2018/19 STUDENT OUTCOMES

Analysis of student achievement, retention and degree classification

Contents

Summary

This report focusses on the relative rates of achievement, retention and higher classification of students by gender, ethnicity and disability status. As well as reporting outturns for each rate/characteristic, it also uses logistic regression to better analyse the impact a characteristic has on a given outcome.

Results

- No significant changes to retention or achievement from 17/18 to 18/19
- Significant change in the proportion of students declaring a disability receiving a higher classification, closing the gap to students who have not declared a disability.
- Disability has no effect on retention
- Students who have declared a disability are 4% less likely to achieve than a student who has not declared a disability, all other factors being equal
- Students who have declared a disability are 10% less likely to achieve a higher classification than a student who has not declared a disability, all other factors being equal
- Ethnicity has no effect on retention
- BAME students are 5% less likely to achieve than a white student, all other factors being equal.
- BAME students are 13% less likely to achieve a higher classification than a white student, all other factors being equal
- Male students are 1% more likely to be retained than female students
- Gender has no impact on achievement.
- Accommodation type, entry qualification, the index of multiple deprivation quintile and the POLAR4 quintile of a student's permanent address has a significant impact on students' likelihoods of achieving.
- Financial support has a positive impact on retention and achievement
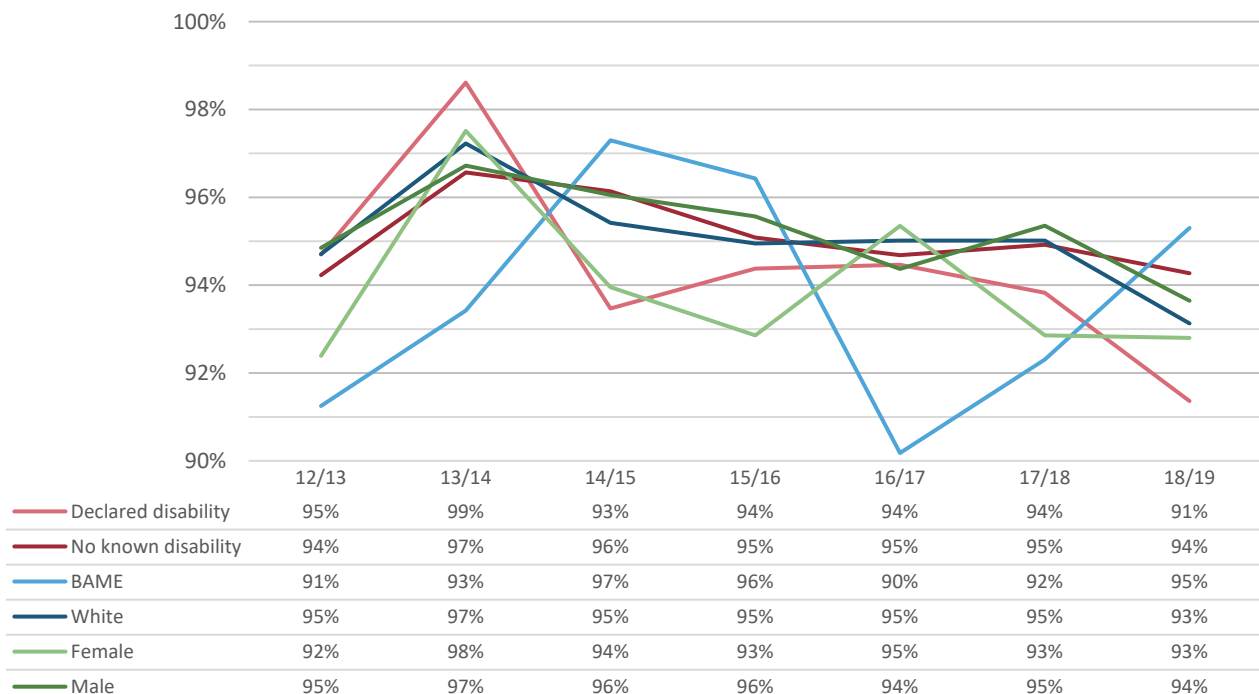
Retention by characteristic

Retention is the proportion of students that did not withdraw or suspend at any point in a given academic year.

