

Further self-assessment of undergraduate disability admissions gaps at the University of Cambridge

Executive summary

In 2019 the University of Cambridge conducted a self-assessment of undergraduate admissions (as part of the development of the current Access and Participation Plan). This included examining the collegiate University's current, and recent, admissions position for self-declared disability at the point of application, which identified that the collegiate University admits proportionally fewer United Kingdom (UK)-domiciled students with a recorded disability than the Higher Education sector as a whole. Following completion of this work the University of Cambridge made a commitment to understand the apparent undergraduate disability admissions gaps better, and this paper summarises the work that has now been conducted to examine this further.

The self-assessment reported in this paper considers a number of different factors that might contribute to disability admissions gaps at the University of Cambridge: application patterns, the interaction between disability and other applicant characteristics, Key Stage 5 qualification type, academic attainment, offer rate, and choice of undergraduate course. It also examines whether these factors might contribute to the variation in these gaps that is seen for different disability type groups.

The analyses conducted have found that the number and proportion of UK-domiciled entrants to the collegiate University that report a disability has increased in recent years. This increase appears to have been driven predominantly by an increase in entrants who report Mental Health conditions and Other or Multiple Impairments, rather than an increase across all disability types. However UK-domiciled individuals who report a disability remain under-represented at the University of Cambridge compared to within the Higher Education sector. UK-domiciled applicants who have reported a disability are also less likely to enter the collegiate University than applicants who did not report a disability, and this is the case for all disability types (although the size of these gaps varies).

It is likely that for different disability types different factors contribute to these gaps. For example the negative entry rate gaps for applicants who have reported Sensory, Medical or Physical disabilities or Other or Multiple Impairments (both relatively small) appear to reflect applicants' A Level attainment or their having non-standard UK Key Stage 5 qualification profiles. A number of factors appear to influence the negative entry rate gap for applicants who have reported Mental Health conditions: this includes A Level attainment and having non-standard UK Key Stage 5 qualification profiles, however there is also considerable interaction between disability and applicant age, and Mental Health conditions are the most commonly reported disability type for mature applicants. By contrast the negative entry gap for applicants who have reported Social or Communication disorders does not appear to reflect these applicants' Key Stage 5 attainment, but may reflect post-offer attrition as a result of STEP performance (over a fifth of these applicants applied for Mathematics). Finally whilst there is a relatively large entry rate gap for applicants who have reported Cognitive and Learning Difficulties, the analyses reported in this paper did not identify any factors that appear to be contributing to this gap (although these applicants are also less likely to receive an offer, and therefore it is possible that factors in the admissions process may be contributing).

This further self-assessment has therefore increased our understanding of the disability admissions gaps for UK-domiciled applicants to the University of Cambridge. These findings have been referred to appropriate committees of the collegiate University for consideration.

Introduction

Last year, as part of the development of the current Access and Participation Plan, the University of Cambridge conducted a self-assessment of undergraduate admissions, examining the collegiate University's current, and recent, admissions position for a number of characteristics. One of the characteristics examined was disability, which individuals can self-declare as part of their UCAS application.

The University of Cambridge's 2019 self-assessment identified that the collegiate University admits proportionally fewer United Kingdom (UK)-domiciled students with a recorded disability than are admitted by the Higher Education sector as a whole, although the proportion of students with a recorded disability has been rising annually, both at the collegiate University and in the sector.¹ When type of disability is considered specifically (using the five disability type groups described by the Office for Students),² in recent years the University of Cambridge has consistently admitted a lower proportion of students than the sector from four of the five disability type groups: Sensory, Medical or Physical, Mental Health, Cognitive and Learning Difficulties, and Other or Multiple Impairments.³

As part of the self-assessment some initial research was conducted to examine whether academic attainment (specifically A Level attainment) could account for differences between the collegiate University and the sector as a whole, since the University of Cambridge has high entry requirements. This found that the collegiate University's intake of students with a recorded disability was similar to the level expected when national A Level attainment was factored in,¹ but that A Level attainment did not entirely explain differences in the likelihood of entering the University of Cambridge for applicants who had reported a disability and those who had not.⁴ Furthermore, the 2019 self-assessment did not explore whether this varied for different disability type groups, or whether additional factors might also be underlying the differences.

The University of Cambridge made a commitment to understand the apparent undergraduate disability admissions gaps better, and to keep monitoring this data to ensure continued progress.¹ This paper summarises the work that has been conducted on this since the 2019 self-assessment.

¹ Access and Participation Plan 2020-21 to 2024-25
https://www.undergraduate.study.cam.ac.uk/files/publications/university_of_cambridge_app_2020_25.pdf

² Details of the disability classifications included in each group are included in the methodology section. The five disability groups the Office for Students describes are: (i) Social or Communication, (ii) Sensory/Medical/Physical, (iii) Mental Health, (iv) Cognitive and Learning Difficulties, (v) Other or Multiple Impairments.

³ 'Recent years' refers here to the five entry years examined in the Access and Participation plan: 2013 (for the 2013/14 academic year) to 2017 (for the 2017/18 academic year)

⁴ R.Sequeira (August 2019) *Self-assessment for the 2020-21 to 2024-25 Access and Participation Plan*
https://www.cao.cam.ac.uk/sites/www.cao.cam.ac.uk/files/2019_entry_rate_self-assessment_paper.pdf

Methodology

Population used

Unless otherwise specified, the analyses reported in this paper were conducted using data for all UK-domiciled applicants to the University of Cambridge who applied to enter an undergraduate course (applicants for the Graduate Course in Medicine were excluded) between the 2012/13 and 2019/20 academic years. Analyses are presented by intended entry year (i.e. 2012 to 2019) for comparability with the reporting format used by the Office for Students. Many of the analyses refer to entrants; these are the group of applicants who were successfully admitted to the collegiate University and took up their place.

Characteristics examined

As detailed in the introduction, this paper focuses on disability. Table A lists the codes that UCAS applicants use to report whether they have a disability (and if so, what type of disability) at the point of application, and how these have been grouped for the analyses conducted in this paper. The grouping used for this paper is based on the Office for Students' combinations of these disability types into five groups, with a sixth group for those who have reported that they do not have a disability. All applicants to the collegiate University for the eight entry years examined have disability data available, although since this is self-reported there may be circumstances where individuals have chosen not to report a disability, or (less likely) reported it differently to how another individual may choose to classify it. It should also be noted that there may be individuals for whom a new disability arose or was diagnosed after UCAS application submission, which would not be represented in the analyses reported in this paper.

Table A

The descriptions that applicants to the University of Cambridge (for entry between 2012 and 2019) used to self-report whether they have a disability, and how these have been grouped in the analyses reported in this paper.

UCAS disability codes	Disability type (using OfS definitions)
A: No disability	NONE: No known disability type
B: You have a social/communication impairment such as Asperger's syndrome/other autistic spectrum disorder	SOC: Social or Communication
C: You are blind or have a serious visual impairment uncorrected by glasses	PHY: Sensory, Medical or Physical
D: You are deaf or have a serious hearing impairment	
E: You have a long standing illness or health condition such as cancer, HIV, diabetes, chronic heart disease, or epilepsy	
H: You have physical impairment or mobility issues, such as difficulty using your arms or using a wheelchair or crutches	
F: You have a mental health condition, such as depression, schizophrenia or anxiety disorder	MH: Mental Health
G: You have a specific learning difficulty such as dyslexia, dyspraxia or AD(H)D	COG: Cognitive and Learning Difficulties
I: You have a disability, impairment or medical condition that is not listed above	MULTI: Other or Multiple Impairments
J: You have two or more impairments and/or disabling medical conditions	

Factors considered

There are a number of different factors that might contribute to disability admissions gaps (and variation in these gaps for different disability type groups) at the University of Cambridge:

- *application patterns* – patterns of application to the collegiate University may not reflect patterns of application to Higher Education in the UK as a whole;
- *the interaction between disability and other characteristics* – if applicant characteristics that interact with disability are also significantly associated with likelihood of entry to the collegiate University then these characteristics could be compounding the apparent impact of disability;
- *Key Stage 5 qualification type* – applicants to the University of Cambridge are advised that certain types of Key Stage 5 qualifications are more suitable preparation for study at the collegiate University than others;
- *academic attainment* – since the University of Cambridge has high academic admissions requirements (note that only A Level attainment is considered in this paper);
- *offer rate* – differences in entry rate may reflect applicants being less likely to be made an offer, or that they are less likely to accept and/or meet the conditions of that offer;
- *choice of undergraduate course* – the typical number of applicants per place varies between courses, meaning that entry to some courses is more competitive than others.

This paper considers each of these in turn.

Analyses conducted

Since the analyses conducted varied depending on the factor being examined, brief descriptions are provided throughout the findings as relevant (these are in the ‘approach’ part of each section).

The small number of UK-domiciled applicants and/or entrants from some of the disability type groups or subgroups means that there is potential for considerable volatility in the data. Three year moving average data smoothing has therefore been used, in order to remove the noise between entry years and enable any trends in the data to be identified more easily. Three year moving average data smoothing involves using the mean data from three consecutive entry years for the analysis (e.g. 2016, 2017 and 2018) rather than a single entry year; where data is reported over time data from each entry year will typically be used in more than one data point (e.g. 2016 entry year data will have been used to generate the 2014-16, 2015-17 and the 2016-18 data points).

When analyses were conducted to examine whether different factors might contribute to the admissions gap (and if so to what extent), two different populations were typically examined:

- applicants for entry into the collegiate University between the 2012 and 2019 entry years
combining several years of data increases group size, giving more confidence in the data;
- applicants for entry into the collegiate University between the 2017 and 2019 entry years
these are the three most recent entry years examined, so provide a picture of the current situation.

Findings

1 Disability admissions gaps at the University of Cambridge

This section describes the disability admissions gaps at the University of Cambridge, including an examination of whether these vary for different disability types. It considers the following questions:

- Has the number and proportion of University of Cambridge entrants who report a disability changed in recent years?
- Are individuals who report a disability, or certain types of disability, under-represented at the University of Cambridge compared to in the Higher Education sector as a whole?
- Do individuals who report a disability, or certain types of disability, have a lower entry rate than the overall entry rate for all University of Cambridge applicants?
- How do disability entry rate gaps at the University of Cambridge compare to disability entry rate gaps in the Higher Education sector as a whole?

1.1 Has the number and proportion of University of Cambridge entrants who report a disability changed in recent years?

Approach

The number and proportion of the University of Cambridge's UK-domiciled entrants who have reported disabilities of different types have been reported by entry year (Table 1.1); these proportions have also been summarised graphically using three year moving average data smoothing in order to enable trends in the entrant population to be observed (Figures 1.1a and 1.1b).

Cautions: The small group sizes for many of the disability types mean that there is considerable between-year volatility and it is difficult to determine whether year-on-year changes are due to trends or fluctuations. When considering the collegiate University's 'current' position it is therefore advisable to consider the three most recent entry years (2017 to 2019), not the most recent year in isolation.

Results

Table 1.1

The number and proportion of UK-domiciled undergraduate entrants to the University of Cambridge who have self-reported a disability, by disability type, for each of the entry years between 2012 and 2019

Percentages reported to 1 d.p. ■ indicates very small group size (<25)

Disability type	Entry year															
	2012		2013		2014		2015		2016		2017		2018		2019	
Disability reported	159	6.2%	158	5.9%	155	5.8%	160	6.1%	195	7.5%	204	7.9%	201	7.9%	210	7.9%
SOC: Social or Communication	16	0.6%	22	0.8%	19	0.7%	13	0.5%	27	1.0%	18	0.7%	21	0.8%	29	1.1%
PHY: Sensory, Medical or Physical	22	0.9%	24	0.9%	30	1.1%	24	0.9%	30	1.2%	31	1.2%	39	1.5%	23	0.9%
MH: Mental Health	14	0.5%	11	0.4%	14	0.5%	20	0.8%	36	1.4%	30	1.2%	32	1.3%	51	1.9%
COG: Cognitive & Learning Difficulties	73	2.8%	68	2.5%	71	2.7%	73	2.8%	64	2.5%	78	3.0%	67	2.6%	64	2.4%
MULTI: Other or Multiple Impairments	34	1.3%	33	1.2%	21	0.8%	30	1.1%	38	1.5%	47	1.8%	42	1.7%	43	1.6%
No disability reported	2409	93.8%	2509	94.1%	2495	94.2%	2461	93.9%	2393	92.5%	2364	92.1%	2329	92.1%	2454	92.1%
All entrants	2568	100.0%	2667	100.0%	2650	100.0%	2621	100.0%	2588	100.0%	2568	100.0%	2530	100.0%	2664	100.0%

Figure 1.1a

The three year moving average proportions of UK-domiciled undergraduate entrants to the University of Cambridge in different entry year periods, by whether they have self-reported a disability

