Data analysis
March **2018/05**

Differences in student outcomes

The effect of student characteristics

This report looks at the employment outcomes of the 2015-16 graduates and the degree outcomes of the 2016-17 UK-domiciled first degree graduates from HEFCE-funded higher education institutions (excluding further education colleges). It considers how outcomes differ according to various student characteristics measured in terms of class of degree awarded and outcome six months after graduation. It also considers the changes that have taken place since the previous reports on 2013-14 graduates.

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Contents

Differences in student outcomes: The effect of student characteristics

To	Heads of HEFCE-funded higher education institutions
Of interest to those responsible for	Planning, Widening participation
Reference	2018/05
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Executive summary

Purpose

1. This report looks at the employment outcomes of the 2015-16 graduates and the degree outcomes of the 2016-17 UK-domiciled first degree graduates from HEFCE-funded higher education institutions (excluding further education colleges). It considers how outcomes differ according to various student characteristics measured in terms of class of degree awarded and outcome six months after graduation. It also considers the changes that have taken place since the previous reports on 2013-14 graduates.

Background

2. This report follows on from a series of reports by HEFCE which show that there are significant differences in degree outcomes and employment for different groups of students.

3. In this report we focus on degree and employment outcomes rather than the entire degree journey; progression and non-continuation are examined in other HEFCE publications. The focus of this analysis is to examine the differences in the proportion who gained a first or upper second class degree and graduate employment outcomes for more recent cohorts.

4. The analysis is based on degree outcomes of graduates who graduated in 2016-17, and employment outcomes of those who graduated in 2015-16. It examines how student outcomes vary for different groups after accounting for other factors. In addition, at a sector level, we consider how student outcomes have changed since the last report on 2013-14 graduates.

Key points

5. The focus of this report is about the graduate outcomes for students with different characteristics.

Degree outcomes – proportion achieving a first or upper second

6. The difference between the proportions of young and mature graduates gaining a first or upper second class degree has increased between the 2013-14 and 2016-17 graduating cohorts. Among 2016-17 graduates, the proportion of young graduates who gain a first or upper second class degree is 79 per cent, compared with 67 per cent of mature graduates. This shows a slight increase from 75 per cent of young graduates and 64 per cent of mature graduates in 2013-14.

7. Differences have persisted between different student groups: differences on the basis of gender, disability and educational disadvantage have remained consistent between 2013-14 and 2016-17.

8. More female students than male students gain a first or upper second class degree: 81 per cent of female graduates get a first or upper second class degree compared with 76 per cent of male graduates.

9. The gap between graduates without a disability and graduates in receipt of Disabled Students' Allowances (DSA) has remained at three percentage points from 2013-14. There is a similar gap between disabled graduates not in receipt of DSA and those without a disability. It has also remained at three percentage points since 2013-14.

10. The gap between Participation of Local Areas (POLAR) quintiles 1 and 5 gaining a first or upper second class degree has remained at 10 percentage points since 2013-14. The gaps between all other quintiles have also remained comparatively stable over this time.

11. There has been a small decrease in the difference in outcomes between graduates of different ethnicities between 2013-14 and 2016-17. White graduates have the highest proportion gaining a first or upper second class degree, namely 82 per cent. The group with the lowest proportion was black graduates with only 60 per cent. Among Asian graduates, the proportion gaining a first or upper second class degree is 72 per cent. The difference between the proportions of white and black graduates has decreased from 23 percentage points in 2013-14 to 22 percentage points in 2016-17. The difference between proportions of white and Asian graduates has reduced from at 12 percentage points in 2013-14 to 11 percentage points in 2016-17.

Employment outcomes – proportion in graduate employment or further study

12. In terms of graduate employment outcomes two characteristics have seen an increased gap between 2013-14 and 2015-16: differences between male and female graduates, and the differences between graduates with and without a disability.

13. Among female graduates, 73 per cent are in highly skilled employment or study compared with 72 per cent of male graduates. This gap has increased slightly from 0.2 percentage points in 2013-14 to 1.0 percentage points in 2015-16.

14. The graduate employment gap between graduates without a disability and graduates in receipt of DSA has increased: from 2.0 percentage points in 2013-14 to 2.6 percentage points in 2015-16. The gap between disabled graduates not in receipt of DSA and those without a disability has increased from 2.2 percentage points in 2013-14 to 2.8 percentage points in 2015-16.

15. Mature graduates continue to do slightly better than young graduates: 77 per cent of mature graduates are in graduate employment or further study compared with 73 per cent for young graduates.

16. The gap between graduates of different ethnicities and different educational disadvantage backgrounds has decreased.

17. Black graduates have 69 per cent graduate employment rate, while white graduates are at 74 per cent. This gap has decreased from seven percentage points in 2013-14 to five percentage points in 2015-16.

18. POLAR quintile 1 graduates have the lowest percentage in graduate employment or further study – 71 per cent – while quintile 5 graduates have the highest proportion in graduate employment or further study, at 75 per cent.

Action required

19. This document is for information only.

Introduction

20. This report looks at the employment outcomes of the 2015-16[1] graduates and the degree outcomes for 2016-17 UK-domiciled first degree graduates from HEFCE-funded institutions and considers how outcomes differ according to various student characteristics, measured in terms of class of degree awarded and employment outcome six months after graduation. It also considers the changes that have taken place since the previous reports on the 2013-14 graduates.

Background

21. This report follows on from a series of reports that consider the differences in the degree outcomes of UK-domiciled graduates[2]. These analyses have consistently highlighted significant differences in degree outcomes for different groups of students. In addition, the report builds on a series of reports on differences in employment outcomes[3].

22. The report focuses on degree and employment outcomes rather than the entire degree journey. This is because progression and non-continuation are examined in other HEFCE publications such as the HEFCE interactive tool[4] and 'Year one outcomes for first degree students'[5], which tracks entrants' progression from first year to second. The analysis examines the differences in the proportion who gained a first or upper second class degree and employment outcomes for more recent cohorts.

23. The analysis is based on degree outcomes of graduates who graduated in 2016-17 and the employment outcomes of those who graduated in 2015-16. It examines how student outcomes vary between different groups (in terms of student characteristics) after accounting for other factors. In addition, at a sector level, we consider how student outcomes have changed since 2013-14.

Methodology

24. The main population in this report is UK-domiciled first degree graduates from HEFCE-funded institutions in 2016-17 whose programme of study led to an award with a classification. The population consists of 275,800 graduates who obtained a degree classification. Analysis in Annex B shows the composition of all 2016-17 qualifiers, compared with the population of just those with a classified degree who are the focus of this report. This shows that the population is broadly consistent.

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[1] This is because employment data on the 2016-17 graduates will not be available until later this year.
[2] Specifically 'Differences in degree outcomes: The effect of subject and student characteristics' (HEFCE 2015/21), available at www.hefce.ac.uk/pubs/Year/2015/201521/, 'Differences in degree outcomes: Key findings' (HEFCE 2014/03), available at www.hefce.ac.uk/pubs/year/2014/201403/, 'Higher education and beyond: Outcomes from full-time, first degree study' (HEFCE 2013/15), available at www.hefce.ac.uk/pubs/year/2013/201315/ and 'Student ethnicity: Profile and progression of entrants to full-time first degree study' (HEFCE 2010/13), available at www.hefce.ac.uk/pubs/year/2010/201013/.
[3] Specifically 'Differences in employment outcomes: Comparison of 2008-09 and 2010-11 first degree graduates' (HEFCE 2016/18(, available at www.hefce.ac.uk/pubs/year/2016/201618/ and 'Differences in employment outcomes: Equality and diversity characteristics' (HEFCE 2015/23), available at www.hefce.ac.uk/pubs/Year/2015/201523/.
[4] For more information see 'Non-continuation rates: Trends and profiles', available at www.hefce.ac.uk/analysis/ncr.
[5] See 'Year one outcomes for first degree students' (HEFCE 2017/27), available at www.hefce.ac.uk/pubs/year/2017/201727/.

25. Of those who graduated in 2015-16, 203,960 graduates (75 per cent) filled in the Destination of Leavers from Higher Education (DLHE) survey. The DLHE is a survey that takes place six months after graduation and is used to establish the employment outcomes of students.

26. Annex C shows that while the subset of the population who filled in the DLHE survey was consistent with the total graduate population, there is a slightly higher proportion of full-time and young graduates than in the graduate population as a whole.

27. The other population considered in this report is that of the 2013-14 qualifiers considered in the previous report. Annex A considers details of differences in these populations.

28. We examine the relationship between employment outcomes, class of degree and entry qualifications for various groups of graduates by first showing how the overall proportion of first and upper second class degrees awarded varies by entry qualifications and how employment outcomes vary by classification of degree.

Results

Overall

Degree outcomes

29. This section considers the proportion of qualifying students who achieved a first or upper second class degree.

30. In 2016-17, 76 per cent of graduates achieved either a first or upper second class degree. Table 1 shows that the percentage gaining a first was 27 per cent in 2016-17.

Table 1: Degree classification for 2016-17 qualifiers

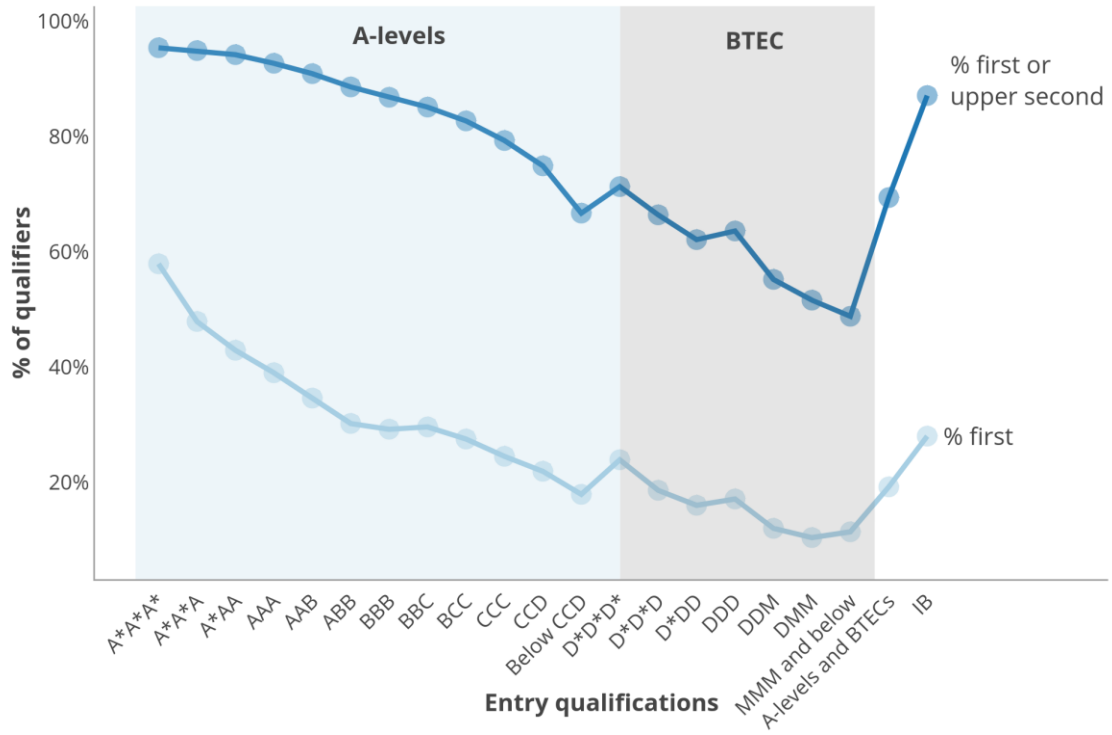
Degree classification	Number	Percentage
First	73,295	27%
Upper second	136,285	49%
Lower second	52,965	19%
Third	13,260	5%
Total	275,800	100%

31. Figure 1 shows a clear relationship between degree classification and entry qualification: as entry grades increase, the proportions who gain a first or upper second also increase. For example, the difference between those entering with A*A*A* at A-level and those entering with below CCD is 29 percentage points, with 95 per cent of graduates with A*A*A* gaining a first or upper second class degree compared with 67 per cent of graduates who entered with below CCD at A-level.

32. The difference between the highest and lowest BTEC grades, 71 per cent for those with three Distinction*s (D*D*D*), and 49 per cent for those with three Merits (MMM) and below, is 23 percentage points. The proportion of graduates with International Baccalaureates (IB) gaining a first or upper second class degree is 87 per cent.

33. It should be noted that the number of graduates represented by each point in Figure 1 varies. For information about the size of the groups, see Annex B.

Figure 1: Degree classification by entry qualifications for 2016-17 qualifiers



Population: 2016-17 graduates with a classified degree.

Employment outcomes

34. This section considers the proportion of graduates who were in graduate employment or further study six months after graduation.

35. Of the total population of graduates with known destinations, 89 per cent were in employment or further study six months after graduation. Further to this, 74 per cent were either in a graduate job or further study at six months after graduation. This is shown in Table 2. Graduate employment has been defined using the Standard Occupational Classification for the DLHE[6], and classified[7] as graduate or non-graduate using the responses given to question 12 and question 13 of the DLHE survey [8], as well as any salary information given.

[6] The current descriptions and guidance notes can be downloaded from the HESA website at www.hesa.ac.uk/index.php?option=com_studrec&Itemid=232&mnl=11018.
[7] The full method of classification is contained in 'Approaches to measuring employment circumstances of recent graduates' (HEFCE 2011/02), available online at www.hefce.ac.uk/pubs/year/2011/201102/.
[8] Question 12 of the DLHE survey asks: 'Did you need the qualification you recently obtained to get the job you were doing on [*date*] (the actual qualification not the subject of study)?' Question 13 of the DLHE survey asks: 'As far as you are aware, what was most important to your employer about your qualification?'

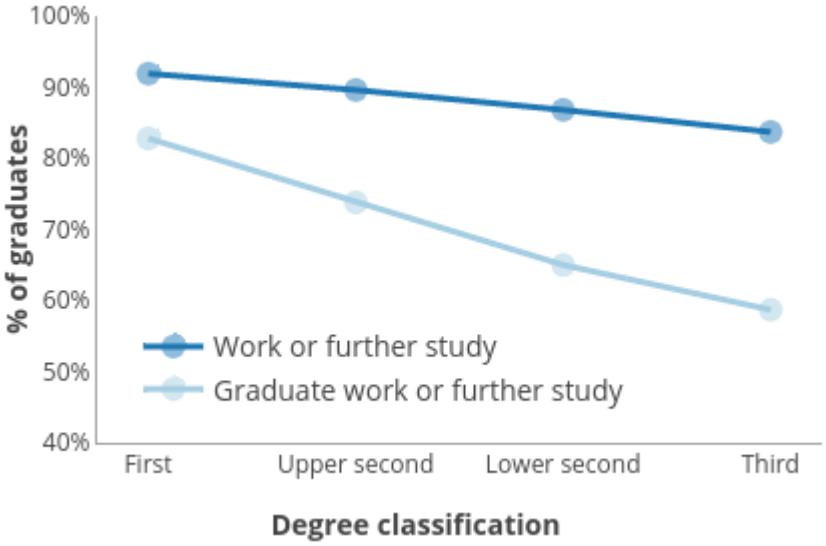
Table 2: Employment outcomes six months after graduation of 2015-16 graduates

Outcome six months after graduation	Number	Percentage
Graduate employment	104,850	52%
Non-graduate employment	30,915	15%
Further study (with or without employment)	43,100	21%
Unemployed	9,005	5%
Other	12,045	6%
Total	199,910	100%

Population: 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

36. Figure 2 shows that the proportion of graduates in employment or further study is eight percentage points higher among those with a first than among those with a third-class degree. However, the difference is much bigger for those in graduate employment or further study. The proportion of those in graduate employment or further study is 24 percentage points higher among those with a first than those with a third-class degree.

