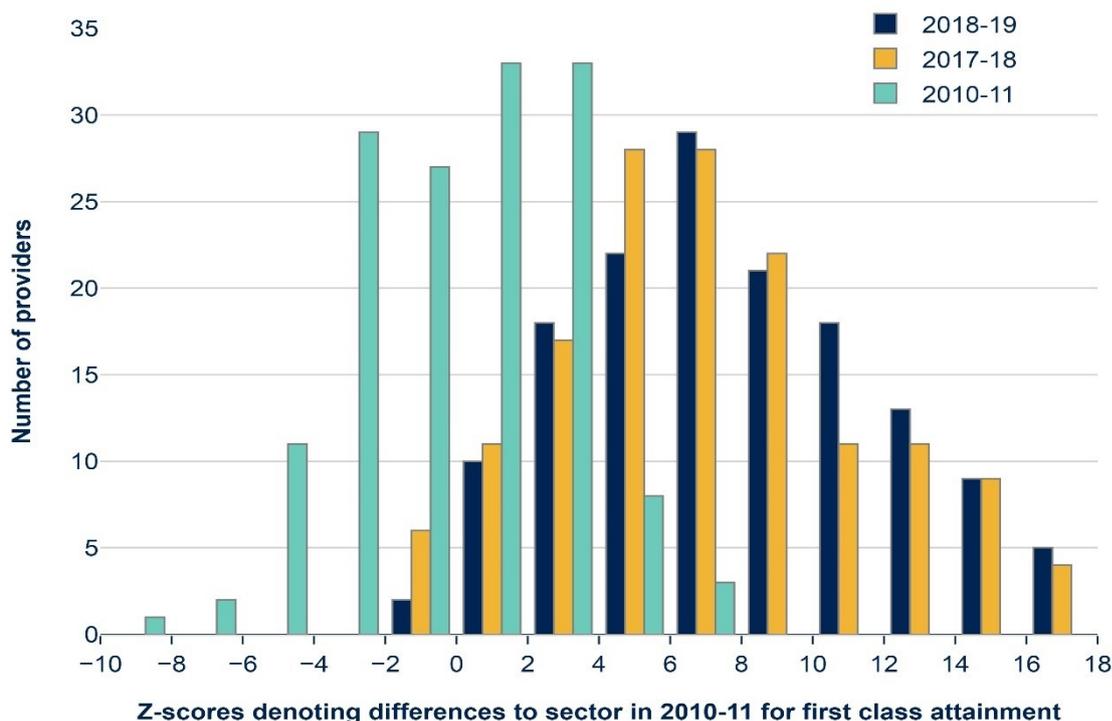
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<sup>13</sup> As a guide, providers with Z-scores +/-3.6 would be considered statistically significant at the 95 per cent level (i.e. we could be 95 per cent confident that the observed difference is not due to chance). This includes a Bonferroni correction for multiple comparisons.

**Figure 8: Distribution of Z-scores denoting the difference between first or upper second class attainment in the sector in 2010-11 and individual providers for academic years 2010-11, 2017-18 and 2018-19**



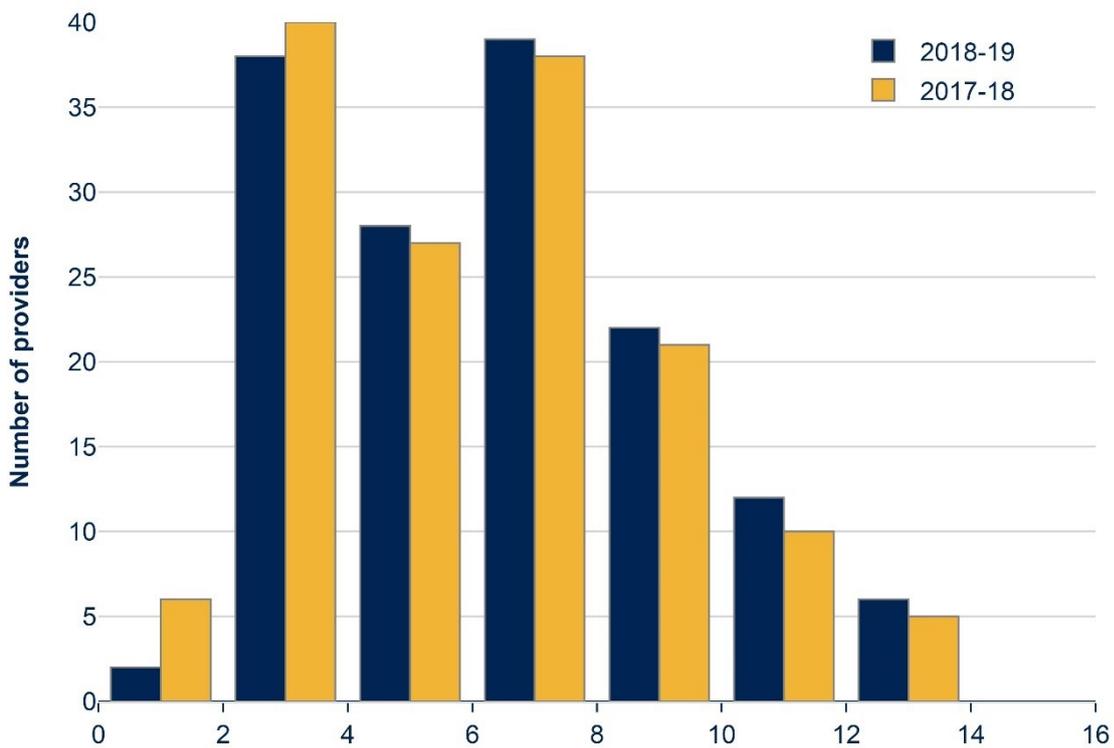
**Figure 9: Distribution of Z-scores denoting the difference between first class attainment in the sector in 2010-11 and individual providers for academic years 2010-11, 2017-18 and 2018-19**



### Changes in attainment at providers relative to the provider in 2010-11

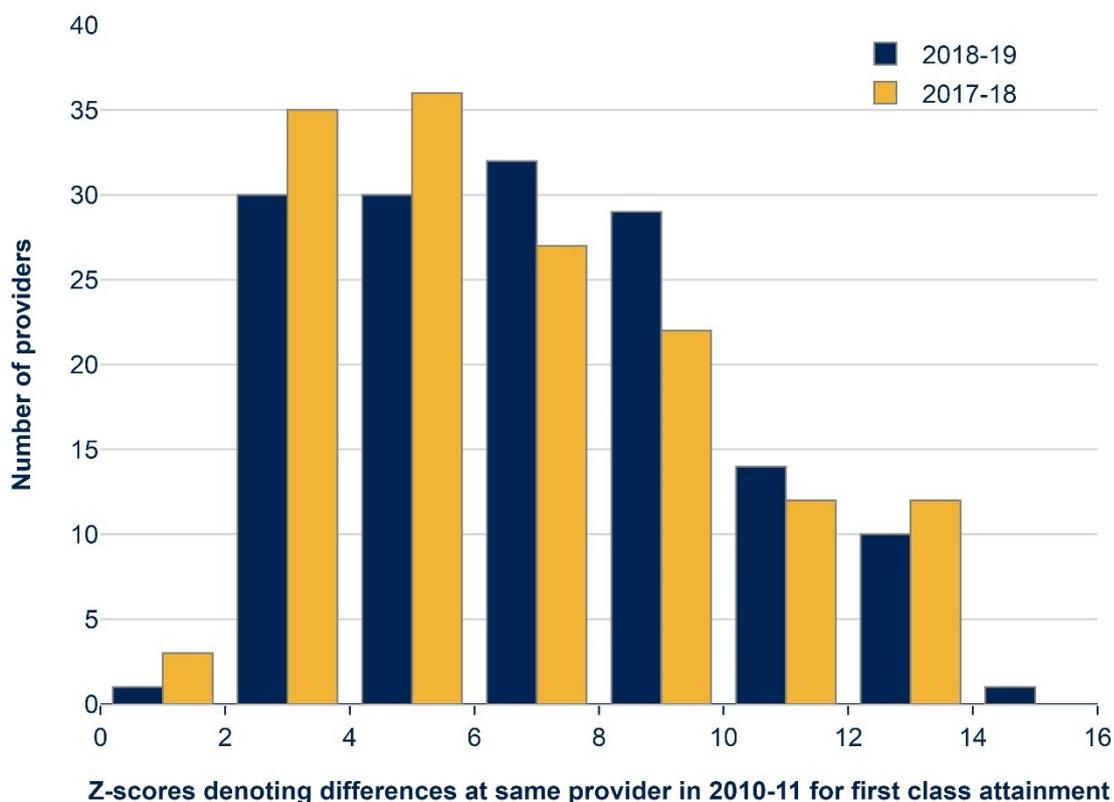
47. Figures 10 and 11 present the distribution of Z-scores for providers when comparing their graduate attainment in 2010-11 with 2017-18 or 2018-19, for first and upper second class degrees combined and first class degrees alone respectively. This clearly shows that none of the providers have lower graduate attainment in 2017-18 or 2018-19, compared with their 2010-11 graduate attainment.

**Figure 10: Distribution of Z-scores denoting the difference between first and upper second class attainment at providers in 2010-11 compared with 2017-18 and 2018-19**



Z-scores denoting differences at same provider in 2010-11 for first and upper second class attainment

**Figure 11: Distribution of Z-scores denoting the difference between first class attainment at providers in 2010-11 compared with 2017-18 and 2018-19**



### Summary of changes in attainment at the provider level

48. We have presented provider-level comparisons for 2010-11, 2017-18 and 2018-19. Full provider tables for all years are available to download alongside this document at [www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/](http://www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/).

49. Considering the graduate attainment of first and upper second class degrees combined, and focusing on the changes to Z-scores between 2017-18 and 2018-19, 61 per cent (90) of the 147 providers saw increases in the unexplained attainment relative to the sector and themselves, while 38 per cent (56 providers) saw decreases in the unexplained attainment relative to the sector and themselves.

50. Considering the graduate attainment of first class degrees alone, and focusing on the changes to Z-scores between 2017-18 and 2018-19, 73 per cent (108) of the 147 providers saw increases in the unexplained attainment relative to the sector and themselves, while 26 per cent (38 providers) saw decreases in the unexplained attainment relative to the sector and themselves.

# Annex A: Provider-level results for academic years 2010-11 and 2018-19

1. This annex contains the provider-level graduate attainment modelling results for the academic years 2010-11 and 2018-19 for all 147 providers considered in this report. This is provided as an indicative reference for the reader. Complete findings for all years 2010-11 to 2018-19, along with the sector 2010-11 and provider 2010-11 Z-scores (see main report paragraph 45), are available in full provider tables at [www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/](http://www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/).
2. Table A1 contains the provider-level results for the first and upper second class degrees combined. Table A2 contains the provider-level results for first class degrees alone. The results in these tables are produced using the 'full model' given in Equation D1 in Annex D.
3. The table headings are as follows:

**Number** – The number of graduates attaining a classified degree from the provider.

**Observed (%)** – The proportion of these graduates attaining the specified degree classifications.

**Sector 2010-11 Z-score** – Z-score denoting the difference in attainment at the provider and attainment in the sector in 2010-11, with the effect of all the explanatory variables accounted for (see Annex C).