Outturn

There were no significant changes (>5%) in retention rates by characteristic, with most characteristics showing the same slight general decline seen in achievement rates; overall retention fell slightly from 95% in 17/18 to 93% in 18/19.

- The retention rate of BAME students was the only rate to have increased, going from 92% in 17/18 to 95% in 18/19, which is above the current average but still lower than the same rate in 14/15 and 15/16.
- The retention rate of students who declared a disability, white students and male students all show similar slight decline (3 or 4 percentage points), with students declaring disability now having the lowest retention rates.

Figure 1: Retention by characteristic by year

	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Declared disability	95%	99%	93%	94%	94%	94%	91%
No known disability	94%	97%	96%	95%	95%	95%	94%
BAME	91%	93%	97%	96%	90%	92%	95%
White	95%	97%	95%	95%	95%	95%	93%
Female	92%	98%	94%	93%	95%	93%	93%
Male	95%	97%	96%	96%	94%	95%	94%

Analysis Results

- Ethnicity has no definite impact on retention, i.e., if two students shared the same characteristics in everything but BAME/white, then they would be equally as likely to be retained.
- Disability status has no definite impact on retention, i.e., if two students shared the same characteristics in everything but only one declared a disability, then they would be equally as likely to be retained.
- A male student is 1% more likely to be retained than a female student, all other factors being equal.
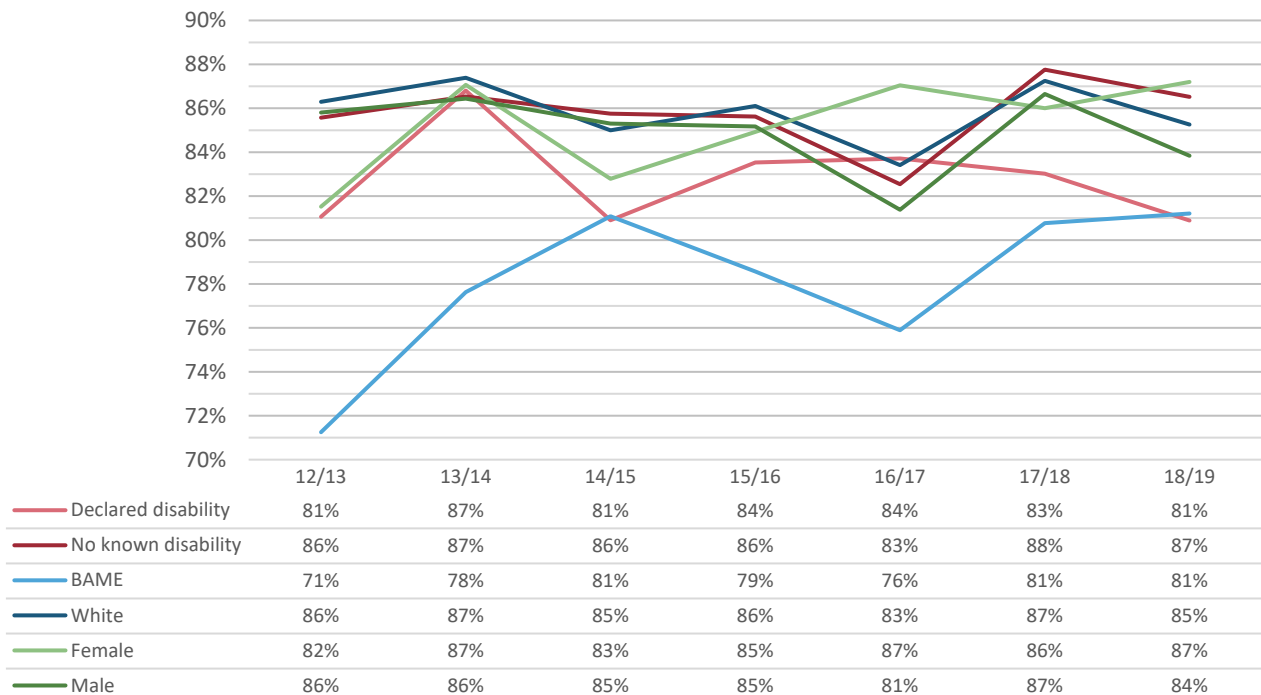
Achievement by characteristic

Outturn

Generally 2018/19 saw no significant change in achievement by characteristic but with a slight decline in most areas, reflected in overall achievement falling slightly to 85% in 18/19 from (86% in 17/18).

