

UK State-Sector Undergraduate Admissions to Cambridge: What is an Achievable Target?

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BACKGROUND

The University of Cambridge's current agreed milestone (target) for state-sector admissions with OFFA is 60-63% of UK students – by which we mean UK-domiciled students attending UK schools. This milestone was agreed bearing in mind what was then known about the pattern of A Level results in UK schools, but was also aspirational in intent.

In 2010 an A* grade was introduced into A Level, and Cambridge used this grade in its conditional offers for the first time. Cambridge's 'standard' offer was set at A*AA but in practice 93% of successful applicants achieved or exceeded this requirement, 77% achieved or exceeded A*A*A, and 52% achieved or exceeded A*A*A*. The average number of A*s achieved by entrants was 2.5.

A Level, however, is not the only qualification we need to take into account when considering what a reasonable and achievable target for state-sector admissions might be. We also need to consider results in the International Baccalaureate, in Scottish Advanced Highers and in STEP Mathematics. The IB, for example, was taken by 3.6% of UK Cambridge entrants in 2009.

That placing significant emphasis upon achieved examination results when admitting students is rational and fair has been shown by a detailed examination within the University of the relationship between students' results at point of entry and subsequent performance in Cambridge Tripos exams. This has shown good and consistent correlations between, on the one hand, AS Levels, the IB and STEP, and, on the other, Part I of Tripos – in all of Cambridge's major subjects. On the Pearson correlation coefficient scale of -1 to +1, AS Levels as measured in terms of Uniform Mark Scheme percentages, for instance, correlate with Tripos at a mean of 0.38 and STEP with the Mathematical Tripos at a mean of 0.5.¹ The effectiveness with which achieved results at entry predict Tripos does not vary according to school or college background. Given the same examination results at admission, students from the state and independent sectors are equally likely to perform well in Cambridge. This runs counter to the pattern reportedly observed in some UK universities, and periodically cited by commentators – that state-educated students apparently outperform independently educated students with the same A Level results.

METHOD

All of the above is germane to setting a target for Cambridge state-sector admissions, but the fundamental starting-point for any estimation of what is reasonable and achievable in this regard is the pattern of A Level results in England – because our UK entrants largely come from England and complete A Levels.

¹ Such correlations are markedly stronger than those between GCSE and Tripos (mean = 0.26) or aptitude tests, such as BMAT or TSA, and Tripos (mean = 0.18).

The pattern of English A Level results, however, needs to be modified to reflect the following:-

1. Admissions from Scotland, Wales and Northern Ireland;
2. IB results;
3. Scottish Advanced Higher results;
4. STEP Mathematics results;
5. The appropriateness for entry to Cambridge of the subject-combinations at A Level chosen by applicants;
6. Patterns of admission by subject to Cambridge.

English A Level results

A Level results achieved in English schools and colleges in 2010 were obtained from DCSF through the good offices of Cambridge Assessment.²

These results are listed in Appendix 2, attached, but may be summarised as follows:

English A Level results	Proportion of results achieved by maintained-sector students
AAA or better	67.36%
A*AA or better	66.45%
A*A*A or better	64.06%
A*A*A* or better	60.72%

Although Cambridge's standard offer is currently A*AA, it is clear from last year's experience that most competitive-for-entry applicants performed comfortably above this level. Given that the large majority of Cambridge entrants in 2010 achieved grades A*A*A or better at A Level, and given that the average number of A*s achieved by entrants was 2.5, a target of 62-63% state-sector admissions seems to me to be an appropriate embarkation-point for calculation, as it fits with an average achievement-level between two and three A*s (in the table above). If one were to express this as a wider range, as in our current OFFA milestone, then 61-64% would seem appropriate.