Figure 2: Employment outcomes six months after graduation for 2015-16 graduates by degree classification



Population: 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

Change over time

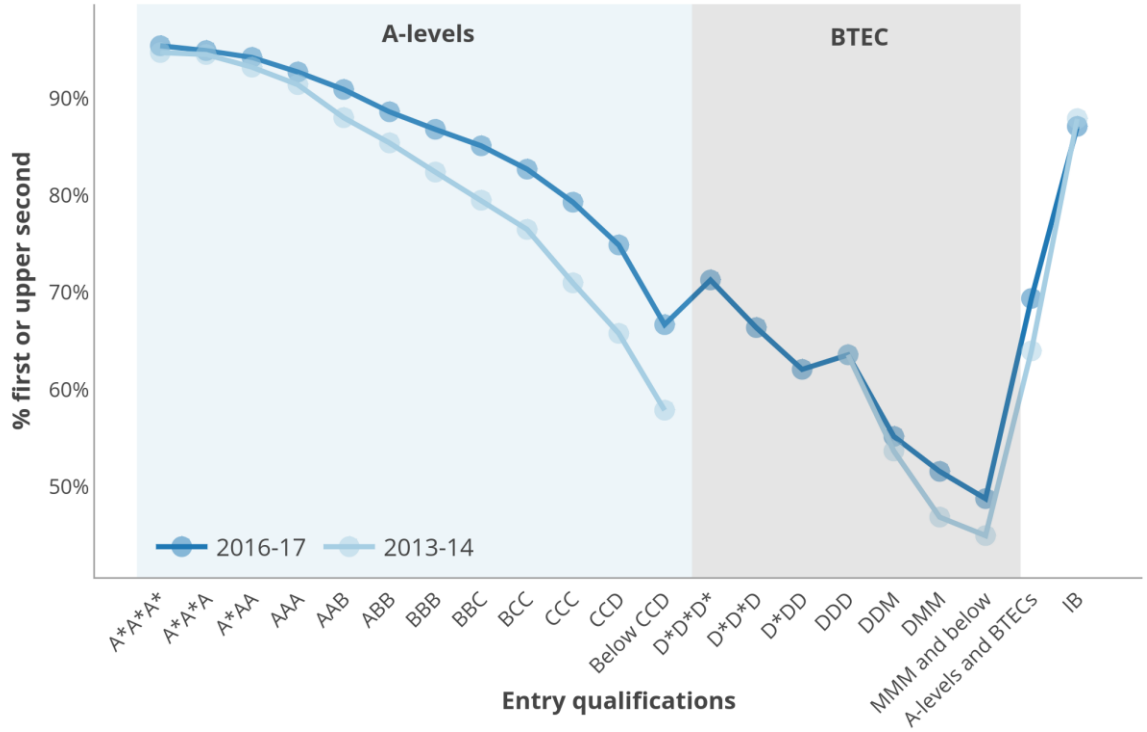
37. This section looks at how things have changed since the last HEFCE report which looked at 2013-14 graduates.

Degree outcomes

38. This section considers the proportion of graduates who achieved a first or upper second class degree in 2016-17, and compares it with the figure for 2013-14.

39. Figure 3 shows that the increase occurs over all entry qualifications to varying degrees. The largest increase in first or upper second class degree is nine percentage points for graduates entering with CCD at A-level. The proportion who enter with IBs and gain a first or upper second class has seen no change.

Figure 3: Percentage of 2013-14 and 2016-17 qualifiers gaining a first or upper second class degree



Population: 2013-14 and 2016-17 graduates with a classified degree.

40. Corresponding information on the changes in the proportion of graduates gaining first class degrees is available in Annex D.

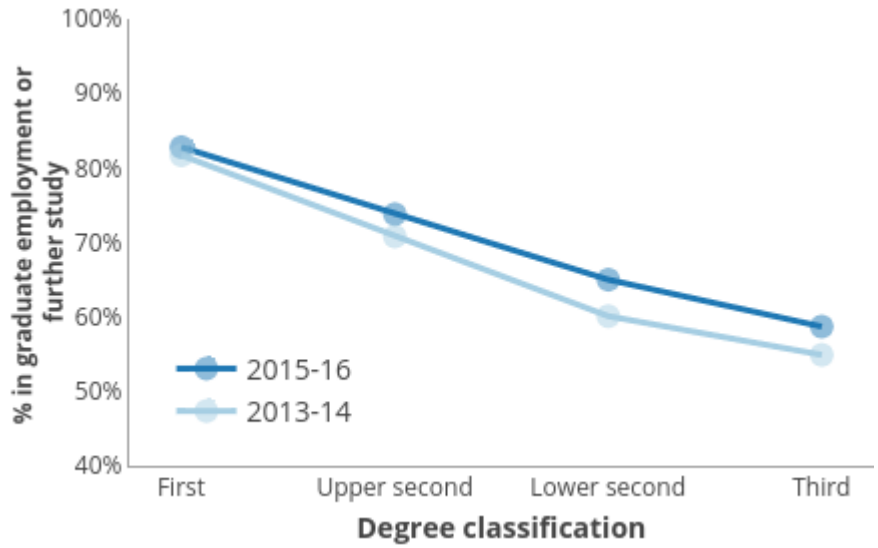
Employment outcomes

41. This section looks at the effect on the graduate employment rates. It considers the proportion of 2016-17 graduates who are in graduate employment or further study six months after graduation, and compares them with 2013-14 graduates.

42. In 2013-17, 71 per cent of graduates were in graduate employment or further study. By 2015-16 this had increased to 74 per cent.

43. Figure 4 shows that there has been an increase in graduate employment or further study rate over every degree classification. The largest increase is a five percentage point increase for graduates with a lower second class degree, and the smallest is of one percentage point for first class degrees. This suggests that part of the increase in the proportion in graduate employment or further study was due to the increased proportion gaining a first or upper second class degree.

Figure 4: Percentage of 2013-14 and 2015-16 DLHE respondents in graduate employment or further study



Population: 2013-14 and 2015-16 DLHE respondents with a classified degree surveyed in 2017 DLHE.

44. Further information on the changes in employment or further study by degree classification is available in Annex E.

Summary

45. This section shows that overall both the proportion of first or upper second class degrees has increased between 2013-14 and 2015-16, but so have the proportions of graduates in graduate employment or further study. The remainder of this report examines this data in more detail by looking at student characteristics.

Student characteristics

46. Previous HEFCE publications have noted differences in degree and employment outcomes based on student characteristics. This section considers the differences by age, sex, disability, ethnicity and an area-based measure of disadvantage, among graduates who gain a classified degree.

Age

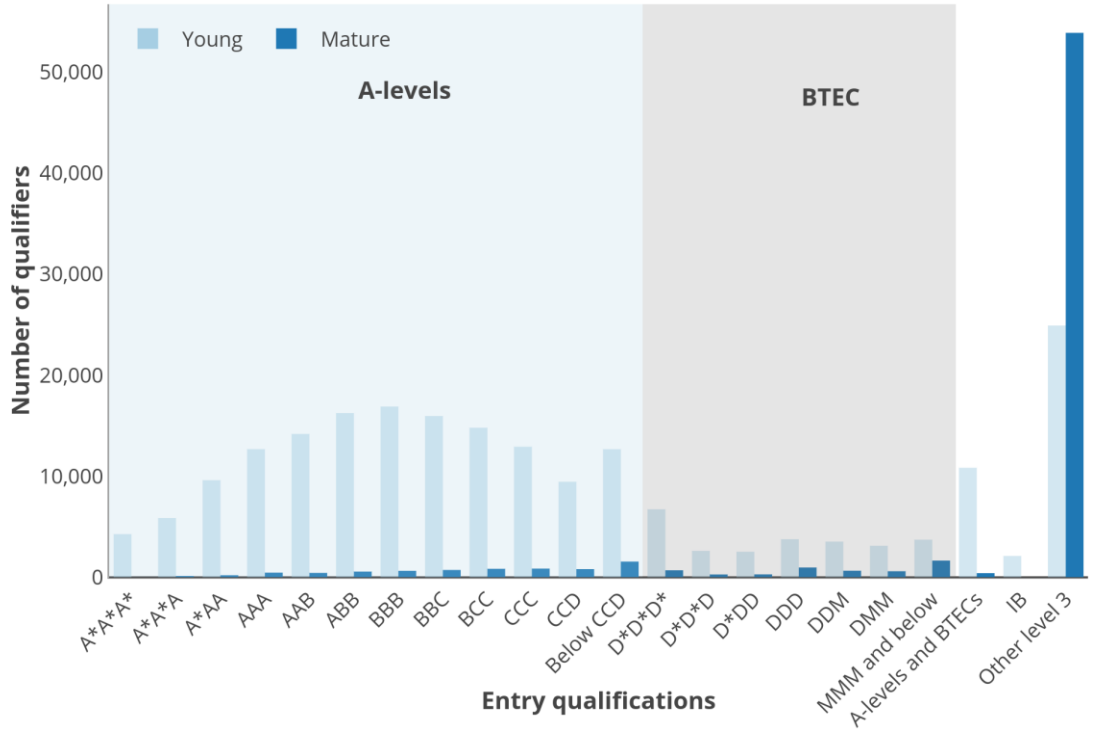
Degree outcomes

47. This section considers the proportions of young and mature graduates who achieved a first or upper second class degree[9].

48. Figure 5 shows how the distribution of entry qualifications differs for the two groups. Mature graduates mostly enter with Level 3 qualifications other than A-level, BTECs and IBs, whereas a large proportion of young graduates enter with Level 3 qualifications.

[9] 'Young' students are defined as those under 21 years old on entry to their course; those who are older are considered 'mature'.

Figure 5: 2016-17 graduates by age and entry qualification



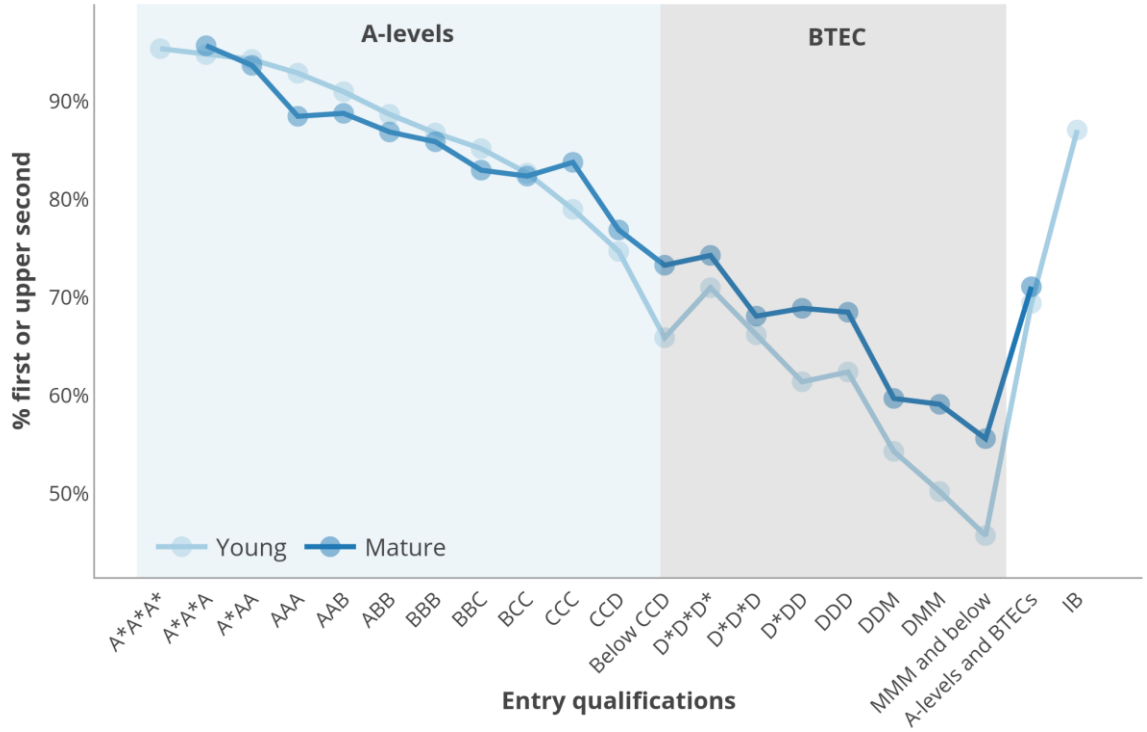
Population: 2016-17 graduates with a classified degree.

49. For 2016-17 graduates, the proportion of young graduates who gain a first or upper second class degree is 79 per cent[10]. This compares with 67 per cent of mature graduates. This difference has increased slightly since 2013-14. The corresponding figures were 75 per cent for young graduates and 64 per cent for mature graduates.

50. Figure 6 shows that the differences between the proportion of young and mature graduates gaining a first or upper second class degree are not due to the entry qualifications of the graduates.

[10] 'Young' graduates are defined as graduates who are under 21 years old on entry to their degree; those who are older are considered 'mature'.

Figure 6: Percentage of 2016-17 qualifiers gaining a first or upper second class degree by age



Population: 2016-17 graduates with a classified degree.

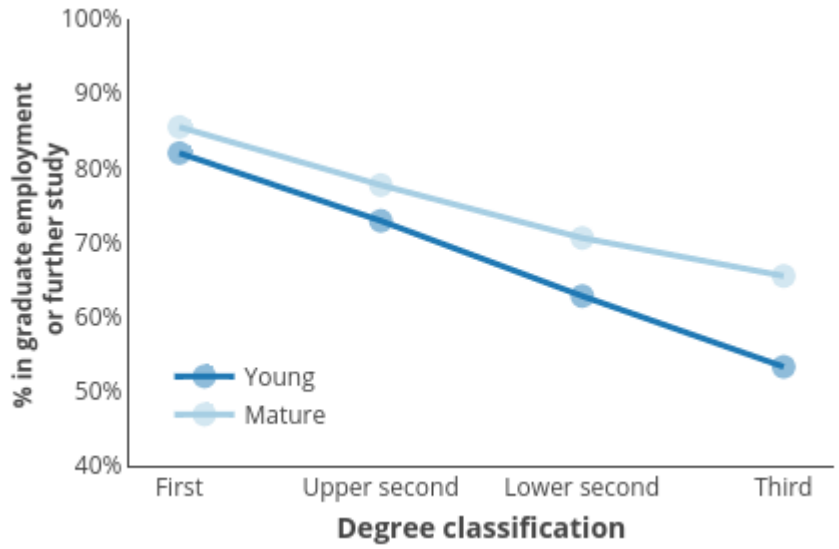
Employment outcomes

51. This section considers the proportions of young and mature qualifying students who are in graduate employment or further study six months after graduation.

52. For those in graduate employment or further study, the proportions are higher for mature graduates at 77 per cent compared with 73 per cent for young graduates. This difference has remained at around four percentage points between 2013-14 and 2015-16.

53. Figure 7 shows that graduate employment rate is higher for mature graduates than for young graduates once the differences in degree classification are taken into account. Additionally the difference between young and mature graduates increases for lower degree classifications. The proportion of mature graduates in graduate employment or further study was three percentage points higher than for young graduates among with a first class degree, increasing to 12 percentage points among those who graduate with a third class degree.

