

Benchmarked comparison of outcomes for University Technical Colleges versus similar educational institutions

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1 Introduction

A university technical college (UTC) is a type of secondary school in England that is sponsored by a university and has close ties to local business and industry. The first UTCs were established in 2010. We consider data on the performance of UTCs up until the year 2024, when there were 44 such schools.

1.1 Aim

The aim of this investigation is to compare various outcome measures among secondary schools and colleges in England. In particular, we want to compare outcomes for UTCs against institutions that are not UTCs but have similar characteristics.

UTCs are mostly located in the Midlands and North of England, and target technical and vocational qualifications. Several UTCs have a strong imbalance between boys and girls, mostly towards boys. UTCs have student demographic characteristics, which – on average – are associated with lower exam results nationally. Additionally, UTCs have less emphasis on some of the core academic qualifications that contribute to national school statistics. Hence when assessing their performance, it is important to perform a like-with-like comparison as far as possible.

1.2 Data requirements

In order to perform a benchmarked comparison, we require data on outcomes at the school level. Several outcomes have available data at the local authority level, but these are not useful for our purposes. Additionally, some outcomes have high levels of missing data. In many cases, this is due to fields with small numbers being suppressed to maintain privacy. Further to this, ideally we would like data on different schools from the same source to ensure that measurement and recording of data is consistent. Hence we have prioritized data from official government sources, and outcomes that represent high-level aggregated measures.

1.3 Outcomes

The outcomes of interest are:

A. Student progression: 1, 3, and 5 year post Key Stage 4 destination surveys –

- Percentage of students in sustained education, apprenticeship or employment.
- Percentage of students in sustained education.

- Percentage of students in further education.
- Percentage of students in sustained employment.
- Percentage of students not recorded as having a sustained destination.

These surveys measure outcomes for students 1, 3, and 5 years after completing Key Stage 4. We note that many of the 1, 3, and 5 year survey findings will have been affected by the COVID pandemic and the response to the pandemic by the government and society. However, as all comparisons are made between schools for the same cohort, students in each cohort will have been affected similarly, and so the relative comparisons should be reasonable.

Not all UTCs have been around for long enough to contribute to all destination surveys:

- 8 UTCs have destination data on the 2014-15 cohort (1, 3, and 5 years).
- 14 UTCs have destination data on the 2015-16 cohort (1, 3, and 5 years).
- 22 UTCs have destination data on the 2016-17 cohort (1, 3, and 5 years).
- 30 UTCs have destination data on the 2017-18 cohort (1, 3, and 5 years).
- 38 UTCs have destination data on the 2018-19 cohort (1 and 3 years).
- 40 UTCs have destination data on the 2019-20 cohort (1 and 3 years).

We will perform separate analyses for each cohort and each survey: 16 analyses in total for each outcome.

B. Student progression: Key Stage 4 leaver survey –

- Percentage of students who have been in any sustained education, apprenticeship or employment for at least two terms after Key Stage 4.
- Percentage of students who were in education throughout the first two terms.
- Percentage of students who started an apprenticeship and sustained for at least six months.
- Percentage of students who did not stay in education or apprenticeships for two full terms but were in employment for at least two terms. Pupils with a combination of education and employment making up two terms are also included in this category.
- Percentage of students who are not in education or employment (NEET). Pupils either had some education or employment participation in the destination year but it was not sustained from October to March, or the pupils had no participation at all and were known to be NEET at some time in the destination year.

C. Student progression: 16-18 leaver survey –

- Percentage of students in sustained education, apprenticeship or employment.
- Percentage of students in sustained education.
- Percentage of students in further education.
- Percentage of students in sustained apprenticeship.

- Percentage of students in sustained employment.
- Percentage of students not recorded as having a sustained destination.

D. Student attainment at Key Stage 4 –

- Progress 8 score, English element.
- Progress 8 score, maths element.
- Attainment 8 score, English element.
- Attainment 8 score, maths element.

We compare these outcomes in the full sample of students, and restricted to students flagged as ‘disadvantaged’. Students are defined as disadvantaged if they are known to have been eligible for free school meals at any point in the past six years (from year 6 to year 11), if they are recorded as having been looked after for at least one day, or if they are recorded as having been adopted from care. We do not consider the full Progress 8 and Attainment 8 measures, as Ofsted guidance states that “the Progress 8 accountability measure is not the most appropriate performance indicator for UTCs” [1].

E. Student attainment at 16-18 years –

- A levels.
- Level 3 Vocational Certificates (approximately equivalent to 1 A level): BTEC National Extended Certificate and OCR Cambridge Technical Extended Certificate.
- Level 3 Vocational Diplomas (approximately equivalent to 2 A levels): BTEC National Diploma and OCR Cambridge Technical Diploma at Level 3.
- Level 3 Vocational Extended Diplomas (approximately equivalent to 3 A levels): BTEC National Extended Diploma and OCR Cambridge Technical Extended Diploma.
- T levels (a T level is equivalent to three A levels).

Other qualifications, which typically are either short in duration or have low levels of take-up, were not considered.

For the 16-18 student attainment outcomes (except T levels), value-added scores are available for each school in each subject (although data for categories with 5 or fewer entries are suppressed). We therefore do not carry out a matched comparison for this outcome, as the value-added scores are already benchmarked by students’ prior achievements. Instead, we report a weighted average of these measures for all UTCs and non-UTCs across all subjects and qualifications in a given category, weighting by number of entries. These measures represent the average per pupil value-added scores. We report comparisons of value-added scores for UTCs versus non-UTCs in the whole of England, and separately for each of the 9 regions of England that contain a UTC.

For T levels, we report the number and percentage of students at UTCs versus non-UTCs achieving each grade level.

1.4 Characteristics

The characteristics that we will benchmark schools based on are:

- Local authority region.
- Percentage of pupils with special educational needs (%SEN).
- Percentage of pupils receiving free school meals (%FSM).
- Percentage of pupils with English as an additional language (%EAL).
- Percentage of boys (%BOYS).

1.5 Data sources

Our data are taken from the UK government Department for Education. In total, we consider data on up to 3067 state-funded secondary schools with available data on all variables of interest. All data for this analysis are publicly available, and represent the most recent (either 2022-23 or 2023-24) data release.

Student progression data were obtained from:

- <https://explore-education-statistics.service.gov.uk/find-statistics/longer-term-destinations/2022-23>,
- <https://explore-education-statistics.service.gov.uk/find-statistics/key-stage-4-destination-measures/2022-23>,
- <https://explore-education-statistics.service.gov.uk/find-statistics/16-18-destination-measures/2022-23>.

Student attainment data were obtained from:

- <https://explore-education-statistics.service.gov.uk/find-statistics/key-stage-4-performance/2023-24>,
- <https://explore-education-statistics.service.gov.uk/data-catalogue/dataset/17e616ae-bc72-44de-9044-5d7406211a82> (note: this is the 2023-24 dataset for 16-18 attainment outcomes)
- <https://explore-education-statistics.service.gov.uk/data-catalogue/dataset/c2533dc2-6386-4775-9467-03b7bbaa2fb0> (note: this is the 2023-24 dataset for T levels).

1.6 Statistical analysis plan

To obtain as far as possible a like-with-like comparison, we perform a matched analysis with additional adjustment for institution-level characteristics. We match each UTC with five comparison schools in the same local authority region that are state-funded, matching on %SEN, %FSM, and %EAL using a propensity score metric. We match using a nearest neighbour algorithm, with duplicate matches not allowed. We do not match on %BOYS, as it is difficult to find close matches on this variable, and schools with unbalanced ratios of boys and girls are often not typical. However, we do adjust for %BOYS in the regression model.

Our statistical analysis is performed within these matched groups, additionally adjusting for %SEN, %FSM, %EAL, and %BOYS, and the interactions of these variables with UTC status.

Our measure of interest is the coefficient for UTC status, representing the mean difference in the outcome variable associated with UTC status. A positive value of this parameter indicates that the outcome is higher in UTCs in comparison to the matched schools, and a negative value indicates that the outcome is lower in UTCs. Standard errors are calculated using sandwich variance estimation accounting for cluster membership (i.e. robust standard errors accounting for the matched sets).