Admissions from Scotland, Wales and Northern Ireland

Students from Scotland, Wales and Northern Ireland constituted 7.3% of Cambridge UK admissions in 2009.³ Overall, Scottish, Welsh and Northern Irish students are likelier to be state-educated than English students, and I estimate that the effect of this upon a state-sector target for admissions derived from English A Level results should be to raise it by around 1.5% (i.e. from 62-63% to 63.5-64.5%).⁴

IB results

These are listed in Appendix 3. 3.6% of Cambridge UK entrants in 2009 completed the IB, two-thirds of whom were educated independently. I estimate that the effect of this upon an A Level-based state-sector target for admissions should be to lower it by around 1%. IB results therefore tend to counter the effect of admissions from Scotland, Wales and Northern Ireland.

² I am very grateful to Dr Jo Emery of Cambridge Assessment for her work in obtaining these results for us, as well as for her advice. I am equally grateful to Miss Helen Reed and Dr Peter Chetwynd of Cambridge Admissions Office for their hard work, assistance and advice in relation to schools and colleges data, and patterns of application and admission – including data relating to IB and Scottish Advanced Highers. Please note that the A Level results exclude grades in Critical Thinking and General Studies, on which Cambridge does not ordinarily make conditional offers.

³ See Appendix 1. I base my key calculations upon the entry statistics for 2009. Not only are these the most recent readily available, but, looking at data from 2007, 2008 and 2009, 2009 was an 'average' recent year for admission.

⁴ Scottish Advanced Higher results, which constitute the majority of Scottish exam results, are essentially neutral in terms of their effect upon any state-sector admissions target we set.

STEP Mathematics

The key currency for entry in Mathematics, which typically constitutes 6-7% of Cambridge UK admissions, is STEP Mathematics, not A Level. But the balance between the state and independent sectors in Mathematics admissions is roughly in line with the overall pattern of A Level performance, and so I judge that STEP should be neutral in our considerations when setting a target for state-sector admissions.

A Level subject-combinations and patterns of admission by subject to Cambridge

In 2008 Cambridge Assessment completed a statistical study on behalf of the University's Outreach Steering Group that showed that students choosing 'inappropriate' A Level subject-combinations appeared to be much less of a problem for university admissions than was then widely being supposed in the media – certainly among high-performing students. A short report based on this study is available at: <http://www.admin.cam.ac.uk/news/dp/2009022705>. Cambridge Assessment have not been able to complete a new analysis of A Level performance and subject-combinations at this time, but we have no reason to believe that the principles that applied then should have changed now; indeed, given the amount of attention this issue has received in the media in the past couple of years, it is likely that the problem has, if anything, reduced somewhat. I estimate that the general effect of students choosing inappropriate combinations of A Level subjects for Cambridge entry upon our state-sector admissions target should be to lower it by around 0.5%. On top of this there is an additional, specific effect involving the subject-combinations being presented by applicants for particular Cambridge subjects. This is harder (and very time-consuming) to assess. Economics and Modern Languages, for instance, require relatively straightforward combinations of A Level subjects that are surprisingly uncommon in UK state schools and colleges – e.g. for entry to Economics: Mathematics and Economics, or Mathematics and Business Studies. In these two subjects, which typically account for around 11% of Cambridge UK admissions, it is consequently difficult in practice to admit an intake that is much more than 50% state-sector.⁵ That said, I believe that this difficulty affects a minority of Cambridge's potential entrants and I estimate that its effect upon our state-sector admissions target should be to lower it only by a further 1% or so.

So far as the subject-balance within Cambridge is concerned, our successful entrants for Science-side subjects are statistically likelier to achieve grades A*A*A* than are entrants for Arts-side subjects – where a grade-profile of A*A*A is commoner. But admissions are split roughly 50:50 Arts to Sciences, and, given that the average number of A*s achieved by entrants last year was 2.5, I believe that the effect of this is unlikely to be significant.

