

# Further self-assessment of progression to highly-skilled employment or higher-level study at the University of Cambridge

## Executive summary

In 2019 data garnered from the Destination of Leavers of Higher Education survey was analysed to understand the relative progression to highly skilled employment or higher-level study undergraduate study at the University of Cambridge across different demographic groups. Progression rates at Cambridge were higher than for the sector as a whole, however, there were observable difference in progression rates for graduate with particular characteristics. In this first self-assessment analysis it was determined that these existed for graduates from black and minority ethnic groups, mature students and those with a known disability. A common feature was year on year fluctuations in the data set which are, at least in part, attributable to very small sample sizes. With this in mind further analysis took a different approach and sought to investigate the question:

*For undergraduate students responding to the DLHE survey, what factor or intersection of factors constitute best predictors of achieving progression to highly-skilled employment or higher level study?*

The APP individualised dataset provided by OfS in March 2019 was used to conduct a binary logistic regression analysis, using the principles outlined in the section on attainment and it was demonstrated that following variables are found to have statistically significant relationship between that particular characteristic and the outcome.

The number of graduates in each category is shown in brackets. The total survey respondents across all years is 15,171:

- \* Disability type -MH (251 [1.65%])
- \* Disability type -PHY (209 [1.38%])
- \* Disability type -SOC (81 [0.53%])
- \* Ethnicity grouped - Black (133 [0.88%])

Whilst not an underrepresented category there is a statistically significant relationship between gender and progression.

The Destinations of Leaver of Higher Education survey has now been replaced with Graduate Outcomes. There have been delays releasing accurate date to institutions and as yet we do not have access to the sector benchmarks. Nevertheless, some initial work was undertaken to investigate whether the observable gaps seen at a 6 month survey point were replicated at 15 months. The data set is smaller owing to a reduced response rate, and we only have one cohort, but it appears that the trends are not replicable at this new survey point. Mature undergraduates see a positive gap and BAME graduates also are more likely to be in highly skilled employment or further study than their white counterparts.

### Summary of findings:

The following variables are found to have statistically significant relationship between that particular characteristic and the outcome. However low r-squared – variables are not strong predictors of outcomes, if the same analysis was run on a different co-hort the chances of the results being replicated are small and so any conclusions should be treated with caution.

The number of graduates in each category is shown in brackets. The total survey respondents across all years is 15,171:

- \* Disability type -MH (251 [1.65%])
- \* Disability type -PHY (209 [1.38%])
- \* Disability type -SOC (81 [0.53%])
- \* Ethnicity grouped - Black (133 [0.88%])

There is also a stronger statistically significant relationship between gender and progression.

It is useful to note that for the group of students with physical disability, the gap is in favour of students who declared this type of disability; however, the statistical significance for this factor is the least strong.

## Gaps by DLHE survey year, as represented in APP dashboard

The following characteristics all show erratic gaps across the previous five survey years. The populations between the annual groups are very imbalanced and proportions for groups of small numbers are prone to large year on year fluctuations.

As a result the conclusions on statistical significance of the observed gaps will vary with each individual years' co-hort.

This will be important to note when analysing GO data, as we will be limited to one co-hort with a low response rate.

### Disability – Mental health

			2012-13	2013-14	2014-15	2015-16	2016-17
No disability/not known	Mental health condition	University of Cambridge	13.2	3.9	22.5	3.3	6.7
		SECTOR	5.6	6.1	5.8	5.8	4.1

### Disability – Physical

			2012-13	2013-14	2014-15	2015-16	2016-17
No disability/not known	Sensory, medical and physical impairment	University of Cambridge	-0.6	-9.5	-12.9	-8.9	-4.0
		SECTOR	3.6	2.9	2.8	1.8	2.1

### Disability Social

			2012-13	2013-14	2014-15	2015-16	2016-17
No disability/not known	Social and communication impairment	University of Cambridge		8.3		19.9	-6.8
		SECTOR	12.1	14.8	13.9	12.6	11.5

