

Office for  
Students



# **ABCS: Associations Between Characteristics of Students**

**Full-time progression measure**

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## Introduction to ABCS

1. Associations between characteristics of students (ABCS) provides a set of measures which aims to improve our understanding of the outcomes different groups of people are likely to experience across the student lifecycle. We define groups of people by looking at a set of characteristics so that we can determine the effect of not just one characteristic on an outcome, but the effect of multiple characteristics. ABCS full-time (FT) progression is one of these measures.
2. This report builds on the core ABCS methodology document, which outlines the methodology that underpins all ABCS measures.<sup>1</sup>
3. An interactive dashboard is also provided to allow the user to explore the results for the ABCS FT progression measure.<sup>2</sup>

## What does ABCS FT progression measure?

4. ABCS FT progression measures the proportion of students progressing to managerial or professional employment, further study or other positive graduate outcomes after they completed a full-time higher education qualification. The data used to produce this measure is based on graduates' responses to the Graduate Outcomes (GO) survey, reflecting graduates' outcomes approximately 15 months after they have been awarded a higher education qualification. For a full definition of what counts as a positive outcome, please see proposal 7: construction of progression measures in the consultation on constructing student outcome and experience indicators for use in OfS regulation.<sup>3</sup>

## Population

5. As the data we are using to produce this measure is from the GO survey, we only had three years of data available to us (as of August 2022). This gave us progression rates for the GO years 2017, 2018 and 2019. Table 1 shows how a GO year relates to the period when those students qualified from their higher education course and when they were surveyed.

**Table 1: The periods Graduate Outcomes data relates to**

GO year	Period students completed their studies	Period graduates were surveyed
2017	August 2017 to July 2018	December 2018 to November 2019
2018	August 2018 to July 2019	December 2019 to November 2020
2019	August 2019 to July 2020	December 2020 to November 2021

<sup>1</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).

<sup>2</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).

<sup>3</sup> See [www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/](http://www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/)

6. As can be seen in Table 1, the period that graduates were surveyed for GO 2018 coincided with the start of the COVID-19 pandemic, which was declared by the World Health Organisation on 11 March 2020. The GO 2019 results saw these graduates surveyed entirely during the pandemic period. We analysed how ABCS quintiles changed over the pandemic years and concluded that any variations were not great enough to warrant changing our approach. Hence all three years are included. This approach is described in more detail in the section on principles for updating ABCS in the ABCS methodology document.<sup>4</sup>
7. HESA has analysed the impact of the pandemic on GO survey responses.<sup>5</sup>
8. Free school meal (FSM) eligibility data is taken from the Department for Education's National Pupil Database (NPD).
9. Data for modelling was restricted to those graduates that had completed an undergraduate course at an English provider and had studied full-time. By using the same population restrictions as the progression indicators (see the student outcome and experience measures core algorithms document for details), the population is restricted to UK-domiciled students.<sup>6</sup>
10. Postgraduate students and apprenticeship students are not included in the modelling data. For postgraduate students, this aligns with other OfS analysis and regulatory approaches, recognising that a number of the student characteristics that represent those experiencing disadvantage or who are underrepresented in higher education are not available, or otherwise not meaningful, in respect of postgraduate students. Our approach also results from the very different behaviours and outcomes we observe for postgraduate students compared with undergraduate students. For apprenticeship students, our approach recognises that the potential for conducting the appropriate statistical modelling is more limited, on account of the more limited spread and characteristics of apprenticeship students across the sector. When considered at the level of detail necessary within the ABCS models, there are insufficient student numbers for those models to be robust (in technical terms, the models do not converge when constructed for apprenticeship students only).

## Successful outcomes

11. Broadly speaking, progression to managerial or professional employment or further study is counted as a successful outcome. See the student outcome and experience measures core algorithms document for more detailed information about how positive progression outcomes are calculated.
12. The student outcome and experience measures core algorithms document describes that a response from an employed graduate which cannot be mapped to a Standard Occupational Classification (SOC) code would be apportioned to both a positive and negative outcome based on the ratio derived for the provider, mode and level of study associated with that

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<sup>4</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).

<sup>5</sup> See [www.hesa.ac.uk/insight/16-06-2022/impact-covid-19-graduate-outcomes](http://www.hesa.ac.uk/insight/16-06-2022/impact-covid-19-graduate-outcomes).