In comparison with a more traditional analysis based on covariate adjustment without matching, our analysis will consider less data, but more relevant data. However, when comparing between categories where one category has a large number of datapoints, and the other category has relatively few datapoints, there is little benefit from including more and more datapoints from the large category [2]. Given that the mean number of secondary schools per local authority was around 20, and some local authorities had 10 or fewer secondary schools, a five to one ratio seemed prudent to maintain the quality of matching.

The statistical model is:

$$\begin{aligned} \text{outcome} = & \beta_0 + \\ & \beta_{UTC} \text{ UTC status} + \\ & \beta_{1,SEN} \%SEN + \\ & \beta_{1,FSM} \%FSM + \\ & \beta_{1,EAL} \%EAL + \\ & \beta_{1,BOYS} \%BOYS + \\ & \beta_{2,SEN} \%SEN \times \text{UTC status} + \\ & \beta_{2,FSM} \%FSM \times \text{UTC status} + \\ & \beta_{2,EAL} \%EAL \times \text{UTC status} + \\ & \beta_{2,BOYS} \%BOYS \times \text{UTC status} + \\ & \text{error term.} \end{aligned}$$

The parameter of interest is β_{UTC} . We then use the estimated parameter values to calculate the average marginal treatment effect in the treated (i.e. in UTCs).

For the 16-18 leaver survey, we performed a similar analysis, but the matching was performed slightly differently, as we did not have contextual data (%SEN, %FSM, %EAL, and %BOYS) on 16-18 institutions. Instead, we first linked the 16-18 institution data to the pre-16 institution data, based on the school's Ofsted unique registration number (URN). We restricted our analysis to 16-18 institutions with a linked pre-16 institution for two reasons: first, pragmatically – so that we can use the pre-16 contextual data in the analysis, and secondly, because all UTCs have both pre-16 and 16-18 components, and so this ensures more of a like-with-like comparison by excluding standalone sixth form colleges. Due to the lower number of institutions with pre-16 and 16-18 components, our matched comparison schools were taken from the wider geographical region rather than the local authority (for example, a school in the North West would be matched with other schools in the North West).

As the contextual data relate to the pre-16 component of the institution and not the 16-18 component, we present two sets of results:

- a matched comparison with adjustment for the contextual covariates as per the other analyses, and

- a matched comparison without adjustment for the contextual covariates.

The reason for this is that the contextual variables may not be fully relevant to the 16-18 leaver survey. The first option assumes that these variables are relevant, and adjusts for them. The second option uses these variables to select the matched schools to compare with, but does not use these variables in the regression model. 16-18 institutions with fewer than 10 students were not considered eligible for inclusion in the matched comparison set.

All analyses were performed in the R statistical software programme version 4.3.3 [3]. Matching was performed using the `MatchIt` package [4], and matched estimates were obtained using the `marginalEffects` package [5]. Software code for performing these analyses is available at <https://github.com/sb452/utcanalysis>.

2 Results

Results are presented in Tables 1 to 11 and Figures 1 to 9.

2.1 Visual comparison of data

In Figure 1, we see the imbalance in the %FSM, %SEN, and %EAL characteristics before matching, and the improved balance after matching. This indicates that our analysis strategy is finding similar schools with which to compare UTCs, at least with respect to these characteristics.

Differences between schools can be observed visually in boxplots (Figures 2 to 9). We plot the scores for UTC schools and for the matched schools side-by-side on the same axes. These differences mirror those seen in the tables.

2.2 Post Key Stage 4 destination surveys

In terms of the post Key Stage 4 destination surveys, for the ‘sustained education, apprenticeship or employment’ outcome (Table 1), students at UTCs in the 2014-15 cohort were less likely to have a sustained outcome recorded at both surveys. However, a similar difference was not seen when looking at the ‘not recorded as a sustained destination’ outcome (Table 5). Looking further, UTCs had a larger proportion of students labelled as ‘Outcome not recorded’ than similar schools for this cohort, and so this may represent a failure to adequately follow up students in this early cohort rather than a true difference in outcomes. The other significant results for the sustained education, apprenticeship or employment outcome were all in the positive direction: UTC students were more likely to have a sustained education, apprenticeship or employment outcome by 3.02 percentage points for the 2016-17 cohort at the year 3 survey, by 3.26 percentage points for the 2015-16 cohort at the year 3 survey, and 3.22 percentage points for the 2015-16 cohort at the year 5 survey.

For the ‘sustained education’ outcome, UTC students were less likely to have a sustained education outcome than students at comparable schools at all timepoints for each cohort (Table 2). While not all estimates were statistically significant, many were significant at a conventional 5% level and some even at a much more stringent 0.1% level. All estimates were negative, indicating that fewer UTC students have a sustained education outcome, and ranged from 1.2 percentage points to 9.2 percentage points.

For the ‘further education’ outcome, UTC students were less likely to have a further education outcome than students at comparable schools at many timepoints for several cohorts

(Table 3). After 1 year, this difference was around 9-15 percentage points depending on the cohort and survey. However, the sharpest differences in this outcome were found after 1 year. At the 3 year survey, this difference was generally less sharp, and the difference became statistically non-significant by the 5 year mark for all cohorts with available data. This may reflect a delay in accessing further education for eligible students from UTCs, but that UTC students do access further education at similar rates to non-UTC students by the 5 year mark. Combining these results, one explanation for this is that high-calibre UTC students are not being turned off applying to further education, but middle-ranking UTC students are seeking options other than education.

For the ‘sustained employment’ outcome, UTC students were generally more likely to have a sustained employment outcome than students at comparable schools for several cohorts (Table 4). Statistically significant differences (all in the positive direction) were observed for the 2018-19 cohort at year 1 (1.32 percentage points higher), for the 2017-18 cohort at years 1, 3, and 5 (1.05, 1.74, and 3.69 percentage points higher), and for the 2014-15 cohort at year 1 (2.98 percentage points higher). No statistically significant negative estimates were obtained for this outcome.

For the ‘not recorded as a sustained destination’ outcome, UTC students were generally less likely to have a not recorded as a sustained destination outcome than students at comparable schools for several cohorts (Table 5). Statistically significant differences (all in the negative direction) were observed for the 2016-17 cohort at year 3 (2.98 percentage points lower), and for the 2015-16 cohort at years 3 and 5 (2.86 and 3.59 percentage points lower). No statistically significant positive estimates were obtained for this outcome.

2.3 Key Stage 4 leaver survey

In terms of Key Stage 4 leaver survey results (Table 6), students at UTCs are similarly likely to have any sustained outcome, and potentially less likely to have a sustained education outcome: the difference was estimated as 2.76 percentage points, but this was not statistically significant. Students at UTCs are 1.80 percentage points more likely to undergo an apprenticeship than students at similar schools, and 1.67 percentage points more likely to have an employment outcome. These differences are both statistically significant at a conventional 5% level. These seem like small differences in absolute terms, but the mean percentage of students undertaking an apprenticeship across the country was 3.53%, and so a 1.80 percentage point increase represents a relative increase of over 50%. We note that information is not available on whether students are on Level 2 or Level 3 apprenticeships. Similarly, only 5.15% of students had an employment outcome nationally, and so a 1.67 percentage point increase is a relative increase of around a third. Students at UTCs were 1.02 percentage points less likely to have NEET status in their Key Stage 4 leaver survey, although this difference was not statistically significant.

2.4 16-18 leaver survey

Results from analysis of the 16-18 leaver survey data were similar with and without adjustment for contextual covariates; we here describe results with covariate adjustment (Table 7). There were no statistical significant differences for the any sustained outcome, sustained employment, or no sustained outcome comparisons, although in all three cases, the estimate was in the favourable direction for UTCs. UTC students were 12.87 percentage points less likely to have a sustained education outcome, and 0.92 percentage points less likely to have a further education outcome. Although both differences were statistically significant (at a 0.1% and a 5% significance level), the estimate is far larger for the more general education outcome, consistent

with our finding from the destination survey. UTC students were 13.63 percentage points more likely to have a sustained apprenticeship outcome; this difference was also statistically significant at a 0.1% level.

2.5 Student attainment at Key Stage 4

In Table 8, we see that UTCs have lower average values of the Progress 8 English element by 0.38 points compared to similar schools, and lower average values of the Attainment 8 English element by 0.47 points. These differences were statistically significant at a conventional 5% level (and at a 0.1% level for Progress 8). These differences are less sharp when restricting to children who are disadvantaged (Table 9), with the difference in Progress 8 English element score dropping to 0.28 points, and the difference in Attainment 8 English element score dropping to 0.09 points.

