# Academic Performance of Undergraduate Students at Cambridge by School/College Background

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## Introduction

A number of studies have sought to examine the effects of prior schooling on subsequent academic performance of undergraduate students at UK universities (see, for instance: HEFCE, 2003; Naylor and Smith, 2005; Hoare and Johnston, 2011). Most studies of this sort have reached conclusions along the lines of: "We estimate that, on average, a student who attended an Independent school is 6.9% to 5.4% less likely to be awarded a 'good' degree compared to a student who attended an LEA (state-sector) school, *ceteris paribus*[*]" (Naylor and Smith, 2005). That students from the maintained sector out-perform their privately educated peers in higher education has become the received wisdom, and it is widely assumed that this must be the case at all UK universities. Hoare and Johnson (2011) found it to be the case at the University of Bristol. This study examines whether it is the case at the University of Cambridge.

## Methodology

This study considers the academic performance at Cambridge of undergraduates educated at UK schools and colleges. Their academic performance is judged by their results in their last examinations classed on a First/II.1/II.2/Third basis. In most cases this is in their final year, but in the case of a small number of subjects, for instance Engineering, where the final year is classed on Distinction/Merit/Pass basis results in the penultimate year are used.

UK maintained sector schools and colleges are divided into three categories: *grammar* (academically selective); *comprehensive*; and *other state* (mainly sixth form and tertiary colleges). Further subdivision of the *other state* category results in samples too small to be of statistical significance.

This study analyses results obtained by students in the summers of the years 2005 to 2010. The total numbers of students considered in the study are given in Table 1.

Table 1: Numbers of students by school/college background

| School/college type | Number of students |
|---|---|
| Independent | 8,130 |
| Comprehensive | 4,770 |
| Grammar | 3,270 |
| Other state | 2,082 |

Over the period in question the vast majority of students admitted to the University of Cambridge achieved three or more A grades in their A Levels (or equivalent in other public examination systems). There is therefore no significant difference in students' prior attainment as measured by their A Level performance.
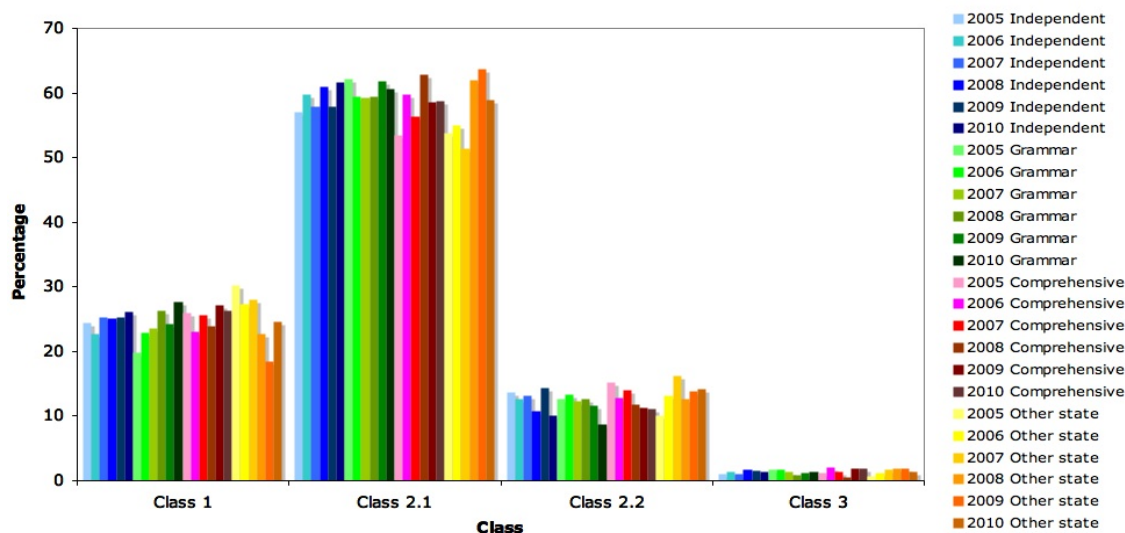
## Results and Discussion

Figure 1 shows the proportions of students obtaining Firsts, II.1s, II.2s and Thirds by school/college background in each of the years 2005 to 2010.

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[*] All other things being equal.

Careful examination of the numbers will show that the proportions do not sum to 100%. This is because a small number of students fail their final examinations and a somewhat larger, but still small, number of students are "deemed to have deserved honours", i.e. given an unclassed pass: either because they were unable to complete their examinations due to illness or other grave cause, or because, in the case of some third year students, they took their examinations at another university as part of an official exchange programme.

Figure 1: Cambridge examination performance by UK school/college background



As one might expect, there is some variation from year to year in the proportions from each school/college background gaining Firsts, II.1s etc., but there is no systematic pattern in this. There is no obvious evidence that students from any educational background under- or out-perform their peers from other parts of the UK secondary education sector at Cambridge. This observation is confirmed when the average proportions gaining each class over the six years in question are considered. These are shown in Table 2.

Table 2: Proportions of Cambridge students gaining each class by UK school/college background 2005-2010

| School/college type | Firsts | II.1s | II.2s | Thirds | Other |
|---|---|---|---|---|---|
| Independent | 24.8% | 59.2% | 12.4% | 1.4% | 2.2% |
| Comprehensive | 25.4% | 58.2% | 12.6% | 1.5% | 2.3% |
| Grammar | 24.1% | 60.5% | 11.8% | 1.4% | 2.2% |
| Other state | 25.1% | 57.7% | 13.3% | 1.4% | 2.4% |

Using the proportions of each class obtained by students from independent schools to define an expected distribution, the chi squared values (with four degrees of freedom) for the distributions observed for students from the three categories of maintained sector schools/colleges and the corresponding two-tailed P values are as shown in Table 3. In no case are the observed differences statistically significant: the P values show that it is more likely than not that all the observations have the same underlying distribution.

Table 3: Chi squared and two-tailed P values for comparisons between the observed performance distributions of maintained and independent sector students at Cambridge

| School/college type | Chi squared | P |
|---|---|---|
| Comprehensive | 2.512 | 0.642 |
| Grammar | 2.470 | 0.650 |
| Other state | 3.067 | 0.547 |

## Conclusion

This analysis shows that there is no significant difference between the academic performance of students at Cambridge from different school/college backgrounds. This confirms the findings of the HEFCE (2003) study, which found that, at the highest levels of ability (i.e. among those students achieving grades AAA at A Level), there was no difference in the degree performance of undergraduates from the state and independent sectors.

## References

Higher Education Funding Council for England (HEFCE). 2003. Schooling effects on higher education achievement. Issues paper 2003.32. Bristol: Higher Education Funding Council for England.

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