**Provider 2010-11 Z-score** – Z-score denoting the difference in attainment at the provider and attainment at the same provider in 2010-11, with the effect of all explanatory variables accounted for (see Annex C).

**Unexplained (pp)** – The unexplained attainment at the provider relative to the attainment in the sector in 2010-11 (calculated using the fixed effects of the 'full' mixed-effect logistic regression model presented in Annex D).<sup>14</sup> A negative number of percentage points (pp) here indicates that attainment at the provider is beneath that of the average sector attainment in 2010-11 with the effect of explanatory variables accounted for.

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<sup>14</sup> In the previous report (OfS 2019.28) the unexplained attainment was calculated using the fixed effects of the 'simplified' mixed-effect logistic regression model.

**Table A1: Provider-level results for first and upper second class degrees combined in academic years 2010-11 and 2018-19**

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
Anglia Ruskin University Higher Education Corporation	1,950	57.8	-0.5	-1.3	3,380	77.3	13.3	13.0	25
Arts University Bournemouth, the	615	61	-3.7	-7.2	815	70.4	1.8	4.8	3.6
University of the Arts, London	2,170	69.6	0.9	2.1	2,235	75.2	6.0	4.8	10.4
Askham Bryan College*	35	60.6	-0.4	0.3	75	84	4.6	4.5	25.8
Aston University	1,305	73.8	3.7	6.2	2,200	84.7	13.1	8.5	22.5
The University of Bath	1,625	84.5	1.2	2.1	2,445	90.1	6.0	4.3	6
Bath Spa University	1,265	68.4	0.8	1.7	1,615	82	9.2	7.7	16.8
University of Bedfordshire	1,485	57.3	2.5	5.4	1,350	70.9	10.5	7.6	22.7
The University of Birmingham	3,990	77.7	-1.1	-1.5	4,555	89.4	7.9	8.6	8.2
University College Birmingham	475	45.5	-2.8	-9.4	610	66.1	6.8	8.3	17.7
Birmingham City University	2,865	65	4.7	8.9	4,155	75.7	12.5	7.6	22.4
Bishop Burton College*	60	35	-5.6	-18.1	85	38.4	-2.4	2.7	-18.8
Bishop Grosseteste University	430	56	-2.9	-7.7	445	70.6	3.9	5.8	10.3
Blackburn College*	270	52.4	-2.7	-4.8	330	52.4	0.1	2.4	-2.3
Blackpool and the Fylde College*	245	61.7	-0.8	-0.3	375	65.5	3.0	3.1	6
The University of Bolton	635	49.9	-2.2	-5.4	885	59.9	4.4	5.8	10.1
Bournemouth University	2,260	68.2	1.4	2.5	3,115	80.9	10.7	8.8	18.2
The University of Bradford	1,270	47.8	-0.1	-1.9	1,445	79.1	14.2	13.2	29.7
Bradford College*	315	43	-2.6	-8	310	49.7	2.4	4.3	4.7
University of Brighton	2,565	64.5	0.2	0.4	3,365	70.3	5.2	4.8	9.2
University of Bristol	2,620	86	-0.8	-0.8	3,560	92.9	7.9	8.0	6.9
Brunel University London	2,250	67.3	4.6	8.9	2,065	77.1	10.1	5.5	18.6
The University of Buckingham	80	53.7	0.6	4.9	145	69.4	5.0	3.7	14.7
Buckinghamshire New University	915	47.7	-2.6	-5.5	1,670	57.1	2.5	4.5	4.8
University of Cambridge	2,355	87.3	-2.9	-2.7	2,005	92.6	4.2	6.3	3.5
Canterbury Christ Church University	1,815	60.1	0.3	0.5	1,980	69.9	7.2	6.5	14.1
University of Central Lancashire	3,575	57.4	-0.4	-0.8	2,800	74.3	10.0	10.2	19.2

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
University of Chester	1,510	60.8	-1.2	-2.2	2,270	73.6	6.8	7.4	13.1
The University of Chichester	895	60.2	0.2	0.4	1,205	76.2	8.1	7.1	17
City, University of London	1,265	66.4	2.2	5	1,630	75.3	8.0	5.3	15.4
The Conservatoire for Dance and Drama*	105	83.5	5.9	18	135	94.8	10.5	4.3	30.3
Courtauld Institute of Art*	50	91.8	1.5	1	55	98.2	4.8	3.9	14.4
Coventry University	2,360	68.4	6.3	11.9	3,965	81	15.5	8.7	26.9
University for the Creative Arts	1,045	47.8	-5.6	-13.6	1,100	73.2	6.2	10.6	13.2
The University of Cumbria	1,330	61.4	-0.6	-0.8	1,265	62.3	3.2	3.4	6
De Montfort University	2,825	53	-0.6	-1.6	4,295	73.1	12.0	12.2	22.3
University of Derby	2,265	53.6	0.4	0.8	2,630	69.3	7.4	6.7	14.4
DN Colleges Group*	160	53.5	-2.3	-5	310	63.9	2.3	3.8	5.8
University of Durham	2,825	83.4	-3.1	-3.7	3,115	93.4	8.0	10.2	6.9
The University of East Anglia	2,260	73.4	0.1	-0.5	2,750	88.5	12.0	11.3	16.6
University of East London	1,940	51.7	2.7	5.4	1,920	71.5	12.5	9.4	25.8
Edge Hill University	1,940	54.7	-1.4	-2.8	2,960	71.1	6.5	7.4	12.3
The University of Essex	1,665	64.8	1.0	1.6	1,910	76.8	10.1	8.5	19.3
University of Exeter	2,935	85.5	3.2	4	3,880	89.8	7.8	4.3	7.7
Falmouth University	765	63.6	-1.5	-3.2	1,490	76.3	5.9	6.4	10.9
Farnborough College of Technology*	85	54.2	-2.7	-5.1	100	65	1.9	3.9	9.4
Gateshead College*	20	61.9	0.5	6.1	30	78.1	4.4	3.8	26.7
University of Gloucestershire	1,240	72.8	4.4	9.4	1,645	75.5	7.8	3.1	14.9
Goldsmiths' College	1,105	69.6	1.6	2.6	1,290	79.8	9.6	7.2	17.9
Greater Brighton Metropolitan College*	170	67.6	1.9	7.5	135	80.1	6.5	4.1	20.3
University of Greenwich	2,475	55.7	1.7	3	2,610	78.6	13.4	11.3	25
Grimsby Institute of Further and Higher Education*	195	52.3	-3.2	-6.8	195	63.3	1.2	3.8	4.1
Guildhall School of Music & Drama*	100	88.2	5.7	16.2	115	95.6	9.6	3.8	21.7
Harper Adams University	255	53.1	-3.5	-11.4	455	76.3	4.2	6.5	11.4
Hereford College of Arts*	85	63.5	-0.5	3.6	100	70.3	3.5	3.4	11.4
University of Hertfordshire	2,945	67.2	6.3	12.1	3,580	68.3	8.7	2.4	16.4

<b>Provider name</b>	<b>2010-11 number</b>	<b>2010-11 observed (%)</b>	<b>2010-11 sector 2010-11 z-score</b>	<b>2010-11 unexplained (pp)</b>	<b>2018-19 number</b>	<b>2018-19 observed (%)</b>	<b>2018-19 sector 2010-11 z-score</b>	<b>2018-19 provider 2010-11 z-score</b>	<b>2018-19 unexplained (pp)</b>
The University of Huddersfield	2,460	57.9	0.0	-0.5	2,680	80.3	12.8	12.3	22.9
The University of Hull	2,570	57.2	-3.2	-6.3	2,580	74.6	8.1	10.7	15.3
Hull College*	165	53.9	-3.3	-6.1	120	55.1	0.7	3.3	1.8
Imperial College of Science, Technology and Medicine	1,295	84.8	-0.3	-0.4	1,235	95.5	7.6	7.2	7.9
University of Keele	1,120	67.8	1.7	3.7	1,695	79.1	10.1	7.5	19.3
The University of Kent	2,930	69.6	1.9	3.2	3,265	79	9.7	7.5	15.7
King's College London	2,180	80.6	1.3	1.9	2,635	86.7	8.0	6.2	10.1
Kingston University	3,150	62	4.1	7.8	2,425	75.7	12.8	8.7	24.2
Kirklees College*	25	52	-1.1	-6.2	10	33.3	2.4	3.3	-16.7
The University of Lancaster	2,100	76.6	-0.8	-0.9	1,935	83.2	4.0	4.5	5.4
The University of Leeds	5,165	80.2	-0.9	-1.1	5,330	89.6	8.3	8.9	8.4
Leeds Arts University*	290	66.8	0.4	2.3	415	76.8	4.0	3.0	6.5
Leeds Beckett University	4,245	55.8	-2.8	-5.3	3,860	73	7.9	10.5	14.6
Leeds College of Music*	205	87.9	5.7	18.9	290	78.1	7.8	1.6	17.2
Leeds Trinity University	540	44.6	-4.8	-15.9	765	78.8	9.0	11.9	21.8
The University of Leicester	2,015	73.8	1.4	2.3	2,580	81.4	9.9	7.9	16.5
University of Lincoln	2,140	58	-2.0	-4	2,930	78.5	8.5	9.9	14.9
The University of Liverpool	2,730	74.3	-0.3	-0.4	3,775	85.1	7.9	7.8	10.8
Liverpool Hope University	1,130	65.3	1.4	4.3	1,015	72.4	5.3	3.7	11.5
The Liverpool Institute for Performing Arts*	165	84.9	5.4	15.9	185	80.9	8.4	2.7	18.6
Liverpool John Moores University	3,935	61.1	0.5	0.9	3,965	75.5	8.3	7.7	14.5
University College London	2,275	84.1	2.2	2.5	2,595	90.9	8.4	5.9	8.3
London Metropolitan University	1,855	55.4	1.6	3.9	1,300	61.3	6.6	4.8	14.4
The London School of Economics and Political Science	670	83	-2.0	-2.8	705	92.9	5.4	6.4	7.9
London South Bank University	1,545	53.8	2.7	5.6	1,865	70.2	10.8	7.7	22.3
Loughborough College*	110	51.8	-3.8	-6	150	36.8	-2.0	1.5	-15.1
Loughborough University	2,780	72.9	-1.2	-2	2,890	85.6	7.1	7.9	9.4