However, there is no evidence that UTCs have lower maths grades than similar schools. There is even marginal evidence that disadvantaged pupils are performing better at maths at UTCs than at similar schools (Attainment 8 score maths component is 0.48 points higher, $p = 0.05$).

2.6 Student attainment at 16-18 years

Average per pupil value-added scores for students at 16-18 were lower at UTCs when considering A levels (by 0.36 points), Level 3 Vocational Certificates (by 0.14 points), and Level 3 Vocational Diplomas (by 0.18 points), but higher when considering Level 3 Vocational Extended Diplomas (by 0.22 points), the largest of the vocational qualifications considered (Table 10). All these differences were significant at a p-value threshold of $p < 0.001$.

It is difficult to discern patterns in results divided by geographic region with much certainty, but the UTCs in the North East generally performed well, whereas those in London, the South East, and the South West performed less well. Not all of these differences were statistically significant, but which differences are significant versus non-significant depends largely on the volume of data available rather than the magnitude of the difference in estimates. This is determined by the number of UTCs in the geographic area and the number of entries in each category.

For T levels, the distribution of grades was similar at UTCs versus non-UTCs (Table 11). Only 8 UTCs reported students taking T levels, compared with 154 non-UTCs in the whole of England (147 non-UTCs after omitting 7 institutions with redacted data due to small numbers of entries). The percentage of students achieving the highest grades (distinction and starred distinction) was higher at non-UTCs than at UTCs (16.2% versus 14.4%). The percentage of students achieving a merit was higher at UTCs than at non-UTCs (53.0% versus 48.0%). The percentage of students achieving a pass was higher at non-UTCs than at UTCs (27.3% versus 26.5%). The percentage of students achieving any passing grade was higher at UTCs than non-UTCs (93.9% versus 91.5%). However, these differences are all slight and not statistically significant due to the small number of students taking T levels. We also note that comparison of T level results is not benchmarked in any way.

3 Conclusions

Overall, based on destination data, UTC students were consistently less likely to be in sustained education, but more likely to be in sustained employment, and less likely to not have a sustained outcome compared with students at comparable schools. Differences in overall education participation were maintained across surveys, but differences in further education participation appeared to attenuate to zero over time. Based on leaver data, UTC students were more likely to go into apprenticeships, potentially more likely to go into employment, and no more likely (and possibly less likely) to have no sustained outcome. Based on student attainment data, UTC students perform less well at English at age 16, but equally well at maths (and potentially better at maths for disadvantaged students). UTC students do worse than the national average in terms of A level results, Level 3 Vocational Certificates, and Level 3 Vocational Diplomas, but better in terms of the largest vocational qualifications (Level 3 Vocational Extended Diplomas). UTC students have a nominally higher pass rate for T levels.

References

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- [3] R Core Team. *R: A language and environment for statistical computing. Version 4.3.3 (Angel Food Cake)*. R Foundation for Statistical Computing, Vienna, Austria 2024. URL <https://www.R-project.org/>.
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Tables and Figures

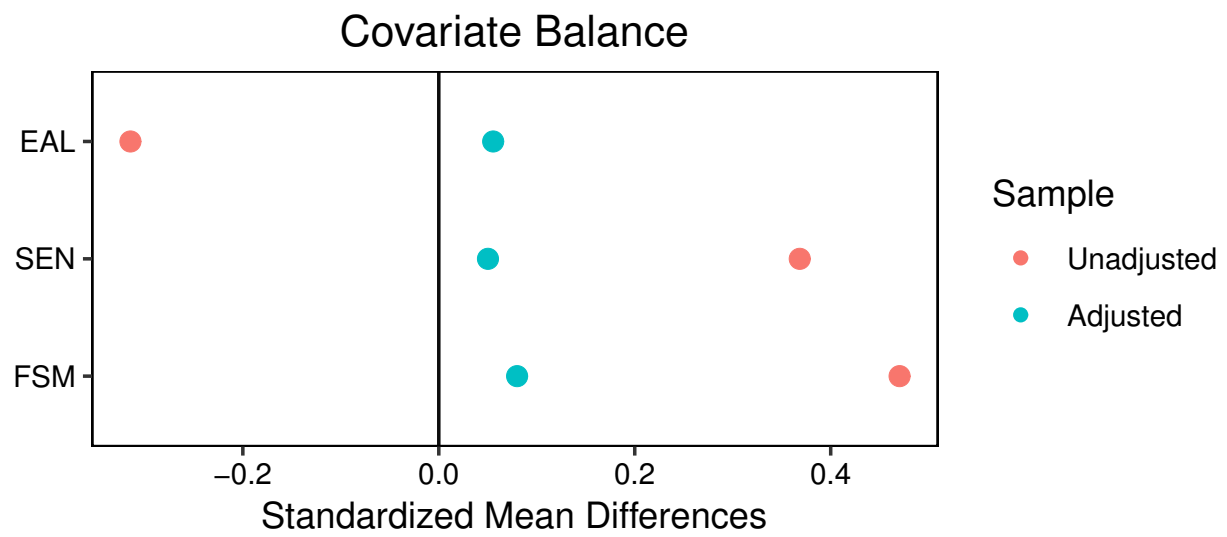


Figure 1: Love plot showing average standardized difference in covariates before and after matching. EAL = English as an additional language, SEN = special educational needs, FSM = free school meals.

Outcome: Sustained education, apprenticeship or employment				
Cohort and survey year	Difference	Standard error	95% confidence interval	p-value
2019-20, year 1	0.32	0.68	-1.01, 1.65	0.63
2019-20, year 3	0.31	1.10	-1.85, 2.46	0.78
2018-19, year 1	0.49	0.77	-1.01, 1.99	0.52
2018-19, year 3	1.20	1.07	-0.89, 3.29	0.26
2017-18, year 1	-0.04	0.73	-1.46, 1.38	0.96
2017-18, year 3	0.64	1.24	-1.79, 3.08	0.60
2017-18, year 5	-0.65	1.36	-3.31, 2.01	0.63
2016-17, year 1	-0.21	0.82	-1.81, 1.39	0.80
2016-17, year 3	3.02	0.90	1.26, 4.79	< 0.001
2016-17, year 5	1.12	1.29	-1.41, 3.65	0.39
2015-16, year 1	0.85	1.17	-1.44, 3.15	0.47
2015-16, year 3	3.26	1.58	0.16, 6.36	0.04
2015-16, year 5	3.22	1.60	0.09, 6.35	0.04
2014-15, year 1	-0.82	0.71	-2.22, 0.58	0.25
2014-15, year 3	-2.48	0.92	-4.29, -0.68	0.007
2014-15, year 5	-2.96	1.14	-5.19, -0.73	0.009

Table 1: Results from matched analysis of student progression data (1, 3, and 5 year post Key Stage 4 destination surveys) for sustained education, apprenticeship or employment outcome. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

Outcome: Sustained education				
Cohort and survey year	Difference	Standard error	95% confidence interval	p-value
2019-20, year 1	-1.20	1.19	-3.53, 1.13	0.31
2019-20, year 3	-5.10	2.08	-9.17, -1.02	0.01
2018-19, year 1	-3.96	1.52	-6.94, -0.97	0.009
2018-19, year 3	-3.27	1.94	-7.08, 0.54	0.09
2017-18, year 1	-5.61	1.50	-8.54, -2.68	< 0.001
2017-18, year 3	-8.74	2.06	-12.77, -4.71	< 0.001
2017-18, year 5	-9.20	2.55	-14.19, -4.21	< 0.001
2016-17, year 1	-4.23	1.50	-7.17, -1.30	0.005
2016-17, year 3	-6.80	2.34	-11.38, -2.22	0.004
2016-17, year 5	-5.29	2.09	-9.38, -1.20	0.01
2015-16, year 1	-3.73	1.86	-7.38, -0.08	0.05
2015-16, year 3	-7.68	2.81	-13.18, -2.18	0.006
2015-16, year 5	-5.07	3.17	-11.29, 1.15	0.11
2014-15, year 1	-6.45	3.54	-13.39, 0.50	0.07
2014-15, year 3	-6.76	3.69	-13.99, 0.46	0.07
2014-15, year 5	-8.51	3.38	-15.14, -1.87	0.01