<sup>6</sup> See [www.officeforstudents.org.uk/data-and-analysis/student-outcome-and-experience-measures/documentation/](http://www.officeforstudents.org.uk/data-and-analysis/student-outcome-and-experience-measures/documentation/) (Technical algorithms for student outcome and experience measures: September 2022 core algorithms).

graduate. However, due to the way the statistical model works, we are not able to include such responses in our modelling data.

## Selection of characteristics

13. In selecting the factors for use in the FT progression model, as well as having good availability of data, we were looking for characteristics that should not influence a person's likelihood of having a positive progression outcome, but where the evidence showed that they did.
14. The 12 characteristics used in the model are as follows: age group, care experience, disability, ethnicity, free school meal (FSM) eligibility, income deprivation affecting children index (IDACI), index of multiple deprivation (IMD), local or distance learner, national statistic – socio-economic classification (NS-SEC), parental higher education, sex and TUNDRA. The three area-based characteristics (IDACI, IMD and TUNDRA) are based on the graduate's home postcode as recorded in their student record.
15. As described in the section on selecting the characteristics in the ABCS methodology document, we found that the number of students with an unknown or missing age was too low to leave in their own attribute group, so they were combined with the 26 to 30-year-old age group as this had the closest progression rate. Similarly, the Gypsy or Traveller ethnic group has been combined with the Black or black British – Caribbean ethnic group.<sup>7</sup>
16. The model includes data on 513,040 graduates, 369,830 of which had a positive progression outcome. Table 2 shows the attribute groups within each of the 12 characteristics used for the model and the number and proportion of the graduates who are in each of these groups.

**Table 2: Characteristics in the ABCS FT progression model**

Characteristic	Category	Total number of individuals in the three cohorts	Per cent
Age group	*18 and under	265,285	51.7%
	19	108,645	21.2%
	20	31,765	6.2%
	21-25	47,090	9.2%
	26-30	18,200	3.5%
	31-40	23,810	4.6%
	41-50	13,525	2.6%
	51+	4,715	0.9%
Care experience	Care experienced	2,370.0	0.5%
	*Not care experienced	381,510.0	74.4%
	Unknown or N/A	129,160.0	25.2%

<sup>7</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).

Disability	Cognitive or learning difficulties	37,620	7.3%
	Mental health condition	23,560	4.6%
	Multiple or other impairments	13,700	2.7%
	*No disability reported	420,250	81.9%
	Sensory, medical or physical impairments	13,760	2.7%
	Social or communication impairment	4,150	0.8%
Ethnicity	Asian or Asian British - Bangladeshi	9,840	1.9%
	Asian or Asian British - Chinese	4,430	0.9%
	Asian or Asian British - Indian	21,195	4.1%
	Asian or Asian British - Pakistani	18,295	3.6%
	Asian or Asian British - other	11,830	2.3%
	Black or black British - African	30,915	6.0%
	Black or black British - Caribbean	8,230	1.6%
	Black or black British - other	2,145	0.4%
	Mixed - other	6,070	1.2%
	Mixed - white and Asian	7,275	1.4%
	Mixed - white and black African	2,695	0.5%
	Mixed - white and black Caribbean	5,605	1.1%
	Other ethnic group	7,770	1.5%
	Refused or unknown	4,205	0.8%
*White	372,530	72.6%	
FSM eligibility	Eligible for FSM	45,195	8.8%
	*Not eligible for FSM	322,440	62.8%
	Unknown or N/A	145,405	28.3%
IDACI	Quintile 1 (most deprived)	81,825	15.9%
	Quintile 2	90,655	17.7%
	Quintile 3	95,040	18.5%
	Quintile 4	103,845	20.2%
	*Quintile 5 (least deprived)	123,015	24.0%
	Unknown or N/A	18,655	3.6%
IMD	Quintile 1 (most deprived)	81,215	15.8%
	Quintile 2	90,450	17.6%
	Quintile 3	94,325	18.4%
	Quintile 4	103,640	20.2%
	*Quintile 5 (least deprived)	124,755	24.3%
	Unknown or N/A	18,655	3.6%
Local or distance learner	Distance	990	0.2%