<b>Provider name</b>	<b>2010-11 number</b>	<b>2010-11 observed (%)</b>	<b>2010-11 sector 2010-11 z-score</b>	<b>2010-11 unexplained (pp)</b>	<b>2018-19 number</b>	<b>2018-19 observed (%)</b>	<b>2018-19 sector 2010-11 z-score</b>	<b>2018-19 provider 2010-11 z-score</b>	<b>2018-19 unexplained (pp)</b>
The University of Manchester	5,505	75.2	-4.2	-5.6	4,870	87	6.6	10.4	7.6
Manchester Metropolitan University	5,295	59.6	-0.5	-0.9	6,245	72.9	8.2	8.6	14
Middlesex University	2,240	57	3.3	6.6	2,710	70.8	11.9	8.3	23.6
Moulton College*	35	62.2	-0.4	9.6	50	64.6	3.2	3.1	10.4
Nelson and Colne College*	10	63.6	-0.4	10.5	40	58.5	2.9	3.0	3.5
New City College*	125	61	1.3	11	70	57.1	3.8	2.2	4.4
New College Durham*	105	42.3	-4.9	-18.7	155	57.1	-0.1	4.2	-1.4
University of Newcastle upon Tyne	3,095	78	-2.0	-2.6	4,160	85.5	5.2	6.8	6.3
Newman University	490	48.2	-2.1	-6.1	470	67.4	6.0	7.0	16.3
North East Surrey College of Technology (NESCOT)*	25	77.8	-0.3	20	30	86.2	3.1	3.4	27.9
University of Northampton, The	1,710	65.4	4.0	8.3	1,975	71	8.7	4.5	17
The Northern School of Art*	115	54.9	-1.8	-5.7	120	69.4	2.9	4.0	9.1
University of Northumbria at Newcastle	3,735	64.6	-0.6	-1.3	3,950	84.1	12.8	13.1	20.7
Norwich University of the Arts	405	62.8	-0.3	0.6	560	70.6	3.3	3.1	6.2
Nottingham Trent University	4,205	57.5	-2.4	-4.6	5,400	72.1	6.4	8.6	10.8
University of Nottingham, The	4,115	78.6	-1.3	-1.7	5,305	87.3	7.3	8.3	8.2
The School of Oriental and African Studies*	475	81.4	2.4	5.8	555	83	7.2	4.1	14.7
University of Oxford	2,695	92.2	3.7	3.4	2,510	94.9	8.3	4.4	6.2
Oxford Brookes University	2,030	73.1	2.3	4.3	2,510	83	10.1	7.3	16.6
University of Plymouth	3,735	62.9	0.6	1.1	3,680	76.2	8.5	7.7	15
Plymouth College of Art*	155	59.2	-1.9	-1.1	335	59.9	0.7	2.3	-0.6
University of Portsmouth	3,555	58.5	-1.2	-2.8	3,915	78.1	11.7	12.6	20.5
Queen Mary University of London	2,090	63.7	-1.0	-2	2,425	87.1	11.3	11.6	17.3
Ravensbourne University London*	285	60.8	1.2	4	530	83.6	9.8	7.2	25.5
The University of Reading	2,100	75.9	1.4	2.6	2,600	84.6	8.2	6.3	11.9
Roehampton University	1,485	55.6	-0.4	-1.2	1,725	68.6	7.7	7.5	15.6
Rose Bruford College of Theatre and Performance*	180	77.2	4.1	14.7	145	86.8	8.0	3.7	22.2

<b>Provider name</b>	<b>2010-11 number</b>	<b>2010-11 observed (%)</b>	<b>2010-11 sector 2010-11 z-score</b>	<b>2010-11 unexplained (pp)</b>	<b>2018-19 number</b>	<b>2018-19 observed (%)</b>	<b>2018-19 sector 2010-11 z-score</b>	<b>2018-19 provider 2010-11 z-score</b>	<b>2018-19 unexplained (pp)</b>
The Royal Academy of Music*	50	92.3	4.2	23.7	65	87.9	6.8	2.7	12
The Royal Agricultural University	215	41.6	-6.1	-23.8	275	68	1.7	6.6	4.4
The Royal Central School of Speech and Drama	155	85.9	5.2	14.5	175	88.4	9.0	3.4	20.5
Royal College of Music	40	80	0.8	3.7	50	84	4.3	3.3	4.8
Royal Holloway and Bedford New College	1,490	76.5	0.1	0.1	1,705	84.1	8.1	7.2	12.9
Royal Northern College of Music	65	74.6	1.4	3.7	125	85.6	5.5	3.6	11.4
The Royal Veterinary College	70	75.7	-2.7	-1	155	80.3	1.7	3.9	7.6
University of Salford, The	2,600	58.3	0.3	0.4	3,290	71.6	8.0	7.4	14.5
The University of Sheffield	3,525	78.3	-1.3	-1.7	3,740	88.2	7.4	8.2	8.5
Sheffield Hallam University	4,500	67.9	3.6	6.4	5,625	78.2	11.1	7.5	18.8
Solent University	2,065	50.5	-3.6	-7.8	1,640	72.4	8.6	11.4	17.7
University of Southampton	3,050	80.2	0.8	1.1	3,675	88.4	9.4	8.2	11.4
Sparsholt College*	60	58.3	-0.4	1.9	55	68.5	3.4	3.4	10.4
University of St Mark & St John	555	50.3	-2.3	-6.2	495	73	6.3	7.5	17.4
St Mary's University, Twickenham	725	54.7	-1.4	-3.8	925	74.3	8.3	8.6	19.2
St. George's Hospital Medical School	300	60	-1.0	-3.9	450	79.6	5.9	5.9	13.9
Staffordshire University	1,850	54.6	-1.6	-3.7	1,915	71.6	8.9	9.9	18.2
University of Suffolk*	560	46.3	-5.2	-13.7	740	70.6	4.6	8.5	12
University of Sunderland	1,670	56.7	-0.6	-1.1	1,970	66.6	5.9	6.0	12
The University of Surrey	1,535	75	2.8	4.5	2,155	81.9	7.7	4.6	10.9
University of Sussex	1,890	81.7	2.6	3.8	2,405	85.3	9.2	6.1	13.5
Teesside University	1,645	55.3	-1.5	-3.2	2,380	74.2	8.9	9.7	17.9
The Trafford College Group*	120	53.4	-2.0	-6.4	60	55	1.8	3.3	-1.8
Trinity Laban Conservatoire of Music and Dance*	140	80.9	2.4	8.7	140	87	6.4	3.6	15.8
The University of Warwick	2,395	83.7	-1.1	-1	2,840	89.4	5.3	5.9	5.8
Warwickshire College*	40	68.3	-1.7	3.6	105	62.9	1.8	3.0	3
The University of West London	1,035	52	0.0	-0.9	1,705	73.5	11.9	10.7	25.1
University of the West of England, Bristol	4,035	67.7	2.5	4.4	3,845	79.8	10.9	8.3	18.2

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
The University of Westminster	2,160	63.1	4.1	8	2,075	69.6	8.1	3.9	15.1
Wiltshire College and University Centre*	15	46.2	-1.2	-15	35	61.8	2.5	3.5	4.8
University of Winchester	1,100	65.1	0.1	0	1,550	74.7	6.2	5.5	11.3
University of Wolverhampton	2,085	55.6	2.2	4.3	2,730	69.8	11.0	8.4	21.8
University of Worcester	1,110	59	-0.9	-1.9	1,930	68.7	4.6	5.1	9
Writtle University College*	130	47.7	-3.4	-9.4	140	60.4	1.4	4.1	5.3
University of York	2,165	77.4	-3.1	-4.2	3,205	84.3	4.2	6.8	5.2
York College*	30	56.3	0.0	-4.7	45	77.8	4.5	3.9	16.6
York St John University	1,050	59.2	-2.7	-5.6	1,435	73.9	4.9	6.9	9.9

Note: \* indicates the provider did not have degree awarding powers in 2010.

**Table A2: Provider-level results for first class degrees combined in academic years 2010-11 and 2018-19**

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
Anglia Ruskin University Higher Education Corporation	1,950	14.5	2.3	2.3	3,380	36.7	16.9	13.2	26.1
Arts University Bournemouth, the	615	12	-2.6	-4	815	22.3	4.7	6.3	7.9
University of the Arts, London	2,170	17.9	1.0	1.5	2,235	30.4	10.1	8.5	15.9
Askham Bryan College*	35	9.1	-2.1	-6.4	75	20	2.2	4.1	6.3
Aston University	1,305	17.9	0.3	0.1	2,200	29.7	10.4	9.0	16.4
The University of Bath	1,625	27.5	-3.6	-6.5	2,445	34.9	-0.7	2.7	-2
Bath Spa University	1,265	9.9	-3.1	-3.4	1,615	19.1	4.9	7.1	7
University of Bedfordshire	1,485	8.9	0.0	-0.6	1,350	27	12.7	11.0	18.3
The University of Birmingham	3,990	16.8	-4.4	-6.3	4,555	33.2	4.1	8.2	7.3
University College Birmingham	475	10.9	1.5	-0.6	610	32.5	13.4	9.6	23.7
Birmingham City University	2,865	18.5	6.0	7.1	4,155	31.7	15.3	8.8	21.3
Bishop Burton College*	60	8.3	-2.7	-1	85	8.1	0.8	3.2	-3.9

<b>Provider name</b>	<b>2010-11 number</b>	<b>2010-11 observed (%)</b>	<b>2010-11 sector 2010-11 z-score</b>	<b>2010-11 unexplained (pp)</b>	<b>2018-19 number</b>	<b>2018-19 observed (%)</b>	<b>2018-19 sector 2010-11 z-score</b>	<b>2018-19 provider 2010-11 z-score</b>	<b>2018-19 unexplained (pp)</b>
Bishop Grosseteste University	430	8.6	-2.2	-3.8	445	22	6.1	6.9	11.5
Blackburn College*	270	14	0.1	1.8	330	17.6	4.5	3.6	6.7
Blackpool and the Fylde College*	245	19.8	2.4	5.4	375	30.5	8.2	4.5	16.8
The University of Bolton	635	11.6	-0.5	-0.8	885	22.5	8.2	7.3	12.7
Bournemouth University	2,260	11.1	-3.1	-3.6	3,115	23.5	6.9	9.2	10
The University of Bradford	1,270	10.8	1.3	0.2	1,445	35.1	15.7	12.3	25.1
Bradford College*	315	10.5	0.0	0.2	310	13.8	4.9	4.1	5.6
University of Brighton	2,565	15	0.7	1	3,365	22.5	7.5	6.3	10
University of Bristol	2,620	23.6	-6.0	-11.2	3,560	33.9	0.3	6.1	0.5
Brunel University London	2,250	17.4	4.5	5.7	2,065	27	10.3	5.4	14.8
The University of Buckingham	80	15.9	3.4	8.1	145	36.7	9.8	5.0	26.8
Buckinghamshire New University	915	12.1	0.8	1.6	1,670	18.3	6.1	4.3	7.6
University of Cambridge	2,355	26	-6.1	-12.4	2,005	37.6	0.3	6.0	0.5
Canterbury Christ Church University	1,815	15.2	2.7	3.5	1,980	22.6	9.6	6.3	12.6
University of Central Lancashire	3,575	10.4	-1.1	-1.3	2,800	32.1	14.4	14.6	21.4
University of Chester	1,510	11.1	-0.8	-1.1	2,270	28.1	10.7	10.1	16.3
The University of Chichester	895	7.8	-2.1	-2.5	1,205	19.3	6.9	7.5	9.5
City, University of London	1,265	14.4	-0.2	-0.1	1,630	25.2	8.0	7.3	12
The Conservatoire for Dance and Drama*	105	34	5.7	18.8	135	32.1	8.9	2.6	17.3
Courtauld Institute of Art*	50	16.3	-2.0	-11.4	55	29.8	2.8	4.4	8.7
Coventry University	2,360	18.9	6.2	7.5	3,965	32.2	15.1	8.3	21.5
University for the Creative Arts	1,045	9.4	-1.1	-2.6	1,100	33.1	12.8	11.9	21.9
The University of Cumbria	1,330	13.5	0.5	0.7	1,265	23.4	8.0	6.7	11.8
De Montfort University	2,825	11.5	1.8	1.3	4,295	30.1	16.1	13.2	21.2
University of Derby	2,265	10.1	0.1	-0.5	2,630	28	12.4	11.1	17.5
DN Colleges Group*	160	14.5	0.3	3.5	310	18.4	4.0	2.9	5.7
University of Durham	2,825	18.2	-8.7	-15.5	3,115	37.2	1.1	9.4	2.3
The University of East Anglia	2,260	13.5	-3.4	-5.2	2,750	36.2	10.7	13.1	19
University of East London	1,940	11.7	3.0	2.6	1,920	26.7	14.4	10.2	18.7