Figure 7: Percentage of 2015-16 DLHE respondents in graduate employment or further study by age



Population: 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

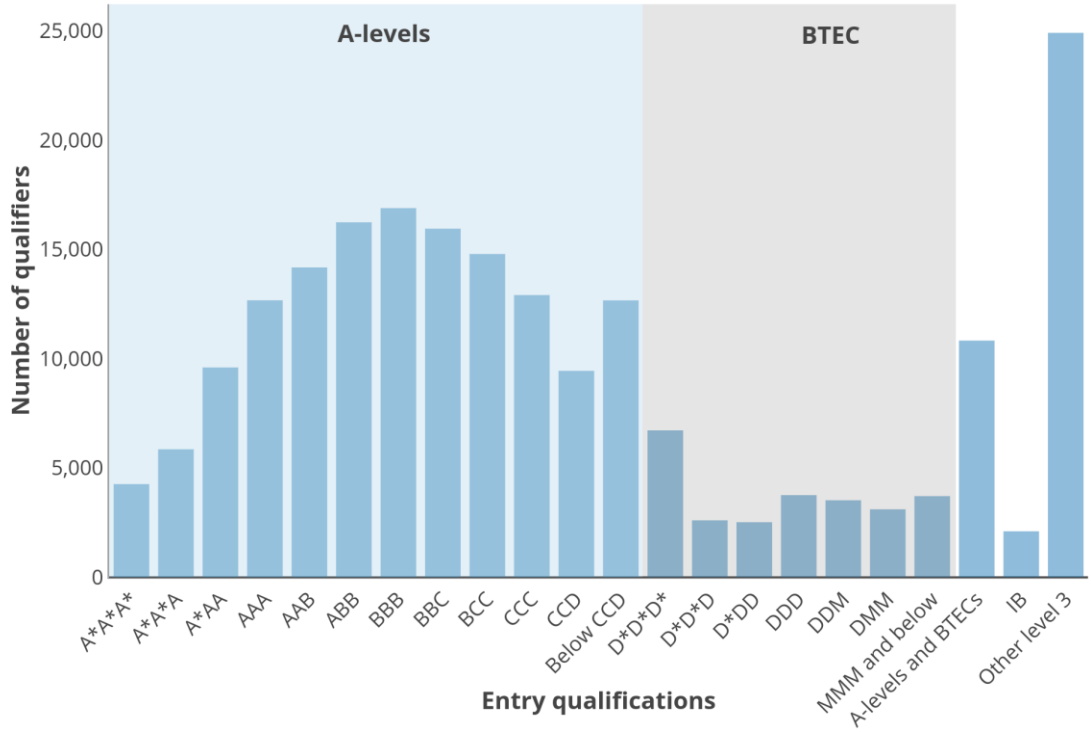
Summary

54. Young graduates have a higher proportion gaining a first or upper second class degree but also have very different entry profiles, so that direct comparison is difficult. Mature graduates have a higher proportion in graduate employment or further study. This could be related to factors beyond those considered in this employment, such as prior employment.

55. Because of the differences between young and mature graduates in terms of both entry qualifications and employment outcomes, the remainder of this report will only consider young graduates.

56. Figure 8 shows the same information as Figure 6 but restricted to young qualifiers only. This is the main population considered in this report.

Figure 8: 2016-17 young graduates by entry qualification



Population: 2016-17 young graduates with a classified degree.

Gender

Degree outcomes

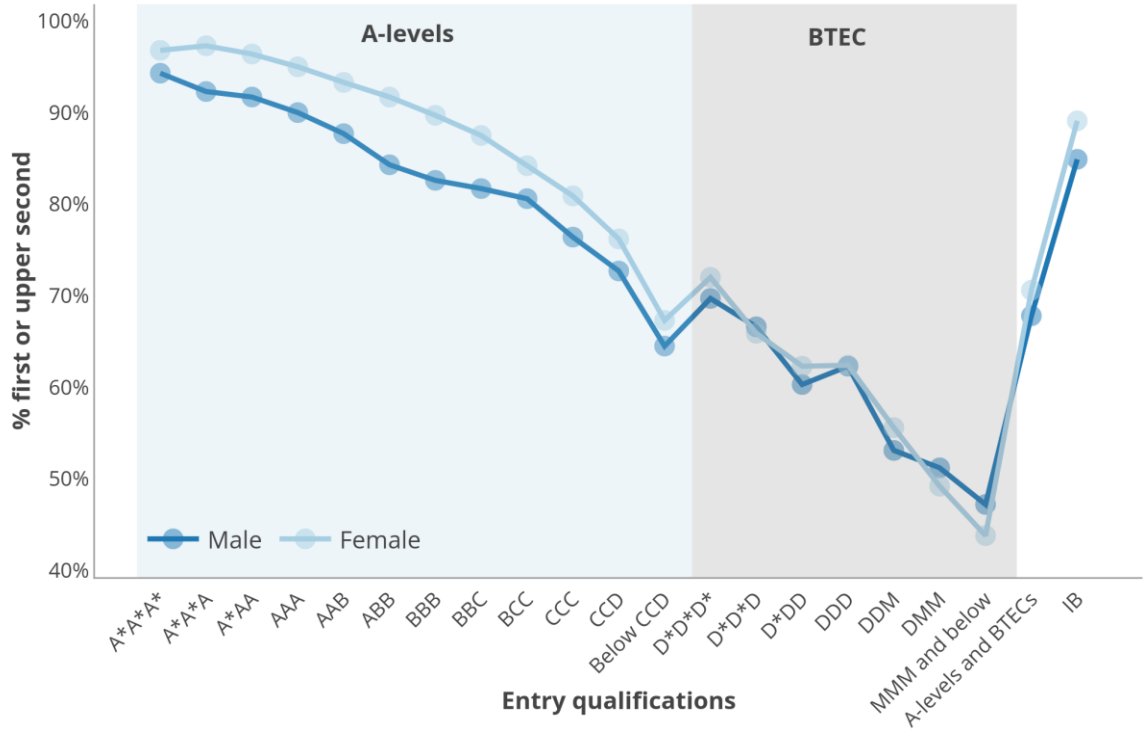
57. This section considers the proportion of young graduates who achieved a first or upper second class degree, by gender.

58. There is a five percentage point difference between the proportion of female graduates getting a first or upper second class degree and the proportion of male graduates. 81 per cent of female graduates get such a degree compared with 76 per cent of male graduates. This difference has remained at around five percentage points since 2013-14.

59. Male graduates have a lower proportion gaining a first or upper second over all A-level qualifications, as shown in Figure 9 with differences ranging from three percentage points for graduates with A*A*A* to seven percentage points for graduates with AAB.

60. However, this is not the case for graduates who enter with BTECs. While the rate for female graduates is three percentage points higher when they enter with DDM, it is three percentage points lower at MMM and below.

Figure 9: Percentage of young 2016-17 qualifiers gaining a first or upper second class degree by gender



Population: Young 2016-17 graduates with a classified degree.

61. The proportion gaining a first or upper second class degree has been modelled to see whether the difference observed between male and female students is explained by factors beyond entry qualifications. The model takes account of institutional differences, course type differences and differences in other student characteristics such as ethnicity, disability and educational disadvantage. Details of the model are available in Annex F.

62. Once other factors have been taken into account, Table 3 shows that the gap (or unexplained difference) increased from 4.7 percentage points to 5.1 percentage points once the observable characteristics are taken into account. This remaining variation is the variation due to unobservable factors. This shows that the gap between male graduates and female graduates is slightly larger once other factors are taken into account.

Table 3: Modelled results for the percentage of qualifiers gaining a first or upper second class degree by gender

	% first or upper second	% reference (female)	Observed difference	Unexplained difference
Female	81.0%	81.0%	-	-
Male	76.3%	81.0%	-4.7%	-5.1%

Population: Young 2016-17 graduates with a classified degree.

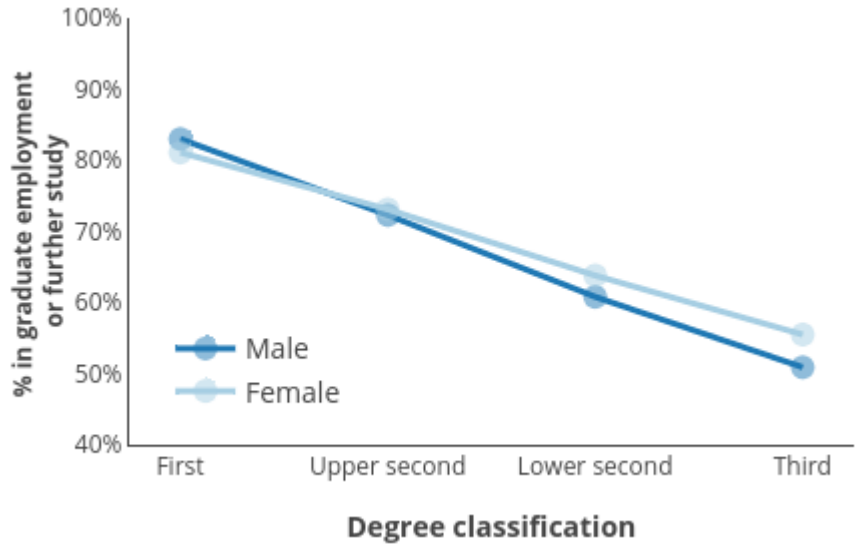
Employment outcomes

63. This section considers the proportion of graduates who are in graduate employment or further study six months after graduation, by gender.

64. Among female graduates, 73 per cent are in graduate employment or study compared with 72 per cent of male graduates. This gap has increased slightly from 0.2 percentage points in 2013-14 to 1.0 percentage points in 2015-16.

65. However, Figure 10 shows that this difference is not consistent when degree classification is taken into account. Those male graduates gaining a first are 1.8 percentage points more likely to be in graduate employment or further study. However, for all other degree classifications, a higher proportion of female graduates are in graduate employment or further study.

Figure 10: Percentage of young 2015-16 DLHE respondents in graduate employment or further study by gender



Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

66. The proportion in graduate employment or further study six months after graduation was modelled in a similar way to the degree outcomes model, using additional information on degree classification and region of institution. Details are available in Annex G.

67. Once these differences were modelled, Table 4 shows that the gap between male graduates and female graduates has decreased. The outcomes for male graduates have moved from being from 1.1 percentage points lower than female graduates to 0.2 percentage points higher than expected when other factors are taken into consideration. Therefore most of the difference between male graduates and female graduates is explained by the factors considered in this model.

Table 4: Modelled results for the percentage of young 2015-16 DLHE respondents in graduate employment or further study by gender

	% graduate employed or further study	% reference (female)	Observed difference	Unexplained difference
Female	73.6%	73.6%	-	-
Male	72.5%	72.4%	-1.1%	+0.2%

Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

Disability

Degree outcomes

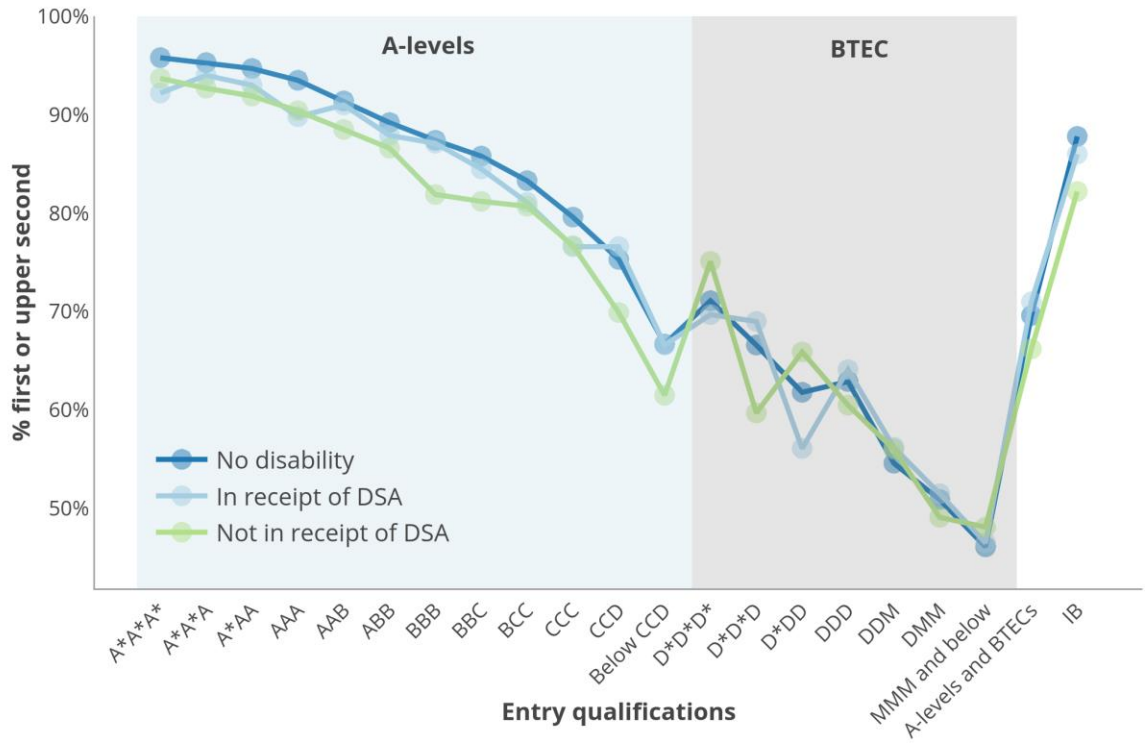
68. This section considers the proportion of graduates who achieved a first or upper second class degree, on the basis of whether a student has declared a disability and whether they are in receipt of Disabled Students Allowances (DSA).

69. Disability makes a difference to likely degree outcome. The proportion of graduates without a disability who achieve a first or upper second class degree is 80 per cent, whereas for disabled graduates, whether in receipt of DSA or otherwise, it is 77 per cent. The gap between graduates without a disability and disabled graduates, whether or not in receipt of DSA, has remained at three percentage points from 2013-14.

70. Figure 11 shows that among those with A*A*A* at A-level on entry there is a four percentage point difference between those in receipt of DSA and those with no reported disability. However, among those with BTEC D*D*D on entry, the proportion for those in receipt of DSA is two percentage points higher.

71. Figure 11 also shows that the proportion gaining a first or upper second class degree is higher for graduates without a disability for all A-level grades, with the exception of CCD, but that outcomes are more mixed for other Level 3 entry qualifications.

Figure 11: Percentage of young 2016-17 qualifiers gaining a first or upper second class degree by disability



Population: Young 2016-17 graduates with a classified degree.

72. Among graduates in receipt of DSA, the difference between the actual percentage and the expected percentage is 1.6 percentage points while the difference among those declaring a disability but not in receipt of DSA is 3.2 percentage points, once the additional factors have been taken into account as shown in Table 5.

Table 5: Modelled results for the percentage of qualifiers gaining a first or upper second class degree by disability

	% first or upper second	% reference (no disability reported)	Observed difference	Unexplained difference
No disability reported	79.7%	79.7%	-	-
In receipt of DSA	76.8%	79.7%	-2.9%	-1.6%
Disabled but not in receipt in DSA	76.8%	79.7%	-2.9%	-3.2%

Population: Young 2016-17 graduates with a classified degree.

Employment outcomes

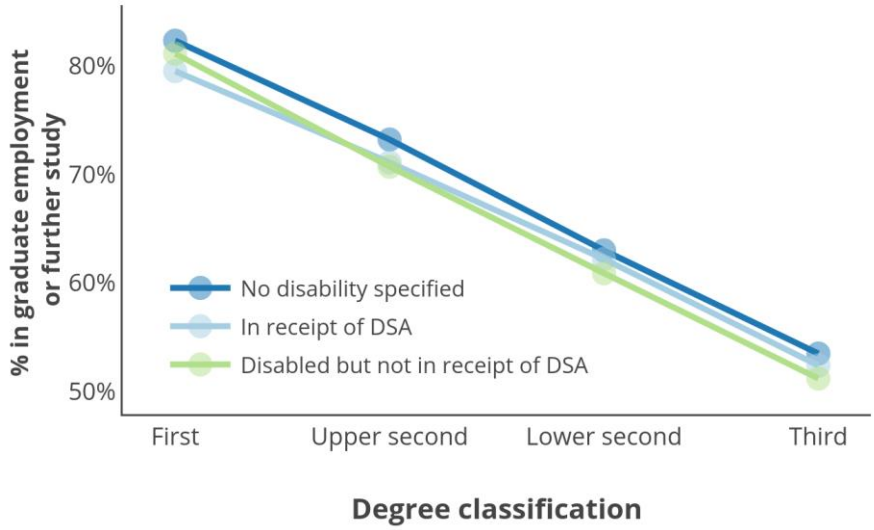
73. This section considers the proportion of graduates who are in graduate employment or further study six months after graduation, split by whether or not a student declared a disability and whether or not they claimed DSA.