Table 2: Results from matched analysis of student progression data (1, 3, and 5 year post Key Stage 4 destination surveys) for sustained education outcome. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

Outcome: Further education				
Cohort and survey year	Difference	Standard error	95% confidence interval	p-value
2019-20, year 1	-12.14	2.41	-16.87, -7.42	< 0.001
2019-20, year 3	-2.02	0.70	-3.39, -0.65	0.004
2018-19, year 1	-8.97	2.31	-13.50, -4.44	< 0.001
2018-19, year 3	0.14	0.81	-1.45, 1.73	0.87
2017-18, year 1	-9.82	2.78	-15.27, -4.36	< 0.001
2017-18, year 3	-2.61	1.19	-4.95, -0.28	0.03
2017-18, year 5	0.08	0.35	-0.60, 0.77	0.81
2016-17, year 1	-9.91	2.94	-15.68, -4.14	< 0.001
2016-17, year 3	-3.69	0.89	-5.44, -1.94	< 0.001
2016-17, year 5	-0.17	0.32	-0.80, 0.45	0.59
2015-16, year 1	-11.15	3.56	-18.14, -4.17	0.002
2015-16, year 3	-2.11	1.73	-5.49, 1.28	0.22
2015-16, year 5	0.82	0.43	-0.01, 1.65	0.05
2014-15, year 1	-14.92	3.96	-22.68, -7.17	< 0.001
2014-15, year 3	-5.64	1.54	-8.66, -2.62	< 0.001
2014-15, year 5	-0.61	0.40	-1.39, 0.18	0.13

Table 3: Results from matched analysis of student progression data (1, 3, and 5 year post Key Stage 4 destination surveys) for further education outcome. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

Outcome: Sustained employment				
Cohort and survey year	Difference	Standard error	95% confidence interval	p-value
2019-20, year 1	0.17	0.43	-0.68, 1.02	0.69
2019-20, year 3	-2.39	1.59	-5.52, 0.73	0.13
2018-19, year 1	1.32	0.63	0.08, 2.56	0.04
2018-19, year 3	-2.14	1.72	-5.51, 1.23	0.21
2017-18, year 1	1.05	0.49	0.09, 2.01	0.03
2017-18, year 3	1.74	0.89	-0.01, 3.49	0.05
2017-18, year 5	3.69	1.79	0.19, 7.19	0.04
2016-17, year 1	0.68	0.51	-0.32, 1.68	0.18
2016-17, year 3	-0.38	2.20	-4.70, 3.94	0.86
2016-17, year 5	1.74	1.99	-2.16, 5.65	0.38
2015-16, year 1	0.78	0.57	-0.33, 1.89	0.17
2015-16, year 3	1.51	1.94	-2.30, 5.31	0.44
2015-16, year 5	0.66	2.54	-4.32, 5.65	0.79
2014-15, year 1	2.98	0.68	1.66, 4.31	< 0.001
2014-15, year 3	-1.21	2.84	-6.78, 4.37	0.67
2014-15, year 5	0.85	2.88	-4.80, 6.51	0.77

Table 4: Results from matched analysis of student progression data (1, 3, and 5 year post Key Stage 4 destination surveys) for sustained employment outcome. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

Outcome: Not recorded as a sustained destination				
Cohort and survey year	Difference	Standard error	95% confidence interval	p-value
2019-20, year 1	-0.46	0.64	-1.71, 0.79	0.47
2019-20, year 3	-0.08	1.01	-2.06, 1.90	0.94
2018-19, year 1	-0.56	0.72	-1.98, 0.85	0.43
2018-19, year 3	-1.11	1.05	-3.16, 0.94	0.29
2017-18, year 1	-0.04	0.69	-1.39, 1.30	0.95
2017-18, year 3	0.04	1.23	-2.37, 2.46	0.97
2017-18, year 5	0.56	1.24	-1.87, 2.99	0.65
2016-17, year 1	-0.02	0.77	-1.53, 1.48	0.98
2016-17, year 3	-2.98	0.62	-4.20, -1.76	< 0.001
2016-17, year 5	-1.73	1.21	-4.11, 0.65	0.15
2015-16, year 1	-1.18	0.96	-3.06, 0.71	0.22
2015-16, year 3	-2.86	1.28	-5.38, -0.34	0.03
2015-16, year 5	-3.59	1.50	-6.53, -0.65	0.02
2014-15, year 1	-0.78	1.05	-2.84, 1.27	0.46
2014-15, year 3	0.57	0.96	-1.31, 2.45	0.55
2014-15, year 5	0.28	1.80	-3.25, 3.80	0.88

Table 5: Results from matched analysis of student progression data (1, 3, and 5 year post Key Stage 4 destination surveys) for not recorded as a sustained destination outcome. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

Outcome	Difference	Standard error	95% confidence interval	p-value
Education, apprenticeship, or employment	0.64	0.81	-0.94, 2.22	0.43
Education	-2.76	1.50	-5.70, 0.18	0.07
Apprenticeship	1.80	0.68	0.46, 3.14	0.008
Employment	1.67	0.63	0.43, 2.91	0.008
No sustained destination (NEET)	-1.02	0.77	-2.53, 0.48	0.18

Table 6: Results from matched analysis of Key Stage 4 (KS4) leaver survey data. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points.

With adjustment for covariates				
Outcome	Difference	Standard error	95% confidence interval	p-value
Sustained education, apprenticeship or employment	1.45	1.38	-1.26, 4.16	0.30
Sustained education	-12.87	3.44	-19.62, -6.12	< 0.001
Further education	-0.92	0.40	-1.70, -0.14	0.02
Sustained apprenticeship	13.63	1.35	10.98, 16.27	< 0.001
Sustained employment	0.76	2.08	-3.32, 4.84	0.72
Not recorded as having a sustained destination	-1.27	1.21	-3.64, 1.10	0.29
Without adjustment for covariates				
Outcome	Difference	Standard error	95% confidence interval	p-value
Sustained education, apprenticeship or employment	0.46	1.02	-1.54, 2.46	0.65
Sustained education	-12.80	2.51	-17.72, -7.88	< 0.001
Further education	-0.81	0.41	-1.61, -0.01	0.05
Sustained apprenticeship	13.43	1.82	9.87, 17.00	< 0.001
Sustained employment	-0.12	1.39	-2.84, 2.59	0.93
Not recorded as having a sustained destination	-0.04	0.79	-1.60, 1.51	0.96

Table 7: Results from matched analysis of 16-18 leaver survey data. Estimates represent mean difference in the outcome variable associated with UTC status measured in percentage points. Results are presented with and without adjustment for contextual covariates.

Outcome	Difference	Standard error	95% confidence interval	p-value
Progress 8 - maths element	-0.06	0.09	-0.23, 0.11	0.49
Progress 8 - English element	-0.38	0.08	-0.54, -0.21	< 0.001
Attainment 8 - maths element	0.23	0.24	-0.24, 0.69	0.34
Attainment 8 - English element	-0.47	0.22	-0.90, -0.04	0.03

Table 8: Results from matched analysis of student attainment data at Key Stage 4. Estimates represent mean difference in the outcome variable associated with UTC status.

Outcome	Difference	Standard error	95% confidence interval	p-value
Progress 8 - maths element	-0.02	0.11	-0.24, 0.19	0.83
Progress 8 - English element	-0.28	0.11	-0.51, -0.06	0.01
Attainment 8 - maths element	0.48	0.24	0.01, 0.95	0.05
Attainment 8 - English element	-0.09	0.25	-0.58, 0.40	0.72

Table 9: Results from matched analysis of student attainment data at Key Stage 4 restricting to disadvantaged pupils. Estimates represent mean difference in the outcome variable associated with UTC status.