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
Edge Hill University	1,940	14.7	3.3	3.7	2,960	26	10.5	6.5	14.6
The University of Essex	1,665	14.4	2.1	2.2	1,910	27.3	12.5	9.4	17.5
University of Exeter	2,935	19.8	-3.3	-5	3,880	33.8	3.3	6.4	6.3
Falmouth University	765	14.7	0.0	0.8	1,490	24.1	6.6	5.4	10.2
Farnborough College of Technology*	85	20.5	-0.6	5.8	100	19	3.6	3.6	8.9
Gateshead College*	20	28.6	1.8	17.3	30	21.9	5.4	3.5	13
University of Gloucestershire	1,240	18.5	4.1	6.1	1,645	25	9.4	4.7	13.5
Goldsmiths' College	1,105	12.7	-1.0	-1.4	1,290	25.4	8.7	8.4	13.3
Greater Brighton Metropolitan College*	170	21.8	2.5	9.7	135	30.1	6.8	3.6	17.3
University of Greenwich	2,475	15.5	4.0	4.2	2,610	33.8	15.1	10.3	22.8
Grimsby Institute of Further and Higher Education*	195	8.3	-2.6	-5.4	195	19.9	3.0	4.7	5.8
Guildhall School of Music & Drama*	100	24.5	1.6	5.8	115	41.2	6.8	4.4	21.2
Harper Adams University	255	11.7	-3.4	-4.9	455	19.7	2.0	4.7	3.9
Hereford College of Arts*	85	22.4	1.6	10.4	100	23.8	5.5	3.4	12.7
University of Hertfordshire	2,945	18.8	6.9	8.1	3,580	24.6	11.9	4.8	14.9
The University of Huddersfield	2,460	15.1	3.1	3.2	2,680	39.2	17.0	13.0	27.6
The University of Hull	2,570	9.8	-2.7	-3.1	2,580	26.5	10.2	11.8	14.7
Hull College*	165	10.8	-2.3	-1.7	120	15.3	2.4	4.1	5.8
Imperial College of Science, Technology and Medicine	1,295	30.5	-4.6	-10.1	1,235	54.7	3.9	7.9	10.3
University of Keele	1,120	16.6	2.4	3.7	1,695	29.7	10.9	7.2	17.2
The University of Kent	2,930	16.1	2.5	2.9	3,265	26.7	10.3	7.4	14.3
King's College London	2,180	24.2	-0.8	-1	2,635	35.1	6.2	6.6	11.6
Kingston University	3,150	14.6	3.9	4	2,425	33.6	16.1	11.6	23.5
Kirklees College*	25	12	1.8	-1.3	10	16.7	5.9	4.0	8.4
The University of Lancaster	2,100	16.9	-2.8	-4.1	1,935	31.9	4.8	7.1	8.9
The University of Leeds	5,165	17.7	-4.6	-6.8	5,330	35.4	4.7	9.1	8.7
Leeds Arts University*	290	19.4	2.1	6.4	415	26.1	5.7	2.8	10.1
Leeds Beckett University	4,245	10.1	-2.1	-2.1	3,860	23.5	10.0	11.5	12.9

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
Leeds College of Music*	205	28	4.7	12.5	290	26.7	8.7	3.1	15.1
Leeds Trinity University	540	7.6	-0.5	-2.5	765	27.5	11.1	9.3	18.6
The University of Leicester	2,015	15.2	-0.2	-0.2	2,580	27.5	9.6	9.1	14.4
University of Lincoln	2,140	11.3	-0.4	-0.5	2,930	29.9	11.3	10.6	17.5
The University of Liverpool	2,730	14.8	-3.4	-4.8	3,775	27.6	5.4	8.4	8.8
Liverpool Hope University	1,130	16.3	3.3	5.3	1,015	19.6	6.9	3.2	9.4
The Liverpool Institute for Performing Arts*	165	13.9	0.0	-2.7	185	21.3	5.3	4.4	8
Liverpool John Moores University	3,935	12.9	1.3	1.2	3,965	26.3	10.0	8.3	13.9
University College London	2,275	24.3	-2.4	-4.3	2,595	40.5	4.6	6.7	9.6
London Metropolitan University	1,855	13.3	2.3	2.6	1,300	27.2	12.7	9.5	18.2
The London School of Economics and Political Science	670	18.5	-5.5	-11.1	705	34.7	1.9	6.6	5.1
London South Bank University	1,545	12.1	2.1	1.9	1,865	28.6	13.4	9.9	19
Loughborough College*	110	8.2	-4.0	-5.5	150	11.2	0.4	3.9	0.3
Loughborough University	2,780	17	-3.9	-5.7	2,890	29.9	3.7	7.3	6.5
The University of Manchester	5,505	17.8	-5.5	-8.3	4,870	38.5	6.9	12.2	12.9
Manchester Metropolitan University	5,295	14.7	2.2	2.3	6,245	30.9	13.9	11.5	19.6
Middlesex University	2,240	14.6	5.1	5.2	2,710	26.8	14.6	8.6	18.4
Moulton College*	35	13.5	0.3	1.3	50	18.8	4.5	3.7	7.9
Nelson and Colne College*	10	18.2	0.8	8.5	40	24.4	4.9	3.7	12
New City College*	125	25.2	3.4	15.7	70	10	4.9	1.4	-0.7
New College Durham*	105	9.6	-2.1	-6.1	155	28.2	4.3	5.5	14.5
University of Newcastle upon Tyne	3,095	18.5	-4.3	-6.5	4,160	26	1.5	5.6	2.5
Newman University	490	7.1	-1.1	-1.7	470	17.5	6.3	6.1	9.4
North East Surrey College of Technology (NESCOT)*	25	29.6	-0.6	12.6	30	20.7	2.6	3.3	5.8
University of Northampton, The	1,710	16.6	4.3	5.3	1,975	25.2	10.7	5.8	14.6
The Northern School of Art*	115	24.8	3.3	13.5	120	22.3	6.6	2.7	11.7
University of Northumbria at Newcastle	3,735	16	2.0	2.3	3,950	36.7	13.9	11.5	22.9

<b>Provider name</b>	<b>2010-11 number</b>	<b>2010-11 observed (%)</b>	<b>2010-11 sector 2010-11 z-score</b>	<b>2010-11 unexplained (pp)</b>	<b>2018-19 number</b>	<b>2018-19 observed (%)</b>	<b>2018-19 sector 2010-11 z-score</b>	<b>2018-19 provider 2010-11 z-score</b>	<b>2018-19 unexplained (pp)</b>
Norwich University of the Arts	405	18.7	2.9	5.4	560	24.2	7.0	3.3	10.8
Nottingham Trent University	4,205	9.7	-2.3	-2.3	5,400	18.5	6.2	8.1	7.1
University of Nottingham, The The School of Oriental and African Studies*	4,115	17.8	-4.8	-7.2	5,305	32.5	4.1	8.7	7.4
University of Oxford	475	16.5	0.0	0.5	555	22.2	6.1	5.2	10
Oxford Brookes University	2,695	28.5	-4.5	-9	2,510	35.7	-0.5	3.8	-1.5
University of Plymouth	2,030	16.4	0.7	1.1	2,510	28.7	9.5	8.1	15
Plymouth College of Art*	3,735	13.3	-0.2	-0.3	3,680	26.5	8.9	8.7	12.9
University of Portsmouth	155	22.3	1.5	8.1	335	18.1	4.8	2.6	6.9
Queen Mary University of London	3,555	10.6	-1.3	-1.7	3,915	27.9	12.1	12.7	16.8
Ravensbourne University London*	2,090	15.4	0.1	0.1	2,425	36.7	11.3	10.4	20
The University of Reading	285	16.4	2.3	4.6	530	39.3	12.8	8.1	28.1
Roehampton University	2,100	17.5	-0.9	-1.1	2,600	29.3	7.0	7.4	11.7
Rose Bruford College of Theatre and Performance*	1,485	7.9	-1.6	-1.9	1,725	17.3	7.4	7.8	8.4
The Royal Academy of Music*	180	16.7	1.6	4.3	145	32.6	6.9	4.5	18.3
The Royal Agricultural University	50	53.8	6.9	36.5	65	54.5	10.1	2.8	32.1
The Royal Central School of Speech and Drama	215	7	-4.1	-8.1	275	17.8	1.6	4.9	2.8
Royal College of Music	155	17.3	-0.4	-1.4	175	34.7	6.4	5.7	19.1
Royal Holloway and Bedford New College	40	32.5	2.6	9.6	50	44	6.9	3.7	20.7
Royal Northern College of Music	1,490	17.2	-1.6	-2.5	1,705	30.2	8.6	9.4	14.8
The Royal Veterinary College	65	25.4	2.2	8.2	125	40	7.2	4.0	20.7
University of Salford, The	70	27.1	-3.0	1.4	155	21	0.7	3.3	1.5
The University of Sheffield	2,600	16.7	4.5	5.1	3,290	28.7	12.1	7.2	17
Sheffield Hallam University	3,525	18.2	-4.0	-5.9	3,740	30.8	3.2	7.0	5.7
Solent University	4,500	15.4	3.0	3.2	5,625	31.3	13.2	10.0	19.3
University of Southampton	2,065	8.3	-1.8	-2.5	1,640	26.7	12.0	12.4	17.1
Sparsholt College*	3,050	19.8	-3.4	-5.4	3,675	35.4	6.6	9.7	11.9
	60	15	-0.5	2	55	18.5	3.5	3.5	5.3