74. The differences in graduate employment outcomes is slightly larger, with 73 per cent of graduates without a disability in graduate employment or further study. For graduates in receipt of DSA, 71 per cent are in graduate employment or further study. The graduate employment rate among disabled graduates not in receipt of DSA is 71 per cent.

75. The gap between graduates without a disability and graduates in receipt of DSA has increased from 2.0 percentage points in 2013-14 to 2.6 percentage points in 2015-16. The gap between disabled graduates not in receipt of DSA and those without a disability has increased from 2.2 percentage points in 2013-14 to 2.8 percentage points in 2015-16.

76. Figure 12 shows that the gap remains at around two percentage points across degree classifications among disabled graduates, whether in receipt of DSA or otherwise. Therefore, differences in degree classification do not explain the differences in the graduate employment outcomes of graduates.

Figure 12: Percentage of young 2015-16 DLHE respondents in graduate employment or further study by disability



Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

77. Table 6 shows that the difference between the groups is reduced slightly once different characteristics are accounted for.

Table 6: Modelled results for the percentage of young 2015-16 DLHE respondents in graduate employment or further study by disability

	% graduate employment or further study	% reference (No disability reported)	Observed difference	Unexplained difference
No disability reported	73.4%	73.4%	-	-
In receipt of DSA	70.8%	73.4%	-2.6%	-1.4%
Disabled but not in receipt in DSA	70.6%	73.4%	-2.8%	-1.9%

Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

Ethnicity

Degree outcomes

78. This section considers the proportion of graduates who achieved a first or upper second class degree by ethnicity.

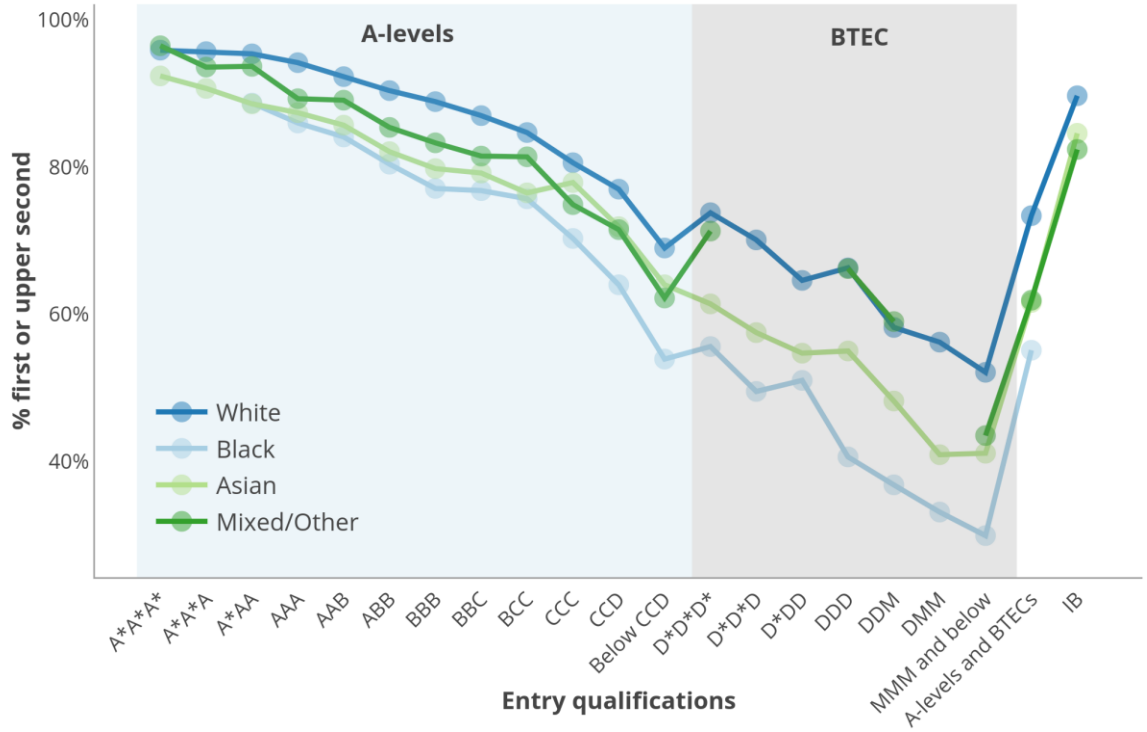
79. White graduates have the highest proportion gaining a first or upper second class degree, with 82 per cent. The group with the lowest proportion was black graduates, with only 60 per cent. For Asian graduates, the proportion gaining a first or upper second class degree is 72 per cent.

80. The difference between the proportions of white and black graduates has decreased slightly from 23 percentage points in 2013-14 to 22 percentage points in 2016-17. The difference between proportions of white and Asian graduates has reduced from 12 percentage points in 2013-14 to 11 percentage points in 2016-17.

81. Figure 13 shows that white graduates range from seven percentage points higher than black graduates for graduates with A*AA at A-level, to 26 percentage points higher for BTEC DMM. The gap between white and black graduates increases for lower A-level grades and BTEC grades.

82. The proportions gaining such degrees among white graduates are also between three and 15 percentage points higher than among Asian graduates. The gaps between these graduates are much wider for BTECs than for A-levels.

Figure 13: Percentage of young 2016-17 qualifiers gaining a first or upper second class degree by ethnicity



Population: Young 2016-17 graduates with a classified degree.

83. Table 7 shows that the difference is 10 percentage points for Asian graduates compared with 17 percentage points in Black graduates, once other factors are accounted for. Therefore, the additional factors explain some, but not all, of the difference between these groups.

Table 7: Modelled results for the percentage of qualifiers gaining a first or upper second class degree by ethnicity

	% first or upper second	% reference (white)	Observed difference	Unexplained difference
White	82.2%	82.2%	-	-
Black	60.4%	82.2%	-21.8%	-17.3%
Asian	71.7%	82.2%	-10.5%	-9.5%
Mixed	75.4%	82.2%	-6.8%	-6.2%

Population: Young 2016-17 graduates with a classified degree.

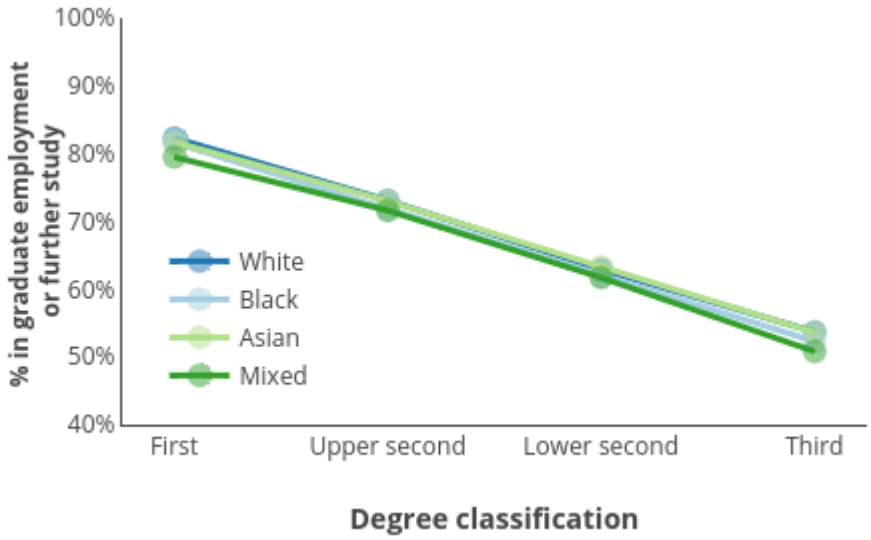
Employment outcomes

84. This section considers the proportion of graduates who are in graduate employment or further study six months after graduation, split by ethnicity.

85. For graduate employment or further study, black graduates have a 69 per cent graduate employment rate. The group with the highest graduate employment rate is white graduates at 74 per cent. This gap has decreased from seven percentage points in 2013-14 to five percentage points in 2015-16.

86. Figure 14 shows that white graduates and Asian graduates display similar proportions over all degree classifications, and therefore degree classification accounts for much of the differences between these groups. Among black graduates, the differences are reduced to around one percentage point for all degree classifications, meaning that degree classification also accounts for a lot of these differences.

Figure 14: Percentage of young 2015-16 DLHE respondents in graduate employment or further study by ethnicity



Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

87. Table 8 shows that accounting for the factors in Annex E, black graduates have the smallest difference between the actual value and their expected proportion at one percentage point, while Asian graduates have a two percentage point difference. Therefore, most of the difference between black and white graduates is explained by the factors in the model. However, only some of the differences between Asian graduates and white graduates are explained by all of these additional factors in the model.

Table 8: Modelled results for the percentage of young 2015-16 DLHE respondents in graduate employment or further study by ethnicity

	% graduate employment or further study	% reference (white)	% modelled	Difference
White	73.8%	73.8%	-	-
Black	68.7%	73.8%	-5.1%	-0.9%
Asian	71.6%	73.8%	-2.2%	-1.9%
Mixed	70.6%	73.8%	-3.2%	-1.3%

Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

Educational disadvantage

Degree outcomes

88. This section considers the proportion of graduates who achieved a first or upper second class degree by Participation of Local Areas (POLAR) quintile[11].

89. There is a range of degree outcomes across the educational disadvantage quintiles as shown in Table 9. Graduates from quintile 1 the (lowest participation quintile) have the lowest proportion gaining a first or upper second class degree, 73 per cent of graduates, compared with 83 per cent of graduates from quintile 5 (the highest participation quintile).

Table 9: Percentage of young 2016-17 qualifiers gaining a first or upper second class degree by educational disadvantage quintile

	% first or upper second
Quintile 1	73%
Quintile 2	76%
Quintile 3	78%
Quintile 4	79%
Quintile 5	83%

Population: Young 2016-17 qualifiers with a classified degree.

90. The gap between quintile 1 and quintile 5 has remained at 10 percentage points since 2013-14. The gaps between all other quintiles have also remained comparatively stable over this time.

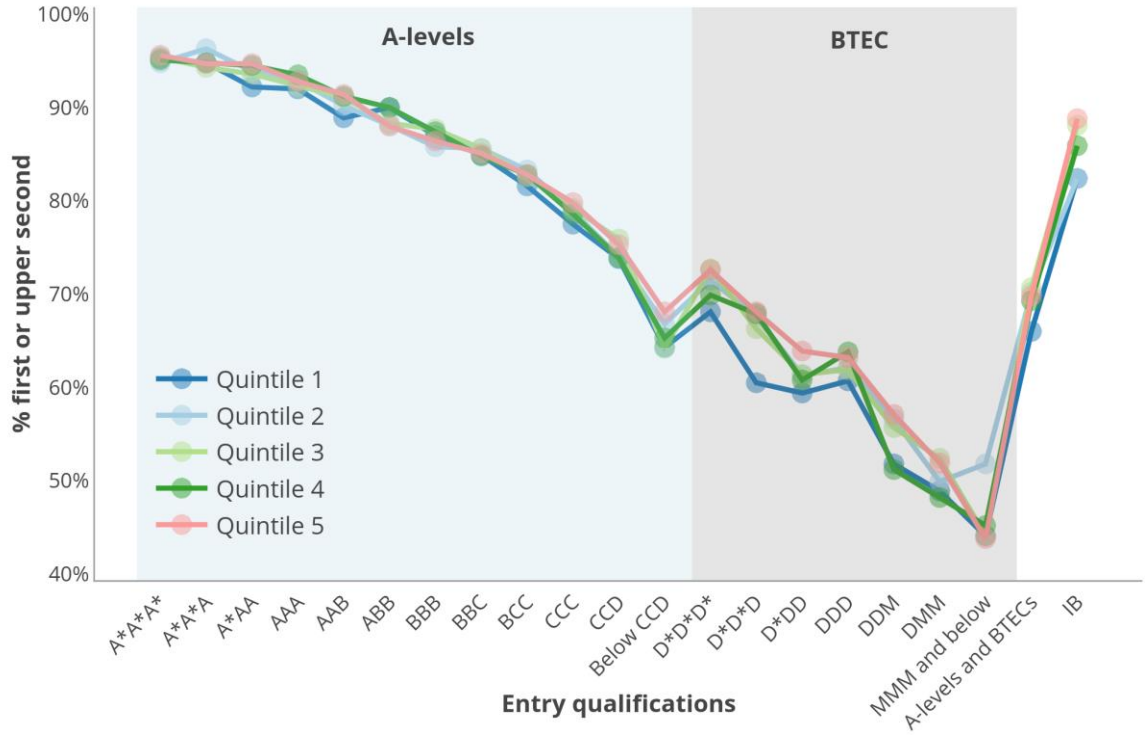
91. Figure 15 shows that once entry qualifications have been taken into account, the difference between quintile 1 and quintile 5 graduates who enter with A-levels ranges from two percentage

[11] POLAR is a measure of educational disadvantage. For more information see www.hefce.ac.uk/analysis/yp/POLAR/.

points higher, for graduates with ABB, to four percentage points lower for those entering with below CCD.

92. Among graduates with BTECs, the gap is wider ranging, from zero for graduates with MMM and below to eight percentage points for quintile 5 graduates entering with D*D*D.

Figure 15: Percentage of young 2016-17 qualifiers gaining a first or upper second class degree by educational disadvantage quintile



Population: Young 2016-17 graduates with a classified degree.

93. Table 10 shows that once the other factors are taken into account, the unexplained difference between quintile 1 and quintile 5 has reduced to two percentage points. From Figure 15, it can be seen that a lot of this decrease in difference is explained by entry qualifications.

Table 10: Modelled results for the percentage of qualifiers gaining a first or upper second class degree by educational disadvantage quintile

	% first or upper second	% reference (quintile 1)	Observed difference	Unexplained difference
Quintile 1	72.9%	72.9%	-	-
Quintile 2	76.2%	72.9%	+3.3%	+1.7%
Quintile 3	77.7%	72.9%	+4.8%	+2.2%
Quintile 4	78.8%	72.9%	+5.9%	+2.5%
Quintile 5	83.0%	72.9%	+10.1%	+2.3%

Population: Young 2016-17 graduates with a classified degree.

Employment outcomes

94. This section considers the proportion of graduates who are in graduate employment or further study six months after graduation by POLAR quintile.

95. Table 11 shows that quintile 1 graduates have the lowest percentage in graduate employment, 71 per cent, while quintile 5 have the highest proportion in graduate employment or further study at 75 per cent.

Table 11: Percentage of young 2015-16 DLHE respondents in graduate employment or further study by educational disadvantage quintile

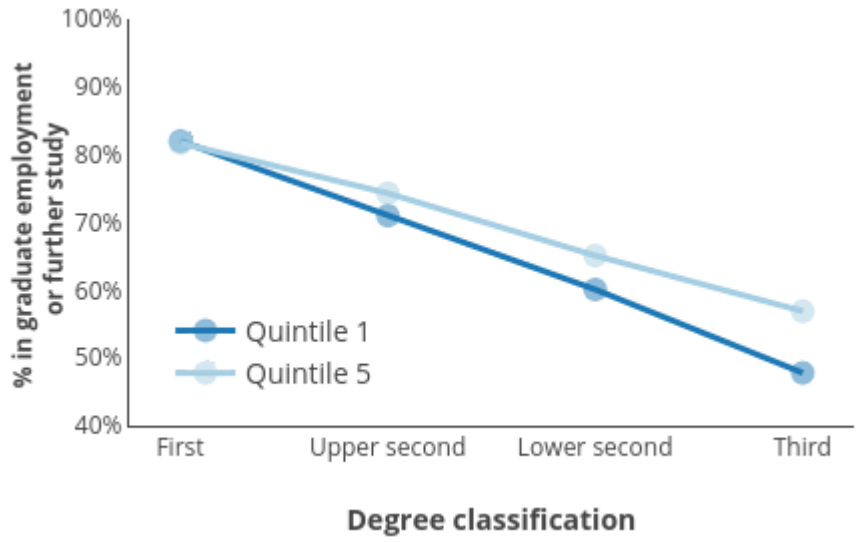
	% graduate employment or further study
Quintile 1	71%
Quintile 2	72%
Quintile 3	73%
Quintile 4	73%
Quintile 5	75%

Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

96. The gap between quintile 1 and quintile 5 graduates for graduate employment has decreased from six percentage points in 2013-14 to four percentage points in 2015-16.