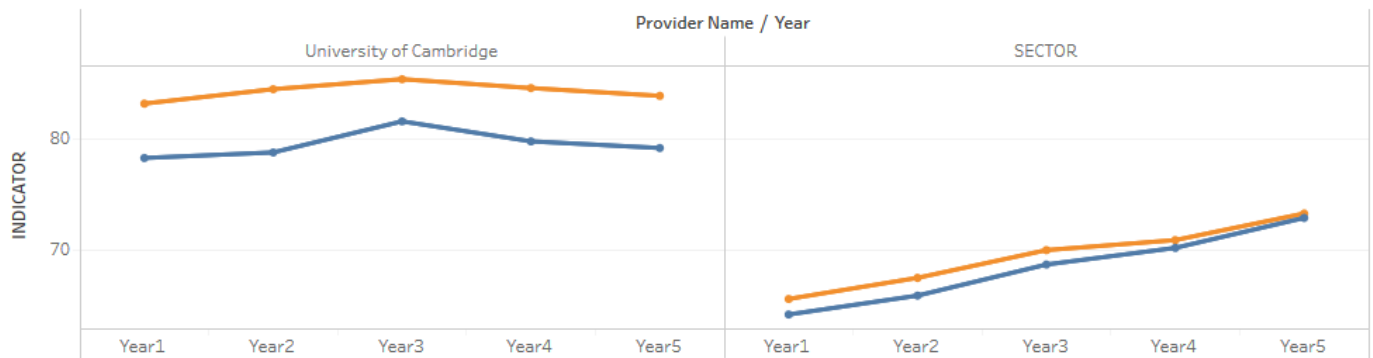
### Ethnic – Black

			2012-13	2013-14	2014-15	2015-16	2016-17
White	Black	University of Cambridge	6.9	10.8	-7.4	35.0	-6.8
		SECTOR	7.9	7.0	4.7	5.7	4.8

### Gender

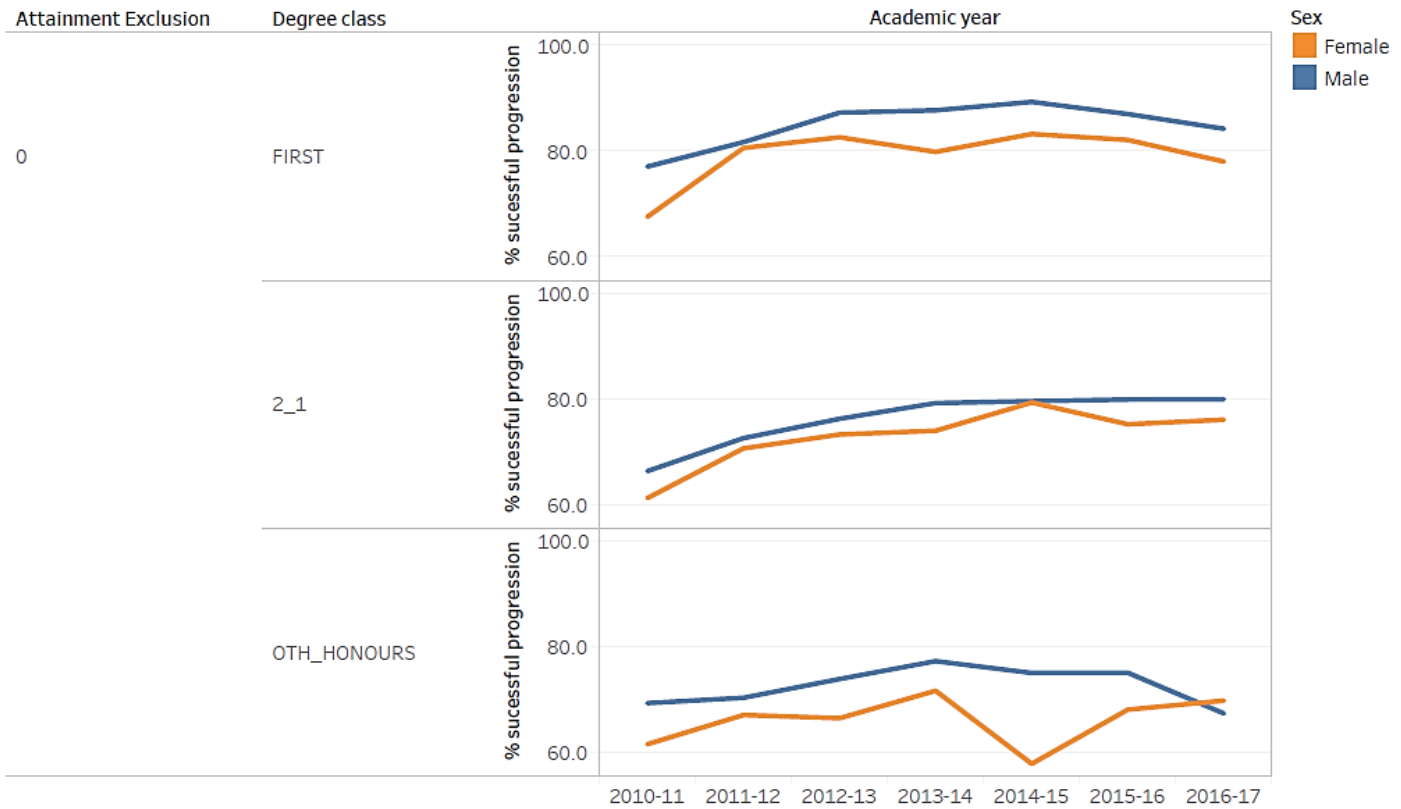
Although gender is not an APP characteristic there is a consistent gap between the progression of males and females to employment/high level study. Whilst the gender gap for the UK sector has closed over the last 5 years it has remained almost static for Cambridge graduates.

