

# **YOUNG PEOPLE'S EDUCATION CHOICES AND PROGRESSION TO HIGHER EDUCATION**

**A Comparison of A-Level and Non-A-Level  
Students in Key Stage 5, their Subject Choices  
and Transitions to University**

**Matthew Bursnall<sup>1</sup>  
Andreina Naddeo<sup>2</sup>  
Stefan Speckesser<sup>3</sup>**

<sup>1</sup>University of Sheffield

<sup>2</sup>Cardiff Metropolitan University

<sup>3</sup>National Institute of Economic and Social Research

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National Institute of Economic and Social Research

2 Dean Trench St

London SW1P 3HE

T: +44 (0)20 7222 7665

E: [enquiries@niesr.ac.uk](mailto:enquiries@niesr.ac.uk)

[niesr.ac.uk](http://niesr.ac.uk)

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# Young people's education choices and progression to Higher Education: A comparison of A-Level and Non-A-Level students in Key Stage 5, their subject choices and transitions to university

Matthew Bursnall, Andreina Naddeo and Stefan Speckesser

## *Abstract*

This study analyses students' choices when leaving Key Stage 4 (KS4) to Key Stage 5 (KS5) for pupils progressing to either academic A-Level or vocational "Non-A-Level" Level 3 programmes. Using school-level data (published by the Department for Education) and linked administrative data, which follow 650,000 pupils leaving English secondary schools in 2009/10 until 2012/13, we describe the educational routes chosen after KS4, i.e. Non-A-Level, A-Level or mixed Level 3 education, and subject specialisation, and explain their association with progression to Higher Education (HE).

In the main part of the study, we describe educational routes chosen after KS4 and their relation to access to HE. We make use of descriptive and econometric methods, which can account for differences in learner characteristics and schools at much greater detail than previous studies exploiting the large scale data properties of the census-level education register.

Our main contribution is the investigation of how specific KS5 choices and subject specialisation affect subsequent progression to HE and the type of the Higher Education Institution (HEI) attended. This is done using multivariate regression models, which account for education performance since primary school and further important pupil characteristics.

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## *Disclaimer*

The views expressed in this report are the authors' and do not necessarily reflect those of the Gatsby Charitable Foundation, the Institute for Employment Studies or the National Institute of Economic and Social Research.

## *Contact details*

Stefan Speckesser, (s.speckesser@niesr.ac.uk), National Institute of Economic and Social Research, 2 Dean Trench Street, London SW1P 3HE

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# Executive summary

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## Brief summary of the study

### Aims and objectives

This study analyses students' choices when leaving Key Stage 4 (KS4) to Key Stage 5 (KS5) for pupils progressing to either academic A-Level or vocational "Non-A-Level" Level 3 programmes. Using school-level data (published by the Department for Education) and linked administrative data, which follow 650,000 pupils leaving English secondary schools in 2009/10 until 2012/13, we describe the educational routes chosen after KS4, i.e. Non-A-Level, A-Level or mixed Level 3 education, and subject specialisation, and explain their association with progression to Higher Education (HE).

In the main part of the study, we describe educational routes chosen after KS4 and their relation to access to HE. We make use of descriptive and econometric methods, which can account for differences in learner characteristics and schools at much greater detail than previous studies exploiting the large scale data properties of the census-level education register.

Our main contribution is the investigation of how specific KS5 choices and subject specialisation affect subsequent progression to HE and the type of the Higher Education Institution (HEI) attended. This is done using multivariate regression models, which account for education performance since primary school and further important pupil characteristics.

### Findings

The findings show a wide gap in progression to HE for people after KS5. In parts, the difference is related to the KS5 school type attended, but most importantly depends on the choice between following A-Level and Non-A-Level routes. When controlling for differences in performance, e.g. focusing on the students with very good attainment in their Non-A-Level qualifications, we find less progression to university education than for A-Level students of both similar or weaker performance. Those starting HE also less often attend the prestigious Russell group universities, again after controlling for prior ability.

When we look more clearly into subject specialisation in A-Level and Non-A-Level routes, we find in both routes that an increasing specialisation in STEM subjects more often results in HE access. We also find an increase in studying STEM in HE by STEM specialisation for A-Level students, but not so much for students

specialising in other subjects. However, once we apply a “Universities and Colleges Admissions Service (UCAS)-Tariff” measure to make A-Levels and the variety of Non-A-Level qualifications more comparable, differences in progression because of subject specialisation become much smaller, except for Non-A-Level students, who show a marked increase in transitions to HE when specialising in STEM.

While some of these differences in education progression are likely to result from the higher labour market value of Non-A-Level qualifications and preferences of young people to start work rather than attending HE, the limited progression of people leaving vocational and technical routes in KS5 points towards a barrier for further education investment and social mobility.