97. Figure 16 shows that the trends are different across degree classifications. There is little difference for graduates with a first class degree, but the difference is nine percentage points for those with a third class degree. Therefore, class of degree is not the only factor affecting the difference in graduate employment rates.

Figure 16: Percentage of young 2015-16 DLHE respondents in graduate employment or further study by educational disadvantage quintile



Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

98. Accounting for the additional factors explains some of the difference between the quintiles, as shown in Table 12. The difference between quintiles 1 and 5 decreases from three percentage points to one percentage point.

Table 12: Modelled results for the percentage of young 2015-16 DLHE respondents to be in graduate employment or further study by educational disadvantage quintile

	% graduate employment or further study	% reference (quintile 1)	Observed difference	Unexplained difference
Quintile 1	70.5%	70.5%	-	-
Quintile 2	72.2%	70.5%	+1.7%	+0.9%
Quintile 3	72.6%	70.5%	+2.1%	+0.8%
Quintile 4	72.8%	70.5%	+2.3%	+0.8%
Quintile 5	74.7%	70.5%	+4.2%	+0.9%

Population: Young 2015-16 graduates with a classified degree who responded to the 2017 DLHE survey.

Annex A: Analysis of population change

1. This annex provides details of how the composition of populations have changed between the years considered in this report. The results are seen in Table A1.

Table A13: Changes in population

		2013-14		2015-16		2016-17	
		N	%	N	%	N	%
Young	Full-time	209,255	74%	195,675	74%	204,450	74%
	Part-time	4,855	2%	5,015	2%	4,815	2%
Mature	Full-time	45,785	16%	43,305	16%	45,705	17%
	Part-time	23,380	8%	20,765	8%	20,825	8%
Total		283,275	100%	264,755	100%	275,800	100%

Annex B: Analysis of classified degrees subset

1. This annex provides details of how the classified degrees subset considered in this report compares to the overall population of qualifiers. This is to ensure that this subset of the population is consistent with the whole qualifiers population. The results are seen in Table B1.

Table B1: Comparison of the 2016-17 qualifiers' characteristics with those of graduates with a classified degree

Characteristic		All qualifiers		Qualifiers with a classified degree	
		N	%	N	%
Gender	Male	120,320	42%	115,675	42%
	Female	165,600	58%	160,070	58%
Age	Young	215,675	75%	209,265	76%
	Mature	70,300	25%	66,530	24%
Participation of Local Areas (POLAR)	Quintile 1	21,655	8%	21,320	8%
	Quintile 2	31,650	11%	30,965	11%
	Quintile 3	40,095	14%	39,040	14%
	Quintile 4	50,385	18%	48,865	18%
	Quintile 5	71,645	25%	68,840	25%
	Unknown quintile	280	0%	275	0%
Disability	No disability	240,500	84%	231,960	84%
	In receipt of Disabled Students Allowances (DSA)	21,525	8%	20,795	8%
	Disabled but not in receipt of DSA	20,705	7%	19,920	7%
	Unknown disability	3,245	1%	3,120	1%
Entry qualifications	A*A*A*	5,345	2%	4,330	2%
	A*A*A	6,665	2%	5,970	2%
	A*AA	10,860	4%	9,790	4%
	AAA	14,610	5%	13,120	5%
	AAB	15,030	5%	14,600	5%
	ABB	17,035	6%	16,795	6%
	BBB	17,745	6%	17,520	6%
	BBC	16,865	6%	16,670	6%
	BCC	15,785	6%	15,620	6%
	CCC	13,900	5%	13,765	5%
	CCD	10,335	4%	10,240	4%
	Below CCD	14,370	5%	14,210	5%
	D*D*D*	7,445	3%	7,395	3%
	D*D*D	2,895	1%	2,865	1%
	D*DD	2,815	1%	2,790	1%
	DDD	4,780	2%	4,710	2%
	DDM	4,190	1%	4,155	2%
	DMM	3,720	1%	3,685	1%

	MMM and below	5,405	2%	5,350	2%
	A-levels and BTECs	11,295	4%	11,225	4%
	International Baccalaureate	2,300	1%	2,165	1%
	Other Level 3	82,585	29%	78,830	29%
Ethnicity	White	211,470	74%	204,690	74%
	Black	20,270	7%	19,810	7%
	Asian	33,290	12%	31,175	11%
	Mixed or other background	15,235	5%	14,680	5%
	Unknown	5,710	2%	5,445	2%
Mode	Full-time	258,590	90%	250,160	91%
	Part-time	27,385	10%	25,640	9%

Annex C: Analysis of DLHE subset

1. This annex provides details of how the subset of respondents to the Destinations of Leavers from Higher Education (DLHE) considered in this report compares with the population of qualifiers. This is to ensure that this subset of the population is consistent with the classified degree qualifiers population. The results are seen in Table C1.

Table C1: Comparison of the 2015-16 qualifiers' characteristics with the DLHE respondents.

Characteristic		Qualifiers with a classified degree		DLHE respondents	
		N	%	N	%
Gender	Male	110,490	42%	83,705	42%
	Female	154,235	58%	116,180	58%
Age	Young	200,685	76%	154,960	78%
	Mature	64,070	24%	44,950	22%
Participation of Local Areas (POLAR)	Quintile 1	20,125	8%	15,125	8%
	Quintile 2	29,420	11%	22,695	11%
	Quintile 3	37,475	14%	29,040	15%
	Quintile 4	46,945	18%	36,550	18%
	Quintile 5	66,575	25%	51,460	26%
	Unknown quintile	205	0%	125	0%
Disability	No disability	224,750	85%	171,415	86%
	In receipt of Disabled Students Allowances (DSA)	20,515	8%	16,060	8%
	Disabled but not in receipt of DSA	16,515	6%	12,435	6%
	Unknown disability	2,980	1%	0	0%
Entry qualifications	A*A*A*	4,180	2%	3,285	2%
	A*A*A	5,800	2%	4,475	2%
	A*AA	9,605	4%	7,440	4%
	AAA	13,235	5%	10,260	5%
	AAB	14,725	6%	11,590	6%
	ABB	16,635	6%	13,175	7%
	BBB	17,250	7%	13,665	7%
	BBC	16,395	6%	12,935	6%
	BCC	15,520	6%	12,280	6%
	CCC	13,385	5%	10,475	5%
	CCD	10,030	4%	7,805	4%
	Below CCD	13,260	5%	10,175	5%
	D*D*D*	5,390	2%	4,135	2%
	D*D*D	2,340	1%	1,770	1%
	D*DD	2,305	1%	1,715	1%
	DDD	5,040	2%	3,660	2%
	DDM	3,810	1%	2,720	1%

	DMM	3,410	1%	2,405	1%
	MMM and below	5,210	2%	3,655	2%
	A-levels and BTECs	8,760	3%	6,765	3%
	International Baccalaureate	2,105	1%	1,595	1%
	Other Level 3	76,350	29%	53,940	27%
Ethnicity	White	197,355	75%	152,445	76%
	Black	19,085	7%	13,770	7%
	Asian	29,360	11%	22,310	11%
	Mixed or other background	13,825	5%	9,975	5%
	Unknown	5,130	2%	1,410	1%
Mode	Full-time	238,980	90%	183,515	92%
	Part-time	25,780	10%	16,395	8%

Annex D: Percentage first class degree qualifiers

1. This annex contains details on the proportion of the 2016-17 qualifiers cohort who gained a first class degree.

Figure D17: Percentage of 2013-14 and 2016-17 qualifiers gaining a first class degree

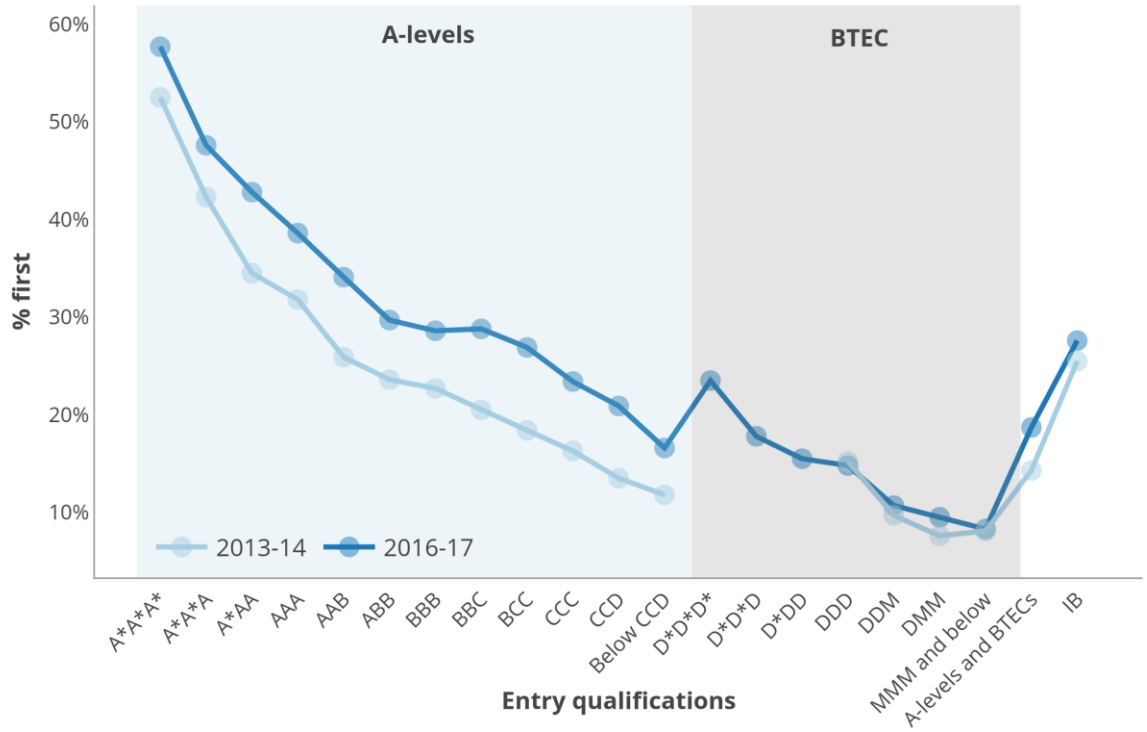


Figure D18: Percentage of 2016-17 qualifiers gaining a first class degree by age

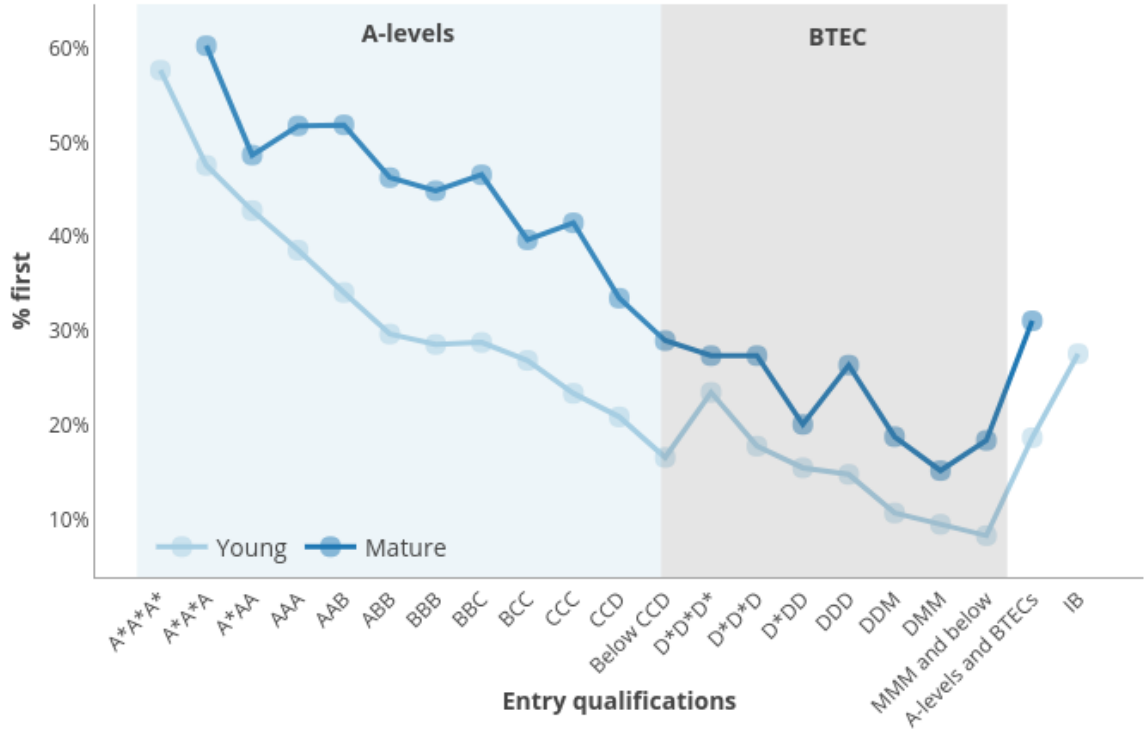


Figure D19: Percentage of young 2016-17 qualifiers gaining a first class degree by gender

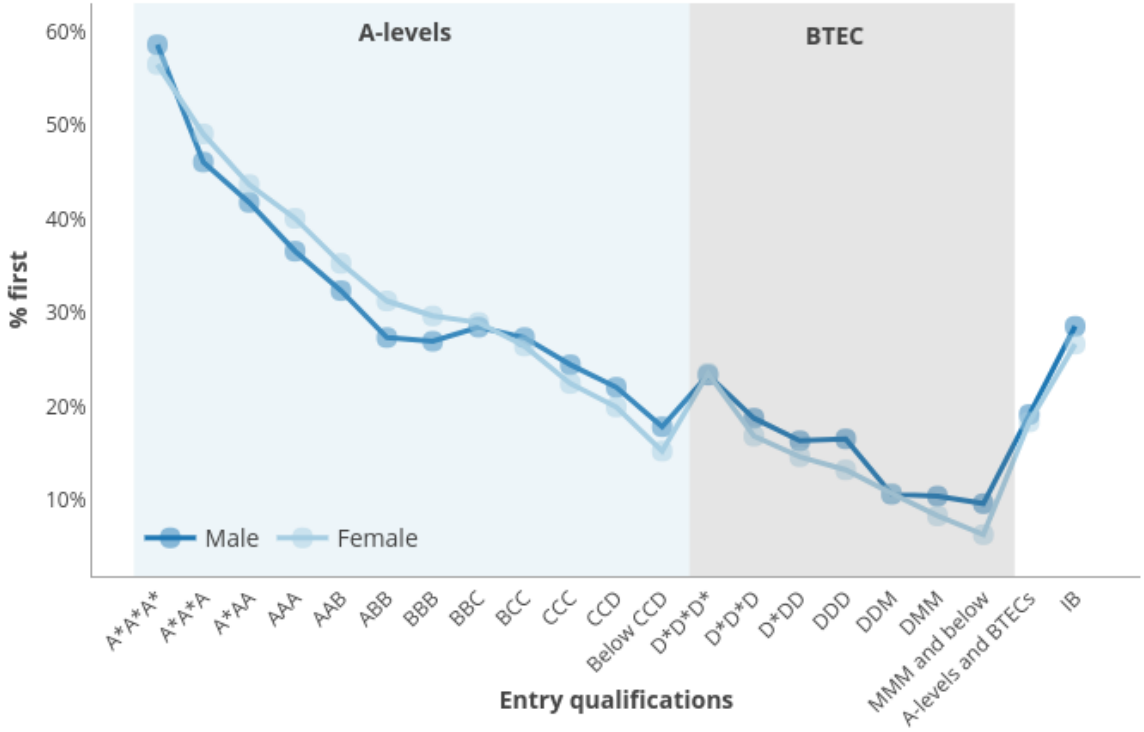


Table D1: Modelled results for the percentage of qualifiers gaining a first class degree by gender