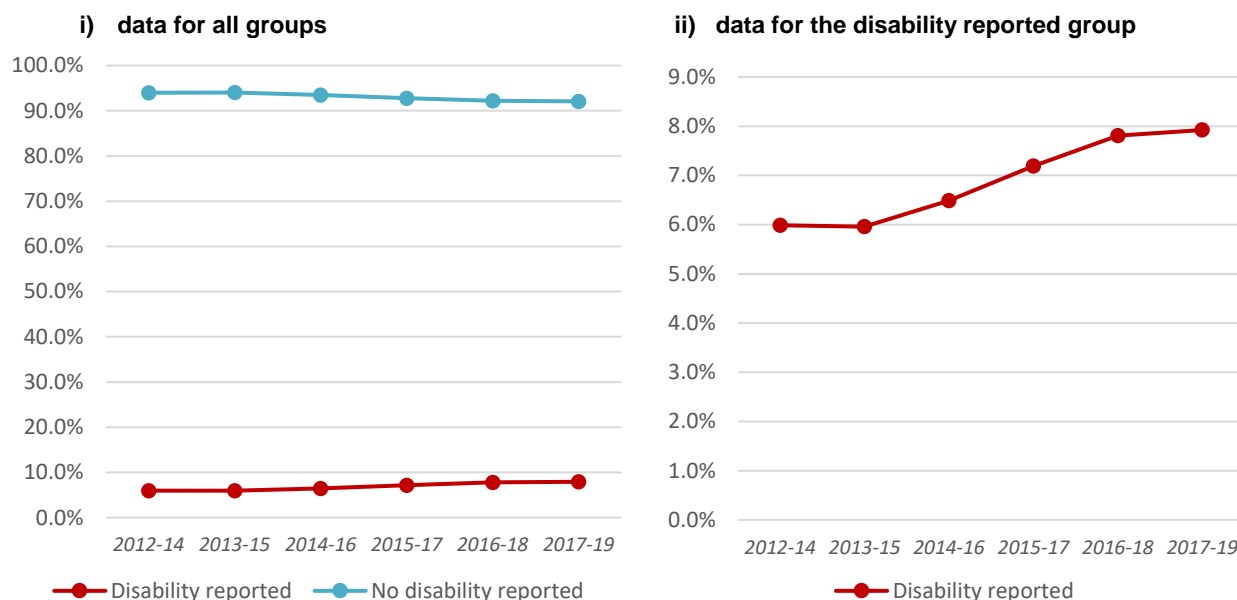
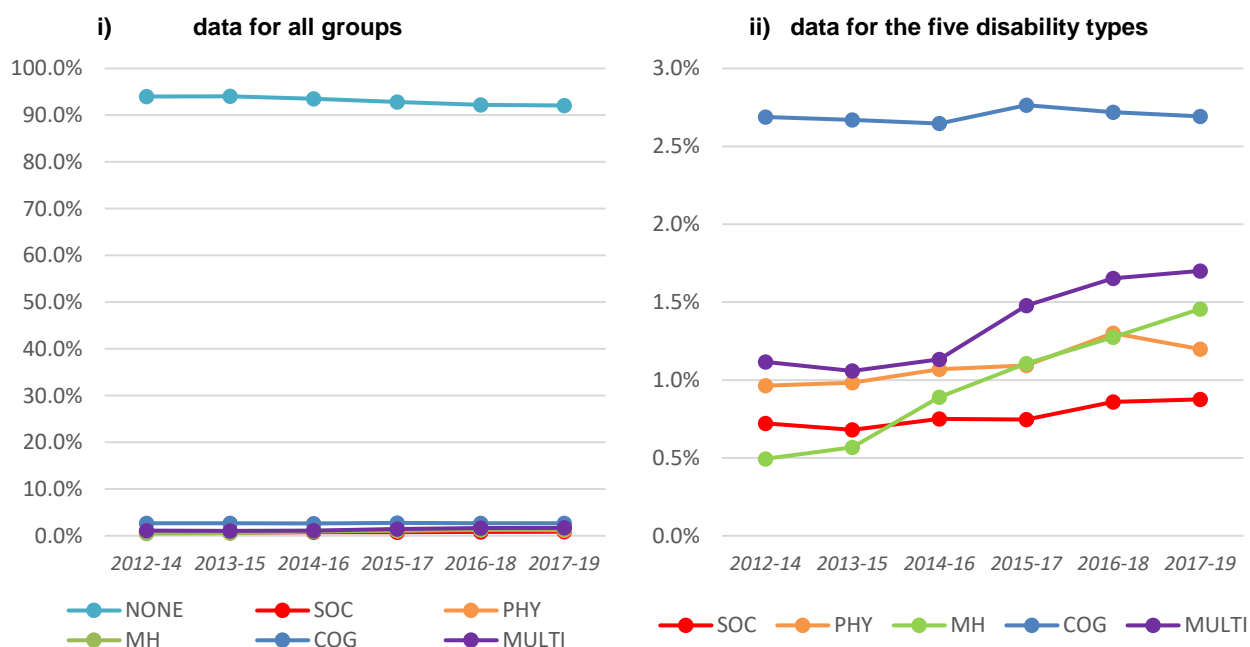


Figure 1.1b

The three year moving average proportions of UK-domiciled undergraduate entrants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

Whilst the majority of UK-domiciled entrants to the University of Cambridge have not reported a disability at the point of application, both the number and proportion of entrants reporting a disability have increased in recent entry years. This increase appears to have been driven predominantly by an increase in entrants reporting certain types of disability (Mental Health conditions and Other or Multiple Impairments in particular) whilst the proportion of entrants reporting other types of disability (such as Cognitive and Learning Difficulties) has been more steady.

1.2 Are individuals who report a disability, or certain types of disability, under-represented at the University of Cambridge compared to in the Higher Education sector as a whole?

Approach

University of Cambridge entrant data was compared to UCAS data for acceptances across the Higher Education sector in order to examine the extent to which the reported disability type composition of UK-domiciled entrants to the collegiate University matches that of the UK population who entered Higher Education courses that recruit through UCAS (Table 1.2). 'Observed to expected entrant ratios' were calculated for each disability type: where the ratio is greater than 1.00 this indicates over-representation of the group at the University of Cambridge compared to the Higher Education sectors as a whole, whilst a ratio of less than 1.00 indicates under-representation.

Observed to expected entrant ratios

$$\text{Observed to expected entrant ratio for Group A} = \frac{\text{Number of University of Cambridge entrants from Group A}}{\text{Total number of University of Cambridge entrants} \times \% \text{ of Group A in national population}}$$

An observed to expected entrant ratio of 1.00 indicates that this group make up the same proportion of both populations, and thus their representation is as expected.

Cautions: Due to the small group sizes for many of the disability types (in the University of Cambridge data) observed to expected entrant ratios were not calculated for single entry years in isolation; the 'current' position is therefore based on data from the three most recent entry years (2017 to 2019).

Results

Table 1.2

A comparison of the UCAS acceptance population and the University of Cambridge entrant population (in the eight entry years between 2012 and 2019, or the three most recent of those), by self-reported disability type
Percentages reported to 1 d.p.; Observed to expected entrant ratios reported to 2 d.p.

Disability type	% of the UCAS accepted population from group (national data)		% of UK-domiciled University of Cambridge entrants from the group		Ratio of the number of entrants observed to the number of entrants expected (based on the national data)	
	2012-2019 cycles	2017-2019 cycles	2012-2019 entry years	2017-2019 entry years	2012-2019 entry years	2017-2019 entry years
Disability reported	9.8%	11.6%	6.9%	7.9%	0.70	0.68
SOC: Social or Communication	0.8%	0.9%	0.8%	0.9%	1.11	0.94
PHY: Sensory, Medical or Physical	1.1%	1.5%	1.1%	1.2%	0.76	0.80
MH: Mental Health	1.0%	2.9%	1.0%	1.5%	0.52	0.50
COG: Cognitive & Learning Difficulties	2.7%	4.4%	2.7%	2.7%	0.63	0.61
MULTI: Other or Multiple Impairments	1.4%	1.9%	1.4%	1.7%	0.91	0.91
No disability reported	90.2%	88.4%	93.1%	92.1%	1.03	1.04

Interpretation

UK-domiciled individuals who report a disability are under-represented at the University of Cambridge compared to in the Higher Education sector. In the most recent three years (entry years 2017 to 2019) all disability types have been under-represented at the collegiate University, but individuals reporting Mental Health conditions or Cognitive and Learning Difficulties are the most under-represented. The levels of representation at the University of Cambridge compared to the Higher Education sector do not appear to have changed considerably in recent years.

1.3 Do individuals who report a disability, or certain types of disability, have a lower entry rate than the overall entry rate for all University of Cambridge applicants?

Approach

The entry rate (that is the percentage of UK-domiciled applicants from a particular group that entered the University of Cambridge) for each disability type has been calculated for each entry year (Table 1.3). Mean entry rates have been calculated for each three year period between 2012 and 2019, and these are reported graphically (Figure 1.3). Entry rates for specific disability types can be compared to the ‘overall’ entry rate (for all UK-domiciled applicants, regardless of disability type) to identify entry rate admissions gaps – that is specific groups of applicants that are more or less likely to enter the collegiate University than would be expected for the overall applicant population. This paper focuses on the negative entry rate gaps observed.

Entry rate

$$\text{Entry rate for Group A} = \frac{\text{Number of University of Cambridge entrants from Group A}}{\text{Number of University of Cambridge applicants from Group A}}$$

Cautions: The small group sizes for many of the disability types mean that there is considerable between-year volatility. Identification of ‘current’ disability entry rate gaps at the collegiate University’s is therefore based on data from the three most recent entry years (2017 to 2019), not the most recent year in isolation. Even then, small group sizes mean that there is considerable between-year fluctuation in entry rate, and therefore identifying whether changes are the result of a fluctuations or a ‘true’ trend is challenging: mean entry rates should be considered alongside the by-year entry rates, and any interpretations made with suitable caution and caveats.

Results

Table 1.3

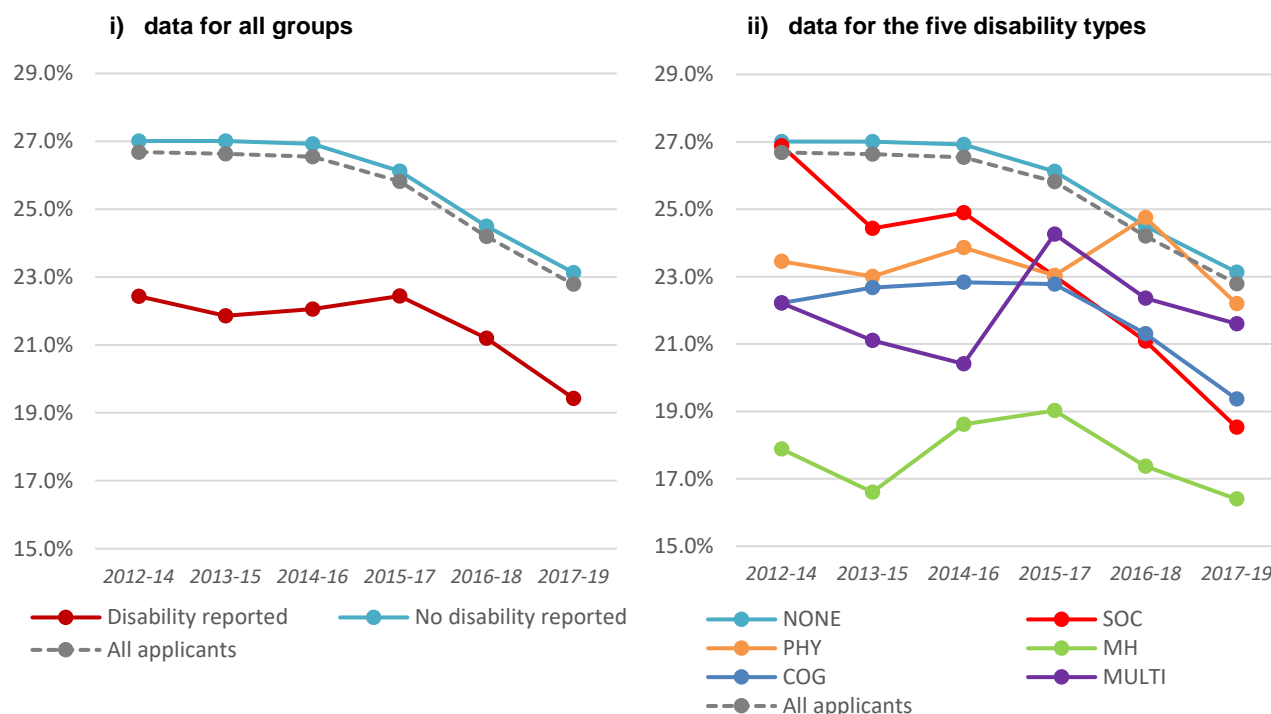
The number of UK-domiciled undergraduate applicants to the University of Cambridge, and their entry rate (that is the percentage of those applicants who entered the collegiate University) by self-reported disability type, for each of the entry years between 2012 and 2019

Percentages reported to 1 d.p. ■ indicates small applicant group size (<100)

Disability type	Entry year															
	2012		2013		2014		2015		2016		2017		2018		2019	
Disability reported	661	24.1%	688	23.0%	755	20.5%	721	22.2%	836	23.3%	934	21.8%	1060	19.0%	1171	17.9%
SOC: Social or Communication	57	28.1%	67	32.8%	88	21.6%	66	19.7%	83	32.5%	103	17.5%	127	16.5%	137	21.2%
PHY: Sensory, Medical or Physical	97	22.7%	106	22.6%	121	24.8%	112	21.4%	119	25.2%	138	22.5%	147	26.5%	134	17.2%
MH: Mental Health	62	22.6%	68	16.2%	88	15.9%	115	17.4%	173	20.8%	164	18.3%	227	14.1%	298	17.1%
COG: Cognitive & Learning Difficulties	317	23.0%	317	21.5%	320	22.2%	298	24.5%	293	21.8%	353	22.1%	335	20.0%	391	16.4%
MULTI: Other or Multiple Impairments	128	26.6%	130	25.4%	138	15.2%	130	23.1%	168	22.6%	176	26.7%	224	18.8%	211	20.4%
No disability reported	8812	27.3%	9280	27.0%	9355	26.7%	9005	27.3%	8936	26.8%	9690	24.4%	10301	22.6%	10902	22.5%
All applicants	9473	27.1%	9968	26.8%	10110	26.2%	9726	26.9%	9772	26.5%	10624	24.2%	11361	22.3%	12073	22.1%

Figure 1.3

The three year moving average entry rates for UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

The entry rate for UK-domiciled University of Cambridge applicants who have reported a disability at the point of application is lower than the overall entry rate for all UK-domiciled applicants (and, by default, applicants who have not reported a disability). The negative entry rate gap appears to have lessened in recent entry years, but nonetheless remains.