Provider name	2010-11 number	2010-11 observed (%)	2010-11 sector 2010-11 z-score	2010-11 unexplained (pp)	2018-19 number	2018-19 observed (%)	2018-19 sector 2010-11 z-score	2018-19 provider 2010-11 z-score	2018-19 unexplained (pp)
University of St Mark & St John	555	11	0.2	0.7	495	27.4	8.9	7.2	17.5
St Mary's University, Twickenham	725	10.2	0.1	0.3	925	26.8	10.9	8.8	17.9
St. George's Hospital Medical School	300	10.3	-4.0	-8.2	450	28.2	3.8	6.7	9.3
Staffordshire University	1,850	13.9	1.4	1.2	1,915	33.9	14.7	12.1	23.1
University of Suffolk*	560	8	-2.9	-4.4	740	25.6	6.7	8.0	12.6
University of Sunderland	1,670	13.2	2.2	2.7	1,970	19.1	7.3	4.6	8.9
The University of Surrey	1,535	22.9	2.8	4.4	2,155	33.4	6.5	3.3	10.9
University of Sussex	1,890	17.9	-1.3	-2	2,405	31.3	8.8	9.4	15
Teesside University	1,645	14.5	1.3	1.5	2,380	31.4	11.9	9.5	19
The Trafford College Group*	120	13.6	0.4	1.4	60	28.3	5.5	4.5	17.6
Trinity Laban Conservatoire of Music and Dance*	140	29.1	1.7	9.9	140	39.1	6.7	4.3	22.5
The University of Warwick	2,395	27.3	-2.8	-4.9	2,840	35.6	2.2	4.8	4.2
Warwickshire College*	40	4.9	-1.8	-9	105	24.8	3.6	4.7	11.5
The University of West London	1,035	12.5	2.2	1.8	1,705	33.3	15.5	11.1	23.8
University of the West of England, Bristol	4,035	17.7	3.5	4.4	3,845	27.2	9.6	5.9	13.7
The University of Westminster	2,160	12.3	2.1	2.1	2,075	20.3	8.9	6.2	10.5
Wiltshire College and University Centre*	15	15.4	-0.9	3.3	35	20.6	2.9	3.7	6.8
University of Winchester	1,100	8.3	-2.4	-2.9	1,550	17.9	5.7	6.9	7.2
University of Wolverhampton	2,085	10.9	2.1	1.5	2,730	32	16.6	13.0	23.3
University of Worcester	1,110	13.1	0.4	0.8	1,930	20.5	6.5	5.2	8.7
Writtle University College*	130	14.8	-1.3	2.1	140	18.7	3.0	3.7	6.8
University of York	2,165	20.5	-3.3	-5.3	3,205	28.4	2.8	5.8	4.8
York College*	30	25	2.8	12.1	45	40	7.5	3.9	26
York St John University	1,050	10.9	-1.0	-1.3	1,435	22.7	8.2	7.8	11.9

Note: \* indicates the provider did not have degree awarding powers in 2010.

# Annex B: Definition and comparisons of graduate populations

1. This annex provides key comparisons between the following two graduate populations:

- a. **Graduate population A:** The graduate population including all UK-domiciled full-time first degree graduates attaining a classified honours degree from an English higher education provider. This population can be rebuilt using the following fields described in the OfS publication 'Technical algorithms for institutional performance measures':<sup>15</sup>
  - i. DFAPAPPEXCL = 0
  - ii. B3MONDOQUALPOP = 1
  - iii. B3MONCOUNTRY = 'E'
  - iv. B3MONEMPLEVEL in ('DEG', 'PUGD')
  - v. B3MONEMPMODE = 'FT'
  - vi. B3MONBASEYEAR in (2010,2011,2012,2013,2014,2015,2016,2017,2018)
- b. **Graduate population B:** The graduate population considered in the analysis presented in this report – as population A, but only including graduates that qualified from providers that have awarded at least 10 classified honours degrees per year from 2010-11 to 2018-19 inclusive (147 providers).

2. Table B1 presents a summary of the degree classification attainment from 2010-11 to 2018-19 for graduate population A. Table B2 presents a summary of the degree classification attainment from 2010-11 to 2018-19 for graduate population B.

**Table B1: Degree classifications summary for academic years 2010-11 to 2018-19 for graduate population A**

Academic year	First (N)	First (%)	Upper second (N)	Upper second (%)	Other honours (N)	Other honours (%)	Total (N)
2010-11	34,980	15.7%	114,345	51.3%	73,670	33.0%	222,995
2011-12	41,155	17.4%	122,680	51.9%	72,735	30.7%	236,570
2012-13	47,090	19.1%	128,440	52.2%	70,715	28.7%	246,245
2013-14	54,855	21.0%	138,085	52.8%	68,650	26.2%	261,590
2014-15	55,835	23.2%	124,780	51.8%	60,305	25.0%	240,920
2015-16	61,210	24.5%	128,375	51.3%	60,445	24.2%	250,030
2016-17	70,540	26.9%	132,085	50.4%	59,605	22.7%	262,230
2017-18	77,645	28.9%	132,690	49.4%	58,440	21.7%	268,775
2018-19	79,240	29.1%	133,420	49.1%	59,180	21.8%	271,840

<sup>15</sup> See 'Technical algorithms for institutional performance measures: Core algorithms', available under 'OfS core algorithms' at [www.officeforstudents.org.uk/data-and-analysis/access-and-participation-data-dashboard/guide-to-the-access-and-participation-data-resources/](http://www.officeforstudents.org.uk/data-and-analysis/access-and-participation-data-dashboard/guide-to-the-access-and-participation-data-resources/).

**Table B2: Degree classifications summary for academic years 2010-11 to 2018-19 for graduate population B**

Academic year	First (N)	First (%)	Upper second (N)	Upper second (%)	Other honours (N)	Other honours (%)	Total (N)
2010-11	34,885	15.7%	113,975	51.3%	73,400	33.0%	222,260
2011-12	41,055	17.4%	122,375	51.9%	72,490	30.7%	235,920
2012-13	46,900	19.1%	127,850	52.2%	70,225	28.7%	244,975
2013-14	54,510	21.0%	137,050	52.9%	67,740	26.1%	259,300
2014-15	55,030	23.3%	122,495	51.9%	58,290	24.7%	235,815
2015-16	60,040	24.8%	125,155	51.6%	57,365	23.6%	242,560
2016-17	68,960	27.2%	128,480	50.7%	56,005	22.1%	253,445
2017-18	75,830	29.3%	128,780	49.7%	54,535	21.0%	259,145
2018-19	77,110	29.5%	129,105	49.4%	55,010	21.1%	261,225

3. Table B3 presents a breakdown of graduate population A by characteristics included in the statistical modelling for academic years 2010-11, 2017-18 and 2018-19. Table B4 presents a breakdown of graduate population B by characteristics included in the statistical modelling for academic years 2010-11, 2017-18 and 2018-19. Full summaries for academic years 2010-11 to 2018-19 of graduate populations A and B by the statistical modelling characteristics are available in full summary tables at [www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/](http://www.officeforstudents.org.uk/publications/analysis-of-degree-classifications-over-time-changes-in-graduate-attainment-from-2010-11-to-2018-19/).

**Table B3: Changes in characteristics of graduate population A**

		2010-11	2010-11	2017-18	2017-18	2018-19	2018-19
		(N)	(%)	(N)	(%)	(N)	(%)
<b>Subject of study</b>	Agriculture and related subjects	1,855	0.8	2,405	0.9	2,475	0.9
	Architecture, building and planning	5,205	2.3	3,895	1.4	4,105	1.5
	Biological sciences	23,695	10.6	31,775	11.8	31,995	11.8
	Business and administrative studies	26,430	11.9	32,985	12.3	34,500	12.7
	Combined	720	0.3	535	0.2	550	0.2
	Computer science	8,155	3.7	10,880	4.0	11,260	4.1
	Creative arts and design	31,115	14.0	33,800	12.6	33,945	12.5
	Education	11,070	5.0	13,030	4.8	12,275	4.5
	Engineering and technology	10,315	4.6	12,615	4.7	12,865	4.7
	Historical and philosophical studies	11,985	5.4	12,755	4.7	12,765	4.7
	Languages	15,975	7.2	14,790	5.5	14,360	5.3
	Law	10,425	4.7	10,395	3.9	10,935	4.0
	Mass communications and documentation	8,120	3.6	8,110	3.0	7,955	2.9
	Mathematical sciences	4,495	2.0	5,540	2.1	5,570	2.0
	Medicine and dentistry	1,205	0.5	1,245	0.5	1,355	0.5
	Physical sciences	10,315	4.6	12,595	4.7	12,250	4.5
	Social studies	24,375	10.9	29,720	11.1	30,980	11.4
	Subjects allied to medicine	17,540	7.9	31,700	11.8	31,715	11.7
<b>Entry qualifications</b>	A-level: AAA and above	25,195	11.3	26,940	10.0	26,805	9.9
	A-level: AAB	15,450	6.9	17,925	6.7	17,925	6.6
	A-level: AAC	2,725	1.2	3,245	1.2	3,260	1.2
	A-level: ABB	13,575	6.1	16,325	6.1	16,205	6.0
	A-level: ABC	9,005	4.0	10,690	4.0	10,790	4.0
	A-level: ACC	4,385	2.0	4,905	1.8	5,035	1.9
	A-level: BBB	7,575	3.4	8,770	3.3	8,995	3.3
	A-level: BBC	11,550	5.2	13,190	4.9	13,095	4.8

		2010-11	2010-11	2017-18	2017-18	2018-19	2018-19
		(N)	(%)	(N)	(%)	(N)	(%)
	A-level: BCC	14,980	6.7	16,580	6.2	16,360	6.0
	A-level: CCC	13,240	5.9	14,200	5.3	14,325	5.3
	A-level: CCD	10,690	4.8	11,005	4.1	10,940	4.0
	A-level: CDD	8,215	3.7	7,610	2.8	7,515	2.8
	A-level: DDD	5,460	2.4	4,430	1.6	4,385	1.6
	A-level: Below DDD	4,505	2.0	3,150	1.2	3,140	1.2
	BTEC: DDD and above	5,225	2.3	22,125	8.2	22,555	8.3
	BTEC: DDM	3,290	1.5	4,960	1.8	4,945	1.8
	BTEC: DMM	1,400	0.6	4,015	1.5	4,000	1.5
	BTEC: MMM and below	6,600	3.0	7,470	2.8	7,475	2.8
	2 A-levels 1 BTEC	1,190	0.5	8,935	3.3	9,810	3.6
	1 A-level 2 BTECs	980	0.4	4,555	1.7	4,780	1.8
	International Baccalaureate	1,850	0.8	2,550	0.9	2,545	0.9
	Other Level 3	34,565	15.5	41,740	15.5	42,745	15.7
	No Level 3 equivalent	21,345	9.6	13,455	5.0	14,225	5.2
<b>Age</b>	Mature	42,970	19.3	51,985	19.3	52,295	19.2
	Young	180,025	80.7	216,790	80.7	219,550	80.8
<b>Disability</b>	Disability	23,140	10.4	42,105	15.7	46,215	17.0
	No disability	199,855	89.6	226,670	84.3	225,635	83.0
<b>Sex</b>	Female	127,215	57.0	157,265	58.5	159,860	58.8
	Male	95,780	43.0	111,380	41.4	111,835	41.1
	Other		0.0	130	0.0	150	0.1
<b>Ethnicity</b>	Asian	23,640	10.6	31,955	11.9	34,205	12.6
	Black	12,400	5.6	20,235	7.5	21,070	7.7
	Mixed	7,305	3.3	11,475	4.3	12,215	4.5
	Other	2,215	1.0	4,060	1.5	4,400	1.6
	Unknown	5,335	2.4	4,175	1.6	4,485	1.7
	White	172,100	77.2	196,875	73.2	195,470	71.9
<b>POLAR</b>	Quintile 1	22,395	10.0	31,910	11.9	32,180	11.8

	2010-11 (N)	2010-11 (%)	2017-18 (N)	2017-18 (%)	2018-19 (N)	2018-19 (%)
Quintile 2	33,040	14.8	42,375	15.8	42,715	15.7
Quintile 3	41,185	18.5	50,690	18.9	51,235	18.8
Quintile 4	51,890	23.3	61,325	22.8	62,180	22.9
Quintile 5	73,175	32.8	81,885	30.5	82,895	30.5
Unknown	1,310	0.6	585	0.2	640	0.2

Note: 'POLAR' = the Participation of Local Areas measure.