- The achievement rate of students declaring disabilities has fallen to its lowest since 12/13 and 14/15 (81%).
- The achievement gap between students declaring disabilities and those not declaring has widened from 5 percentage points to 6 percentage points.
- The achievement rate of BAME students has remained at 81%, the highest achievement rate for this group.
- The achievement gap between BAME and white students has narrowed from 6 p.p. to 4 p.p., which makes the gap no longer statistically significant by LCoM definitions.
- The gender achievement gap remains insignificant at 3 percentage points.

Figure 2: Achievement by characteristic by year

	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Declared disability	81%	87%	81%	84%	84%	83%	81%
No known disability	86%	87%	86%	86%	83%	88%	87%
BAME	71%	78%	81%	79%	76%	81%	81%
White	86%	87%	85%	86%	83%	87%	85%
Female	82%	87%	83%	85%	87%	86%	87%
Male	86%	86%	85%	85%	81%	87%	84%

Analysis

Logistic regression found the following significant factors:

- If a student is BAME, they are 5% less likely to achieve than a white student, all other factors being equal.
- If a student has declared a disability, they are 3% less likely to achieve than a student who has no disability, all other factors being equal.
- Gender has no definite impact on achievement, i.e., if two students shared the same characteristics in everything but gender, then they would be equally as likely to achieve.
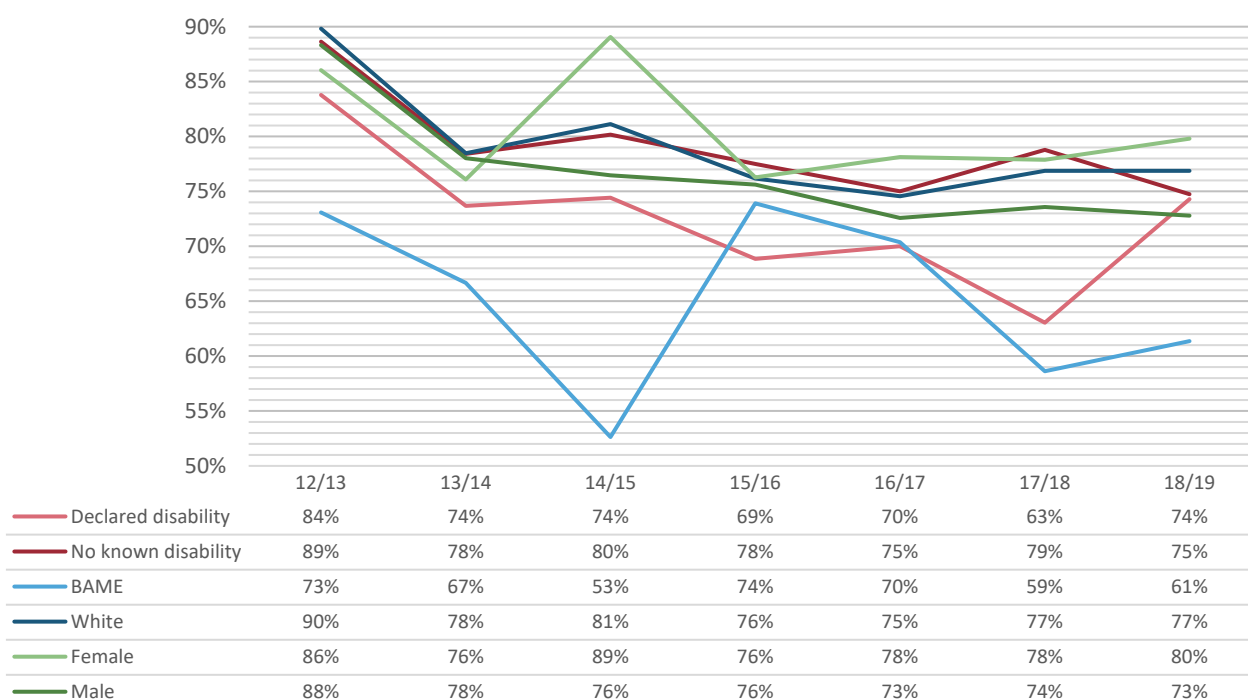
Classification by characteristic