There are negative entry rate gaps for all disability types, though the size of these gaps varies. The greatest entry rate gap is for applicants who have reported a Mental Health condition; there are also currently large negative entry rate gaps for applicants who have reported a Cognitive or Learning Difficulty, or a Social or Communication disorder.

The negative entry rate gaps for applicants for most disability types appear to have reduced over recent entry years, the exception being applicants reporting a Social or Communication disorder. However the considerable between-year fluctuations in entry rate (reported in Table 1.3) make it challenging to evaluate whether the entry rate gap is changing with time. This demonstrates the importance of combining data from multiple years rather than examining a single year of data (which could be showing a 'true' trend, or could simply be volatility as a result of expected variation in small group sizes).

1.4 How do disability entry rate gaps at the University of Cambridge compare to disability entry rate gaps in the Higher Education sector as a whole?

Approach

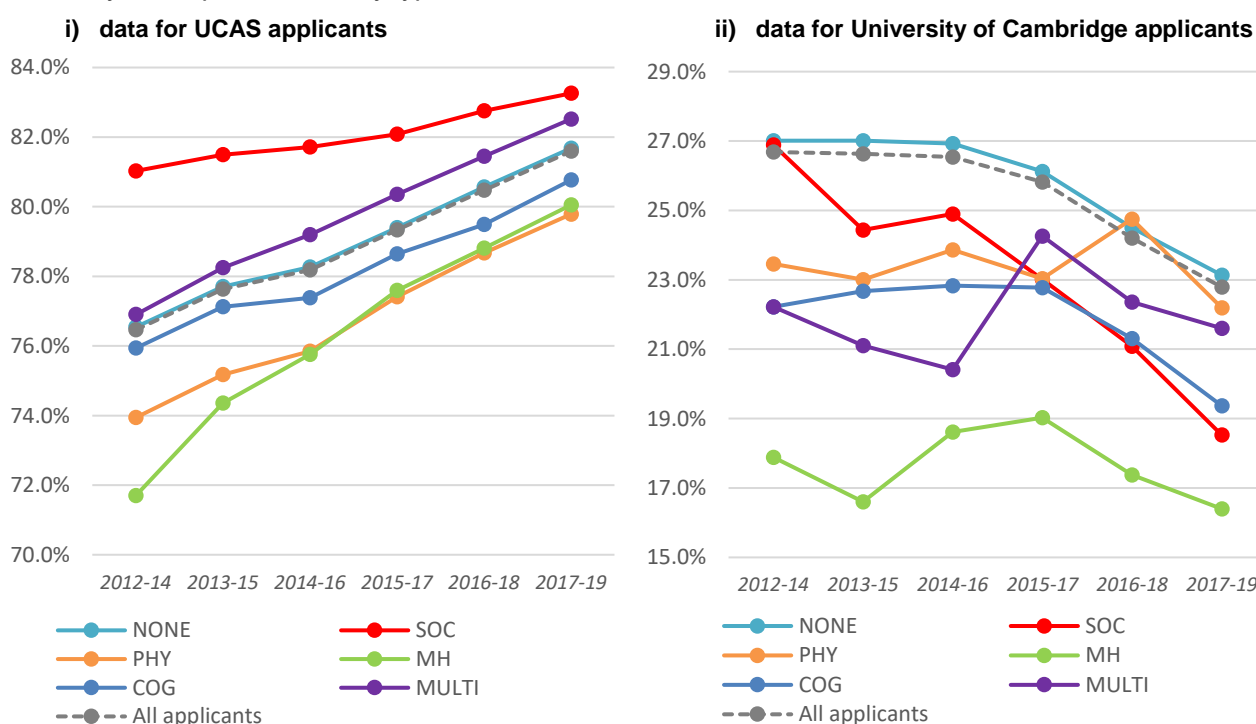
Entry rates for each disability type were calculated for the UK population who applied for Higher Education courses via UCAS; mean entry rates were calculated for each three year period between 2012 and 2019. These are reported graphically (Figure 1.4) and compared to the entry rates for UK-domiciled University of Cambridge applicants (calculations described in Section 1.3). As described in Section 1.3, entry rate admissions gaps for specific disability types can be determined by comparing that group's entry rate to the 'overall' entry rate for all applicants, regardless of disability type.

Cautions: The magnitude of the UCAS applicants' entry rate gaps should not be directly compared to the magnitude of the University of Cambridge applicants' entry rate gaps since these calculations are not based on the same population (the 'overall' entry rate for the two applicant populations is very different).

Results

Figure 1.4

The three year moving average entry rates for applicants applying to undergraduate Higher Education via UCAS and for UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

In recent years there has consistently been a negative entry rate gap across the sector (as well as at the collegiate University) for applicants reporting Mental Health conditions, Sensory, Medical or Physical disabilities, and Cognitive and Learning Difficulties. However whilst at the University of Cambridge there is also a negative entry rate gap for applicants reporting Social or Communication disorders and, to a lesser extent, Other or Multiple Impairments, in the Higher Education sector as a whole these applicants have a higher likelihood of entry than overall (i.e. all UK applicants).

2 Evaluating whether differences in patterns of application contribute to disability admissions gaps at the University of Cambridge

Whilst this paper predominantly focuses on examining what factors underlie the negative disability entry rate gaps described in Section 1.3, entry rate cannot be considered in isolation: variation in patterns of application between different groups will also contribute to under and over-representation at the University of Cambridge. This section therefore considers the following question:

- Are individuals who report a disability, or certain types of disability, less likely to apply to the University of Cambridge than to UK Higher Education institutions as a whole?

2.1 *Are individuals who report a disability, or certain types of disability, less likely to apply to the University of Cambridge than to UK Higher Education institutions as a whole?*

Approach

University of Cambridge applicant data was compared to UCAS applicant data in order to examine the extent to which the reported disability type composition of UK-domiciled applicants to the collegiate University matches that of the UK population who applied for Higher Education courses that recruit through UCAS (Table 2.1). 'Observed to expected application ratios' were calculated for each disability type.

Observed to expected application ratios

$$\text{Observed to expected application ratio for Group A} = \frac{\text{Number of University of Cambridge applicants from Group A}}{\text{Total number of University of Cambridge applicants} \times \% \text{ of Group A in national population}}$$

An observed to expected application ratio of 1.00 indicates that this group make up the same proportion of both populations, and thus their rate of application is as expected.

A ratio **less than 1.00 indicates fewer applications** from this group than might be expected based on the population composition (which may be described here as a lower than expected application rate), whilst a ratio **more than 1.00 indicates more applications** from this group than expected (a higher than expected application rate).

Results

Table 2.1

A comparison of the UCAS applicant population and the University of Cambridge applicant population (in the eight entry years between 2012 and 2019, or the three most recent of those), by self-reported disability type

Percentages reported to 1 d.p.; Observed to expected entrant ratios reported to 2 d.p.

Disability type	% of the UCAS applicant population from group (national data)		% of UK-domiciled University of Cambridge applicants from the group		Ratio of the number of applicants observed to the number of applicants expected (based on the national data)	
	2012-2019 cycles	2017-2019 cycles	2012-2019 entry years	2017-2019 entry years	2012-2019 entry years	2017-2019 entry years
Disability reported	9.9%	11.7%	8.2%	9.3%	0.83	0.80
SOC: Social or Communication	0.7%	0.9%	0.9%	1.1%	1.28	1.18
PHY: Sensory, Medical or Physical	1.4%	1.5%	1.2%	1.2%	0.82	0.80
MH: Mental Health	1.9%	3.0%	1.4%	2.0%	0.74	0.69
COG: Cognitive & Learning Difficulties	4.3%	4.4%	3.2%	3.2%	0.73	0.71
MULTI: Other or Multiple Impairments	1.5%	1.8%	1.6%	1.8%	1.05	0.97
No disability reported	90.1%	88.3%	91.8%	90.7%	1.02	1.03

Interpretation

UK-domiciled individuals who report a disability are currently (and in recent years have been) less likely to apply to the University of Cambridge than to UK Higher Education institutions as a whole. However the collegiate University does receive considerably more applications than might be expected (based on UK UCAS applications) from individuals reporting Social or Communication disorders.

3 Examining the interaction between disability and other characteristics for applicants to the University of Cambridge

This paper predominantly focuses on examining what factors underlie the negative disability entry rate gaps described in Section 1.3. However it is possible that there are interactions between disability and other applicant characteristics (e.g. gender): that is that a greater proportion of applicants from a particular group (e.g. female applicants) have a reported disability than the proportion of applicants from a different group (e.g. male applicants). If applicant characteristics that interact with disability are also significantly associated with likelihood of entry to the collegiate University then these characteristics could potentially be confounding the apparent impact of disability on entry rate. This section therefore considers the following questions:

- Which applicant characteristics interact significantly with disability reporting for University of Cambridge applicants?
- For any characteristics with extensive overlap with disability, is this consistent across the five disability types examined?

3.1 Which applicant characteristics interact significantly with disability reporting for University of Cambridge applicants?

Approach

Two-by-two χ^2 testing was used to test whether there is a significant association between applicants reporting a disability (or not reporting a disability) and each of a number of applicant characteristics that could potentially influence likelihood of entry to the University of Cambridge (Table 3.1). For each characteristic χ^2 testing was performed for all eight entry years examined in this paper combined, and for the three most recent of these (2017 to 2019).

Two-by-two Chi square (χ^2) testing

The two-by-two χ^2 test is used to test the association between two categorical variables.

For example these categorical variables could be 'disability reported' (applicants either report a disability, or do not) and 'mature status' (applicants are either aged 21 years or over, or they are not).

The χ^2 test tests the null hypothesis that the two variables are independent of each other.

In the example above the χ^2 test therefore tests the null hypothesis that whether UK-domiciled applicants have a reported disability is independent of whether are a mature applicant: that is that the proportion of applicants aged 21 years or over reporting a disability is the same as the proportion of applicants aged under 21 years reporting a disability.

In this paper the results of the χ^2 tests are reported as p-values: the probability that any association seen has occurred due to chance. A p-value less than 0.05 indicates that the null hypothesis can be rejected and that it is unlikely the association seen is due to chance: i.e. **a p-value less than 0.05 suggests that the association seen is statistically significant**. The smaller the p-value the more statistically significant the association.

Results

Table 3.1

The proportion of applicants with different characteristics reporting a disability (both for the last eight entry years and for the three most recent entry years) and the p value, if significant, of the two-by-two X² testing used to examine the strength of these associations.

Percentages reported to 1 d.p.; p value reported if significant at the 0.05 level

Q = quintile; BAME = Black, Asian and Minority Ethnic

Applicant characteristic		Current entry rate gap ⁵	Last 8 entry years (2012-2019)		Last 3 entry years (2017-2019)	
			% reporting disability	p value	% reporting disability	p value
Gender	Male	↓ (negative)	7.9%	0.02	8.7%	<0.01
	Female	↑ (positive)	8.5%		9.9%	
Mature	<21 years old	↑ (positive)	7.7%	<0.01	8.8%	<0.01
	21+ years old	↓ (negative)	20.2%		23.9%	
Deferred Entry	Yes	Not examined	8.6%	Not significant	11.2%	0.02
	No		8.2%		9.2%	
POLAR4 flag	Yes (Q1/2)	↓ (negative)	9.0%	<0.01	10.4%	<0.01
	No (Q3/4/5)	↑ (positive)	8.1%		9.1%	
IMD flag	Yes (Q1/2)	↓ (negative)	7.9%	Not significant	8.5%	<0.01
	No (Q3/4/5)	↑ (positive)	8.3%		9.5%	
Ethnicity (White/BAME)	White	↑ (positive)	8.9%	<0.01	10.3%	<0.01
	BAME	↓ (negative)	5.4%		6.4%	

Interpretation

A number of applicant characteristics are shown to be significantly associated with disability for UK-domiciled University of Cambridge applicants. The between-group differences in the proportion of applicants reporting a disability is most stark for applicant age: in the three most recent entry years 23.9% of 'mature' applicants (those aged 21 years or over) reported a disability compared to 8.8% of applicants under 21 years.