	% first	% reference (female)	Observed difference	Unexplained difference
Female	26.9%	26.9%	-	-
Male	26.6%	26.9%	-0.3%	-2.5%

Figure D20: Percentage of young 2016-17 qualifiers gaining a first class degree by disability

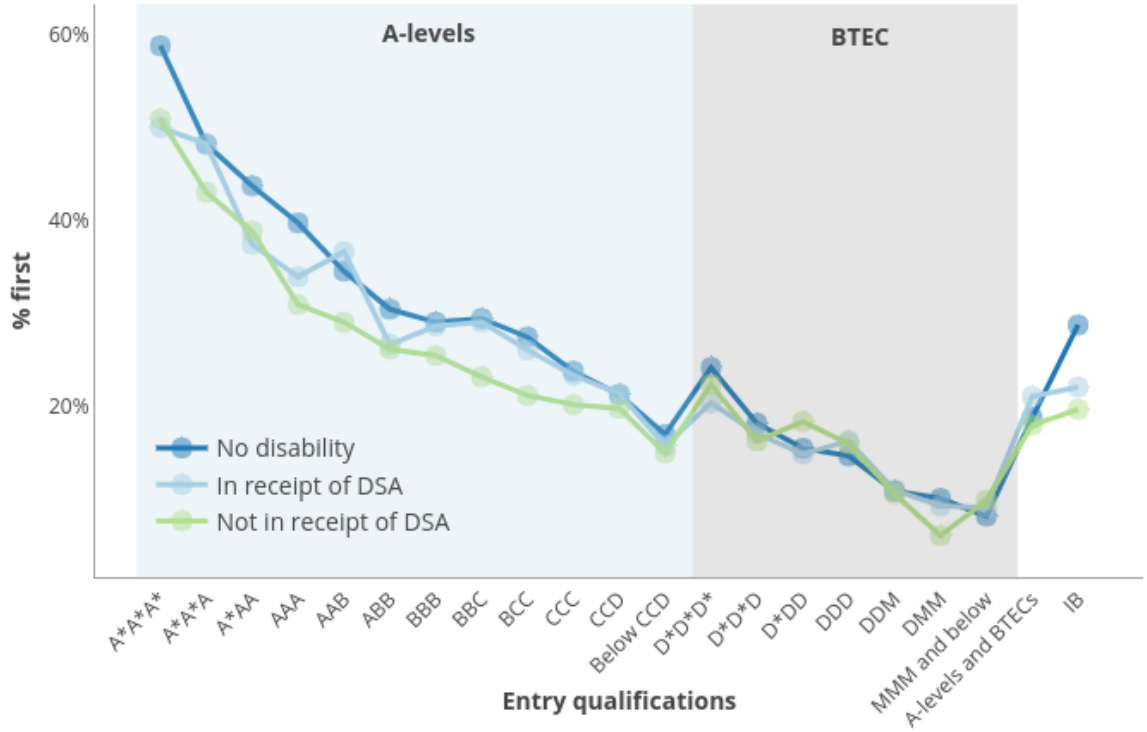


Table D2: Modelled results for the percentage of qualifiers gaining a first class degree by disability

	% first	% reference (no disability reported)	Observed difference	Unexplained difference
No disability reported	27.3%	27.3%	-	-
In receipt of Disabled Students Allowances (DSA)	24.6%	27.3%	-2.7%	-1.2%
Disabled but not in receipt of DSA	23.8%	27.3%	-3.5%	-2.9%

Figure D21: Percentage of young 2016-17 qualifiers gaining a first class degree by ethnicity

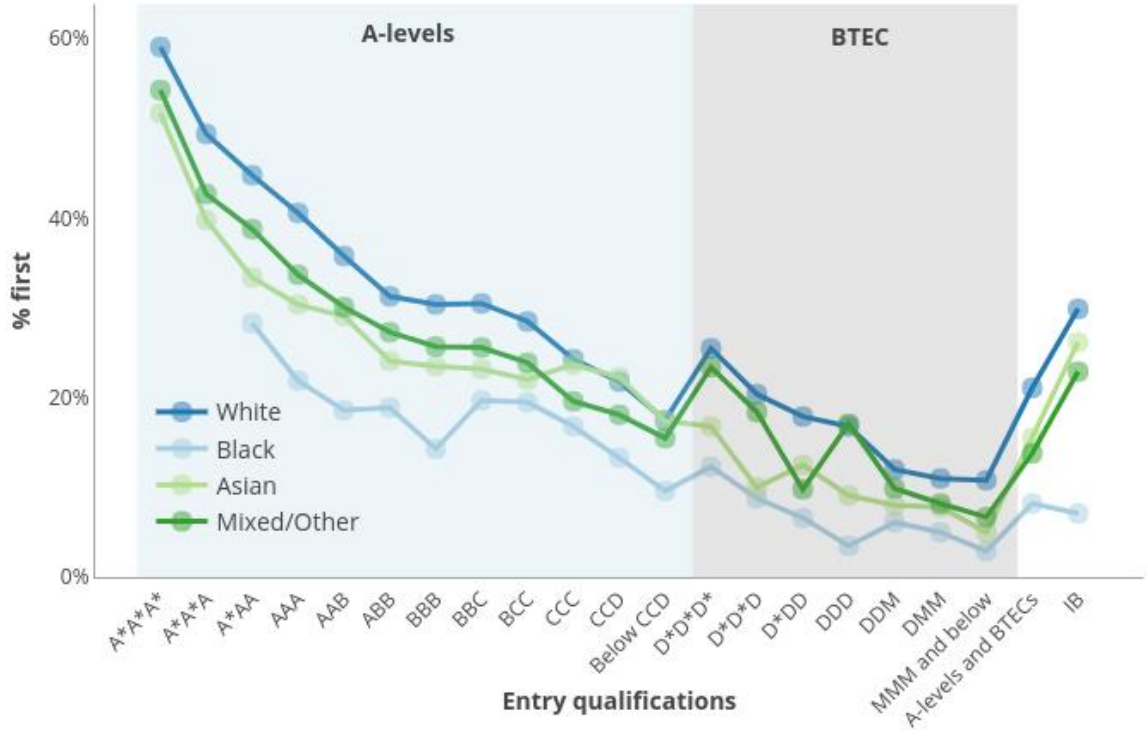
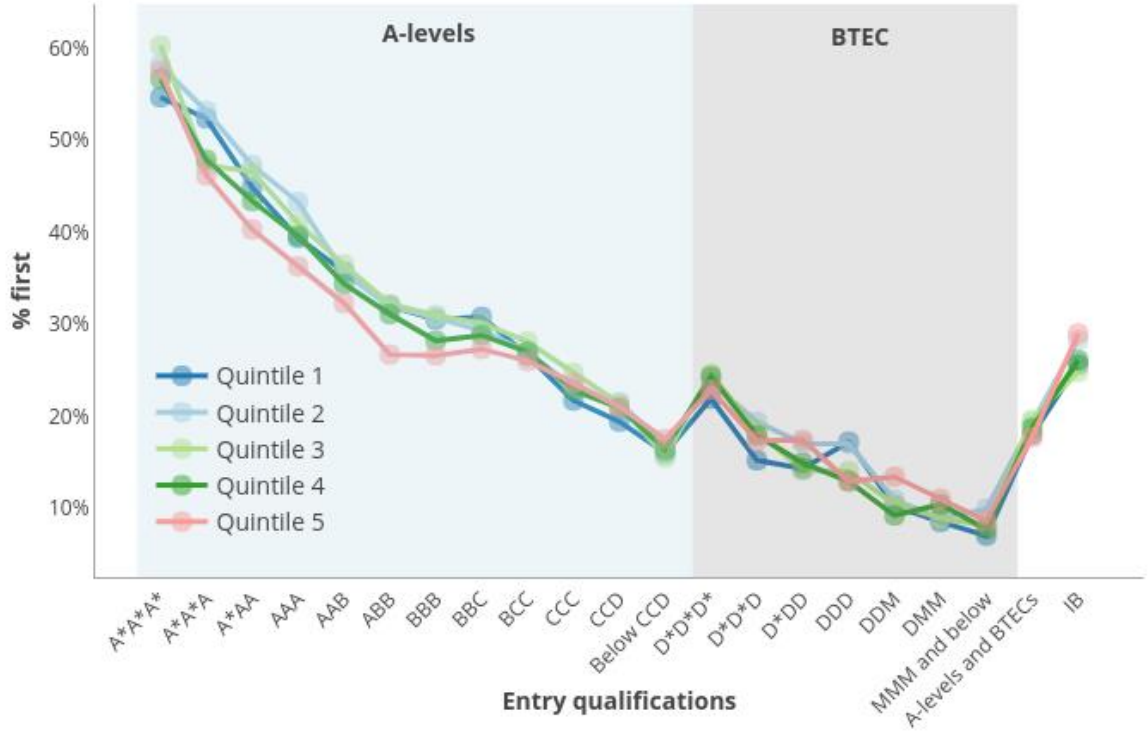


Table D3: Modelled results for the percentage of qualifiers gaining a first class degree by ethnicity

	% first	% reference (white)	Observed difference	Unexplained difference
White	29.1%	29.1%	-	-
Black	12.5%	29.1%	-16.6%	-13.7%
Asian	21.5%	29.1%	-7.6%	-9.5%
Mixed / Other	23.6%	29.1%	-5.5%	-5.2%

Figure D22: Percentage of young 2016-17 qualifiers gaining a first class degree by educational disadvantage quintile



Note: The measure used is Participation of Local Areas (POLAR).

Table D4: Modelled results for the percentage of qualifiers gaining a first class degree by educational disadvantage quintile

	% first	% reference (quintile 1)	Observed difference	Unexplained difference
Quintile 1	23.1%	23.1%	-	-
Quintile 2	25.6%	23.1%	+2.5%	+1.2%
Quintile 3	26.6%	23.1%	+3.5%	+1.7%
Quintile 4	26.6%	23.1%	+3.5%	+1.2%
Quintile 5	28.5%	23.1%	+5.4%	+0.9%

Annex E: Percentage in employment or further study

1. This annex contains details on the proportion of the 2015-16 qualifiers cohort who responded to the Destination of Leavers from Higher Education survey (DLHE) who were in employment or further study.

Figure E1: Percentage of 2013-14 and 2015-16 DLHE respondents in employment or further study

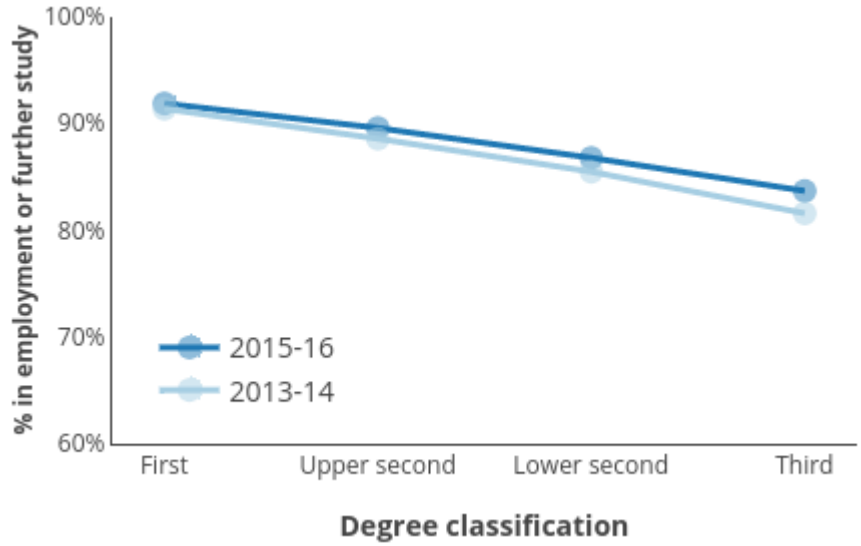


Figure E2: Percentage of 2015-16 DLHE respondents in employment or further study by age

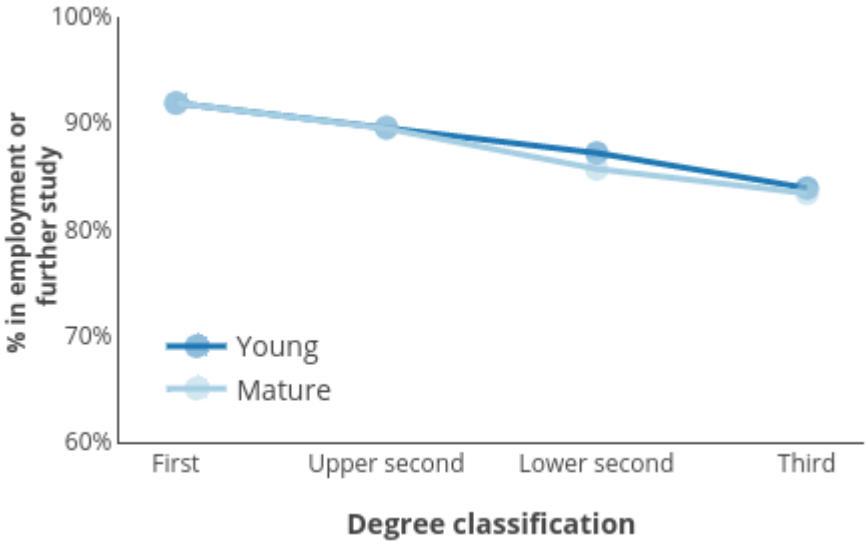


Figure E3: Percentage of young 2015-16 DLHE respondents in employment or further study by gender

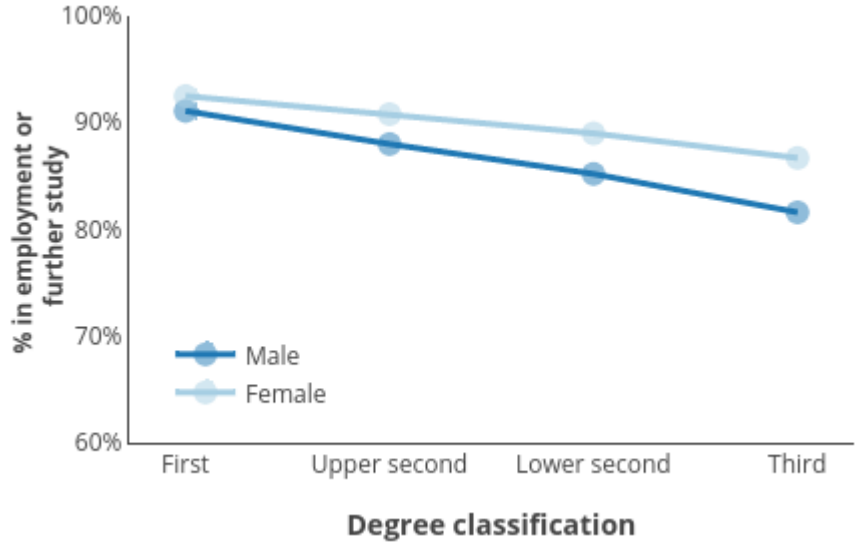
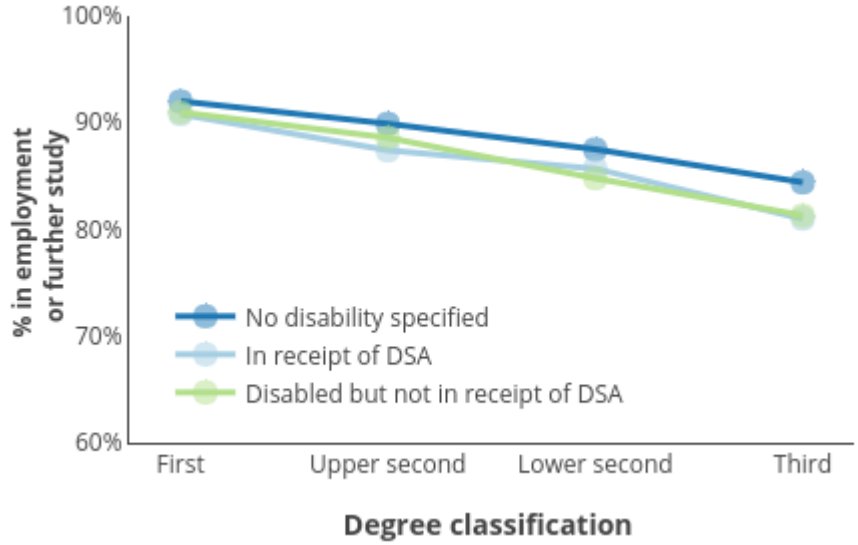


Table E1: Modelled results for the percentage of young 2015-16 DLHE respondents in employment or further study by gender

	% employed or further study	% reference (female)	% modelled	Difference
Female	90.8%	90.8%	-	-
Male	88.1%	90.8%	-2.7%	-1.6%

Figure E4: Percentage of young 2015-16 DLHE respondents in employment or further study by disability



Note: 'DSA' = 'Disabled Students Allowances'.