This is classification obtained, grouped into a binary outcome of either lower (pass/lower second or below) or higher (merit/upper second or above) so that logistic regression can be applied.

Outturn

In most cases there were no significant changes in classification proportion, with the overall proportion of students receiving a higher classification remaining constant at 75%. The only significant change was in students declaring a disability, with the higher classification rate going from 63% in 17/18 to 74% in 18/19.

The significant increase in higher classification rate for students declaring a disability, combined with the lack of overall change, means the higher classification gap between students declaring and not declaring a disability has entirely closed, for the first time on record. The ethnicity higher classification gap remains very significant though, at 16 percentage points (which is a decrease from 20 p.p. in 17/18).

Figure 3: Degree classification (higher/lower) by characteristic by year

	12/13	13/14	14/15	15/16	16/17	17/18	18/19
Declared disability	84%	74%	74%	69%	70%	63%	74%
No known disability	89%	78%	80%	78%	75%	79%	75%
BAME	73%	67%	53%	74%	70%	59%	61%
White	90%	78%	81%	76%	75%	77%	77%
Female	86%	76%	89%	76%	78%	78%	80%
Male	88%	78%	76%	76%	73%	74%	73%

Analysis

Logistic regression found that:

- A BAME student is 13% less likely to achieve a higher classification than a white student, all other factors being equal.
- Gender has no definite impact on classification, i.e., if two students shared the same characteristics in everything but gender, then they would be equally as likely to receive a higher classification.
- A student who has declared a disability is 10% less likely to achieve a higher classification than a student who has not declared a disability, all other factors being equal.

Impact of other factors

Accommodation Type

Accommodation type has a definite impact on achievement. Students living in their own (non-rented) home or parental home are respectively 7% and 5% less likely to achieve.

Financial Support

Being in receipt of financial support has a definite positive impact on achievement and retention. For every £100 given to a student, the likelihood of achievement increases by 0.2%, and the likelihood of retention increases by 0.3%. For example, a student receiving a bursary of £1000 would be 3% more likely to be retained than a student receiving no bursary, all other factors being equal.

Index of Multiple Deprivation

From gov.uk: "The Index of Multiple Deprivation (IMD) is the official measure of relative deprivation in England. It follows an established methodological framework in broadly defining deprivation to encompass a wide range of an individual's living conditions". The Office for Students introduced IMD to the student transparency return; the quintiles method used in that return is also used here.

The IMD quintile of a student's permanent postcode has a significant impact on their likelihood of achieving. Compared to a student from IMD quintile 1:
- A student from quintile 2 is 6% more likely to achieve
- A student from quintile 3 is 7% more likely to achieve
- A student from quintile 4 is 10% more likely to achieve
- A student from quintile 5 is 12% more likely to achieve

Additionally, students from quintile 3 are 17% more likely to get a higher classification than a student from quintile one, rising to 24% more likely for students from quintile 5.

IMD quintile 5 is the only quintile to significantly impact retention, with quintile 5 students being 3% more likely to be retained that students from quintile 1.

Parental Education

Whilst there are no differences in achievement, retention or classification between students that definitely have a parent educated at HE level and those that definitely don't, there are significant differences (in all three outcomes) between students that did not provide that information and those that declared. Specifically, when compared to a student who declared that they had a parent educated at HE level, students that withheld that information were:
- 2% less likely to be retained
- 4% less likely to achieve
- 9% less likely to attain a higher classification

POLAR4

Students from POLAR4 quintiles 3 and 5 are each 6% less likely to achieve than a student from POLAR4 quintile 1 (which is the reverse of the intuitive result).