Having reported a disability is associated with a lower likelihood of entering the collegiate University (Table 1.3), therefore where an applicant characteristic is significantly associated with disability and the group with the higher proportion of applicants reporting a disability also have a negative entry rate gap (e.g. mature applicants) there is the potential that the apparent disability entry rate gap may actually in part be reflecting that group's entry rate gap (e.g. the entry rate gap for mature applicants) – without more in depth analysis it is impossible to tease apart which, or both, characteristics are driving the gap. By contrast where an applicant characteristic is significantly associated with disability but the group with the higher proportion of applicants reporting a disability have a positive entry rate gap (e.g. female applicants) there is the potential that the interaction of characteristics have a masking effect on the disability entry rate gap. Additional analysis would therefore be required to examine the extent to which entry rate gaps seen for individual characteristics are indeed due to that specific characteristic.

⁵ R.Sequeira (August 2019) *Self-assessment for the 2020-21 to 2024-25 Access and Participation Plan*
https://www.cao.cam.ac.uk/sites/www.cao.cam.ac.uk/files/2019_entry_rate_self-assessment_paper.pdf

3.2 *For any characteristics with extensive overlap with disability, is this consistent across the five disability types examined?*

Approach

As Section 3.1 showed, there is a considerable difference in the proportion of mature and ‘young’ (under 21 years) applicants who reported a disability. Therefore the proportions of both mature and young UK-domiciled University of Cambridge applicants who reported each of the five types of disability were determined, both for the last eight entry years and the three most recent entry years (Table 3.2). For the three most recent entry years the percentage of those reporting each disability type who were mature applicants and who were young applicants were also examined (Figure 3.2a), and ‘adjusted’ entry rates have been recalculated for the young UK-domiciled applicant population only (Figure 3.2b).

Results

Table 3.2

A comparison of the mature and young University of Cambridge applicant population (in the eight entry years between 2012 and 2019, or the three most recent of those), by self-reported disability type

Percentages reported to 1 d.p.

Disability type	% of mature (21 years and over) UK-domiciled University of Cambridge applicants from the group		% of young (under 21 years) UK-domiciled University of Cambridge applicants from the group	
	2012-2019 entry years	2017-2019 entry years	2012-2019 entry years	2017-2019 entry years
Disability reported	20.2%	23.9%	7.7%	8.8%
SOC: Social or Communication	1.4%	2.5%	0.9%	1.0%
PHY: Sensory, Medical or Physical	2.3%	1.6%	1.1%	1.2%
MH: Mental Health	6.4%	7.7%	1.2%	1.8%
COG: Cognitive & Learning Difficulties	6.0%	7.1%	3.0%	3.0%
MULTI: Other or Multiple Impairments	4.0%	5.0%	1.5%	1.7%
No disability reported	79.8%	76.1%	92.3%	91.2%

Figure 3.2a

A comparison of the age composition of the University of Cambridge applicant population (in the three most recent entry years, 2017 to 2019), both overall and by self-reported disability type

Percentages reported to 1 d.p.

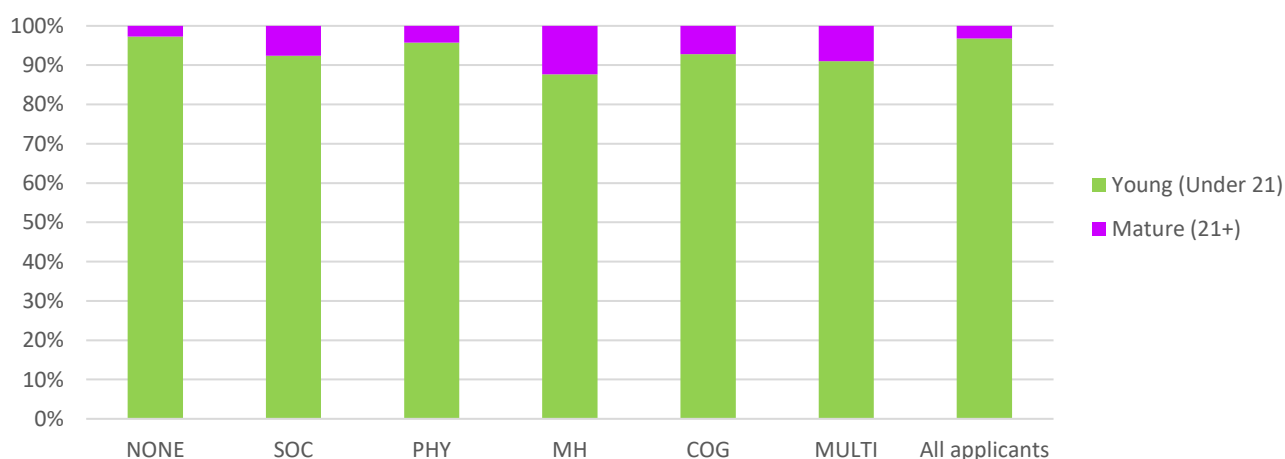
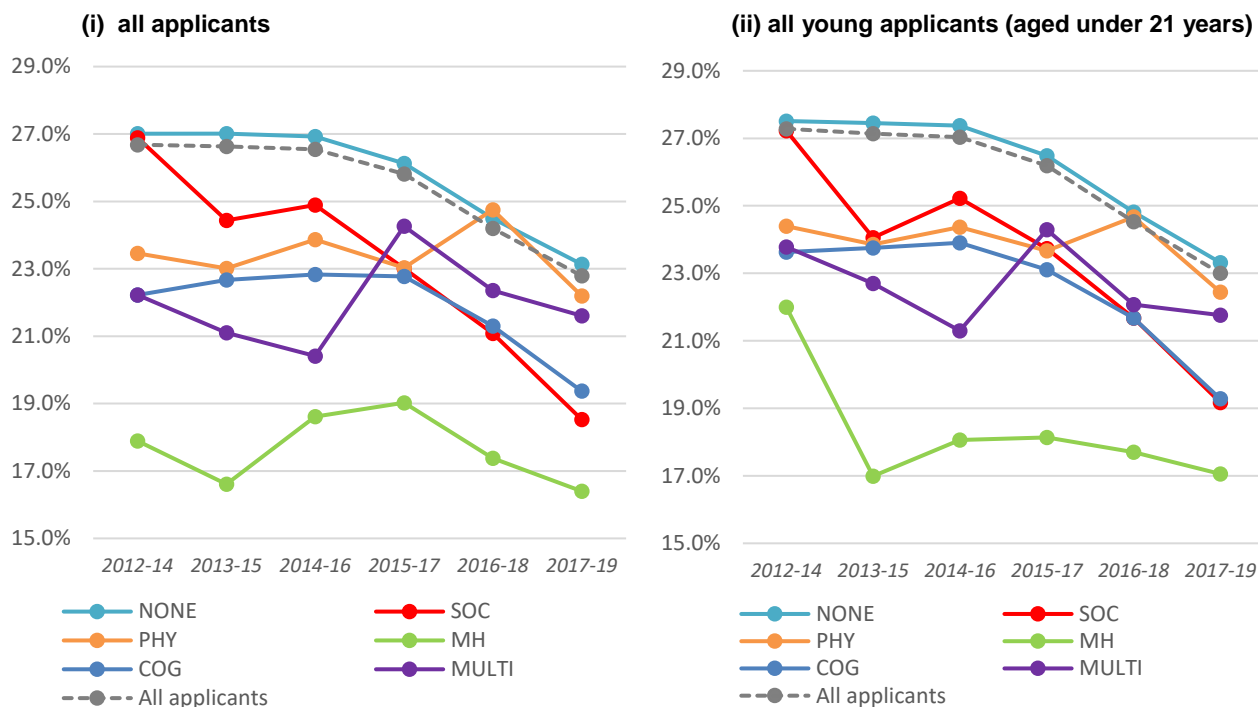


Figure 3.2b

The three year moving average entry rates for UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

The proportion of mature applicants reporting a disability is greater than the proportion of young applicants reporting a disability for each of the five disability types. Cognitive and Learning Difficulties are the most commonly reported disability type for young applicants, compared to Mental Health conditions for mature applicants (with Cognitive and Learning Difficulties a close second).

The age composition of each disability type varies compared to the composition of the overall UK-domiciled University of Cambridge applicant composition for the 2017 to 2019 entry years, in which 3.2% of applicants were mature. Some disability types have a much larger mature applicant composition than others: 12.3% of applicants who reported Mental Health conditions were mature, compared to 4.3% of applicants who reported Sensory, Medical or Physical disabilities. It is important to be aware of these differences when interpreting disability entry rate gaps: any factors which particularly impact mature applicants are likely to have a greater influence on the Mental Health conditions entry rate gap than the Sensory, Medical or Physical disabilities entry rate gap. Many of the analyses conducted to examine what factors underlie the disability entry rate gaps have therefore been restricted to young applicants (aged under 21 years), since this enables potential causes of the (young applicant) disability entry rate gap to be identified, rather than potential causes of the mature and/or disability entry rate gap. As Figure 3.2b shows, there is minimal difference between the disability type entry rate gaps for all applicants, and those young applicants only – unsurprising given the very small proportion of mature applicants to the University of Cambridge.

4 Evaluating whether differences in Key Stage 5 qualification type contribute to the disability admissions gaps at the University of Cambridge

The rest of the analyses reported in this paper focus on examining whether a number of factors underlie the disability entry rate gaps observed because, as Section 1.3 described, it appears that (regardless of the number of individuals applying) applicants reporting a disability, and in particular certain types of disability, are less likely to be admitted to the collegiate University than applicants from other groups. This section therefore considers the following questions:

- Does not having a standard UK Key Stage 5 qualification profile contribute to the young applicants' disability entry rate gaps at the University of Cambridge?
- Why are young applicants reporting a disability less likely to have a standard UK Stage 5 qualification profile than those not reporting a disability?

4.1 *Does not having a standard UK Key Stage 5 qualification profile contribute to the young applicants' disability entry rate gaps at the University of Cambridge?*

Approach

Applicants were considered to have a 'standard UK Key Stage 5 qualification profile' (standard for the collegiate University) if they had one of the following Key Stage 5 qualification profiles:

- three or more A Levels (excluding General Studies or Critical Thinking);
- a combination of A Levels and Pre U (in at least three subjects);
- International Baccalaureate;
- Advanced Highers;
- another combination of the above.

The proportions of both young and mature UK-domiciled University of Cambridge applicants who did not have standard UK Key Stage 5 qualifications (Table 4.1a) are reported by disability type; further breakdown of the types of standard UK Key Stage 5 qualifications are also reported for young applicants (Table 4.1b). 'Adjusted' entry rates have been recalculated for the young UK-domiciled applicant population with standard UK Key Stage 5 qualification profiles only (Figure 4.1), in order to examine the impact that having a non-standard qualification profile has on young applicants' disability entry rate gaps.

Cautions: The dataset used for these analyses only contains details of A Levels taken since the A reform was introduced, therefore if applicants have taken A Levels a number of years before applying to the collegiate University (likely to be of particular relevance for mature applicants) they may falsely be recorded as not having a standard UK Key Stage 5 qualification profile. The majority of the analyses reported in this section are for young applicants only so the potential impact of this is minimal, however for safety the entry rate gap analyses reported in this section commence for applicants for the 2013 entry year, since by this year it would be highly unusual for a young applicant to have completed any A Levels prior to the A* reform.*

Results

Table 4.1a

The percentage of UK-domiciled undergraduate University of Cambridge applicants from each self-reported disability type who did not have a standard UK Key Stage 5 qualification profile (in the eight entry years between 2012 and 2019, or the three most recent of those).

Percentages reported to 1 d.p.