Table E2: Modelled results for the percentage of young 2015-16 DLHE respondents in employment or further study by disability

	% employed or	% reference (no	Observed	Unexplained

	further study	disability reported)	difference	difference
No disability reported	89.9%	89.9%	-	-
In receipt of DSA	87.7%	89.9%	-2.2%	-2.4%
Disabled but not in receipt of DSA	88.2%	89.9%	-1.7%	-1.5%

Population: Young 2015-16 DLHE respondents.

Figure E5: Percentage of young 2015-16 DLHE respondents in employment or further study by ethnicity

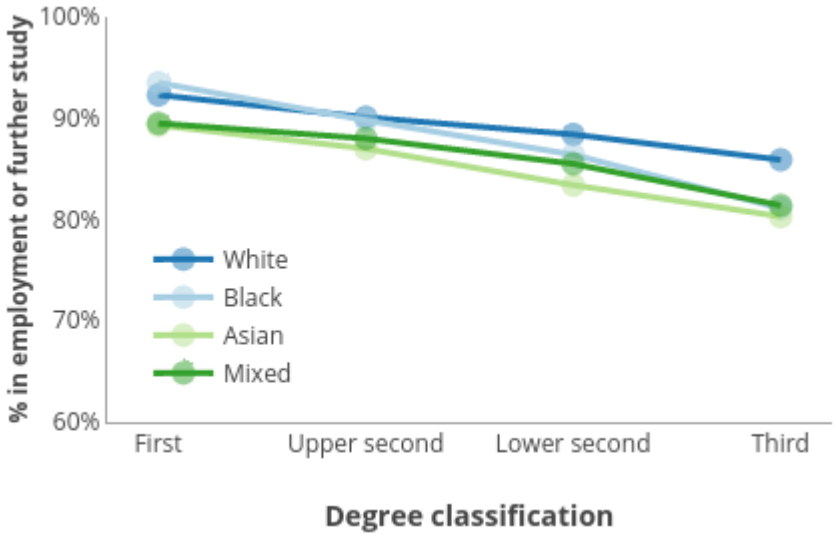


Table E3: Modelled results for the percentage of young 2015-16 DLHE respondents in employment or further study by ethnicity

	% employed or further study	% reference (white)	Observed difference	Unexplained difference
White	90.4%	90.4%	-	-
Black	88.7%	90.4%	-1.7%	-1.6%
Asian	86.3%	90.4%	-4.1%	-4.2%
Mixed	87.6%	90.4%	-2.8%	-2.3%

Population: Young 2015-16 DLHE respondents.

Table E4: Percentage of young 2015-16 DLHE respondents to be in employment or further study by educational disadvantage quintile

	% employment or further study
Quintile 1	91%
Quintile 2	90%
Quintile 3	90%
Quintile 4	90%
Quintile 5	89%

Note: The measure used is Participation of Local Areas (POLAR).

Figure E6: Percentage of young 2015-16 DLHE respondents in employment or further study by educational disadvantage quintile

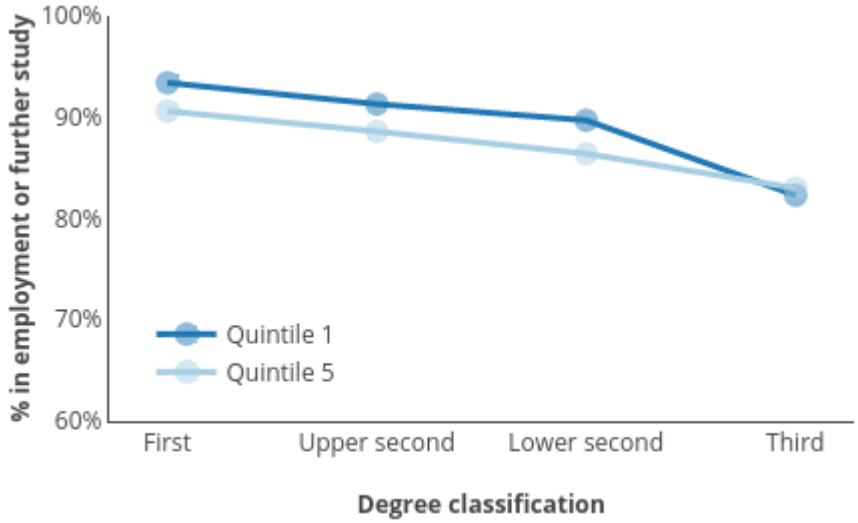


Table E5: Modelled results for the percentage of young 2015-16 DLHE respondents in employment or further study by educational disadvantage quintile

	% employment or further study	% reference (quintile 1)	Observed difference	Unexplained difference
Quintile 1	91.1%	91.1%	-	-
Quintile 2	90.4%	91.1%	-0.7%	-0.6%
Quintile 3	90.1%	91.1%	-1.0%	-0.7%
Quintile 4	89.5%	91.1%	-1.6%	-1.0%
Quintile 5	88.7%	91.1%	-2.4%	-1.5%

Population: Young 2015-16 DLHE respondents.

Annex F: Details of modelling approach for first or upper second class degrees

1. This annex details the modelling techniques used in modelling first or upper second class degrees and for first class degrees.

2. This report used a multi-level logistic regression model for the probability of a student gaining a first or upper second class degree, to take account of a variety of factors. These factors are modelled with a random intercept that varies by institution, and by department within an institution. Therefore the multi-level elements of this model are entrants nested within departments within institutions.

3. The setup of the model used for the 2015-16 graduates is shown in Equation F1.

Equation F1: Model format for 2016-17 graduates

$$\boldsymbol{First\ or\ Upper\ Second} \sim \boldsymbol{Binomial}(\boldsymbol{const}_{ijk}, \pi_{ijk})$$

$$\boldsymbol{logit}(\pi_{ijk}) = \boldsymbol{\beta}_{0jk}\boldsymbol{const} + \boldsymbol{\beta}_1\boldsymbol{entryquals} + \boldsymbol{\beta}_2\boldsymbol{subject} + \boldsymbol{\beta}_3\boldsymbol{ethnicity} + \boldsymbol{\beta}_4\boldsymbol{polar} + \boldsymbol{\beta}_5\boldsymbol{sex} + \boldsymbol{\beta}_6\boldsymbol{disability} + \boldsymbol{\beta}_7\boldsymbol{coursetype} + \boldsymbol{\beta}_8\boldsymbol{previousschool} + \boldsymbol{\beta}_9\boldsymbol{age}$$

$$\boldsymbol{\beta}_{0jk} = \boldsymbol{\beta}_0 + \boldsymbol{u}_{0k} + \boldsymbol{v}_{0jk}$$

u_{0k} *refers to institutional characterstics*

v_{0jk} *refers to departmental characteristics*

4. The variables in the model are defined in Table F1, and the fixed effects in Table F2.

Table F1: Variables used in the model

Type of variable	Model variable name	Description
Dummy or categorical	Entry qualifications	Entry qualifications of the individual: A*A*A* (ref) A*A*A A*AA AAA AAB ABB BBB BBC BCC CCC CCD Below CCD D*D*D* D*D*D D*DD DDD DDM DMM MMM and below A-levels and BTECs International Baccalaureate Other Level 3
	Subject	Subject studied:

Type of variable	Model variable name	Description
		Biological sciences (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 Creative arts and design Education Combined subjects
	Ethnicity	Ethnicity of student: White (ref) Indian Pakistani Bangladeshi Chinese Other Asian background Black Caribbean Black African Other black background Mixed or other background Unknown
	Participation of Local Areas (POLAR)	Young participation quintile of student: Quintile 1 (ref) Quintile 2 Quintile 3 Quintile 4 Quintile 5 Unknown
	Previous school type	Previous school type of student: State school (ref) Independent school Unknown school type
	Sex	Sex of student: Female (ref) Male
	Disability	Disability status of graduate No disability specified (ref) Disabled Students Allowance (DSA) Disabled but no DSA

Type of variable	Model variable name	Description
		Unknown disability
	Course type	Course type studied: Standard course (ref) Sandwich course Study year abroad
	Age	Age on entry 18 (ref) 19 20
Structural	Const	One for all individuals
	U	Random effect relating to a particular institution
	V	Random effect relating to a particular department within an institution

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

Table F2: Fixed effects for the model

Effect		Estimate	Standard error	p-value
Intercept		3.73	0.11	<0.0001
Mode of study	Full-time	-	-	-
	Part-time	-1.50	0.04	<0.0001
Subject studied	Biological sciences	-	-	-
	Medicine and dentistry	-0.04	0.19	0.82
	Subjects allied to medicine	0.03	0.07	0.66
	Agriculture and related subjects	-0.20	0.13	0.11
	Physical sciences	-0.24	0.08	<0.01
	Mathematical sciences	-0.51	0.09	<0.0001
	Computer science	0.26	0.08	<0.001
	Engineering and technology	0.20	0.08	0.01
	Architecture, building and planning	0.13	0.10	0.17
	Social studies	0.00	0.07	0.99
	Law	-0.15	0.08	0.06
	Business and administrative studies	0.28	0.07	<0.0001
	Mass communication and documentation	0.41	0.08	<0.0001
	Languages	0.03	0.08	0.67
	Historical and philosophical studies	0.31	0.08	<0.0001
	Creative arts and design	0.48	0.07	<0.0001
	Education	0.06	0.08	0.45
	Combined	-0.01	0.23	0.96
Gender	Female	-	-	-
	Male	-0.36	0.01	<0.0001
Educational disadvantage (POLAR)	Quintile 1	-	-	-
	Quintile 2	0.11	0.02	<0.0001
	Quintile 3	0.15	0.02	<0.0001
	Quintile 4	0.18	0.02	<0.0001
	Quintile 5	0.19	0.02	<0.0001
	Unknown quintile	0.00	0.15	0.99

Ethnicity	White	-	-	-
	Black Caribbean	-0.80	0.04	<0.0001
	Black African	-1.03	0.03	<0.0001
	Black other	-0.86	0.09	<0.0001
	Indian	-0.52	0.03	<0.0001
	Pakistani	-0.67	0.03	<0.0001
	Bangladeshi	-0.60	0.04	<0.0001
	Chinese	-0.57	0.06	<0.0001
	Asian other	-0.78	0.04	<0.0001
	Mixed/Other	-0.43	0.03	<0.0001
	Unknown ethnicity	-0.33	0.07	<0.0001
Course type	Standard course	-	-	-
	Study year abroad	0.63	0.04	<0.0001
	Sandwich course	1.12	0.03	<0.0001
Disability	No disability	-	-	-
	In receipt of DSA	-0.11	0.02	<0.0001
	Not in receipt of DSA	-0.23	0.02	<0.0001
	Unknown disability	-1.79	0.10	<0.0001
Age on entry	18 years			
	19 years	-0.03	0.01	0.04
	20 years	-0.01	0.02	0.61
Previous school type	State school			
	Independent school	-0.13	0.02	<0.0001
	Unknown school type	0.18	0.03	<0.0001
Entry qualifications	A*A*A*	-	-	-
	A*A*A	-0.41	0.10	<0.0001
	A*AA	-0.65	0.09	<0.0001
	AAA	-0.93	0.09	<0.0001
	AAB	-1.23	0.09	<0.0001
	ABB	-1.52	0.09	<0.0001
	BBB	-1.72	0.09	<0.0001
	BBC	-1.90	0.09	<0.0001
	BCC	-2.10	0.09	<0.0001
	CCC	-2.33	0.09	<0.0001
	CCD	-2.56	0.09	<0.0001
	Below CCD	-2.92	0.09	<0.0001
	D*D*D*	-2.77	0.09	<0.0001
	D*D*D	-3.01	0.10	<0.0001
	D*DD	-3.24	0.10	<0.0001
	DDD	-3.17	0.10	<0.0001
	DDM	-3.51	0.10	<0.0001
	DMM	-3.68	0.10	<0.0001
	MMM and below	-3.81	0.10	<0.0001
	A-levels and BTECs	-2.86	0.09	<0.0001
	IB	-1.72	0.11	<0.0001
	Other Level 3	-2.89	0.09	<0.0001

5. The setup of the model used is shown in Equation F2.

Equation F2: Model format for 2016-17 graduates

$$First \sim Binomial(const_{ijk}, \pi_{ijk})$$

$$logit(\pi_{ijk}) = \beta_{0jk}const + \beta_1 entryquals + \beta_2 subject + \beta_3 ethnicity + \beta_4 polar + \beta_5 sex + \beta_6 disability + \beta_7 coursetype + \beta_8 previousschool + \beta_9 age$$

$$\beta_{0jk} = \beta_0 + u_{0k} + v_{0jk}$$

u_{0k} *refers to institutional characterstics*

v_{0jk} *refers to departmental characteristics*

6. The fixed effects are shown in Table F3.

Table F3: Fixed effects for the model

Effect		Estimate	Standard error	p-value
Intercept		1.39	0.08	<0.0001
Mode of study	Full-time	-	-	-
	Part-time	-0.99	0.06	<0.0001
Subject studied	Biological sciences	-	-	-
	Medicine and dentistry	0.11	0.15	0.44
	Subjects allied to medicine	0.35	0.07	<0.0001
	Agriculture and related subjects	0.17	0.12	0.16
	Physical sciences	0.15	0.07	0.04
	Mathematical sciences	0.58	0.08	<0.0001
	Computer science	0.91	0.07	<0.0001
	Engineering and technology	0.68	0.07	<0.0001
	Architecture, building and planning	0.15	0.09	0.1
	Social studies	-0.2	0.07	<0.01
	Law	-0.65	0.07	<0.0001
	Business and administrative studies	0.33	0.06	<0.0001
	Mass communication and documentation	0.02	0.08	0.81
	Languages	-0.45	0.07	<0.0001
	Historical and philosophical studies	-0.4	0.07	<0.0001
	Creative arts and design	0.28	0.06	<0.0001
	Education	0.07	0.08	0.39
	Combined	-0.18	0.2	0.38
Gender	Female	-	-	-
	Male	-0.15	0.01	<0.0001
Educational disadvantage (POLAR)	Quintile 1	-	-	-
	Quintile 2	0.07	0.02	<0.01
	Quintile 3	0.1	0.02	<0.0001
	Quintile 4	0.08	0.02	<0.001
	Quintile 5	0.07	0.02	<0.01
	Unknown quintile	0.25	0.15	0.1
Ethnicity	White	-	-	-
	Black Caribbean	-0.92	0.06	<0.0001
	Black African	-1.03	0.04	<0.0001
	Black other	-1.04	0.13	<0.0001
	Indian	-0.47	0.03	<0.0001
	Pakistani	-0.62	0.03	<0.0001
	Bangladeshi	-0.62	0.05	<0.0001

	Chinese	-0.46	0.05	<0.0001
	Asian other	-0.69	0.04	<0.0001
	Mixed/Other	-0.31	0.02	<0.0001
	Unknown ethnicity	-0.16	0.07	0.02
Course type	Standard course	-	-	-
	Study year abroad	0.52	0.02	<0.0001
	Sandwich course	0.99	0.02	<0.0001
Disability	No disability	-	-	-
	In receipt of DSA	-0.07	0.02	<0.001
	Disabled but not in receipt of DSA	-0.18	0.02	<0.0001
	Unknown disability	-1.56	0.12	<0.0001
Age on entry	18 years	-	-	-
	19 years	0.05	0.01	<0.0001
	20 years	0.1	0.02	<0.0001
Previous school type	State school	-	-	-
	Independent school	-0.2	0.02	<0.0001
	Unknown school type	0.17	0.03	<0.0001
Entry qualifications	A*A*A*	-	-	-
	A*A*A	-0.66	0.04	<0.0001
	A*AA	-1.02	0.04	<0.0001
	AAA	-1.38	0.04	<0.0001
	AAB	-1.74	0.04	<0.0001
	ABB	-2.08	0.05	<0.0001
	BBB	-2.32	0.05	<0.0001
	BBC	-2.49	0.05	<0.0001
	BCC	-2.69	0.05	<0.0001
	CCC	-2.94	0.05	<0.0001
	CCD	-3.12	0.05	<0.0001
	Below CCD	-3.43	0.05	<0.0001
	D*D*D*	-3.02	0.05	<0.0001
	D*D*D	-3.43	0.07	<0.0001
	D*DD	-3.6	0.07	<0.0001
	DDD	-3.66	0.07	<0.0001
	DDM	-4.05	0.07	<0.0001
	DMM	-4.24	0.08	<0.0001
	MMM and below	-4.41	0.08	<0.0001
	A-levels and BTECs	-3.27	0.05	<0.0001
	International Baccalaureate	-1.89	0.07	<0.0001
	Other Level 3	-3.14	0.05	<0.0001

Annex G: Graduate employment or further study modelling

1. This annex details the modelling techniques used in graduate employment or further study outcomes.

2. This report used a multi-level logistic regression model for the probability of a student gaining a first or upper second class degree, to take account of a variety of factors. These factors are modelled with a random intercept that varies by institution, and by department within an institution. Therefore the multi-level elements of this model are entrants nested within departments within institutions.