CONCLUSION

I estimate that the overall effect of the various factors acting on a target for maintained-sector admissions derived from the English A Level results of 2010 should be to lower it by around 1%: to 61-62% or, if we specify a target with a wider range, 60-63% – which would affirm our current milestone. I believe that we have made real strides in the last decade in our access work and in making our admissions process more demonstrably transparent, valid and fair. State-sector entry to Cambridge has markedly improved. But hitting the suggested target will require us to renew our focus on both fronts. While I believe that this can be done, the government's new fees regime represents a leap into the dark that could make our task vastly harder in ways that at present we can only guess at. Because of the uncertainty around university applications in this new world, a target with a wider range – allowing for year-to-year fluctuation – might be advisable.

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⁵ This was shown by the 2008 study.

Appendix 1: UK and total applications and acceptances 2009, showing applicant residency and school background

UK Country		Independent		Maintained		Other/Overseas		Total
England	Applications	3282	32.80%	6453	64.49%	271	2.71%	10006
	Acceptances	1111	42.16%	1501	56.96%	23	0.87%	2635
N. Ireland	Applications	4	1.80%	218	98.20%		0.00%	222
	Acceptances	3	4.11%	70	95.89%		0.00%	73
Scotland	Applications	161	45.74%	178	50.57%	13	3.69%	352
	Acceptances	37	49.33%	35	46.67%	3	4.00%	75
Wales	Applications	47	16.38%	235	81.88%	5	1.74%	287
	Acceptances	11	18.64%	48	81.36%	0	0.00%	59
All UK	Applications	3494	32.15%	7084	65.19%	289	2.66%	10867
	Acceptances	1162	40.89%	1654	58.20%	26	0.91%	2842
Total	Applications	4259	27.12%	7236	46.08%	4209	26.80%	15704
	Acceptances	1310	37.65%	1683	48.38%	486	13.97%	3479

Data supplied by Cambridge Admissions Office

Appendix 2: English schools and colleges A Level results (excluding Critical Thinking and General Studies) 2010

Result	Maintained no.	Independent no.	Total	Maintained %
AAA (or better)	20305	9839	30144	67.36
A*AA	14108	7124	21232	66.45
A*A*A	7162	4018	11180	64.06
A*A*A*	2817	1822	4639	60.72

Results are for students aged 17-18, and both results and school/college type are derived from DCSF data.

Appendix 3: IB and Advanced Higher Cambridge applications and acceptances 2009

		Independent		Maintained		Other/Overseas		Total
Advanced Highers								
Home	Applications	112	39.3%	170	59.6%	3	1.1%	285
	Acceptances	27	42.9%	35	55.6%	1	1.6%	63
EU	Applications	0		1	100.0%	0		1
	Acceptances	0		1	100.0%	0		1
Overseas	Applications	1	33.3%	2	66.7%	0		3
	Acceptances	0		0		0		0
<i>Total</i>	<i>Applications</i>	<i>113</i>	<i>39.1%</i>	<i>173</i>	<i>59.9%</i>	<i>3</i>	<i>1.0%</i>	<i>289</i>
	<i>Acceptances</i>	<i>27</i>	<i>42.2%</i>	<i>36</i>	<i>56.3%</i>	<i>1</i>	<i>1.6%</i>	<i>64</i>
Int. Baccalaureate								
Home	Applications	206	53.0%	154	39.6%	29	7.5%	389
	Acceptances	68	65.4%	34	32.7%	2	1.9%	104
EU	Applications	34	9.4%	8	2.2%	320	88.4%	362
	Acceptances	6	13.0%	2	4.3%	38	82.6%	46
Overseas	Applications	49	10.5%	1	0.2%	417	89.3%	467
	Acceptances	4	7.5%	0		49	92.5%	53
<i>Total</i>	<i>Applications</i>	<i>289</i>	<i>23.7%</i>	<i>163</i>	<i>13.4%</i>	<i>766</i>	<i>62.9%</i>	<i>1218</i>
	<i>Acceptances</i>	<i>78</i>	<i>38.4%</i>	<i>36</i>	<i>17.7%</i>	<i>89</i>	<i>43.8%</i>	<i>203</i>

Data supplied by Cambridge Admissions Office