Disability type	% of mature (21 years and over) applicants who did not have a standard qualification profile		% of young (under 21 years) applicants who did not have a standard qualification profile	
	2012-2019 entry years	2017-2019 entry years	2012-2019 entry years	2017-2019 entry years
Disability reported	80.0%	81.4%	4.4%	4.9%
SOC: Social or Communication	73.9%	71.4%	3.1%	4.4%
PHY: Sensory, Medical or Physical	80.0%	88.9%	4.0%	3.0%
MH: Mental Health	80.8%	84.7%	7.5%	7.9%
COG: Cognitive & Learning Difficulties	84.7%	82.1%	3.3%	3.5%
MULTI: Other or Multiple Impairments	73.8%	78.2%	5.0%	5.6%
No disability reported	82.5%	84.0%	2.3%	2.1%

Table 4.1b

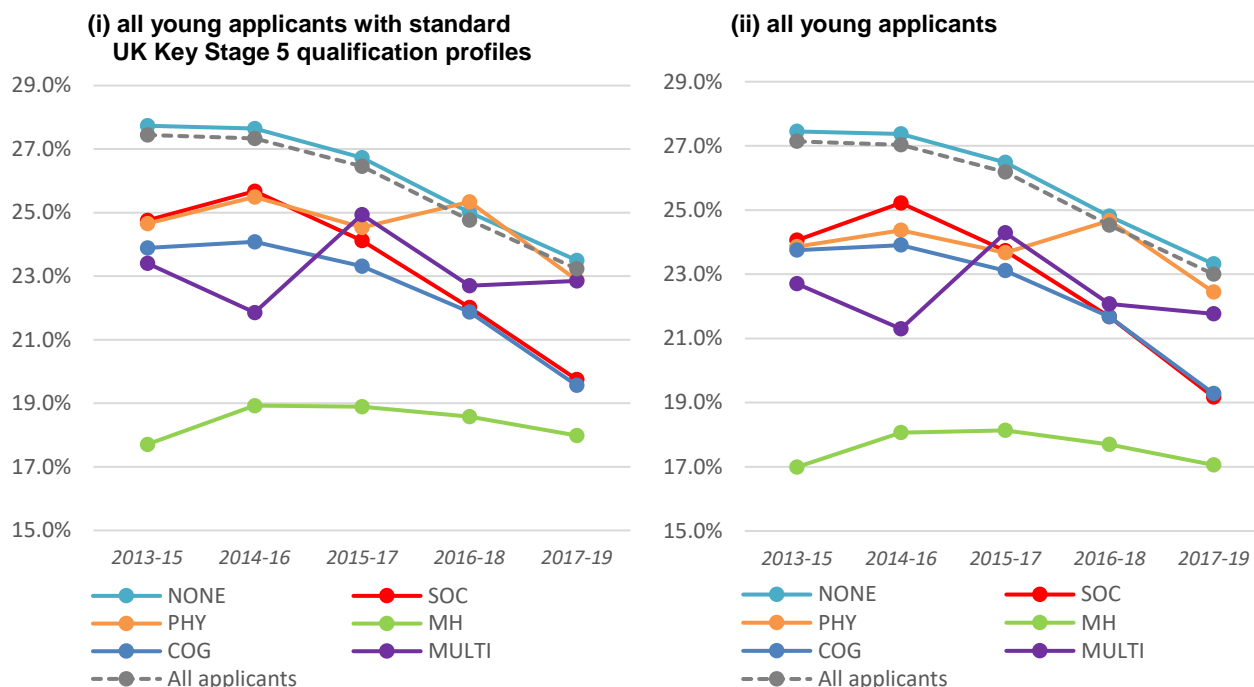
*The Key Stage 5 qualification profiles for **young** UK-domiciled undergraduate University of Cambridge applicants between the 2012 and 2019 entry years, by self-reported disability type*

Percentages reported to 1 d.p.

Disability type	Standard UK Key Stage 5 qualification profiles					Non-standard UK Key Stage 5 qualification profile
	3+ A Levels	A Levels and Pre U	International Baccalaureate	Advanced Highers	Other combination of these	
Disability reported	86.1%	4.9%	2.2%	2.3%	0.2%	4.4%
SOC: Social or Communication	89.9%	2.3%	1.2%	3.5%	0.0%	3.1%
PHY: Sensory, Medical or Physical	86.8%	4.3%	2.3%	1.9%	0.7%	4.0%
MH: Mental Health	85.6%	4.3%	1.2%	1.3%	0.1%	7.5%
COG: Cognitive & Learning Difficulties	84.7%	6.5%	2.8%	2.5%	0.2%	3.3%
MULTI: Other or Multiple Impairments	86.6%	3.7%	2.5%	2.0%	0.1%	5.0%
No disability reported	87.8%	4.5%	2.6%	2.6%	0.2%	2.3%

Figure 4.1

The three year moving average entry rates for **young** UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

Analysis using two-by-two χ^2 testing (both for all seven entry years examined in this paper combined, and for the three most recent of these) shows that, for UK-domiciled applicants, there is a significant association between having a standard UK Key Stage 5 qualification profile and entry to the University of Cambridge ($p < 0.01$), and that this is not simply a consequence of these applicants' likelihood of meeting the conditions of any offer made. It therefore follows that if individuals reporting certain types of disability are less likely to have a standard UK qualification profile than others, this could contribute to the disability entry rate gaps at the University of Cambridge.

These results show that mature applicants are considerably less likely to have a standard UK Key Stage 5 qualification profile than young applicants, and that overall a greater proportion of mature applicants who reported a disability had a standard qualification profile than those who did not. By contrast, young applicants who have reported a disability are significantly more likely to have non-standard UK Key Stage 5 qualification profiles than those who did not; this is true for all disability types, but in particular for applicants reporting Mental Health conditions. When the specific Key Stage 5 qualification types taken are examined there are also some differences by disability type: for example applicants reporting Cognitive and Learning Difficulties appear more likely to take a combination of A Levels/Pre U rather than solely A Levels, whilst applicants from all disability types except Social or Communication disorders are less likely to have attained three or more A Levels.

Adjusting entry rate to exclude applicants with non-standard UK Key Stage 5 qualification profiles shows that non-standard UK Key Stage 5 qualification profiles are contributing to the entry rate gaps for applicants reporting Mental Health conditions and those reporting Other or Multiple Impairments. For the Other or Multiple Impairments group (whose young entry rate gap is small) this reduces the gap noticeably, however for applicants reporting Mental Health conditions a large amount of the entry rate gap remains unexplained.

4.2 Why are young applicants reporting a disability less likely to have a standard UK Key Stage 5 qualification profile than those not reporting a disability?

Approach

It is possible that the greater proportion of young applicants reporting a disability having a non-standard UK Key Stage 5 qualification profile (compared to young applicants not reporting a disability) simply reflects that these applicants are more likely to have chosen alternative Key Stage 5 qualifications. However is it also possible that this difference could reflect young applicants who reported a disability being more likely to have studied fewer qualifications (e.g. fewer than three A Levels) and/or them having not taken all the qualifications that were initially intended (e.g. having been predicted three A Levels, but only attaining two).

In order to explore this the percentage of young applicants (who did not also attain other standard UK Key Stage 5 qualifications - that is Pre U, International Baccalaureate or Advanced Highers - although may have had other non-standard qualifications) attaining different numbers of A Levels was examined, including a breakdown by disability type (Table 4.2a). In addition the percentage of young applicants who were predicted three A Levels but did not go on to attain three A Levels (and again attained no other standard UK Key Stage 5 qualifications) was also considered (Table 4.2b).

Cautions: As noted in Section 4.1, these analyses only report data for the seven most recent entry years (2013 to 2019) in order to minimise any potential impact of applicants completing A Levels prior to the A reform. In addition it should be noted that not all applicants have predicted grade data available, and therefore the second analysis could only be conducted for a subsection of the applicant population.*

Results

Table 4.2a

The number of A Levels attained by **young** UK-domiciled undergraduate University of Cambridge applicants who did not attain non-A Level standard UK Key Stage 5 qualifications (Pre U, International Baccalaureate, Advanced Highers) between the 2013 and 2019 entry years, by self-reported disability type

Percentages reported to 1 d.p.

Disability type	Number of A Levels attained			
	0	1	2	3+
Disability reported	3.5%	0.6%	1.0%	94.9%
SOC: Social or Communication	2.6%	0.5%	0.5%	96.4%
PHY: Sensory, Medical or Physical	2.8%	0.7%	0.8%	95.7%
MH: Mental Health	5.7%	0.8%	1.6%	91.9%
COG: Cognitive & Learning Difficulties	3.0%	0.2%	0.7%	96.0%
MULTI: Other or Multiple Impairments	3.4%	1.2%	1.1%	94.2%
No disability reported	2.0%	0.1%	0.3%	97.5%

Table 4.2b

*The number and proportion of the **young** UK-domiciled undergraduate University of Cambridge applicants between the 2013 and 2019 entry years who were predicted to attain three or more A Levels but attained fewer than three A Levels (and no other standard UK Key Stage 5 qualifications), by self-reported disability type*

Percentages reported to 1 d.p.

Disability type	<i>The number of those predicted to attain three or more A Levels who did not</i>	<i>The proportion of young applicants predicted to attain three or more A Levels who did not</i>
Disability reported	113	2.3%
SOC: Social or Communication	11	1.9%
PHY: Sensory, Medical or Physical	15	2.1%
MH: Mental Health	41	5.2%
COG: Cognitive & Learning Difficulties	19	1.1%
MULTI: Other or Multiple Impairments	27	2.9%
No disability reported	276	0.4%

Interpretation

The proportion of young UK-domiciled University of Cambridge applicants reporting a disability having attained fewer than three A Levels (but no other standard UK Key Stage 5 qualifications) is greater than the proportion of young applicants not reporting a disability for whom this is true. Applicants who reported Mental Health conditions or Other or Multiple Impairments appear particularly likely to have attained A Levels but not enough to make them an 'A Level taker'.⁶ However even for these disability types, and for the other types, most young applicants who attained fewer than three A Levels did not attain any A Levels. This suggests that, regardless of whether applicants reported a disability or not, for the majority of young applicants who have a non-standard UK Key Stage 5 qualification profile this is predominantly due to Key Stage 5 qualification type choice rather than limitations of the number of A Levels the applicants were able to attain.

There is some evidence that young UK-domiciled applicants who reported a disability may have been more likely to not attain all the A Level qualifications that they initially intended (and were predicted); this is particularly apparent for applicants reporting Mental Health conditions. However in practice only a very small number of applicants were in this position; this is therefore unlikely to contribute considerably to the disability entry rate gaps seen.

⁶ A Level taking is here defined as having attained three or more A Levels and no other standard UK Key Stage 5 qualifications: Pre U, Advanced Highers or the International Baccalaureate

5 Evaluating whether differences in academic attainment contribute to disability admissions gaps at the University of Cambridge

This section focuses on young A Level taking applicants.⁷ A Level takers account for the majority of the UK-domiciled University of Cambridge applicant population, however since there is some variation in the proportion of A Level takers by disability (as discussed in Section 4), the proportion of the population included in these analyses will vary slightly for different disability types. This section considers the following question:

- Does A Level performance contribute to the young applicants' disability entry rate gaps at the University of Cambridge?

5.1 Does A Level performance contribute to the young applicants' disability entry rate gaps at the University of Cambridge?

Approach

Previous research has shown that the disability composition of the 18 year old UK population attaining A*AA or higher at A Level differs from the overall composition of the 18 year old UK population.^{8;9} The University of Cambridge has very high A Level entrance requirements (A Level offers are typically A*A*A or A*AA depending on the course applied for); it is therefore logical that applicants' A Level attainment may contribute to some of the disability admissions gaps seen. It is possible to examine the impact that A Level attainment has on the young applicant disability entry rate gaps at the University of Cambridge by comparing the entry rate for the whole A Level-taking, UK-domiciled University of Cambridge young applicant population with 'adjusted' entry rates recalculated using only the A Level-taking UK-domiciled young applicant population who attained high A Level grades (Figures 5.1a and 5.1b).

Cautions: The dataset used for these analyses only contains details of A Levels taken since the A reform was introduced, therefore if applicants have taken A Levels a number of years before applying to the collegiate University (likely to be of particular relevance for mature applicants) they may falsely be recorded as not having a standard UK Key Stage 5 qualification profile. The majority of the analyses reported in this section are for young applicants only so the potential impact of this is minimal, however for safety the entry rate gap analyses reported in this section commence for applicants for the 2013 entry year, since by this year it would be highly unusual for a young applicant to have completed any A Levels prior to the A* reform.*

⁷ A Level taking is here defined as having attained three or more A Levels and no other standard UK Key Stage 5 qualifications: Pre U, Advanced Highers or the International Baccalaureate

⁸ Access and Participation Plan 2020-21 to 2024-25
https://www.undergraduate.study.cam.ac.uk/files/publications/university_of_cambridge_app_2020_25.pdf

⁹ HESA Student Record 2016/17 data used to generate these analyses. Copyright Higher Education Statistics Agency Limited. Neither the Higher Education Statistics Agency Limited nor HESA Services Limited can accept responsibility for any inferences or conclusions derived by third parties from data or other information supplied by HESA Services.