## Options to improve progression to tertiary education for Non-A-Level students

Continued education investment should be the first choice for young people achieving both A-Level and Non-A-Level qualifications in KS5 with best performance because of the significant benefits from attending tertiary education, e.g. in terms of their life-time earnings. However, when comparing education progression for A-Level and Non-A-Level students of high attainment (applying a UCAS-Tariff measure), we find that larger shares of A-Level students with low KS5 performance progress to HE compared to Non-A-Level students with high performance. Since Non-A-Level qualifications are more often taken by students from economically disadvantaged backgrounds<sup>1</sup>, the lower education progression from such routes are likely to adversely affect social mobility.

### Which options to improve the situation could be looked at in light of the findings?

1. **Young people need to be well informed** about how KS5 choices affect their education progression. A selection into Non-A-Level routes, while likely to have higher initial labour market value, is likely to curtail educational progression.
2. A disadvantaged family background remains a barrier for young people to progress to A-Levels with long-term negative effects on social mobility.  
**Improving targeted financial support** for families would be another important mechanism to increase progression to A-Levels and further tertiary education.
3. Students with successful achievement in Non-A-Level programmes would benefit from a tailored offer of tertiary education, which is specific in that it builds on existing vocational and technical education and skills. In ongoing research, we find evidence that higher vocational education (Levels 4 and 5) such as Higher National Diplomas (HND) are an important mechanism for progression from Non-

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<sup>1</sup> E.g. described in our CVER discussion paper on *Peer Effects and Social Influence in Post-16 Educational Choice*, Hedges and Speckesser 2017

A-Level qualifications, especially for mature students (Espinoza and Speckesser, 2019, forthcoming). McIntosh and Morris (2016) and Conlon et al. (2017) show that Level 4 and 5 qualifications have a strong earnings premium in the labour market.

Therefore, we believe that **improving the provision of higher vocational programmes** could be an important building block to improve progression routes for students with high performance in Non-A-Level qualifications. Programmes would have to offer both attractive education credentials with value in the labour market and access to further education investment for high-ability students to enable progression for the best students to higher academic or technical qualifications.

4. Finally, the introduction of the Apprenticeship Levy resulted in new Apprenticeship Standards, many involving **Higher Apprenticeships**, which can create further opportunities for tertiary education at either Levels 4 and 5 or degree (or equivalent) based on employer funding.

## Detailed summary of the key findings

### Analysis of school-level data

In the first part of this report, we analyse the transition from KS5 to HE using school level data of the academic year 2011/12 (published by the Department for Education), which represents the cohort analysed using individual-level data in the main part of this study. Using data on KS5 leavers of 2,824 schools, we find that both school type and the school's admissions policy are important determinants of students' outcomes. Key findings are:

- Students leaving an **independent school** are the least likely to start an apprenticeship or to be in employment the subsequent year compared to pupils leaving other types of KS5 schools.
- **Selectivity of the school** attended during KS5 is an important predictor for higher educational choices:
  - Between 60% and 70% of leavers from selective institutions are in HE during the academic year 2012/13 (compared to around 50% for comprehensive schools).
  - School level data also report the **specific type of university attended**: On average, of the KS5 leavers from independent schools, 40% go to a top third<sup>2</sup> HEI compared to 18% of those from maintained schools and 8% of leavers of further education colleges.

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<sup>2</sup> Defined in detail in Section 2.1.2

- On average 45% of individuals attending a selective school go to a top third HEI in the academic year after leaving KS5, compared to 17% of the comprehensive schools and academies.
- Finally, we analyse the impact of school's intake in terms of eligibility for Free School Meal (FSM) by comparing schools with the highest shares of such pupils and the others: Of the KS5 leavers from the 991 schools with at least 10% FSM-eligible students, 46.5% of students progressed to HE in 2012/13 compared to 56.8% of KS5 leavers with fewer than 10% of FSM-eligible students.

## Analysis of individual level data

### Source data

In the main part of the study, we use register data at individual level from the National Pupil Database (NPD) linked to records from the Higher Education Statistics Agency (HESA) and explore the relationship between educational choices of pupils in KS5 and the entry into HE (2012/13). We focus on the cohort of 2009/10 KS4 leavers (650,000 pupils) linked to KS5 data (for 2010/11 and 2011/12, 63% of the original cohort) and HESA data (for 2012/13, 25% of the cohort).

The linked NPD-HESA data are then analysed by broad groups of socio-demographic characteristics, such as gender, ethnicity and eligibility for free school meals. We use these variables to describe educational choices and progression from KS5 to HE for different socio-economic groups and different KS5 choices.