3. The setup of the model used for the 2015-16 graduates is shown in Equation G1

Equation G1: Model format for 2015-16 graduates

$$\boldsymbol{Graduate\ employment\ or\ further\ study} \sim \boldsymbol{Binomial}(\boldsymbol{const}_{ijk}, \pi_{ijk})$$

$$\boldsymbol{logit}(\pi_{ijk}) = \boldsymbol{\beta}_{0jk}\boldsymbol{const} + \boldsymbol{\beta}_1\boldsymbol{entryquals} + \boldsymbol{\beta}_2\boldsymbol{subject} + \boldsymbol{\beta}_3\boldsymbol{ethnicity} + \boldsymbol{\beta}_4\boldsymbol{polar} + \boldsymbol{\beta}_5\boldsymbol{sex} + \boldsymbol{\beta}_6\boldsymbol{modeofstudy} + \boldsymbol{\beta}_7\boldsymbol{disability} + \boldsymbol{\beta}_8\boldsymbol{age} + \boldsymbol{\beta}_9\boldsymbol{coursetype} + \boldsymbol{\beta}_{10}\boldsymbol{insttype} + \boldsymbol{\beta}_{11}\boldsymbol{instregion} + \boldsymbol{\beta}_{12}\boldsymbol{degreeclass}$$

$$\boldsymbol{\beta}_{0jk} = \boldsymbol{\beta}_0 + \boldsymbol{u}_{0k} + \boldsymbol{v}_{0jk}$$

u_{0k} *refers to institutional characterstics*

v_{0jk} *refers to departmental characteristics*

4. The variables in the model are defined in Table G1, and the fixed effects in Table G2.

Table G1: Variables used in the model

Type of variable	Model variable name	Description
Dummy or categorical	Entry qualifications	Entry qualifications of the individual: A*A*A* (ref) A*A*A A*AA AAA AAB ABB BBB BBC BCC CCC CCD Below CCD D*D*D* D*D*D D*DD DDD DDM DMM MMM and below A-levels and BTECs International Baccalaureate Other Level 3
	Subject	Subject studied: Biological sciences (ref)

Type of variable	Model variable name	Description
		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 Creative arts and design Education Combined subjects
	Ethnicity	Ethnicity of student: White (ref) Indian Pakistani Bangladeshi Chinese Other Asian background Black Caribbean Black African Other black background Mixed or Other background Unknown
	Participation of Local Areas (POLAR)	Young participation quintile of student: Quintile 1 (ref) Quintile 2 Quintile 3 Quintile 4 Quintile 5 Unknown
	Previous school type	Previous school type of student: State school (ref) Independent school Unknown school type
	Sex	Sex of student: Female (ref) Male
	Disability	Disability status of graduate No disability specified (ref) Disabled Students Allowance (DSA) Disabled but no DSA Unknown disability

Type of variable	Model variable name	Description
	Course type	Course type studied: Standard course (ref) Sandwich course Study year abroad
	Age	Age on entry 18 (ref) 19 20
	Region of institution	Region of institution: East of England (ref) East Midlands (1) Greater London (2) North East (3) North West (4) South East (5) South West (6) West Midlands (7) Yorkshire and Humberside (8)
	Degree classification	Degree classification: First class degree (ref) Upper second class degree (1) Lower second class degree (2) Third class degree (3)
Structural	Const	One for all individuals
	U	Random effect relating to a particular institution
	V	Random effect relating to a particular department within an institution

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

Table G2: Fixed effects for the model

Effect		Estimate	Standard error	p-value
Intercept		1.4	0.13	<0.0001
Mode of study	Full-time	-	-	-
	Part-time	0.15	0.05	<0.01
Subject studied	Biological sciences	-	-	-
	Medicine and dentistry	3.43	0.6	<0.0001
	Subjects allied to medicine	1.37	0.05	<0.0001
	Agriculture and related subjects	-0.39	0.09	<0.0001
	Physical sciences	0.03	0.05	0.51
	Mathematical sciences	0.28	0.06	<0.0001
	Computer science	0.35	0.06	<0.0001
	Engineering and technology	0.24	0.05	<0.0001
	Architecture, building and planning	0.77	0.07	<0.0001
	Social studies	-0.1	0.05	0.04
	Law	0.46	0.05	<0.0001

	Business and administrative studies	0.11	0.05	0.01
	Mass communication and documentation	-0.24	0.06	<0.0001
	Languages	-0.07	0.05	0.18
	Historical and philosophical studies	-0.15	0.05	<0.01
	Creative arts and design	-0.21	0.05	<0.0001
	Education	1.07	0.06	<0.0001
	Combined	0.06	0.17	0.74
Gender	Female	-	-	-
	Male	0	0.01	0.94
Educational disadvantage (POLAR)	Quintile 1	-	-	-
	Quintile 2	0.05	0.02	0.04
	Quintile 3	0.04	0.02	0.07
	Quintile 4	0.05	0.02	0.05
	Quintile 5	0.05	0.02	0.02
	Unknown quintile	0.38	0.23	0.09
Ethnicity	White	-	-	-
	Black Caribbean	-0.19	0.05	<0.001
	Black African	-0.01	0.03	0.88
	Black other	0.11	0.12	0.35
	Indian	-0.02	0.03	0.5
	Pakistani	-0.14	0.03	<0.0001
	Bangladeshi	-0.2	0.05	<0.0001
	Chinese	-0.25	0.06	<0.0001
	Asian other	-0.08	0.05	0.1
	Mixed/Other	-0.07	0.03	<0.01
	Unknown ethnicity	-0.16	0.08	0.06
Course type	Standard course	-	-	-
	Study year abroad	-0.03	0.03	0.39
	Sandwich course	0.56	0.03	<0.0001
Disability	No disability	-	-	-
	In receipt of DSA	-0.08	0.02	<0.001
	Not in receipt of DSA	-0.1	0.03	<0.0001
	Unknown disability	0	.	<0.0001
Age on entry	18 years	-	-	-
	19 years	-0.01	0.01	0.51
	20 years	0.01	0.02	0.79
Previous school type	State school	-	-	-
	Independent school	0.17	0.02	<0.0001
	Unknown school type	0.08	0.03	0.03
Entry qualifications	A*A*A*	-	-	-
	A*A*A	-0.06	0.06	0.32
	A*AA	0.04	0.06	0.53
	AAA	-0.05	0.06	0.38
	AAB	-0.03	0.06	0.67
	ABB	-0.04	0.06	0.5
	BBB	-0.03	0.06	0.59
	BBC	-0.06	0.06	0.35
	BCC	-0.12	0.06	0.05
	CCC	-0.12	0.06	0.06

	CCD	-0.18	0.06	<0.01
	Below CCD	-0.18	0.06	<0.01
	D*D*D*	-0.22	0.07	<0.01
	D*D*D	-0.23	0.08	<0.01
	D*DD	-0.21	0.08	<0.01
	DDD	-0.24	0.07	<0.001
	DDM	-0.33	0.07	<0.0001
	DMM	-0.32	0.08	<0.0001
	MMM and below	-0.41	0.07	<0.0001
	A-levels and BTECs	-0.2	0.06	<0.01
	IB	0.1	0.08	0.24
	Other Level 3	-0.17	0.06	<0.01
Region of institution	East of England	-	-	-
	East Midlands	0.12	0.15	0.45
	Greater London	-0.01	0.13	0.95
	North East	-0.08	0.18	0.66
	North West	-0.03	0.14	0.85
	South East	-0.05	0.14	0.73
	South West	-0.13	0.14	0.37
	West Midlands	-0.06	0.15	0.67
	Yorkshire and Humberside	-0.11	0.15	0.47
Degree classification	First	-	-	-
	Upper second	-0.45	0.02	<0.0001
	Lower second	-0.87	0.02	<0.0001
	Third	-1.25	0.04	<0.0001

5. The setup of the model used is shown in Equation G2.

Equation G2: Model format for 2015-16 graduates

$$\boldsymbol{Employed\ or\ further\ study} \sim \boldsymbol{Binomial}\left(\boldsymbol{const}_{ijk}, \pi_{ijk}\right)$$

$$\boldsymbol{logit}\left(\pi_{ijk}\right) = \boldsymbol{\beta}_{0jk}\boldsymbol{const} + \boldsymbol{\beta}_1\boldsymbol{entryquals} + \boldsymbol{\beta}_2\boldsymbol{subject} + \boldsymbol{\beta}_3\boldsymbol{ethnicity} + \boldsymbol{\beta}_4\boldsymbol{polar} + \boldsymbol{\beta}_5\boldsymbol{sex} + \boldsymbol{\beta}_6\boldsymbol{modeofstudy} + \boldsymbol{\beta}_7\boldsymbol{disability} + \boldsymbol{\beta}_8\boldsymbol{age} + \boldsymbol{\beta}_9\boldsymbol{coursetype} + \boldsymbol{\beta}_{10}\boldsymbol{previousschool} + \boldsymbol{\beta}_{11}\boldsymbol{instregion} + \boldsymbol{\beta}_{12}\boldsymbol{degreeclass}$$

$$\boldsymbol{\beta}_{0jk} = \boldsymbol{\beta}_0 + \boldsymbol{u}_{0k} + \boldsymbol{v}_{0jk}$$

u_{0k} *refers to institutional characterstics*

v_{0jk} *refers to departmental characteristics*

6. The fixed effects are shown in Table G3.

Table G3: Fixed effects for the model

Effect		Estimate	Standard error	p-value
Intercept		2.87	0.13	<0.0001
Mode of study	Full-time	-	-	-
	Part-time	-0.01	0.06	0.92
Subject studied	Biological sciences	-	-	-
	Medicine and dentistry	2.54	0.59	<0.0001
	Subjects allied to medicine	0.81	0.06	<0.0001
	Agriculture and related subjects	-0.27	0.11	0.02
	Physical sciences	-0.21	0.05	<0.0001
	Mathematical sciences	-0.22	0.06	<0.001

	Computer science	-0.3	0.06	<0.0001
	Engineering and technology	-0.14	0.06	0.01
	Architecture, building and planning	0.11	0.08	0.15
	Social studies	-0.17	0.05	<0.001
	Law	0.11	0.06	0.06
	Business and administrative studies	-0.1	0.05	0.03
	Mass communication and documentation	-0.34	0.06	<0.0001
	Languages	-0.16	0.05	<0.01
	Historical and philosophical studies	-0.24	0.05	<0.0001
	Creative arts and design	-0.11	0.05	0.02
	Education	0.59	0.07	<0.0001
	Combined	-0.25	0.18	0.16
Gender	Female	-	-	-
	Male	-0.17	0.02	<0.0001
Educational disadvantage (POLAR)	Quintile 1	-	-	-
	Quintile 2	-0.08	0.04	0.04
	Quintile 3	-0.09	0.04	0.01
	Quintile 4	-0.11	0.03	<0.001
	Quintile 5	-0.16	0.03	<0.0001
	Unknown quintile	-0.32	0.27	0.23
Ethnicity	White	-	-	-
	Black Caribbean	-0.1	0.07	0.2
	Black African	-0.22	0.05	<0.0001
	Black other	0.01	0.18	0.98
	Indian	-0.35	0.04	<0.0001
	Pakistani	-0.55	0.04	<0.0001
	Bangladeshi	-0.3	0.06	<0.0001
	Chinese	-0.65	0.07	<0.0001
	Asian other	-0.3	0.06	<0.0001
	Mixed/Other	-0.23	0.04	<0.0001
	Unknown ethnicity	-0.26	0.11	0.01
Course type	Standard course	-	-	-
	Study year abroad	-0.19	0.04	<0.0001
	Sandwich course	0.28	0.04	<0.0001
Disability	No disability	-	-	-
	In receipt of DSA	-0.25	0.03	<0.0001
	Not in receipt of DSA	-0.16	0.03	<0.0001
	Unknown disability	0	.	<0.0001
Age on entry	18 years	-	-	-
	19 years	-0.03	0.02	0.08
	20 years	-0.06	0.03	0.05
Previous school type	State school	-	-	-
	Independent school	-0.1	0.03	<0.001
	Unknown school type	0.04	0.05	0.45
Entry qualifications	A*A*A*	-	-	-
	A*A*A	-0.1	0.07	0.18

	A*AA	0.03	0.07	0.68
	AAA	-0.01	0.07	0.85
	AAB	0	0.07	0.98
	ABB	0	0.07	0.96
	BBB	0.05	0.07	0.5
	BBC	0.05	0.08	0.5
	BCC	-0.01	0.08	0.94
	CCC	0.05	0.08	0.49
	CCD	-0.01	0.08	0.86
	Below CCD	0	0.08	0.96
	D*D*D*	-0.01	0.09	0.87
	D*D*D	-0.11	0.11	0.32
	D*DD	0.05	0.11	0.68
	DDD	-0.01	0.09	0.88
	DDM	0.01	0.1	0.92
	DMM	-0.05	0.1	0.63
	MMM and below	-0.26	0.09	<0.01
	A levels and BTECs	0.02	0.08	0.79
	IB	0.08	0.1	0.45
	Other Level 3	-0.08	0.07	0.27
Region of institution	East of England	-	-	-
	East Midlands	0.15	0.14	0.28
	Greater London	-0.08	0.12	0.48
	North East	-0.15	0.16	0.34
	North West	-0.04	0.13	0.76
	South East	-0.09	0.12	0.43
	South West	-0.19	0.13	0.14
	West Midlands	0.09	0.13	0.51
	Yorkshire and Humberside	-0.04	0.13	0.79
Degree classification	First	-	-	-
	Upper second	-0.24	0.02	<0.0001
	Lower second	-0.49	0.03	<0.0001
	Third	-0.72	0.05	<0.0001