Results

Figure 5.1a

The three year moving average entry rates for **young** A Level-taking UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type

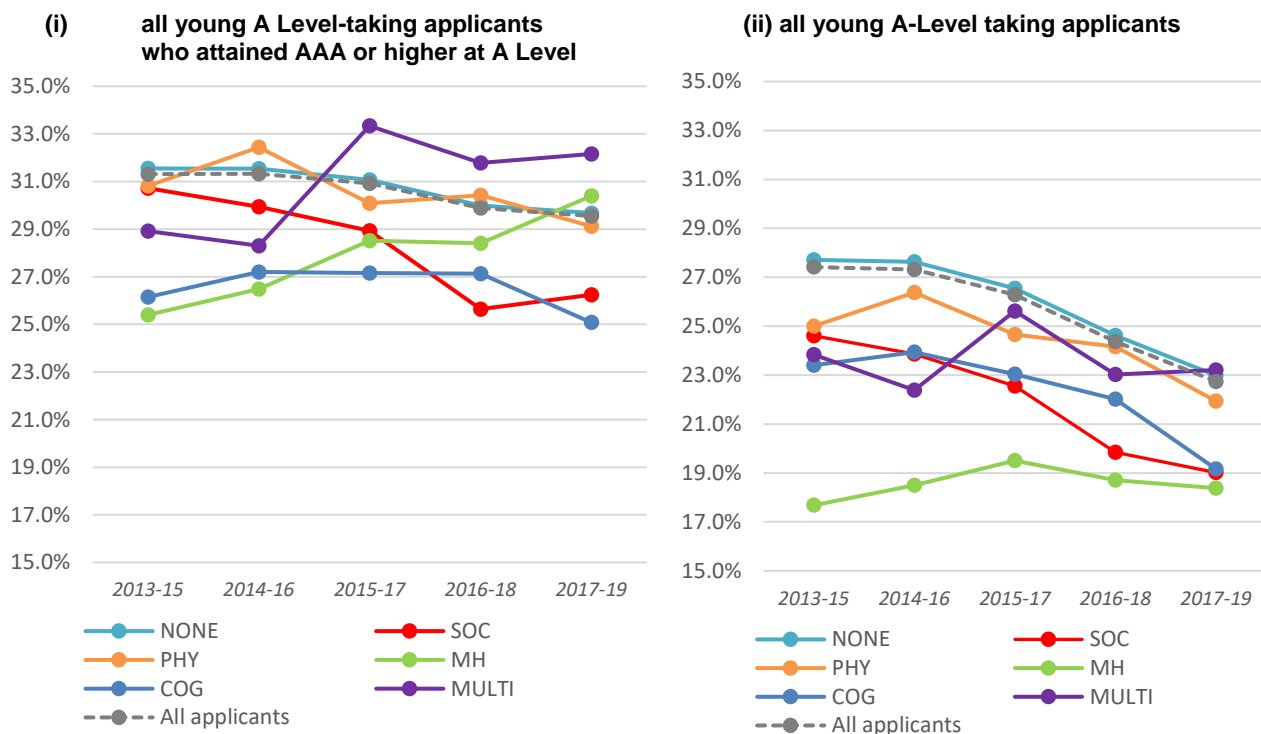
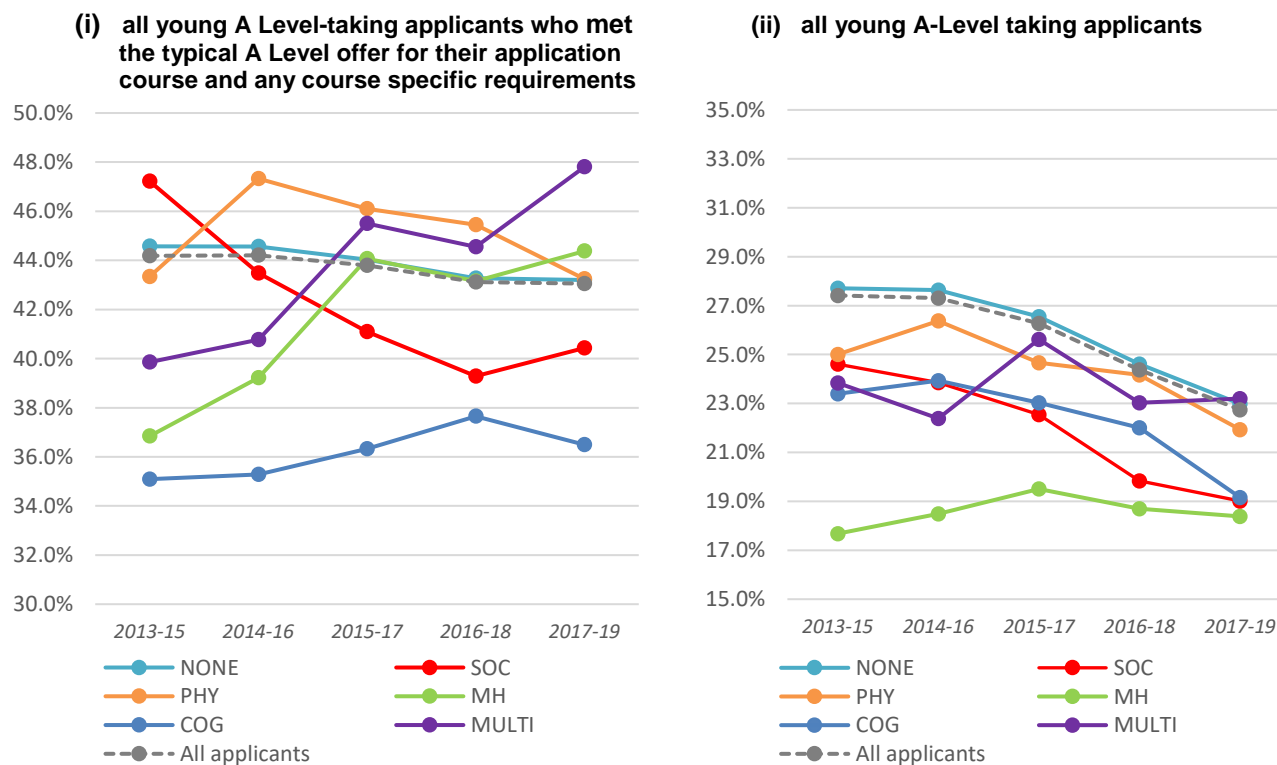


Figure 5.1b

The three year moving average entry rates for **young** A Level-taking UK-domiciled undergraduate applicants (excluding Mathematics applicants, due to the additional STEP requirements) to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

Adjusting entry rate to exclude UK-domiciled young A Level-taking applicants who did not attain AAA or higher at A Level shows that A Level attainment is contributing to some of the current (2017 to 2019) young disability type entry rate gaps: when A Level attainment is accounted for the 2017 to 2019 entry rates for applicants reporting Sensory, Medical or Physical disabilities, Mental Health conditions and Other or Multiple Impairments all increase to at least equal (and in some cases exceed) the overall entry rate for UK-domiciled young A Level-taking applicants. However negative entry rate gaps remain for applicants reporting Cognitive and Learning Difficulties or Social or Communication disorders, even when only applicants attaining AAA or higher at A Level are considered.

Adjusting entry rates based on whether young A Level-taking, UK-domiciled applicants to the University of Cambridge met the typical A Level offer for their application course, and any subject requirements listed in the prospectus (such as an A or A* in Maths A Level) shows similar patterns: most notably negative entry rate gaps remain for applicants reporting Cognitive and Learning Difficulties or Social or Communication disorders. However it should be noted that Mathematics applicants were excluded from this analysis as their offers typically also include a condition based on STEP results, and as analysis reported later (in Section 7.1) indicates, applicants with Social or Communication disorders are particularly likely to apply for Mathematics – therefore the ability to interpret the changes in entry rate shown in Figure 5.1b is limited for this group.

6 Evaluating whether differences in offer rate contribute to disability admissions gaps at the University of Cambridge

This section also focuses on young applicants. Analyses reported in this paper have shown that there is variation in the likelihood of young applicants who reported different disability types entering the collegiate University. However these differences could reflect that applicants reporting some disability types are less likely to be made an offer, or that they are less likely to accept and/or meet the conditions of that offer (or both). In order to evaluate whether disability type affects the likelihood that young UK-domiciled applicants receive an offer from the University of Cambridge, offer rates can be calculated and compared. This section considers the following questions:

- Are there also negative offer gaps for young applicants with disability types that are known to have current negative entry rate gaps?
- Are disability offer gaps for young applicants also affected by applicants' A Level attainment?

6.1 *Are there also negative offer gaps for young applicants with disability types that are known to have current negative entry rate gaps?*

Approach

Mean offer rates (that is the percentage of young UK-domiciled applicants from a particular group that were made an offer by the University of Cambridge) for each disability type have been calculated for eight entry years between 2012 and 2019, and these are reported graphically (Figure 6.1). Offer rates for specific disability types can be compared to the 'overall' young applicant offer rate (for all young UK-domiciled applicants, regardless of disability type) to identify offer rate gaps – that is specific groups of applicants that are more or less likely to be made an offer by the collegiate University than would be expected for the overall applicant population.

Offer rate

$$\text{Offer rate for Group A} = \frac{\text{Number of University of Cambridge offer holders from Group A}}{\text{Number of University of Cambridge applicants from Group A}}$$

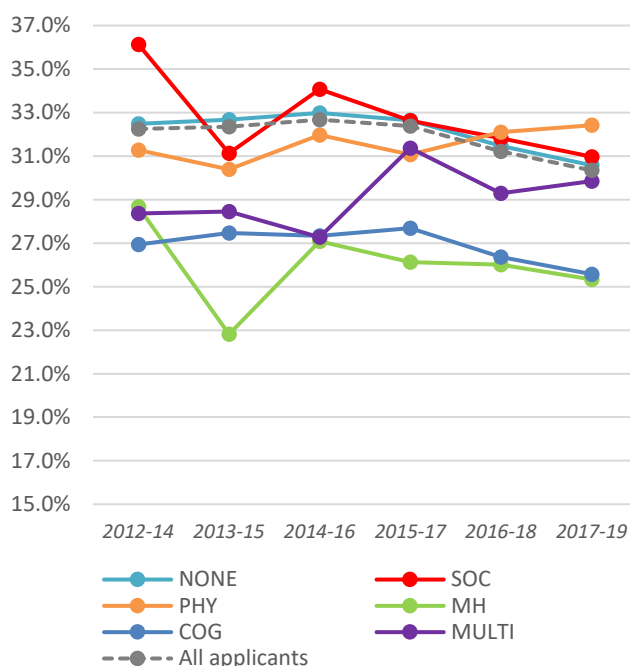
Cautions: The small group sizes for many of the disability types mean that there is considerable between-year volatility. Identification of 'current' disability offer rate gaps at the collegiate University's is therefore based on data from the three most recent entry years (2017 to 2019), not the most recent year in isolation. Even then, small group sizes mean that there is considerable between-year fluctuation in offer rate.

Results

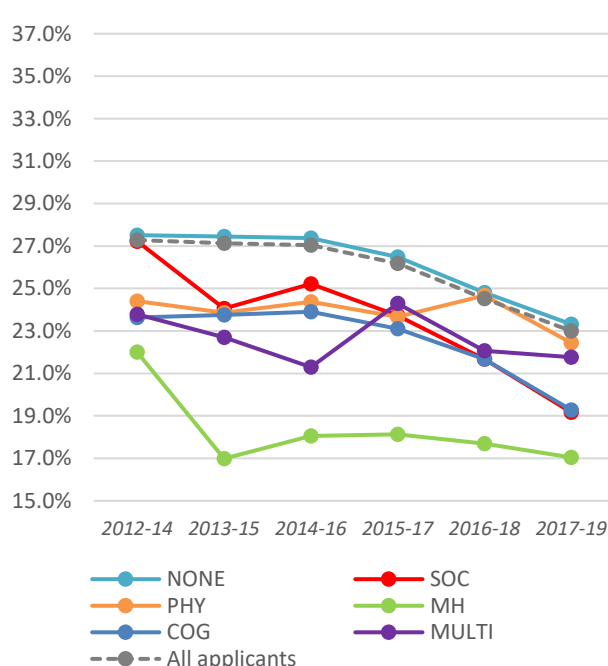
Figure 6.1

A comparison of the three year moving average offer rates and entry rates for **young** UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type

(i) offer rates for all young UK-domiciled applicants



(ii) entry rates for all young UK-domiciled applicants



Interpretation

Whilst there are currently considerable negative entry rate gaps for three disability types in particular (applicants with Mental Health conditions, Cognitive and Learning Difficulties, and Social or Communication disorders) there are only negative offer rate gaps for young UK-domiciled applicants reporting Mental Health conditions and Cognitive and Learning Difficulties. This suggests that unlike some of the disability entry rate gaps seen (which reflect these applicants being less likely to receive an offer) young UK-domiciled applicants reporting Social or Communication disorders have a similar, or higher, likelihood of receiving an offer as all young UK-domiciled applicants – but are less likely to go on to enter the University. This may indicate that these applicants are less likely to meet the conditions of any offer received.