Entry Qualification

Students without a qualification at level 3 or higher are 5% less likely to achieve.

Trivial factors

Academic year negatively impacts classification rate, by about -1% per year: for example, we would expect the higher classification rate in 20/21 to be about 1% lower than the rate in 19/20. This reflects the general decline seen in Figure 3. Similarly, year of study positively affects achievement and retention rates, by about 14% and 8% per year. These factors are included in the analysis to help normalise the data.

Method

NB: Results presented here are for analysing outcomes and consequent gaps, and so it is importantly only that they are consistent within the report; the data and definitions used may not match those used or reported elsewhere. The definitive source of student information remains MIS.

Definitions

Again, these definitions apply specifically to this document, and may not match those used elsewhere.

Achievement

The achievement rate is the proportion of students that completed the full learning aim for the year. See Figure 4 below.

Retention

The retention rate is the proportion of students that were not suspended or withdrawn at any point in the year. See Figure 4 below.

Classification

The higher classification rate is the number of students receiving a First, Upper second, Distinction or Merit as a proportion of the number of students receiving any award.

Figure 4: Illustration of outcome hierarchy
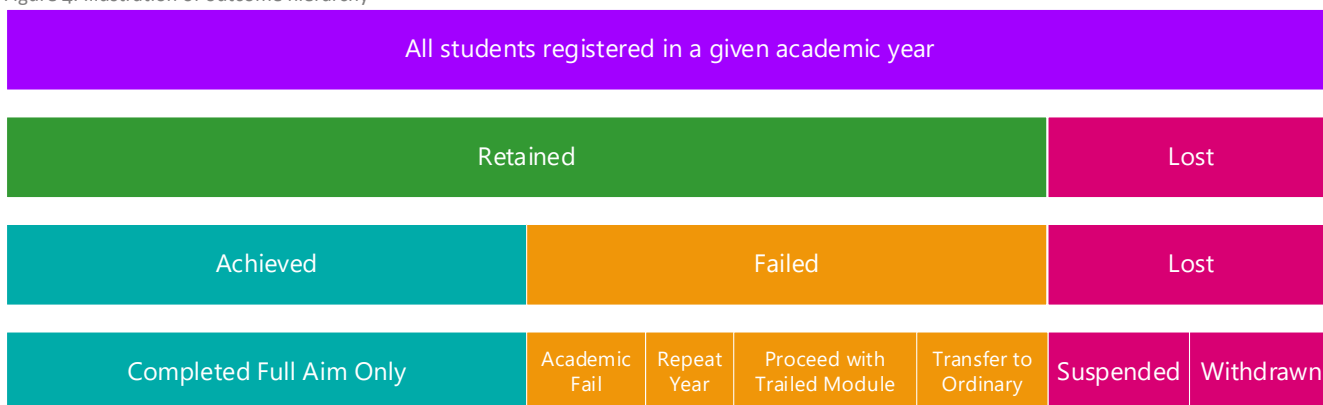
Data

The data used is based on the MIS 'Planning EDI data' student record report. Some of the attributes were altered either through being grouped to other values (such as grouping classification to become a binary variable) or by adding additional information (such as distance from permanent address to LCoM or the index of multiple deprivation quintile).

Distance to LCoM was obtained from Google (using the distance matrix API), and index of multiple deprivation from the lookup tool available from the Ministry of Housing, Communities and Local Government[1].

Logistic regression

The OfS, in their guidance for evaluating financial support, advocate the use of binary logistic regression as a tool for assessing the impact of specific variables on an outcome. In this context, is used to assess the impact of several characteristics on each of achievement, retention and classification. The method is widely documented online.

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[1] http://imd-by-postcode.opendatacommunities.org/imd/2019

Reference Tables

Unfiltered results

The following tables show the results of the logistic regression.

NB: These tables are included here for completeness - to show where the above assertions came from, and provide a little more detail. They don't need to be separately examined.

Estimate is the coefficient of the given factor in the logistic regression model. Roughly though, a negative Estimate produces a negative relationship to the target variables and a positive Estimate, a positive one.