	A levels		L3 Vocational Certificates		L3 Vocational Diplomas		L3 Vocational Extended Diplomas	
	UTCs	Non-UTCs	UTCs	Non-UTCs	UTCs	Non-UTCs	UTCs	Non-UTCs
All England	-0.36	0.00	-0.14	0.00	-0.16	0.02	0.22	0.00
North West	-0.38	0.00	-0.14	0.12	-0.26	0.17	0.49	0.11
North East	0.19	-0.09	0.24	0.01	-0.13	-0.04	–	-0.28
Yorkshire	-0.40	-0.03	-0.03	0.10	-0.20	0.13	0.25	0.01
West Mids	-0.32	-0.06	-0.06	-0.02	0.27	0.03	0.29	0.01
East Mids	-0.53	-0.06	0.17	-0.03	0.21	-0.29	0.09	-0.14
East	-0.33	-0.01	0.21	-0.06	0.28	-0.09	–	-0.16
London	-0.53	0.03	-0.41	-0.04	-0.48	0.04	-0.12	0.15
South East	-0.32	0.04	-0.44	-0.02	-0.31	0.02	0.24	-0.18
South West	-0.14	0.00	0.17	-0.02	-0.41	0.03	-0.15	-0.01

Table 10: Average value-added scores for student attainment at 16-18 years by qualification type for UTCs versus non-UTCs in the whole of England, and in regions of England. A dashed line indicates that there were no reported outcome data at UTCs for this qualification type.

	UTCs		non-UTCs	
Grade	Number of students	%	Number of students	%
Total entries	132	100.0	7281	100.0
Distinction*	0	0.0	14	0.2
Distinction	19	14.4	1165	16.0
Merit	70	53.0	3498	48.0
Pass	35	26.5	1985	27.3
Partial achievement	8	6.1	598	8.2
Unclassified	0	0.0	21	0.3

Table 11: T level results split by grade for UTCs versus non-UTCs in the whole of England. Data are available for 8 UTCs and 147 non-UTCs.

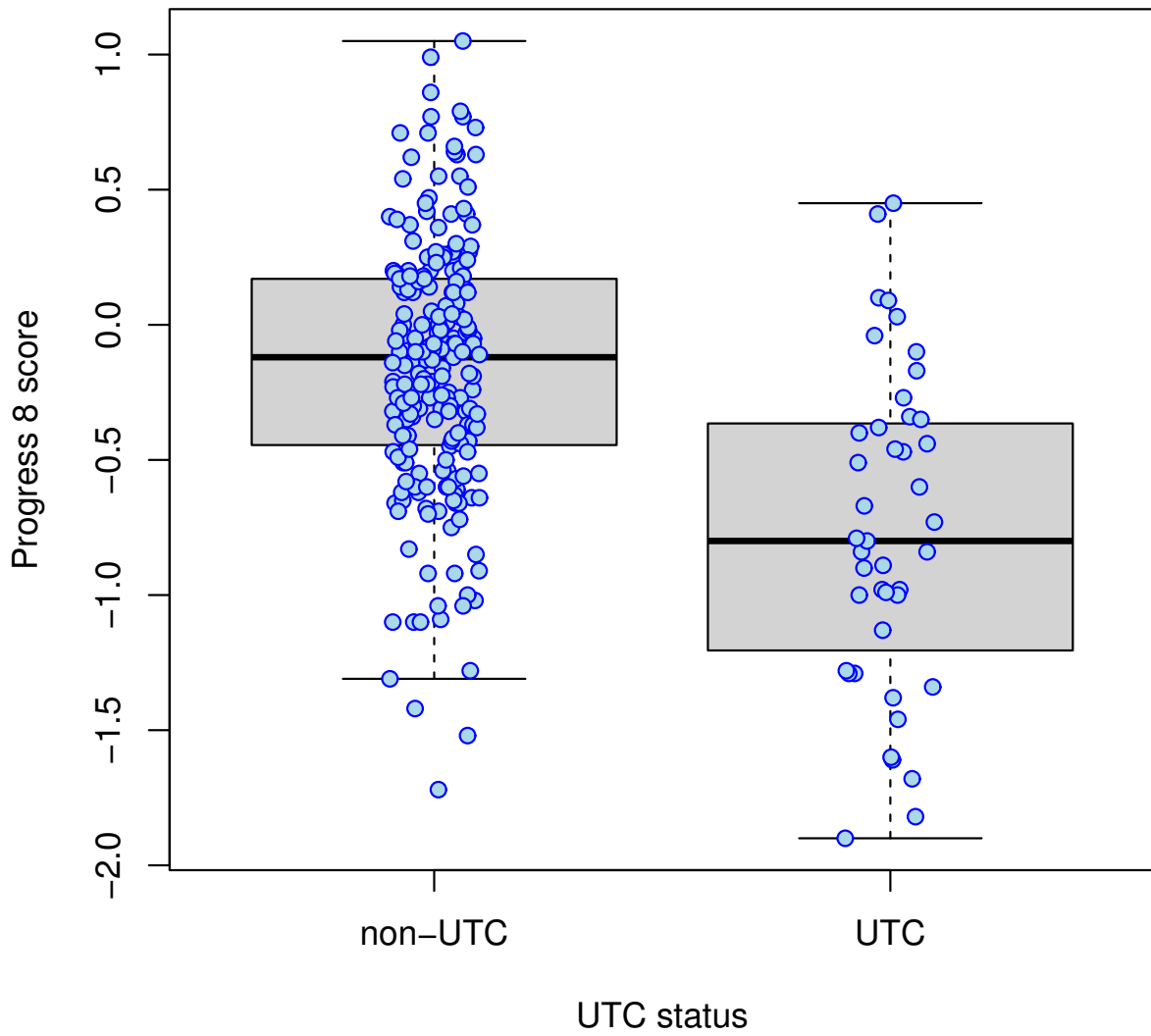


Figure 2: Boxplot showing Progress 8 scores for UTCs and matched set of non-UTC schools.

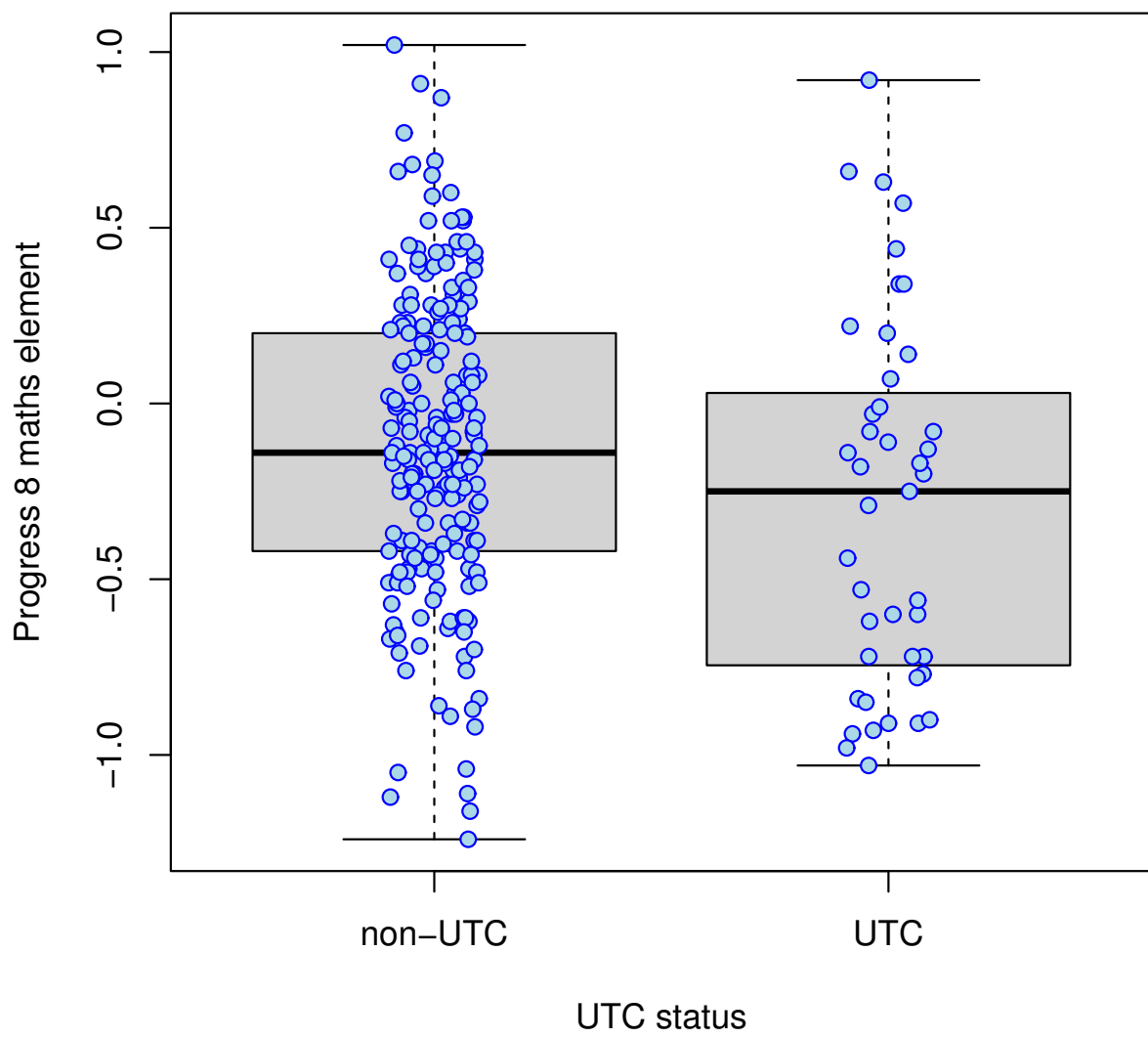


Figure 3: Boxplot showing Progress 8 maths component scores for UTCs and matched set of non-UTC schools.