Split1  
■ Female  
■ Male



Split1	University of Cambridge					SECTOR				
	Year1	Year2	Year3	Year4	Year5	Year1	Year2	Year3	Year4	Year5
Female	78.30	78.80	81.60	79.80	79.20	64.20	65.90	68.70	70.20	72.90
Male	83.20	84.50	85.40	84.60	83.90	65.60	67.50	70.00	70.90	73.30

Further analysis shows that the largest and most consistent gap in progression is seen between males and females gaining first class degrees. However it may be that this gap is explained by subject choice, employment sector, or a combination of other factors. If a similar gap is seen in the 2020 Graduate Outcomes dataset further research could investigate whether the gap that has been identified in attainment does contribute to differences in progression.



The trend of % successful progression for Academic year broken down by Attainment Exclusion and Degree class. Colour shows details about Sex. The data is filtered on Progression Exclusion, APP population and Sex Exclusion. The Progression Exclusion filter keeps 0. The APP population filter keeps 0. The Sex Exclusion filter keeps 0.

## Annex 1

### Report for Logistic Regression Model Logistic\_Regression\_224

#### Coefficients:

	Estimate	Std. Error	z value	Pr(>  z )
(Intercept)	1.20136	0.03281	36.6203	< 2.2e-16***
Age_band_mature	0.09164	0.11112	0.82470	0.40954
Disability_type_COG	-0.10046	0.09646	-1.04146	0.29766
Disability_type_MH	-0.41113	0.14477	-2.83995	0.00451**
Disability_type_MULTI	-0.21436	0.16207	-1.32263	0.18596
Disability_type_PHY	0.41829	0.20353	2.05519	0.03986*
Disability_type_SOC	-0.63326	0.24646	-2.56941	0.01019*
Domicile_N	0.01126	0.13928	0.08087	0.93554
Domicile_S	0.05185	0.12640	0.41023	0.68164
Domicile_W	-0.15035	0.13950	-1.07780	0.28112
Ethnicity__grouped__Asian	0.12599	0.08927	1.41137	0.15814
Ethnicity__grouped__Black	-0.60719	0.33300	-1.82341	0.06824.