The P Value is the likelihood that there *isn't* actually a relationship between the given factor, and the target variable. For example, the P Value of academic year in Table 1 below means that there's an 8% chance that academic year *isn't* connected to retention. For this analysis, we take 0.05 to be the maximum p value for the results to be considered significant. This is consistent with the OfS method.

The Odds, also known as an odds ratio, is the likelihood of one outcome as a proportion of the other.

The confidence limits show the range that the estimate probably (95% sure) lies within.

The relative risk is the figure used in the report; rather than shows the results in terms of odds, it derives actual relative probabilities.

Table 1: Retention coefficients

Category	Value	Estimate	P Value	Odds	2.5% Con. lim.	97.5% Con. lim.	Relative Risk
Academic year	Year	-0.05	0.08	0.95	-0.11	0.01	0%
Accommodation type	Other	-0.41	0.03	0.67	-0.78	-0.03	-3%
	Other rented	-0.14	0.41	0.87	-0.49	0.20	-1%
	Own home	-0.16	0.44	0.85	-0.56	0.26	-1%
	Parental home	-0.22	0.35	0.80	-0.68	0.26	-1%
Disability status	Declared disability	-0.15	0.23	0.86	-0.39	0.10	-1%
Distance to LCoM	Miles	0.00	0.12	1.00	0.00	0.00	0%
Ethnicity	BAME	-0.03	0.86	0.97	-0.37	0.33	0%
	Unknown	-0.09	0.85	0.92	-0.91	0.91	0%
Financial support	£	0.00	0.00	1.00	0.00	0.00	0%
Gender	Male	0.25	0.04	1.28	0.00	0.48	1%
IMD	Quintile 2	0.32	0.17	1.38	-0.14	0.77	2%
	Quintile 3	0.18	0.41	1.20	-0.25	0.60	1%
	Quintile 4	0.30	0.19	1.35	-0.15	0.75	2%
	Quintile 5	0.72	0.00	2.06	0.23	1.20	3%
	Unknown IMD quintile	0.47	0.17	1.60	-0.19	1.16	2%
Parental education	Not educated at HE level	-0.19	0.22	0.82	-0.50	0.12	-1%
	Unknown	-0.48	0.00	0.62	-0.80	-0.14	-3%
	Withheld	-0.39	0.01	0.68	-0.69	-0.08	-2%
POLAR4	Quintile 2	0.03	0.90	1.03	-0.45	0.51	0%
	Quintile 3	-0.18	0.45	0.84	-0.65	0.28	-1%
	Quintile 4	-0.11	0.65	0.90	-0.59	0.35	-1%
	Quintile 5	-0.29	0.23	0.75	-0.77	0.18	-2%
	Unknown POLAR4 quintile	-0.10	0.81	0.91	-0.92	0.70	-1%
Qualification on entry	HE Qualification	0.29	0.14	1.34	-0.09	0.67	1%
	Level 2 or below	-0.28	0.20	0.76	-0.68	0.15	-1%
	Other level 3	0.05	0.75	1.05	-0.24	0.34	0%
Year of study	Year	1.07	0.00	2.93	0.89	1.26	8%