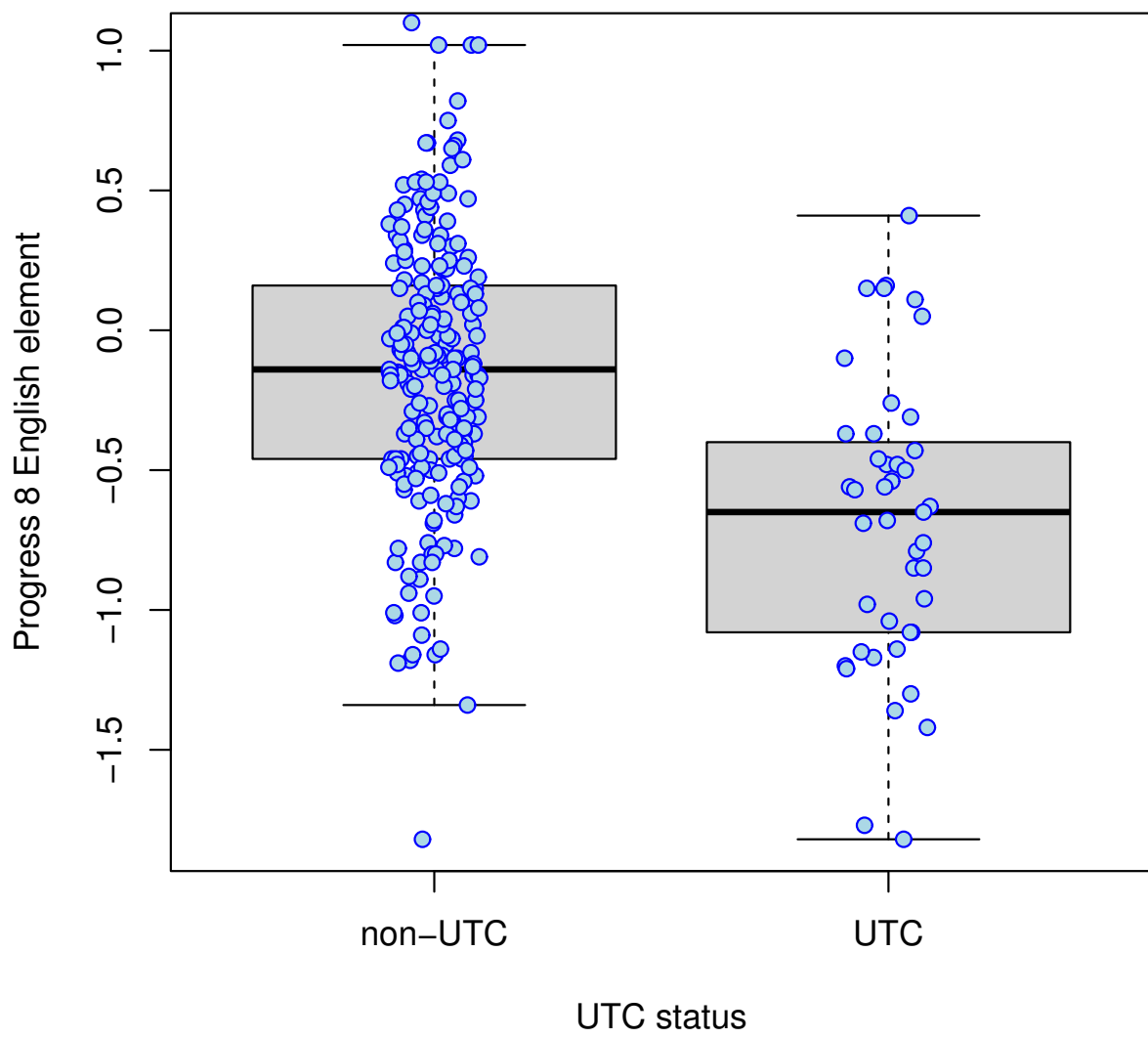


Figure 4: Boxplot showing Progress 8 English component scores for UTCs and matched set of non-UTC schools.

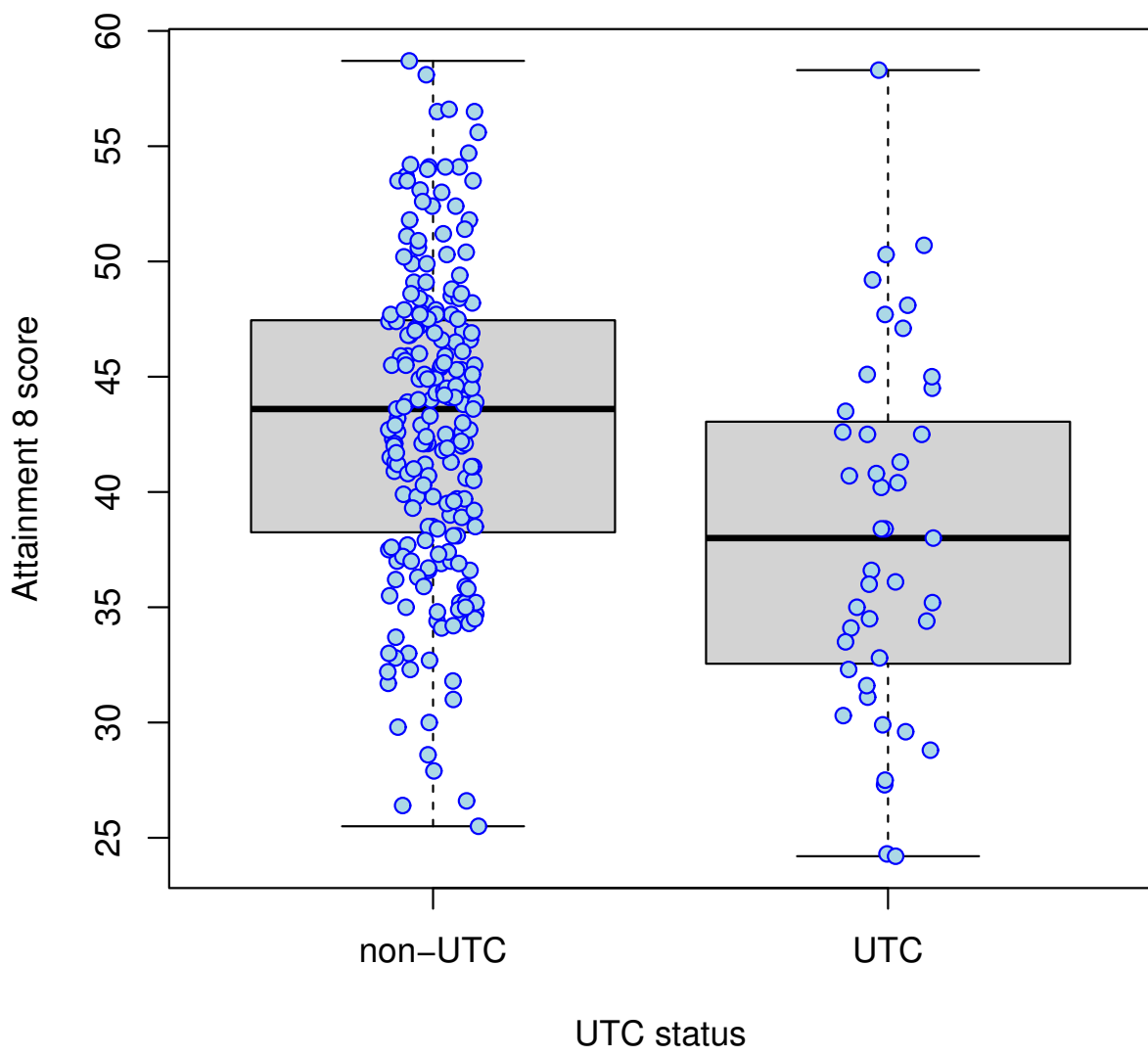


Figure 5: Boxplot showing Attainment 8 scores for UTCs and matched set of non-UTC schools.