**Table B4: Changes in characteristics of graduate population B**

	2010-11 (N)	2010-11 (%)	2017-18 (N)	2017-18 (%)	2018-19 (N)	2018-19 (%)
<b>Subject of study</b>						
Agriculture and related subjects	1,855	0.8	2,160	0.8	2,180	0.8
Architecture, building and planning	5,205	2.3	3,855	1.5	4,080	1.6
Biological sciences	23,655	10.6	31,280	12.1	31,385	12.0
Business and administrative studies	26,355	11.9	30,575	11.8	32,015	12.3
Combined	720	0.3	500	0.2	515	0.2
Computer science	8,145	3.7	10,505	4.1	10,880	4.2
Creative arts and design	30,745	13.8	30,725	11.9	30,750	11.8
Education	11,040	5.0	12,375	4.8	11,460	4.4
Engineering and technology	10,310	4.6	12,350	4.8	12,635	4.8
Historical and philosophical studies	11,875	5.3	12,265	4.7	12,320	4.7
Languages	15,975	7.2	14,705	5.7	14,270	5.5
Law	10,415	4.7	9,930	3.8	10,365	4.0
Mass communications and documentation	8,110	3.6	7,950	3.1	7,710	3.0
Mathematical sciences	4,495	2.0	5,535	2.1	5,565	2.1
Medicine and dentistry	1,205	0.5	1,240	0.5	1,340	0.5
Physical sciences	10,315	4.6	12,575	4.9	12,220	4.7
Social studies	24,330	10.9	29,290	11.3	30,380	11.6
Subjects allied to medicine	17,515	7.9	31,325	12.1	31,160	11.9
A-levels: AAA and above	25,185	11.3	26,855	10.4	26,710	10.2

		2010-11	2010-11	2017-18	2017-18	2018-19	2018-19
		(N)	(%)	(N)	(%)	(N)	(%)
<b>Entry qualifications</b>	A-levels: AAB	15,425	6.9	17,830	6.9	17,785	6.8
	A-levels: AAC	2,720	1.2	3,225	1.2	3,235	1.2
	A-levels: ABB	13,560	6.1	16,205	6.3	16,055	6.1
	A-levels: ABC	8,995	4.0	10,580	4.1	10,685	4.1
	A-levels: ACC	4,385	2.0	4,830	1.9	4,960	1.9
	A-levels: BBB	7,565	3.4	8,690	3.4	8,900	3.4
	A-levels: BBC	11,540	5.2	13,030	5.0	12,905	4.9
	A-levels: BCC	14,955	6.7	16,345	6.3	16,065	6.1
	A-levels: CCC	13,225	5.9	13,930	5.4	14,050	5.4
	A-levels: CCD	10,670	4.8	10,765	4.2	10,685	4.1
	A-levels: CDD	8,195	3.7	7,425	2.9	7,325	2.8
	A-levels: DDD	5,450	2.5	4,295	1.7	4,235	1.6
	A-levels: Below DDD	4,495	2.0	3,025	1.2	3,025	1.2
	BTECs: DDD and above	5,190	2.3	21,230	8.2	21,575	8.3
	BTECs: DDM	3,260	1.5	4,735	1.8	4,720	1.8
	BTECs: DMM	1,385	0.6	3,790	1.5	3,775	1.4
	BTECs: MMM and below	6,555	3.0	6,785	2.6	6,710	2.6
	2 A-levels 1 BTEC	1,185	0.5	8,700	3.4	9,585	3.7
	1 A-level 2 BTECs	980	0.4	4,435	1.7	4,660	1.8
	International Baccalaureate	1,850	0.8	2,505	1.0	2,505	1.0
Other Level 3	34,330	15.4	39,015	15.1	39,585	15.2	
No Level 3 equivalent	21,160	9.5	10,925	4.2	11,505	4.4	
<b>Age</b>	Mature	42,555	19.1	46,540	18.0	46,210	17.7
	Young	179,705	80.9	212,605	82.0	215,020	82.3
<b>Disability</b>	Disability	23,035	10.4	40,450	15.6	44,180	16.9
	No disability	199,220	89.6	218,695	84.4	217,050	83.1
<b>Sex</b>	Female	126,755	57.0	152,050	58.7	153,770	58.9
	Male	95,500	43.0	106,995	41.3	107,325	41.1
	Other		0.0	105	0.0	135	0.1

		2010-11	2010-11	2017-18	2017-18	2018-19	2018-19
		(N)	(%)	(N)	(%)	(N)	(%)
<b>Ethnicity</b>	Asian	23,600	10.6	31,345	12.1	33,320	12.8
	Black	12,325	5.5	18,590	7.2	19,475	7.5
	Mixed	7,280	3.3	11,065	4.3	11,775	4.5
	Other	2,200	1.0	3,850	1.5	4,105	1.6
	Unknown	5,330	2.4	4,000	1.5	4,350	1.7
	White	171,525	77.2	190,295	73.4	188,205	72.0
<b>POLAR</b>	Quintile 1	22,300	10.0	30,595	11.8	30,745	11.8
	Quintile 2	32,915	14.8	40,780	15.7	40,890	15.7
	Quintile 3	41,060	18.5	48,825	18.8	49,140	18.8
	Quintile 4	51,725	23.3	58,965	22.8	59,655	22.8
	Quintile 5	72,960	32.8	79,450	30.7	80,190	30.7
	Unknown	1,300	0.6	535	0.2	605	0.2

Note: 'POLAR' = the Participation of Local Areas measure.

# Annex C: Statistical modelling – methodology overview

1. This annex outlines the methodology used for the statistical modelling of the attainment of first and upper second class degrees combined, and of first class degree alone.

## Method to determine ‘unexplained’ attainment

2. Mixed-effects logistic regression modelling was employed to investigate whether or not the observed changes in graduate attainment with time at the sector and provider levels can be explained by changes in the make-up of the graduate population in terms of the explanatory variables included in the modelling. Full model specifications are given in Annex D.
3. The modelling used to investigate degree attainment changes with time at the sector level includes explanatory variables relating to the provider at which the graduate was registered, graduation year and various key graduate characteristics. The effects of the following were included as explanatory variables in the full model:
  - the provider at which the graduate was registered
  - year of graduation
  - subject of study
  - qualifications on entry into higher education
  - age
  - additional contextual variables:
    - declared disability status
    - ethnicity
    - sex
    - Participation of Local Areas (POLAR4) quintile.
4. Sector-level results from modelling where the additional contextual variables have been included (the ‘full model’) and omitted (the ‘simplified model’) as explanatory variables are presented in the main body of this report.
5. The models allow us to predict the proportion of graduates awarded a first or an upper second class degree, or a first class degree, accounting for the effect of the explanatory variables.
6. To investigate and isolate the effect of graduation year on degree attainment the following methodology was applied:
  - a. The optimised models provide the probability of an individual with given characteristics attaining a first or upper second class degree, or a first class degree.

- b. The predicted probability for a given group of individuals (e.g. white women graduating in 2011-12) may then be determined by taking the mean of the predicted probabilities of the individuals in that group.
  - c. To investigate the effect of graduation year on degree classification attainment, the model is applied to the entire reported graduate population, but with the academic year of graduation for all graduates in the population changed to 2010-11.
  - d. The observed value for the proportion of graduates attaining a first or upper second class degree, or a first class degree, in each academic year is then compared with the model's predicted value for the same graduates had they graduated in 2010-11.
  - e. Any differences between the predicted and observed values is said to be 'unexplained', and a result of unobserved effects between academic years that have not been accounted for and have not been included as explanatory variables in the model. It is not possible to determine from this analysis what these additional unobserved factors are.
7. In summary, we estimate the '**unexplained**' difference in the proportion of graduates attaining a first or upper second class degree, or a first class degree, had they graduated in 2010-11, compared with the actual year of their graduation.

#### **Hypothetically closed attainment gaps within additional contextual variable groups**

8. Additionally, we have applied the same method presented in paragraphs 2 to 5 of this annex, but have further assigned all graduates the values for the additional contextual variables (sex, ethnicity, disability status and POLAR4 quintile) associated with the groups that have the highest attainment, as judged by the most positive regression coefficients (see Annex D) in the 'full model'.
9. The predicted attainment of this graduate population in 2018-19 may be considered a hypothetical upper estimate of the expected sector attainment, representing a hypothetical sector where attainment gaps between groups within the additional contextual variable groups do not exist.
10. For first and upper second class degrees combined, the highest achieving graduates in terms of these characteristics are white, non-disabled women from POLAR4 quintile 5 regions.
11. For first class degrees alone, the highest achieving graduates in terms of these characteristics are white, non-disabled women from POLAR4 quintile 4 regions.

## Annex D: Statistical modelling – model details

1. This annex details the models used to describe the attainment of first or upper second class degrees and first class degrees.
2. Mixed-effects logistic regression has been used to model the probability of graduate  $i$  attaining a first or an upper second class degree, or a first class degree, from provider  $j$ , accounting for the effect of the explanatory variables outlined in Annex C.
3. The specifications of the ‘full’ and ‘simplified’ models are displayed in Equations D1 and D2 respectively.