6.2 Are disability offer gaps for young applicants also affected by applicants' A Level attainment?

Approach

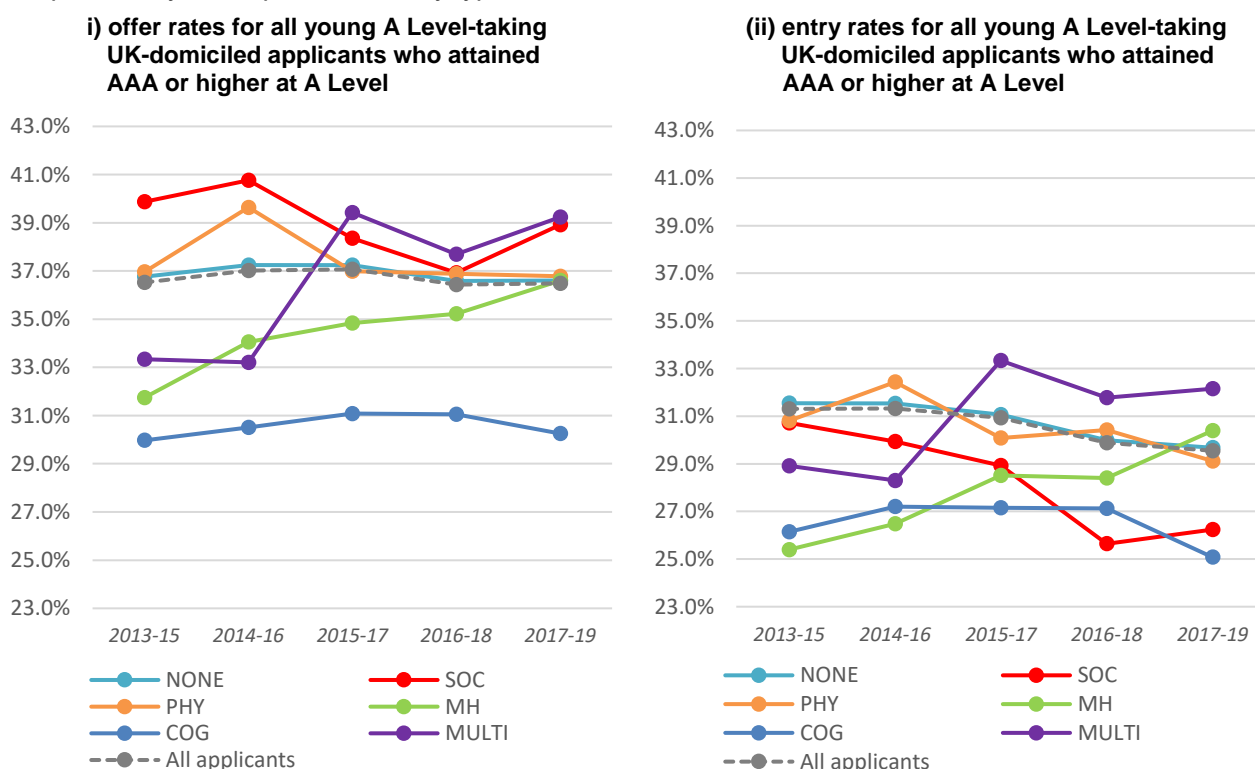
Applicants' A Level attainment has been shown to influence the young entry rate gaps for some disability types (Section 5.1) therefore it stands to reason that offer rate gaps may be impacted similarly. This was examined by comparing offer rates for the A Level-taking, UK-domiciled University of Cambridge young applicant population who attained AAA or higher at A Level with the entry rates for the same population (Figure 6.2).

Cautions: As noted in Section 5.1, these analyses only report data for the seven most recent entry years (2013 to 2019) in order to minimise any potential impact of applicants completing A Levels prior to the A reform. In addition, the small group sizes for many of the disability types mean that there is considerable between-year volatility. Identification of 'current' disability offer rate gaps at the collegiate University's is therefore based on data from the three most recent entry years (2017 to 2019), not the most recent year in isolation.*

Results

Figure 6.2

A comparison of the three year moving average offer rates and entry rates for **young** A Level-taking, AAA or higher attaining, UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

When A Level attainment is accounted for the negative entry rate gap for applicants reporting Mental Health conditions no longer exists, and this is also true for the offer rate for this group. This suggests that whilst young, A Level-taking, UK-domiciled University of Cambridge applicants who reported Mental Health conditions are less likely to receive an offer to (and enter) the collegiate University, this largely reflects lower A Level attainment in this group. However A Level attainment does not appear to explain why young UK-domiciled applicants who reported Cognitive and Learning

Difficulties are less likely to be made an offer to (and subsequently to enter) the collegiate University. A level attainment also does not explain why young UK-domiciled applicants who report Social or Communication disorders have a high likelihood of being made an offer, but a lower than expected likelihood of entry – although this may indicate that these individuals are failing to meet other conditions of their offer (for example STEP conditions for Mathematics applicants) and therefore this could relate to the courses these applicants apply for. This will be examined further in Section 7.

Table 7

Classifications used in this paper when the University of Cambridge undergraduate courses are grouped by University school or by applicants per place (competitiveness)

Q = quintile

Code	Course Name	School	Competitiveness
A100	Medicine	Clinical Medicine	Q3
BCF0 (B)	Natural Sciences - Biological	Biological Sciences	Q2
BCF0 (P)	Natural Sciences - Physical	Physical Sciences	Q2
C800	PBS (Psychological and Behavioural Sciences)	Biological Sciences	Q5 (most)
D100	Veterinary Medicine	Biological Sciences	Q2
G100	Mathematics	Physical Sciences	Q4
G400	Computer Science	Technology	Q5 (most)
H100	Engineering	Technology	Q4
H810	Chemical Engineering via Engineering	Technology	Q5 (most)
H813	Chemical Engineering via Nat Sci Phys	Physical Sciences	Q5 (most)
K100	Architecture	Arts & Humanities	Q5 (most)
KL41	Land Economy	Humanities & Social Sciences	Q2
L000	HSPS (Human, Social, and Political Sciences)	Humanities & Social Sciences	Q3
L100	Economics	Humanities & Social Sciences	Q5 (most)
L700	Geography	Physical Sciences	Q1 (least)
M100	Law	Humanities & Social Sciences	Q3
Q100	Linguistics	Arts & Humanities	Q1 (least)
Q300	English	Arts & Humanities	Q1 (least)
Q800	Classics - 3 year course	Arts & Humanities	Q1 (least)
Q801	Classics - 4 year course	Arts & Humanities	Q1 (least)
QQ59	ASNC (Anglo-Saxon, Norse, and Celtic)	Arts & Humanities	Q1 (least)
R800	MML (Modern and Medieval Languages)	Arts & Humanities	Q1 (least)
TT46	AMES (Asian and Middle Eastern Studies)	Arts & Humanities	Q1 (least)
V100	History	Humanities & Social Sciences	Q1 (least)
V350	History of Art	Arts & Humanities	Q2
V400	Archaeology	Humanities & Social Sciences	Q1 (least)
V500	Philosophy	Arts & Humanities	Q3
V600	Theology, Religion and Philosophy of Religion	Arts & Humanities	Q1 (least)
VL12	History and Politics	Humanities & Social Sciences	Q2
VR18	History and Modern Languages	Humanities & Social Sciences	Q1 (least)
W300	Music	Arts & Humanities	Q1 (least)
X300	Education	Humanities & Social Sciences	Q1 (least)

7 Evaluating whether differences in undergraduate course choice contribute to disability admissions gaps at the University of Cambridge

It is possible that applicants with certain types of disability may be more, or less, likely to apply for particular courses at the University of Cambridge. This variation in the type of course applied for could be one of the factors underlying the disability entry rate gaps at the University of Cambridge: if a particular group of applicants are more likely to apply for courses that are more competitive (and therefore less likely to enter the University than if they had applied for one of the less competitive courses) this will impact entry rate for the group. This section considers the following questions:

- Are applicants who report different disability types, or do not report a disability, more/less likely to apply for particular University of Cambridge undergraduate courses?
- Do differences in course competitiveness (and different course application profiles) contribute to the disability entry rate gaps at the University of Cambridge?

7.1 Are applicants who report different disability types, or do not report a disability, more/less likely to apply for particular University of Cambridge undergraduate courses?

Approach

Data for all UK-domiciled University of Cambridge undergraduate applicants for entry between 2017 and 2019 (inclusive) was analysed to examine how the type of course chosen varies by disability type (Figure 7.1). 'Type of course' was based on the six University schools (see Table 7 on previous page for details). The percentage of applicants that apply for Mathematics was also examined by disability type (Table 7.1), since analyses have indicated that applicants reporting Social or Communication disorders may be less likely (than other disability type groups) to meet the conditions of their offer: Mathematics is known to have a relatively high degree of attrition between offer and acceptance at the collegiate University, predominantly due to STEP result conditions of entry.

Results

Figure 7.1

Graph showing the extent to which UK-domiciled University of Cambridge applicants (2017 to 2019 entry years) from different disability type groups apply for different courses, grouped by the six University schools

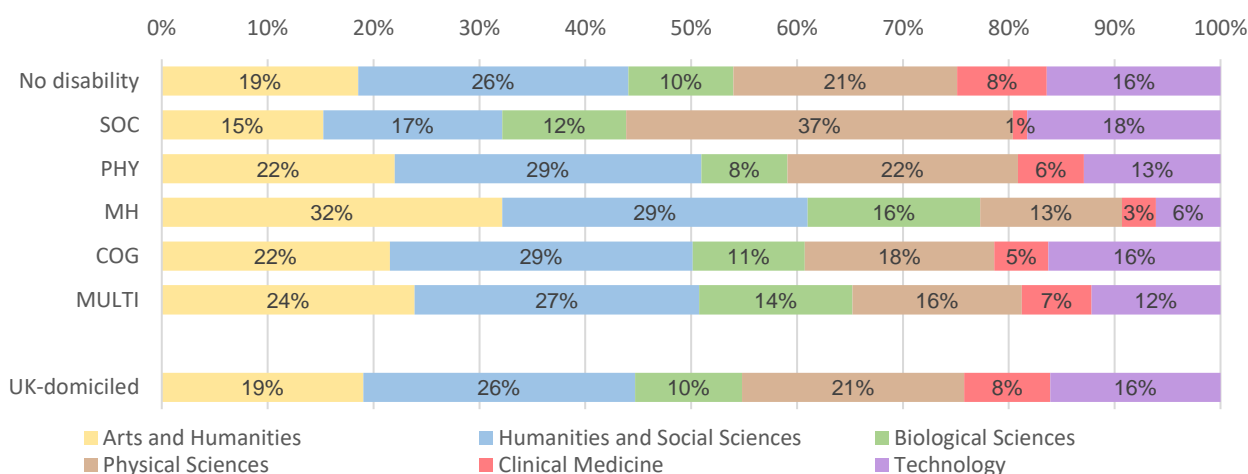


Table 7.1

The percentage of UK-domiciled University of Cambridge applicants who applied for Mathematics in the three most recent entry years (2017 to 2019), by self-reported disability type

Percentages reported to 1 d.p.

Disability type	Applied for Mathematics
Disability reported	8.1%
SOC: Social or Communication	22.9%
PHY: Sensory, Medical or Physical	8.6%
MH: Mental Health	6.0%
COG: Cognitive & Learning Difficulties	5.2%
MULTI: Other or Multiple Impairments	6.6%
No disability reported	8.6%

Interpretation

There is variation in the types of undergraduate courses that applicants from different disability type groups apply for at the University of Cambridge. For example a much lower than expected percentage of UK-domiciled applicants reporting a Mental Health condition apply for Physical Sciences and Technology courses than in the UK-domiciled applicant population as a whole (the percentage of these applicants applying for Medicine is also relatively small); however these applicants are much more likely to apply for Arts and Humanities courses than the UK-domiciled applicant population as a whole. By contrast, a much larger proportion of UK-domiciled applicants reporting Social or Communication disorders apply for Physical Sciences courses than in the UK-domiciled applicant population as a whole, whilst fewer apply for Arts, Humanities and Social Sciences courses or Medicine. Of particular note, more than a fifth of all UK-domiciled University of Cambridge applicants reporting Social or Communication disorders are applying for Mathematics (compared to less than a tenth of the overall UK-domiciled applicant population) – it is therefore likely that this is contributing to this group of applicants having a high likelihood of being made an offer to the collegiate University, but a lower than expected likelihood of entry.

7.2 Do differences in course competitiveness (and different course application profiles) contribute to the disability entry rate gaps at the University of Cambridge?

Approach

Calculating competitiveness

$$\text{Applicant to Entrant ratio} = \frac{\text{Total number of applicants to University course A in time period B}}{\text{Total number of entrants to University course A in time period B}}$$

Competitiveness has been determined by generating an applicant to entrant ratio for each course. This indicates the number of applicants for each single place at the University.

An applicant to entrant ratio **greater than 1.0 indicates that more applicants applied for the course than entered the course**: i.e. there were more applicants than entrants. The larger the ratio, the more competitive the course.

The 'competitiveness' of each University of Cambridge undergraduate course was calculated for each of the three entry year periods between 2012 and 2019 (six periods in total). These calculations

used data for all University of Cambridge undergraduate applicants and entrants, not just those who were UK-domiciled, since applicants are competing for places with the full applicant cohort. The calculations for the 2016 to 2018 entry year applicant cohort were used to generate a rank order of course competitiveness in this three year period, and from this ‘competitiveness quintiles’ were assigned (five groups of courses were generated, each group accounting for as near to 20% of the full applicant population as possible – see Table 7 for details of the assignment). Data for all UK-domiciled University of Cambridge undergraduate applicants for entry between 2017 and 2019 (inclusive) was analysed to examine how the competitiveness of the application course chosen varies by disability type (Figure 7.2a).

The impact that disability type differences in course choice have on disability entry rate gaps at the University of Cambridge was examined by weighting each disability type’s entry rate to account for course competitiveness (method described in the green box). Entry rates were calculated for each of the three entry year time period between 2012 and 2019, and for each time period the course competitiveness data from the same time period was used for weighting (Figure 7.2b).