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Ethnicity__grouped__Mixed	0.08374	0.15169	0.55209	0.58088
Ethnicity__grouped__Other	-0.11610	0.40296	-0.28811	0.77326
IMD_grouped_1_2	-0.02516	0.07483	-0.33626	0.73668
interaction_Ethnicity__grouped__Asian_Age_ba nd_mature	0.51251	0.55331	0.92626	0.35431
interaction_Ethnicity__grouped__Asian_Disabilit y_Y	0.31613	0.40254	0.78535	0.43225
interaction_Ethnicity__grouped__Asian_IMD_gro uped_1_2	-0.19026	0.19497	-0.97585	0.32914
interaction_Ethnicity__grouped__Asian_Polar4_ grouped_1_2	0.28638	0.27654	1.03557	0.3004
interaction_Ethnicity__grouped__Black_Age_ba nd_mature	-0.69556	0.70799	-0.98245	0.32588
interaction_Ethnicity__grouped__Black_Disabilit y_Y	0.79056	0.85168	0.92824	0.35328
interaction_Ethnicity__grouped__Black_IMD_gro uped_1_2	0.46316	0.41595	1.11350	0.26549
interaction_Ethnicity__grouped__Black_Polar4_ grouped_1_2	0.76026	0.69171	1.09911	0.27172
interaction_Ethnicity__grouped__Black_Sex_1	-0.19209	0.39785	-0.48283	0.62922
interaction_Ethnicity__grouped__Mixed_Age_ba nd_mature	-0.39617	0.54141	-0.73174	0.46432
interaction_Ethnicity__grouped__Mixed_Disabilit y_Y	0.46904	0.36941	1.26971	0.20419
interaction_Ethnicity__grouped__Mixed_IMD_gr ouped_1_2	0.18140	0.27926	0.64958	0.51596
interaction_Ethnicity__grouped__Mixed_Polar4_ grouped_1_2	0.03744	0.34594	0.10824	0.91381
interaction_Ethnicity__grouped__Mixed_Sex_1	-0.24157	0.19954	-1.21065	0.22603
interaction_Ethnicity__grouped__Other_Age_ba nd_mature	-0.21024	0.86897	-0.24194	0.80883
interaction_Ethnicity__grouped__Other_Disabilit y_Y	1.20251	1.09147	1.10174	0.27058
interaction_Ethnicity__grouped__Other_IMD_gr ouped_1_2	0.42974	0.62141	0.69157	0.48921
interaction_Ethnicity__grouped__Other_Polar4_ grouped_1_2	-1.01984	1.44383	-0.70634	0.47998
interaction_Ethnicity__grouped__Other_Sex_1	-0.37503	0.47135	-0.79565	0.42623
Polar4_grouped_1_2	-0.06294	0.07631	-0.82474	0.40952
<b>Sex_1</b>	0.35881	0.04203	8.53668	< 2.2e-16***

Significance codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial taken to be 1 )

Null deviance: 15323 on 15170 degrees of freedom

Residual deviance: 15204 on 15135 degrees of freedom

McFadden R-Squared: 0.007768, Akaike Information Criterion 15276

Number of Fisher Scoring iterations: 4

Significance codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Report for Logistic Regression Model Stepwise\_elimination

### Factors retained in model after stepwise elimination

#### Basic Summary

Call:

```
glm(formula = Successful.progression.flag ~ Disability_type_MH +
Disability_type_PHY + Disability_type_SOC + Ethnicity__grouped__Asian +
Ethnicity__grouped__Black
+interaction_Ethnicity__grouped__Black_Polar4_grouped_1_2 + Sex_1, family
= binomial("logit"), data = the.data)
```

#### Coefficients:

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	1.1919	0.02891	41.234	< 2.2e-16***
Disability_type_MH	-0.3617	0.14284	-2.532	0.01133*
Disability_type_PHY	0.4708	0.20154	2.336	0.0195*
Disability_type_SOC	-0.5819	0.24530	-2.372	0.01769*
Ethnicity__grouped__Asian	0.1374	0.07607	1.806	0.07086.
Ethnicity__grouped__Black	-0.5000	0.20702	-2.415	0.01573*
interaction_Ethnicity__grouped__Black_Polar4_grouped_1_2	0.8819	0.66032	1.336	0.1817
Sex_1	0.3422	0.04063	8.421	< 2.2e-16***

Significance codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial taken to be 1 )

Null deviance: 15323 on 15170 degrees of freedom

Residual deviance: 15223 on 15163 degrees of freedom

**McFadden R-Squared: 0.00652**, Akaike Information Criterion 15239

Number of Fisher Scoring iterations: 4

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