### Equation D1: ‘Full’ mixed-effects logistic regression model for graduate degree attainment

$$\begin{aligned}
 & \textit{first or upper second class OR first class} \sim \textit{Binomial}(n_{ij}, \pi_{ij}) \\
 \textit{logit}(\pi_{ij}) = & \beta_{0j} + u_{0j} + \sum_{Y=1}^9 (\beta_Y + u_{Yj})X_{Yij} + \sum_{Sbj=1}^{18} \beta_{Sbj}X_{Sbjij} + \sum_{Q=1}^{23} \beta_Q X_{Qij} + \sum_{A=1}^2 \beta_A X_{Aij} \\
 & + \sum_{(Q*A)=1}^{46} \beta_{(Q*A)} X_{(Q*A)ij} + \sum_{D=1}^2 \beta_D X_{Dij} + \sum_{Sex=1}^3 \beta_{Sex} X_{Sexij} + \sum_{E=1}^6 \beta_E X_{Eij} \\
 & + \sum_{P=1}^6 \beta_P X_{Pij}
 \end{aligned}$$

### Equation D2: ‘Simplified’ mixed-effects logistic regression model for graduate degree attainment

$$\begin{aligned}
 & \textit{first or upper second class OR first class} \sim \textit{Binomial}(n_{ij}, \pi_{ij}) \\
 \textit{logit}(\pi_{ij}) = & \beta_{0j} + u_{0j} + \sum_{Y=1}^9 (\beta_Y + u_{Yj})X_{Yij} + \sum_{Sbj=1}^{18} \beta_{Sbj}X_{Sbjij} + \sum_{Q=1}^{21} \beta_Q X_{Qij} + \sum_{A=1}^2 \beta_A X_{Aij} \\
 & + \sum_{(Q*A)=1}^{42} \beta_{(Q*A)} X_{(Q*A)ij}
 \end{aligned}$$

4. Where the  $\beta$ s represent the fixed effect coefficients which are common to individuals across all providers (the sector) and years,<sup>16</sup>  $X$ s (0 or 1) represent whether or not an individual has the characteristics ( $Y$  = academic year of graduation,  $Sbj$  = subject of study,  $Q$  = entry qualifications,  $A$  = age,  $Q * A$  = interaction between entry qualifications and age,  $D$  = declared disability status,  $Sex$  = sex,  $E$  = ethnicity and  $P$  = POLAR4 quintile),  $u_{0j}$  is the random intercept for provider  $j$  and  $u_{Yj}$  represents the random coefficient for provider  $j$  in academic year  $Y$  with

$$u_{0j} \sim N(0, \sigma_{u_0}^2)$$

$$u_{Yj} \sim N(0, \sigma_{u_Y}^2).$$

5. A full summary of the variables used in the model, and the categories within those variables, is given in Table D1.

<sup>16</sup> The summation term for academic year of graduation includes the reference year of 2010-11, as each provider has a random coefficient for all years but the fixed effect 2010-11 coefficient  $\beta_1 = 0$  (reference categories for other explanatory variables are omitted from the model structure).

**Table D1: Variables used in the graduate degree attainment modelling (all categorical)**

<b>Model variable name</b>	<b>Description</b>
<b>Academic year (Y)</b>	Academic year of graduation: 2010-11 (ref) 2011-12 2012-13 2013-14 2014-15 2015-16 2016-17 2017-18 2018-19
<b>Subject of study (Sbj)</b>	Subject studied: Creative arts and design (ref) Medicine, dentistry and veterinary science Subjects allied to medicine Agriculture and related subjects Physical sciences Mathematical sciences Computer science Engineering and technology Architecture, building and planning Social studies Law Business and administrative studies Mass communication and documentation Languages Historical and philosophical studies Biological sciences Education Combined subjects
<b>Entry qualifications (Q)</b>	Entry qualifications of the graduate: A-level: AAA and above (ref) A-level: AAB A-level: ABB A-level: BBB A-level: BBC A-level: BCC A-level: CCC A-level: CCD A-level: CCD A-level: CDD A-level: DDD

Model variable name	Description
	A-level: Below DDD BTEC: DDD and above BTEC: DDM BTEC: DMM BTEC: MMM and below 2 A-levels and 1 BTEC 1 A-levels and 2 BTEC International Baccalaureate Other Level 3 No Level 3 Equivalent
<b>Age (A)</b>	Age on entry Under 21 (Young) (ref) Over 21 (Mature)
<b>Disability (D)</b>	Declared disability status of graduate No disability (ref) Disability
<b>Sex (Sex)</b>	Sex of graduate: Male Female (ref) Other
<b>Ethnicity (E)</b>	Ethnicity of graduate: White (ref) Black Mixed Asian Other Unknown
<b>Participation of Local Areas (POLAR4) quintile (P)</b>	Young participation quintile of graduate: Quintile 1 Quintile 2 Quintile 3 Quintile 4 Quintile 5 (ref) Unknown

Note: Those categories marked with '(ref)' are the reference categories for each categorical or dummy variable and are not formally included in the model structure (they are equal to 0).

- Estimates (Est) of the fixed effects coefficients, their standard errors (SE) and p-values for both the full and simplified models are shown for upper second class and first class degrees combined in Table D2, and for first class degrees alone in Table D3.

**Table D2: Fixed effect coefficient estimates for the models for first or upper second class degree attainment**

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
Intercept	Intercept	2.949	0.034	<0.0001	2.77	0.03	<0.0001
Academic Year	2010-11 (ref)	-	-	-	-	-	-
	2011-12	0.108	0.021	<0.0001	0.108	0.021	<0.0001
	2012-13	0.206	0.021	<0.0001	0.196	0.021	<0.0001
	2013-14	0.328	0.021	<0.0001	0.31	0.021	<0.0001
	2014-15	0.433	0.021	<0.0001	0.399	0.021	<0.0001
	2015-16	0.519	0.021	<0.0001	0.482	0.021	<0.0001
	2016-17	0.645	0.021	<0.0001	0.603	0.021	<0.0001
	2017-18	0.717	0.022	<0.0001	0.672	0.021	<0.0001
	2018-19	0.756	0.022	<0.0001	0.701	0.021	<0.0001
Subject of study	Medicine and dentistry	-0.205	0.037	<0.0001	-0.368	0.037	<0.0001
	Subjects allied to medicine	-0.25	0.008	<0.0001	-0.306	0.007	<0.0001
	Biological sciences	-0.293	0.007	<0.0001	-0.374	0.007	<0.0001
	Agriculture and related subjects	-0.26	0.02	<0.0001	-0.236	0.02	<0.0001
	Physical sciences	-0.537	0.01	<0.0001	-0.625	0.01	<0.0001
	Mathematical sciences	-0.899	0.013	<0.0001	-1.073	0.013	<0.0001
	Computer science	0.141	0.01	<0.0001	-0.111	0.009	<0.0001
	Engineering and technology	0.005	0.01	0.583	-0.239	0.01	<0.0001
	Architecture, building and planning	-0.169	0.013	<0.0001	-0.352	0.013	<0.0001
	Social studies	-0.262	0.007	<0.0001	-0.371	0.007	<0.0001
	Law	-0.506	0.01	<0.0001	-0.697	0.01	<0.0001
	Business and administrative studies	0.008	0.007	0.239	-0.185	0.007	<0.0001
	Mass communications and documentation	0.044	0.01	<0.0001	-0.028	0.01	<0.01
	Languages	-0.07	0.01	<0.0001	-0.078	0.01	<0.0001
	Historical and philosophical studies	0.04	0.011	<0.001	-0.012	0.011	0.271
	Creative arts and design (ref)	-	-	-	-	-	-
Education	-0.19	0.009	<0.0001	-0.158	0.009	<0.0001	
Combined	-0.406	0.036	<0.0001	-0.518	0.035	<0.0001	
Entry qualifications	A-level: AAA and above (ref)	-	-	-	-	-	-
	A-level: AAB	-0.559	0.013	<0.0001	-0.568	0.013	<0.0001
	A-level: AAC	-0.957	0.021	<0.0001	-0.964	0.021	<0.0001
	A-level: ABB	-0.929	0.013	<0.0001	-0.95	0.013	<0.0001
	A-level: ABC	-1.197	0.014	<0.0001	-1.221	0.014	<0.0001

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
	A-level: ACC	-1.445	0.017	<0.0001	-1.48	0.017	<0.0001
	A-level: BBB	-1.21	0.014	<0.0001	-1.241	0.014	<0.0001
	A-level: BBC	-1.453	0.013	<0.0001	-1.488	0.013	<0.0001
	A-level: BCC	-1.666	0.013	<0.0001	-1.715	0.013	<0.0001
	A-level: CCC	-1.903	0.013	<0.0001	-1.965	0.013	<0.0001
	A-level: CCD	-2.113	0.013	<0.0001	-2.187	0.013	<0.0001
	A-level: CDD	-2.335	0.014	<0.0001	-2.422	0.014	<0.0001
	A-level: DDD	-2.508	0.016	<0.0001	-2.61	0.015	<0.0001
	A-level: Below DDD	-2.727	0.017	<0.0001	-2.85	0.017	<0.0001
	BTEC: DDD and above	-2.399	0.013	<0.0001	-2.475	0.013	<0.0001
	BTEC: DDM	-2.81	0.016	<0.0001	-2.925	0.016	<0.0001
	BTEC: DMM	-3.024	0.017	<0.0001	-3.146	0.017	<0.0001
	BTEC: MMM and below	-3.25	0.015	<0.0001	-3.39	0.015	<0.0001
	2 A-levels 1 BTEC	-2.126	0.016	<0.0001	-2.196	0.015	<0.0001
	1 A-level 2 BTECs	-2.5	0.018	<0.0001	-2.611	0.017	<0.0001
	International Baccalaureate	-1.01	0.022	<0.0001	-1.059	0.022	<0.0001
	Other Level 3	-2.474	0.012	<0.0001	-2.591	0.012	<0.0001
	No Level 3 equivalent	-2.219	0.02	<0.0001	-2.352	0.019	<0.0001
Age	Mature	-0.028	0.05	0.577	-0.122	0.049	0.014
	Young (ref)	-	-	-	-	-	-
Age (Mature) * Entry qualifications	A-level: AAA and above (ref)	-	-	-	-	-	-
	A-level: AAB	-0.116	0.068	0.09	-0.082	0.068	0.227
	A-level: AAC	-0.048	0.103	0.641	0.006	0.102	0.952
	A-level: ABB	-0.044	0.066	0.505	0.006	0.065	0.924
	A-level: ABC	0.122	0.069	0.077	0.181	0.068	<0.01
	A-level: ACC	0.153	0.076	0.044	0.234	0.075	<0.01
	A-level: BBB	0.166	0.073	0.023	0.221	0.072	<0.01
	A-level: BBC	0.191	0.063	<0.01	0.25	0.062	<0.0001
	A-level: BCC	0.343	0.058	<0.0001	0.419	0.058	<0.0001
	A-level: CCC	0.409	0.057	<0.0001	0.478	0.057	<0.0001
	A-level: CCD	0.435	0.057	<0.0001	0.524	0.056	<0.0001
	A-level: CDD	0.564	0.058	<0.0001	0.66	0.057	<0.0001
	A-level: DDD	0.514	0.059	<0.0001	0.612	0.058	<0.0001
	A-level: Below DDD	0.608	0.058	<0.0001	0.709	0.058	<0.0001
	BTEC: DDD and above	0.225	0.053	<0.0001	0.268	0.052	<0.0001
	BTEC: DDM	0.316	0.058	<0.0001	0.382	0.057	<0.0001
	BTEC: DMM	0.355	0.059	<0.0001	0.415	0.058	<0.0001
	BTEC: MMM and below	0.474	0.053	<0.0001	0.567	0.052	<0.0001
	2 A-levels 1 BTEC	0.077	0.072	0.28	0.131	0.071	0.064
	1 A-level 2 BTECs	0.128	0.075	0.088	0.213	0.074	<0.01