Weighting entry rate for course competitiveness

The entry rate for Group Y =: $\frac{\text{Total number of entrants from Group Y}}{\text{Total number of applicants from Group Y}}$
is calculated as

In order to weight this by course competitiveness the following formula is used

(n. = number of entrants from Group Y; Comp = competitiveness ratio for all applicants)

Weighted entry rate = $\frac{(n.\text{Course A} \times \text{Comp.Course A}) + (n.\text{Course B} \times \text{Comp.Course B}) + [\text{etc}] + (n.\text{Course Z} \times \text{Comp.Course Z})}{\text{Total number of applicants from Group Y} \times \text{Overall Comp. for all Courses}}$
for Group Y

Results

Figure 7.2a

Graph showing the extent to which UK-domiciled University of Cambridge applicants (2017 to 2019 entry years) from different disability type groups apply for different courses, grouped by course competitiveness

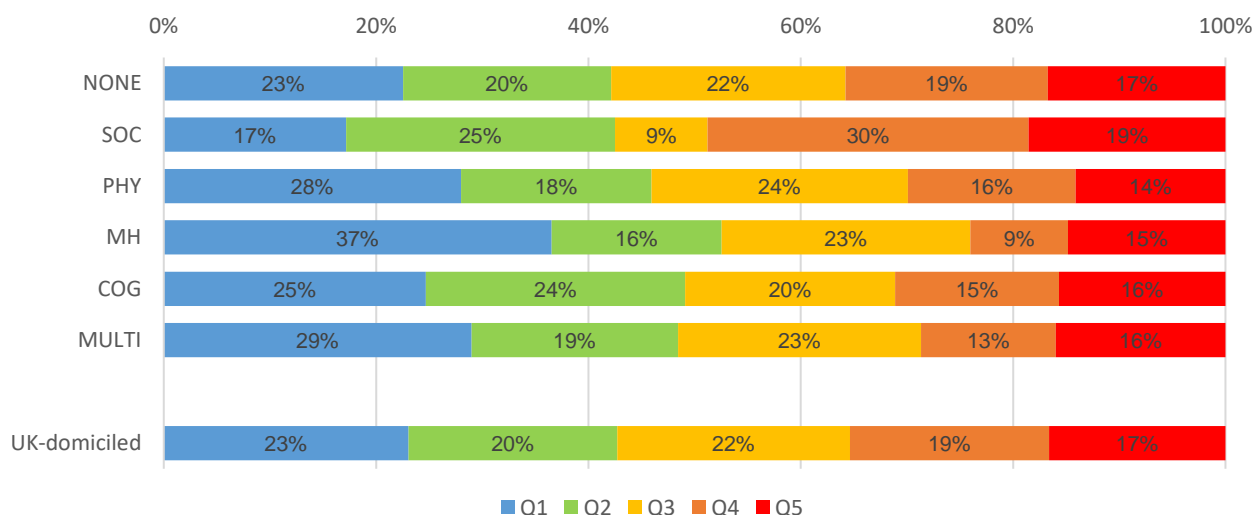
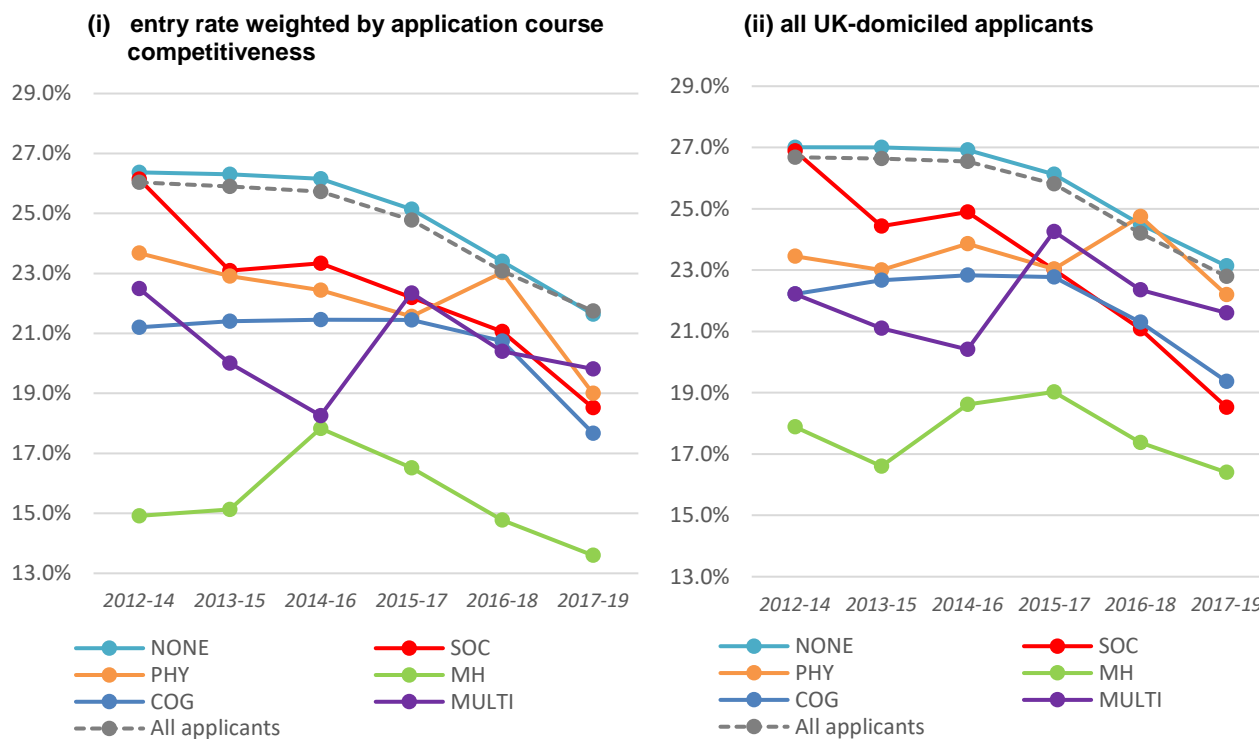


Figure 7.2b

The three year moving average entry rates for UK-domiciled undergraduate applicants to the University of Cambridge in different entry year periods, by self-reported disability type



Interpretation

Overall there is less between-characteristic variation in the proportion of applicants applying for the least, and most, competitive courses for disability than was seen for ethnicity.¹⁰ Nonetheless there are a few notable findings. More applicants reporting Mental Health conditions are applying for courses in the lowest competitiveness quintile (Q1): one would expect roughly 20% of a group's applicants to apply for courses in this competitiveness quintile, however 37% of applicants reporting a Mental Health condition applied to enter these courses between 2017 and 2019 (a greater than expected proportion of applicants reporting Sensory, Medical or Physical disabilities and Other or Multiple Impairments also apply for courses in this quintile, but to a lesser extent). This is particularly of note for the Mental Health group, and explains why when course competitiveness is accounted for by weighting entry rate the negative entry rate for this group actually increases. At the other end of the competitiveness scale, a large proportion of applicants reporting Social or Communication disorders apply for courses in the second highest competitiveness quintile (Q4). This is likely to reflect the large percentage of these applicants applying for Mathematics, which is in this quintile.

If entry rate is weighted by application course competitiveness then the current (based on the 2017 to 2019 entry year data) negative entry rate gap for Social or Communication disorders closes to an extent: however a sizeable gap remains that is not explained by this. However for all other disability types accounting for course competitiveness appears to have little impact on the entry rate gap, or even widens it. This indicates that for most disability types the course applied to is unlikely to be contributing to the negative entry rate gaps seen – indeed for some disability types it may even be masking a greater-than-apparent difference.

¹⁰ R.Sequeira (January 2020) *Further self-assessment of undergraduate disability admissions gaps at the University of Cambridge*

Conclusions

In this paper I set out to conduct further self-assessment of the disability admissions gaps, in particular seeking to explain (where possible) what factors contribute to these gaps, and whether this varies by disability type.

Whilst the majority of UK-domiciled applicants to the University of Cambridge (and to the UK Higher Education sector) do not report a disability at the point of application, both the number and proportion of entrants to the collegiate University that report a disability have increased in recent years. This increase appears to have been driven predominantly by an increase in entrants who report Mental Health conditions and Other or Multiple Impairments, rather than an increase across all disability types. However despite this increase, UK-domiciled individuals who report a disability are under-represented at the University of Cambridge compared to within the Higher Education sector – in particular those reporting Mental Health conditions and Cognitive and Learning Difficulties. This is perhaps not unsurprising though, since the University of Cambridge received fewer applications than might be expected (based on applications to the Higher Education sector via UCAS) from all disability types except Social or Communication disorders.

It is worth noting that (both at the University of Cambridge and in the sector) the number and proportion of UK-domiciled individuals reporting Mental Health conditions has increased at a much faster rate than reporting of other disability types: between 2012 and 2019 the proportion of UCAS applicants reporting Mental Health conditions increased by more than four times (from 0.8% to 3.5%). I would hypothesise that this may reflect wider societal changes in awareness and stigma of disclosure; if so this could mean that the composition of this group has also changed during the entry years examined – be that the types conditions experienced and/or their severity and level of impact. This would potentially have implications for research examining outcomes for this group at the collegiate University.

However even taking into account variation in likelihood of application (using entry rate), UK-domiciled applicants who have reported a disability at the point of application are less likely to enter the collegiate University than applicants who did not report a disability. The University of Cambridge has negative entry rate gaps for all disability types, although the size of these gaps varies. The greatest entry rate gap is for applicants who have reported a Mental Health condition, and there are currently also large negative entry rate gaps for applicants who have reported a Cognitive or Learning Difficulty or a Social or Communication disorder.

I have been able to identify factors that appear to contribute to these negative entry rate gaps for some disability types, however for others the gap remains poorly understood.

- The negative entry rate gap for applicants who have reported **Social or Communication** disorders does not appear to reflect these applicants' Key Stage 5 attainment (for A Level takers at least). These applicants have a higher offer rate than the overall offer rate for all UK-domiciled applicants but a negative entry rate gap, indicating substantial post-offer attrition. In the most recent three entry years over a fifth of these applicants applied for Mathematics, which generally has an additional entry requirement based on performance in STEP. It is therefore possible that Mathematics offer-holders from this group not being accepted at Confirmation (likely based on STEP performance) contributes considerably to the negative entry rate gap for the group, however since this has not been tested in this paper the extent to which this actually influences the entry rate gap is unknown.

- Currently (based on the 2017 to 2019 entry years) the smallest negative entry rate gap is for applicants who have reported **Sensory, Medical or Physical** disabilities. The gap that does exist appears to reflect applicants' A Level attainment or their having non-standard UK Key Stage 5 qualification profiles. In the most recent entry years these applicants have had a higher offer rate than the overall offer rate for all UK-domiciled applicants, but their post-offer attrition appears to be largely explained by A Level attainment (for A Level taking applicants).
- A number of factors appear to influence the negative entry rate gap for applicants who have reported **Mental Health** conditions. There is considerable interaction between disability and applicant age (specifically being identified as mature, that is 21 years or older at entry) for all disability types, and Mental Health conditions are the most commonly reported disability type for mature applicants. Applicants reporting Mental Health conditions are also more likely to have non-standard UK Key Stage 5 qualification profiles (this is true for both young and mature applicants), and this has been shown to contribute to the negative entry rate gap to some extent. However for young UK-domiciled A-Level taking applicants (under 21 years) A Level attainment has the largest impact on entry rate, appearing to explain both the negative entry rate gap, and the negative offer rate gap, for this group.
- Applicants who have reported **Cognitive and Learning Difficulties** have had a relatively large and consistent negative entry rate gap across the eight entry years examined in this paper. However the analyses that I have conducted have not identified any factors that appear to be contributing to this gap: it does not appear to be explained by A Level attainment, course applied for, or Key Stage 5 qualification profile. (It is noted that applicants reporting Cognitive and Learning Difficulties are more likely to have an A Level and Pre U qualification mix than the overall UK-domiciled applicant population, and that these applicants are excluded from the analyses of the impact of attainment; however since 85% of young applicants reporting Cognitive and Learning Difficulties are A Level takers and were included in these analyses this is unlikely to have had a sizeable impact). Analyses of offer rate show that applicants reporting Cognitive and Learning Difficulties are also less likely to receive an offer, and therefore it is possible that factors in the admissions process, such as pre or at interview assessment performance or interview performance, could be contributing to these gaps.
- The negative entry rate gap for applicants who have reported **Other or Multiple Impairments** is currently relatively small (based on the 2017 to 2019 entry years). The gap that does exist appears to reflect applicants' A Level attainment or their having non-standard UK Key Stage 5 qualification profiles.

Finally, whilst the analyses reported in this paper have provided further insight into the disability admissions gaps identified in the 2019 self-assessment, they have also illustrated the importance of considering applicant characteristics in combination: there are significant associations between disability and a number of applicant characteristics known to be associated with UK-domiciled applicants' likelihood of entry to the University of Cambridge, in particular applicant age. Additional analysis of the data would be required to examine the extent to which the disability entry rate gaps described in this paper are indeed a result of disability (rather than confounding factors).

This further self-assessment has therefore considerably increased our understanding of the disability admissions gaps for UK-domiciled applicants to the University of Cambridge, including an indication of what factors are likely to be contributing to these gaps, and identifying that these contributory factors vary by disability.

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With thanks to Alexa Horner and Matt Wheatley

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