Table 2: Achievement Coefficients

Category	Value	Estimate	P Value	Odds	2.5% Con. lim.	97.5% Con. lim.	Relative Risk
Academic year	Year	0.00	0.96	1.00	-0.04	0.04	0%
Accommodation type	Other	-0.46	0.00	0.63	-0.70	-0.22	-8%
	Other rented	-0.15	0.16	0.86	-0.35	0.06	-2%
	Own home	-0.41	0.00	0.66	-0.65	-0.18	-7%
	Parental home	-0.31	0.03	0.73	-0.59	-0.02	-5%
Disability status	Declared disability	-0.22	0.00	0.80	-0.38	-0.07	-3%
Distance to LCoM	Miles	0.00	0.23	1.00	0.00	0.00	0%
Ethnicity	BAME	-0.32	0.00	0.73	-0.53	-0.11	-5%
	Unknown	0.17	0.61	1.19	-0.46	0.88	2%
Financial support	£	0.00	0.02	1.00	0.00	0.00	0%
Gender	Male	-0.02	0.77	0.98	-0.18	0.13	0%
IMD	Quintile 2	0.33	0.02	1.39	0.06	0.60	6%
	Quintile 3	0.36	0.01	1.43	0.09	0.62	7%
	Quintile 4	0.52	0.00	1.69	0.25	0.80	10%
	Quintile 5	0.66	0.00	1.93	0.37	0.95	12%
	Unknown IMD quintile	0.34	0.12	1.40	-0.08	0.76	7%
Parental education	Not educated at HE level	-0.08	0.39	0.92	-0.27	0.11	-1%
	Unknown	-0.29	0.00	0.75	-0.49	-0.09	-4%
	Withheld	-0.29	0.00	0.75	-0.48	-0.09	-4%
POLAR4	Quintile 2	-0.24	0.10	0.78	-0.53	0.04	-4%
	Quintile 3	-0.32	0.03	0.73	-0.61	-0.03	-6%
	Quintile 4	-0.23	0.13	0.80	-0.52	0.06	-4%
	Quintile 5	-0.34	0.03	0.71	-0.64	-0.04	-6%
	Unknown POLAR4 quintile	-0.27	0.30	0.76	-0.78	0.23	-5%
Qualification on entry	HE Qualification	0.33	0.01	1.39	0.09	0.58	4%
	Level 2 or below	-0.36	0.01	0.70	-0.61	-0.10	-5%
	Other level 3	-0.07	0.45	0.94	-0.24	0.10	-1%
Year of study	Year	0.62	0.00	1.86	0.52	0.72	14%

Table 3: Classification Coefficients

Category	Value	Estimate	P Value	Odds	2.5% Con. lim.	97.5% Con. lim.	Relative Risk
Academic year	Year	-0.11	0.00	0.89	-0.17	-0.05	-1%
Accommodation type	Other	0.10	0.71	1.11	-0.43	0.67	2%
	Other rented	0.26	0.10	1.30	-0.05	0.57	6%
	Own home	-0.06	0.74	0.94	-0.40	0.28	-1%
	Parental home	-0.27	0.24	0.77	-0.71	0.18	-7%
Disability status	Declared disability	-0.43	0.00	0.65	-0.68	-0.17	-10%
Distance to LCoM	Miles	0.00	0.17	1.00	0.00	0.00	0%
Ethnicity	BAME	-0.55	0.00	0.57	-0.91	-0.19	-14%
	Unknown	-0.70	0.12	0.50	-1.56	0.19	-18%
Financial support	£	0.00	0.69	1.00	0.00	0.00	0%
Gender	Male	-0.21	0.13	0.81	-0.48	0.06	-4%
IMD	Quintile 2	0.26	0.24	1.30	-0.18	0.71	9%
	Quintile 3	0.52	0.02	1.69	0.09	0.95	17%
	Quintile 4	0.40	0.08	1.49	-0.05	0.84	13%
	Quintile 5	0.78	0.00	2.18	0.30	1.26	24%
	Unknown IMD quintile	0.06	0.85	1.07	-0.59	0.73	2%
Parental education	Not educated at HE level	-0.05	0.72	0.95	-0.35	0.25	-1%
	Unknown	-0.38	0.02	0.68	-0.69	-0.07	-8%
	Withheld	-0.45	0.01	0.64	-0.77	-0.12	-9%
POLAR4	Quintile 2	-0.08	0.73	0.93	-0.52	0.36	-2%
	Quintile 3	-0.04	0.87	0.96	-0.50	0.41	-1%
	Quintile 4	-0.08	0.72	0.92	-0.54	0.37	-2%
	Quintile 5	0.10	0.67	1.11	-0.37	0.56	3%
	Unknown POLAR4 quintile	-0.16	0.69	0.85	-0.95	0.62	-5%
Qualification on entry	HE Qualification	0.25	0.22	1.28	-0.14	0.64	4%
	Level 2 or below	-0.18	0.36	0.83	-0.57	0.21	-4%
	Other level 3	-0.05	0.70	0.95	-0.30	0.20	-1%
Year of study	Year	-0.41	0.23	0.66	-1.10	0.26	-5%