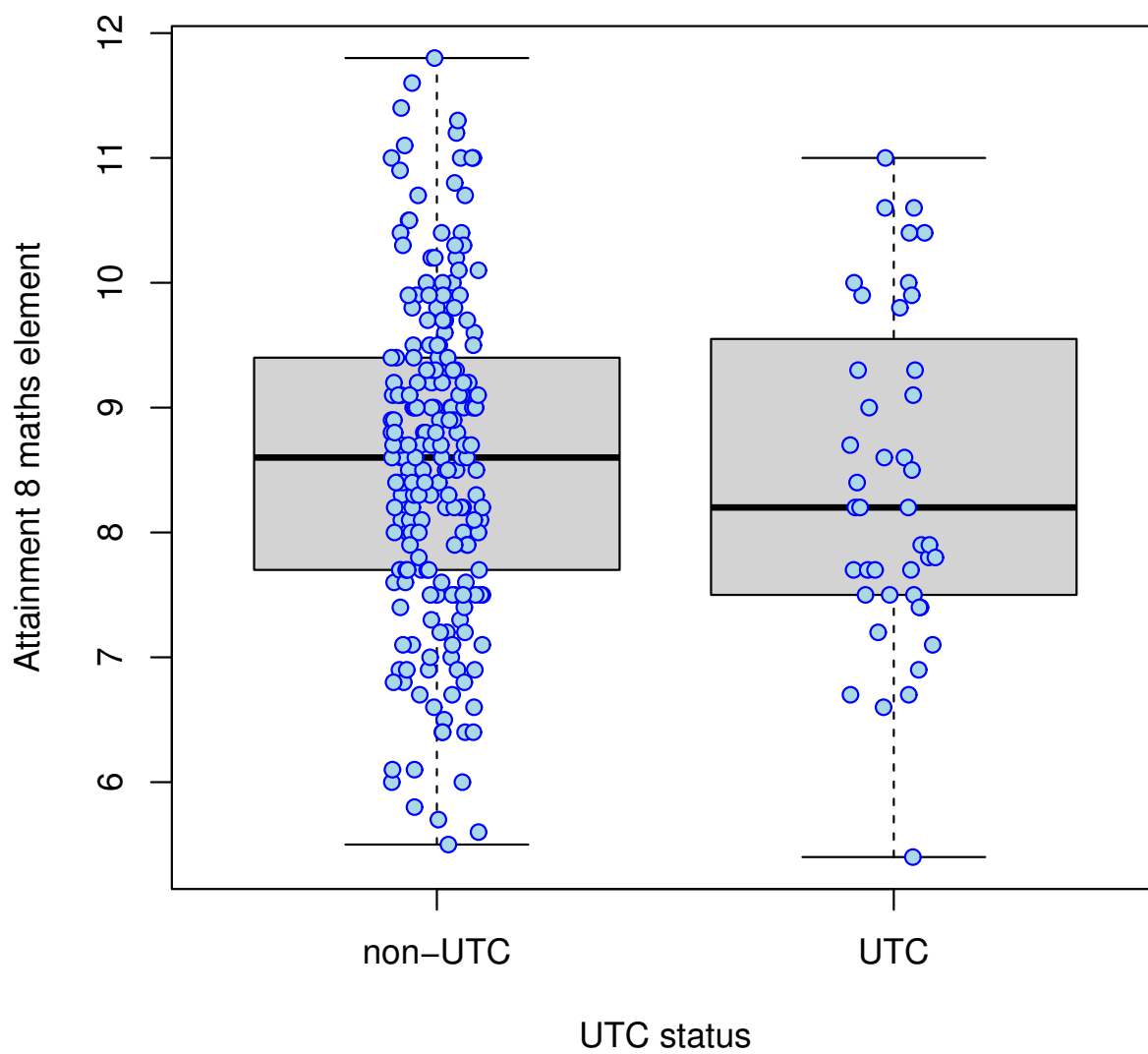


Figure 6: Boxplot showing Attainment 8 maths component scores for UTCs and matched set of non-UTC schools.

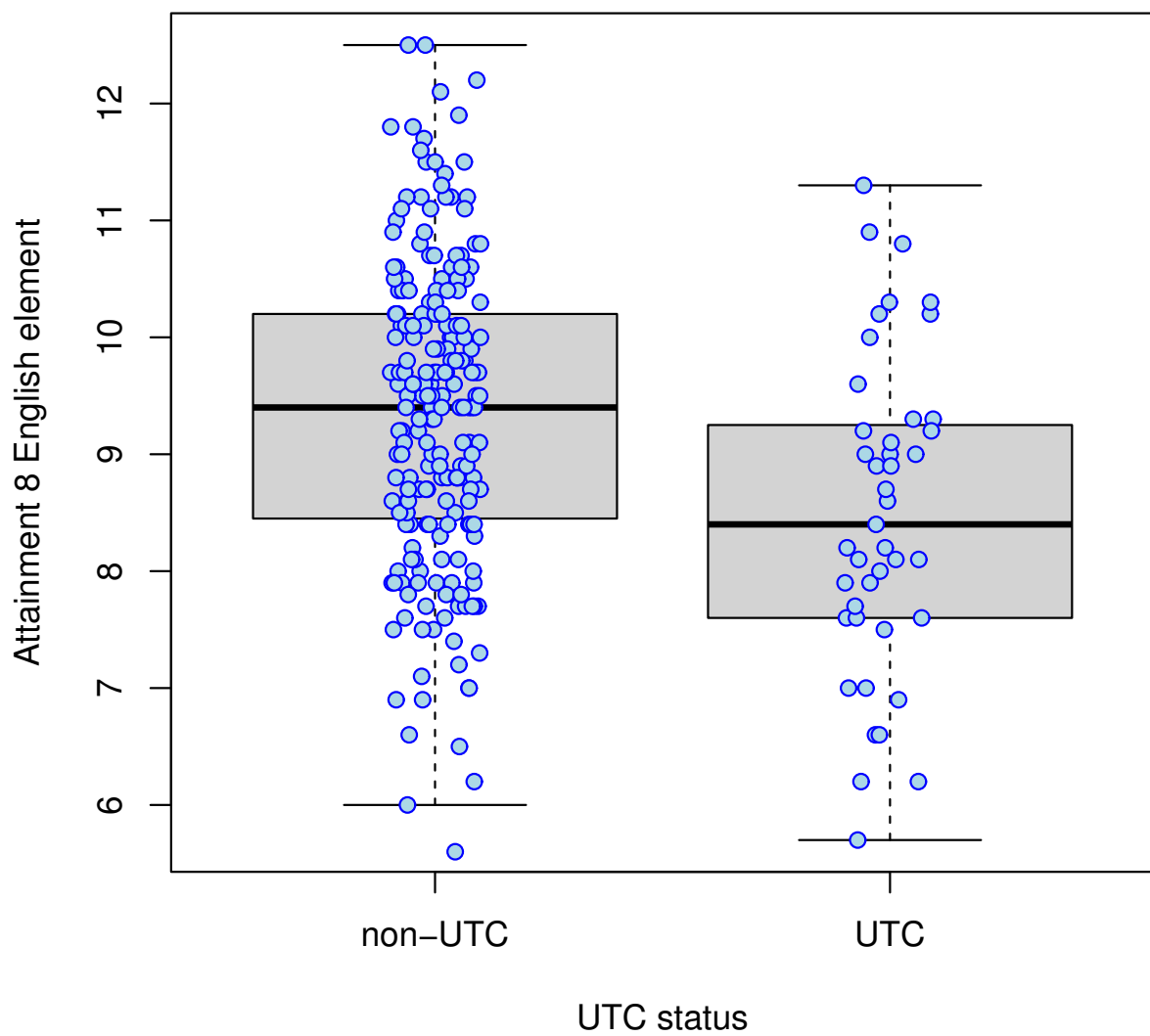


Figure 7: Boxplot showing Attainment 8 English component scores for UTCs and matched set of non-UTC schools.