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
	International Baccalaureate	-0.479	0.088	<0.0001	-0.427	0.086	<0.0001
	Other Level 3	0.294	0.05	<0.0001	0.367	0.05	<0.0001
	No Level 3 equivalent	0.234	0.053	<0.0001	0.294	0.052	<0.0001
Disability	Disability	-0.157	0.005	<0.0001	-	-	-
	No disability (ref)	-	-	-	-	-	-
Sex	Female (ref)	-	-	-	-	-	-
	Male	-0.265	0.004	<0.0001	-	-	-
	Other	0.034	0.142	0.812	-	-	-
Ethnicity	Asian	-0.688	0.005	<0.0001	-	-	-
	Black	-0.977	0.006	<0.0001	-	-	-
	Mixed	-0.365	0.009	<0.0001	-	-	-
	Other	-0.679	0.014	<0.0001	-	-	-
	Unknown	-1.192	0.011	<0.0001	-	-	-
	White (ref)	-	-	-	-	-	-
POLAR4	Quintile 1	-0.138	0.006	<0.0001	-	-	-
	Quintile 2	-0.063	0.005	<0.0001	-	-	-
	Quintile 3	-0.03	0.005	<0.0001	-	-	-
	Quintile 4	-0.015	0.005	<0.01	-	-	-
	Quintile 5 (ref)	-	-	-	-	-	-
	Unknown	-0.268	0.028	<0.0001	-	-	-

**Table D3: Fixed effect coefficient estimates for the models for first class degree attainment**

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
Intercept	Intercept	-0.031	0.039	0.419	-0.074	0.037	0.05
Academic Year	2010-11 (ref)	-	-	-	-	-	-
	2011-12	0.092	0.025	<0.001	0.092	0.024	<0.001
	2012-13	0.202	0.025	<0.0001	0.194	0.024	<0.0001
	2013-14	0.319	0.024	<0.0001	0.306	0.024	<0.0001
	2014-15	0.447	0.024	<0.0001	0.421	0.024	<0.0001
	2015-16	0.581	0.024	<0.0001	0.555	0.024	<0.0001
	2016-17	0.751	0.024	<0.0001	0.719	0.024	<0.0001
	2017-18	0.867	0.024	<0.0001	0.831	0.024	<0.0001
	2018-19	0.93	0.024	<0.0001	0.886	0.024	<0.0001
Subject of study	Medicine and dentistry	0.003	0.023	0.878	-0.144	0.022	<0.0001
	Subjects allied to medicine	0.138	0.008	<0.0001	0.049	0.008	<0.0001
	Biological sciences	-0.192	0.008	<0.0001	-0.258	0.008	<0.0001
	Agriculture and related subjects	0.11	0.022	<0.0001	0.114	0.022	<0.0001
	Physical sciences	0.07	0.009	<0.0001	0.007	0.009	0.486
	Mathematical sciences	0.354	0.012	<0.0001	0.224	0.012	<0.0001

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
	Computer science	0.804	0.01	<0.0001	0.638	0.01	<0.0001
	Engineering and technology	0.527	0.009	<0.0001	0.367	0.009	<0.0001
	Architecture, building and planning	-0.036	0.014	0.01	-0.155	0.014	<0.0001
	Social studies	-0.376	0.008	<0.0001	-0.477	0.008	<0.0001
	Law	-0.842	0.012	<0.0001	-0.986	0.011	<0.0001
	Business and administrative studies	0.209	0.007	<0.0001	0.061	0.007	<0.0001
	Mass communications and documentation	-0.217	0.011	<0.0001	-0.259	0.011	<0.0001
	Languages	-0.477	0.009	<0.0001	-0.497	0.009	<0.0001
	Historical and philosophical studies	-0.479	0.01	<0.0001	-0.513	0.01	<0.0001
	Creative arts and design (ref)	-	-	-	-	-	-
	Education	-0.154	0.01	<0.0001	-0.162	0.01	<0.0001
	Combined	-0.309	0.034	<0.0001	-0.39	0.034	<0.0001
Entry qualifications	A-level: AAA and above (ref)	-	-	-	-	-	-
	A-level: AAB	-0.685	0.008	<0.0001	-0.695	0.008	<0.0001
	A-level: AAC	-0.984	0.015	<0.0001	-0.997	0.015	<0.0001
	A-level: ABB	-1.056	0.009	<0.0001	-1.075	0.008	<0.0001
	A-level: ABC	-1.259	0.01	<0.0001	-1.285	0.01	<0.0001
	A-level: ACC	-1.455	0.014	<0.0001	-1.493	0.014	<0.0001
	A-level: BBB	-1.33	0.011	<0.0001	-1.357	0.011	<0.0001
	A-level: BBC	-1.528	0.01	<0.0001	-1.562	0.01	<0.0001
	A-level: BCC	-1.722	0.01	<0.0001	-1.766	0.01	<0.0001
	A-level: CCC	-1.933	0.011	<0.0001	-1.987	0.011	<0.0001
	A-level: CCD	-2.144	0.012	<0.0001	-2.207	0.012	<0.0001
	A-level: CDD	-2.323	0.014	<0.0001	-2.396	0.014	<0.0001
	A-level: DDD	-2.459	0.018	<0.0001	-2.548	0.018	<0.0001
	A-level: Below DDD	-2.653	0.023	<0.0001	-2.762	0.022	<0.0001
	BTEC: DDD and above	-2.196	0.011	<0.0001	-2.264	0.011	<0.0001
	BTEC: DDM	-2.813	0.021	<0.0001	-2.912	0.021	<0.0001
	BTEC: DMM	-3.103	0.025	<0.0001	-3.204	0.025	<0.0001
	BTEC: MMM and below	-3.226	0.022	<0.0001	-3.347	0.022	<0.0001
	2 A-levels 1 BTEC	-2.039	0.014	<0.0001	-2.097	0.014	<0.0001
	1 A-level 2 BTECs	-2.444	0.02	<0.0001	-2.538	0.02	<0.0001
	International Baccalaureate	-0.867	0.017	<0.0001	-0.905	0.017	<0.0001
	Other Level 3	-2.248	0.01	<0.0001	-2.352	0.01	<0.0001
	No Level 3 equivalent	-1.73	0.022	<0.0001	-1.838	0.021	<0.0001

Effect		Full model estimate	Full model SE	Full model p-value	Simplified model estimate	Simplified model SE	Simplified model p-value
Age	Mature	0.277	0.026	<0.0001	0.23	0.026	<0.0001
	Young (ref)	-	-	-	-	-	-
Age (Mature) *	A-level: AAA and above (ref)	-	-	-	-	-	-
Entry qualifications	A-level: AAB	0.128	0.04	<0.01	0.15	0.04	<0.001
	A-level: AAC	0.274	0.07	<0.001	0.298	0.069	<0.0001
	A-level: ABB	0.324	0.041	<0.0001	0.351	0.04	<0.0001
	A-level: ABC	0.336	0.044	<0.0001	0.366	0.043	<0.0001
	A-level: ACC	0.422	0.053	<0.0001	0.469	0.052	<0.0001
	A-level: BBB	0.343	0.047	<0.0001	0.375	0.047	<0.0001
	A-level: BBC	0.383	0.04	<0.0001	0.418	0.039	<0.0001
	A-level: BCC	0.431	0.036	<0.0001	0.479	0.036	<0.0001
	A-level: CCC	0.502	0.036	<0.0001	0.548	0.036	<0.0001
	A-level: CCD	0.533	0.037	<0.0001	0.591	0.037	<0.0001
	A-level: CDD	0.587	0.04	<0.0001	0.652	0.039	<0.0001
	A-level: DDD	0.504	0.045	<0.0001	0.574	0.044	<0.0001
	A-level: Below DDD	0.557	0.046	<0.0001	0.634	0.046	<0.0001
	BTEC: DDD and above	0.074	0.033	0.024	0.084	0.033	0.01
	BTEC: DDM	0.327	0.048	<0.0001	0.358	0.047	<0.0001
	BTEC: DMM	0.41	0.053	<0.0001	0.434	0.053	<0.0001
	BTEC: MMM and below	0.51	0.039	<0.0001	0.567	0.039	<0.0001
	2 A-levels 1 BTEC	0.084	0.059	0.155	0.11	0.059	0.062
	1 A-level 2 BTECs	0.209	0.072	<0.01	0.264	0.071	<0.001
	International Baccalaureate	-0.414	0.071	<0.0001	-0.398	0.071	<0.0001
Other Level 3	0.249	0.028	<0.0001	0.276	0.027	<0.0001	
No Level 3 equivalent	0.022	0.034	0.512	0.032	0.033	0.341	
Disability	Disability	-0.142	0.005	<0.0001	-	-	-
	No disability (ref)	-	-	-	-	-	-
Sex	Female (ref)	-	-	-	-	-	-
	Male	-0.095	0.004	<0.0001	-	-	-
	Other	0.194	0.114	0.092	-	-	-
Ethnicity	Asian	-0.622	0.006	<0.0001	-	-	-
	Black	-1.11	0.009	<0.0001	-	-	-
	Mixed	-0.308	0.009	<0.0001	-	-	-
	Other	-0.595	0.017	<0.0001	-	-	-
	Unknown	-0.743	0.015	<0.0001	-	-	-
	White (ref)	-	-	-	-	-	-
POLAR4	Quintile 1	-0.059	0.006	<0.0001	-	-	-
	Quintile 2	0.007	0.005	0.2	-	-	-
	Quintile 3	0.019	0.005	<0.001	-	-	-
	Quintile 4	0.024	0.005	<0.0001	-	-	-
	Quintile 5 (ref)	-	-	-	-	-	-
	Unknown	-0.22	0.034	<0.0001	-	-	-

7. Estimates of the variance components and their standard errors for the random intercepts and random year coefficients in both the full and simplified models are shown for upper second class and first class degrees combined in Table D4, and for first class degrees alone in Table D5.

**Table D4: Variance component estimates for the models for first or upper second class degree attainment**

	Random effect	Full model estimate	Full model standard error	Simplified model estimate	Simplified model standard error
Intercept	$\sigma_{u_0}^2$	0.111	0.014	0.085	0.011
Year	$\sigma_{u_Y}^2$	0.024	0.001	0.022	0.001

**Table D5: Variance component estimates for the models for first class degree attainment**

	Random effect	Full model estimate	Full model standard error	Simplified model estimate	Simplified model standard error
Intercept	$\sigma_{u_0}^2$	0.164	0.020	0.152	0.019
Year	$\sigma_{u_Y}^2$	0.031	0.002	0.028	0.002

8. Model fit statistics for both the full and simplified models are shown for upper second class and first class degrees combined in Table D6, and for first class degrees alone in Table D7.

**Table D6: Model fit statistics for the models for first or upper second class degree attainment**

Statistic	Full model	Simplified model
-2logLikelihood	2,208,670	2,254,516
Akaike information criterion	2,208,844	2,254,664

**Table D7: Model fit statistics for the models for first class degree attainment**

Statistic	Full model	Simplified model
-2logLikelihood	2,169,788	2,197,682
Akaike information criterion	2,169,962	2,197,830



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