	Local	127,240	24.8%
	*Neither	384,810	75.0%
NS-SEC	Higher managerial, administrative and professional occupations	201,740	39.3%
	Intermediate occupations	83,470	16.3%
	Never worked and long-term unemployed	1,505	0.3%
	Routine and manual occupations	92,195	18.0%
	*Unknown or N/A	134,130	26.1%
Parental higher education	*Higher education qualification held by parent(s)	223,175	43.5%
	Higher education qualification not held by parent(s)	194,120	37.8%
	Unknown or N/A	95,745	18.7%
Sex	*Female	299,540	58.4%
	Male	213,160	41.5%
	Other	345	0.1%
TUNDRA	Quintile 1 (least represented)	41,080	8.0%
	Quintile 2	59,105	11.5%
	Quintile 3	75,890	14.8%
	Quintile 4	91,585	17.9%
	*Quintile 5 (most represented)	120,700	23.5%
	Unknown or N/A	124,680	24.3%
Total number of individuals		513,040	100%

\* Indicates a reference category in the statistical model

## The statistical model

17. We have used a binary logistic regression model to predict the probability of having a positive progression outcome having studied full-time. We have included all 12 characteristics as main effects and used a statistical approach (stepwise) to determine which of the two-way interactions should be included. See the ABCS methodology document for details.<sup>8</sup> This has resulted in the inclusion of the following interactions shown in Table 3.

**Table 3: Interactions in the ABCS FT progression model**

Interactions
FSM eligibility*NS-SEC
FSM eligibility*Care experience
FSM eligibility*Parental higher education

<sup>8</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).

FSM eligibility*IMD
Age group*FSM eligibility
Age group*NS-SEC
Age group*Care experience
Age group*Ethnicity
Age group*Disability
Age group*Local or distance learner
Age group*Parental higher education
Care experience*NS-SEC
Care experience*Parental higher education
Ethnicity*NS-SEC
Ethnicity*Care experience
Ethnicity*Parental higher education
Disability*FSM eligibility
Disability*Local or distance learner
Disability*IMD
Local or distance learner*NS-SEC
Local or distance learner*Care experience
Parental higher education*NS-SEC
IDACI*NS-SEC
IDACI*Parental higher education
IMD*NS-SEC
TUNDRA*Care experience
TUNDRA*Parental higher education
TUNDRA*IMD
Sex*NS-SEC
Sex*Age group
Sex*Care experience
Sex*Local or distance learner
Sex*Parental higher education

18. The model is:

$$\begin{aligned}
\text{logit}(\pi_i) = & \beta_0 + \tilde{\beta}_1 \text{age}_i + \tilde{\beta}_2 \text{care experience}_i + \tilde{\beta}_3 \text{disability}_i + \tilde{\beta}_4 \text{ethnicity}_i \\
& + \tilde{\beta}_5 \text{FSM eligibility}_i + \tilde{\beta}_6 \text{IDACI}_i + \tilde{\beta}_7 \text{IMD}_i + \tilde{\beta}_8 \text{local or distance}_i \\
& + \tilde{\beta}_9 \text{NS\_SEC} + \tilde{\beta}_{10} \text{parental higher education}_i + \tilde{\beta}_{11} \text{sex}_i + \tilde{\beta}_{12} \text{TUNDRA}_i \\
& + \text{interactions}
\end{aligned}$$



Where  $i$  is an individual,  $\pi_i$  is a binary response variable which takes the value of 1 if the individual has a positive progression outcome and 0 otherwise,  $\beta$  represents vectors of different sizes and the interactions are as listed above.

## Model results

19. The coefficient estimates for each of the factors and for all the two-way interactions included in the final model can be found in the Excel/CSV files.<sup>9</sup>

## Derivation of ABCS FT progression quintiles

20. Using the model's predicted progression rates for each of the graduate groups, we then used these predicted rates to split the graduates included in the modelling into five quintiles. Those groups with the lowest modelled rates are in the lowest FT progression quintile and those with the highest are in the highest FT progression quintile. Table 4 shows the number and proportion of graduates in each quintile, as well as the mean, minimum and maximum predicted rate. The minimum predicted rates are also the breakpoints, which determine the quintile boundaries.

**Table 4: Description of ABCS FT progression quintiles**

FT progression quintile	Number of students	Proportion of students	Mean modelled FT progression rate	Minimum modelled FT progression rate	Maximum modelled FT progression rate
Quintile 1	102,605	20.0%	59.4%	16.8%	65.2%
Quintile 2	102,610	20.0%	68.1%	65.2%	70.6%
Quintile 3	102,635	20.0%	72.6%	70.6%	74.5%
Quintile 4	102,580	20.0%	76.4%	74.5%	78.6%
Quintile 5	102,610	20.0%	83.9%	78.6%	99.9%

<sup>9</sup> See [www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/](http://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/).



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