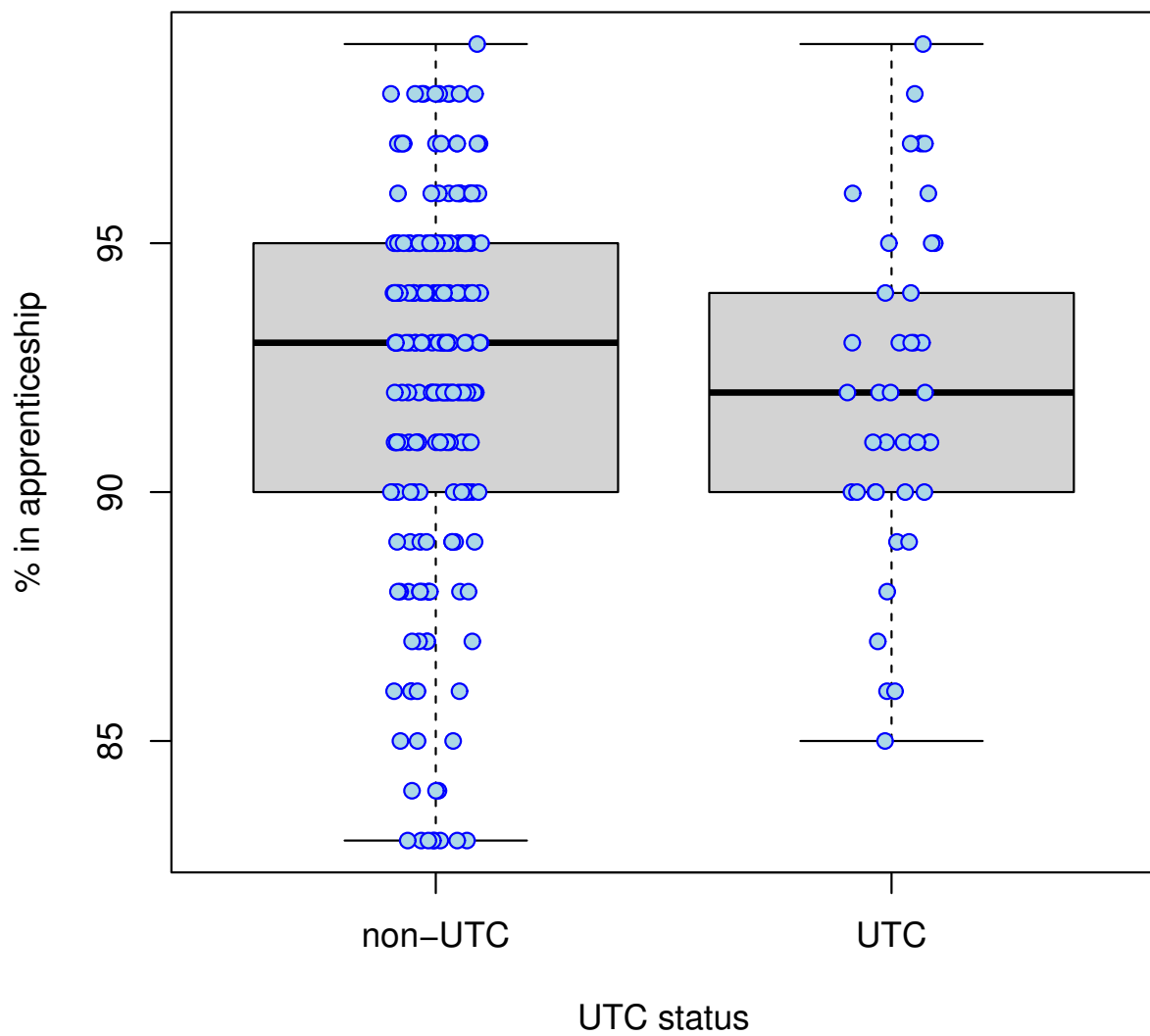


Figure 8: Boxplot showing percentage of students in an apprenticeship in Key Stage 4 leavers survey for UTCs and matched set of non-UTC schools.

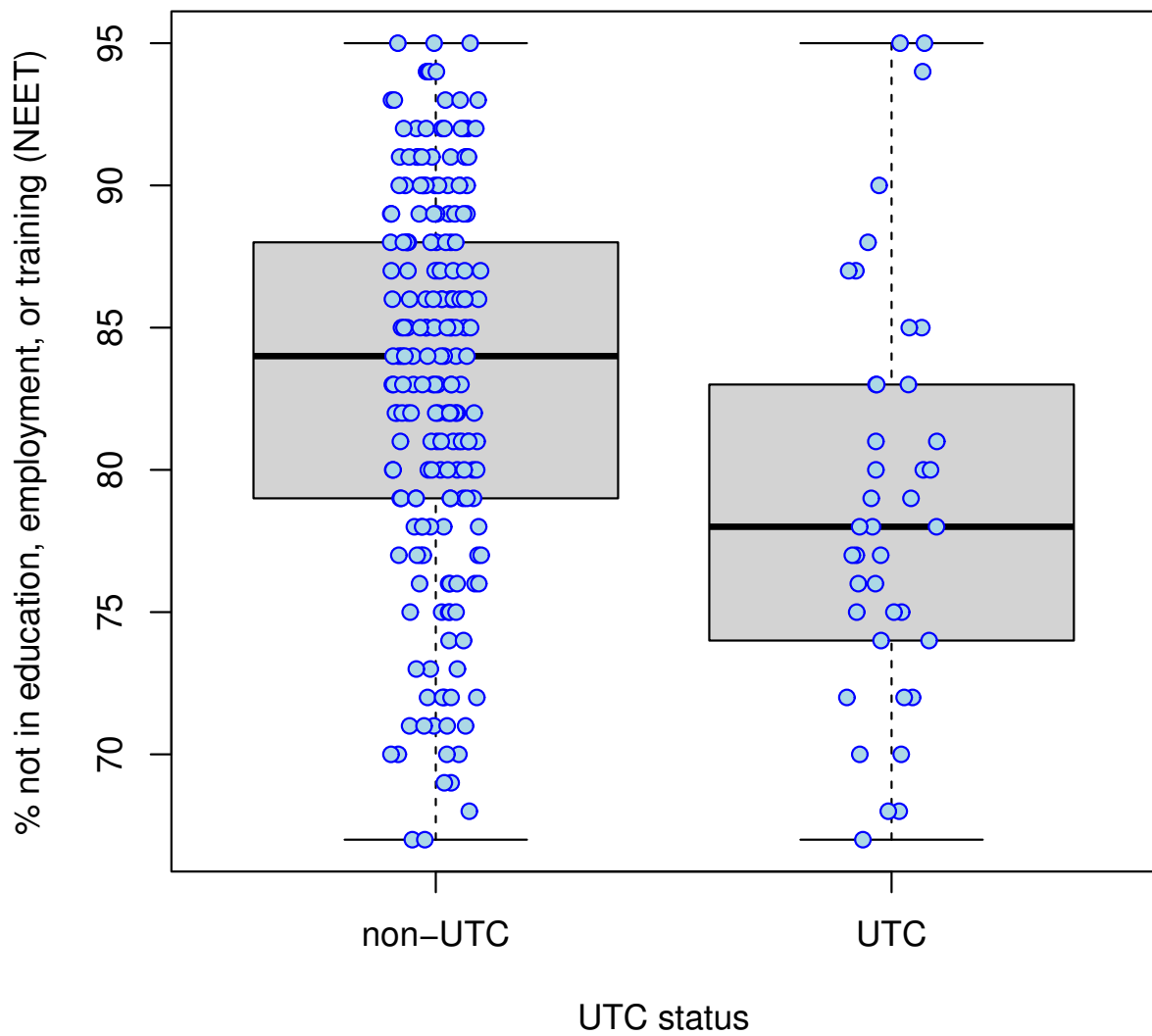


Figure 9: Boxplot showing percentage of students not in education, employment, or training (NEET) in Key Stage 4 leavers survey for UTCs and matched set of non-UTC schools.