### Data processing

Since A-Level and Non-A-Level qualifications taken by KS5 students differ widely, we first categorise the many different KS5 qualifications that students can undertake into four broad routes. These routes capture a large number of many different qualifications, especially when looking at Non-A-Level qualifications, from which students can choose after KS4. The routes are:

- A-Level only in KS5
- A-Level combined with Non-A-Level (e.g. BTEC qualifications) in KS5
- AS Level combined with Non-A-Level in KS5
- Non-A-Level only in KS5

(In addition to this, people can leave KS4 to non-KS5 education at or below Level 2 due to insufficient GCSE performance to progress to a Level 3 qualification or leave education altogether).

Because Non-A-Level qualifications and A-Levels differ in terms of grades, we construct a variable based on the Universities and Colleges Admissions Service



(UCAS) tariff, to make high and low achievement within the different routes of Non-A-Level and general education more comparable.

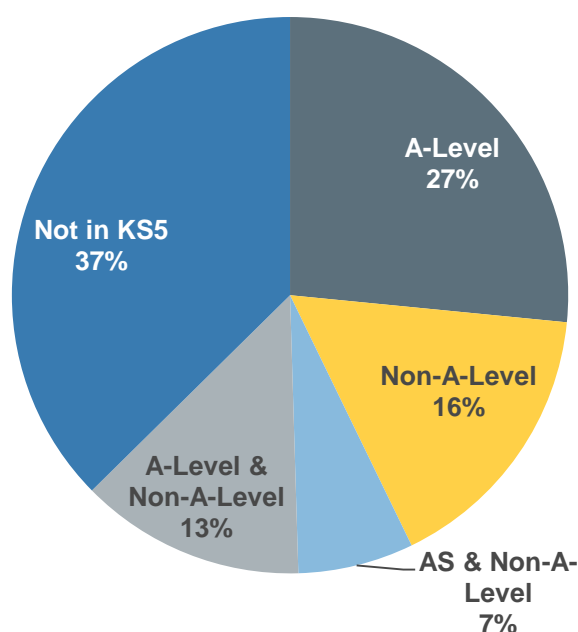
### KS4 to KS5 transition and 'routes'

In the first step, we look into the destinations of all pupils leaving KS4 in 2009/10. People either continue education in Level 3 routes at KS5, work towards Level 2 qualifications (or lower Levels) or leave education entirely.

Figure 1 shows the destination of 650,000 pupils who left KS4 in the academic year 2009/10. 37% of the cohort did not progress to Level 3/KS5. These KS4 leavers are either not in education or remain in a Level 2 qualification (i.e. at the same level as GCSE) or start learning below Level 2. Of those progressing to Level 3 qualifications, the majority are A-Level students or those combining A-Levels and Non-A-Level qualifications (~40%).

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**Figure 1: 2009/10 KS4 leaver's destination**



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*Source: KS4 and KS5 linked NPD database (DfE).*

### Subject specialisation at KS5

#### *Subjects taken*

We then focus on students progressing to KS5, looking into specific subject choices and degree of specialisation. We find that 72% of all A-Level students have at least one Level 3 qualification in the social sciences, followed by students having at least one qualification in Art, Languages and Humanities (66%), STEM (53%), the residual subject category (42.5%) and Business (14%).

When looking into specialisation within KS5 qualifications, the percentage of “A-Level-Only” students with at least two qualifications in the same subject area is quite similar for STEM, arts, humanities and languages and social science, 34%, 33% and 35% respectively. However, for a higher degree of specialisation with three or more qualifications in the same subject area, students focusing on STEM subjects specialise most often: 20% of all A-Level students undertake at least three A-Levels in STEM. Arts, languages and Humanities followed by the social Sciences have much lower degrees of specialisation by this measure with around 14% and 8% of all A-Level students undertaking at least three A-Levels in these subject areas.

### *Subgroup differences*

We find important differences in educational choices for different groups of learners:

- **Girls** choose A-Levels more frequently than boys: 54.2% of A-Level only pupils are girls. This indicates gender bias in route selection; a similar bias is also present at subject level. **Girls** are less likely than boys to have at least one qualification in a STEM subject, 45% compared to 63% for boys, a gap of 18 percentage points.
- There are also gaps in subject choices by **ethnic group** and **whether people achieved five GCSEs at grades A\* to C**. Those with five or more good GCSEs are two times more likely to choose at least one STEM subject and the gap increases with the degree of specialisation.
- People with **five good GCSEs** who choose A-Levels are more likely to do a social science subject than people with less than 5 (75% compared to 50%).
- **Ethnicity** also has a modest impact on whether people choose STEM with non-white people being about 10 percentage points more likely to take a STEM A-Level than white people.
- No differences are observed when we consider free school meal eligibility.

### **KS5 choices and implications for university education**

Students leaving KS5 with a Non-A-Level qualification are far less likely to enrol on a bachelor’s degree, even if they achieve the same or higher UCAS-Tariff than A-level students. Here, our result is consistent with Hupkau et al. (2016).

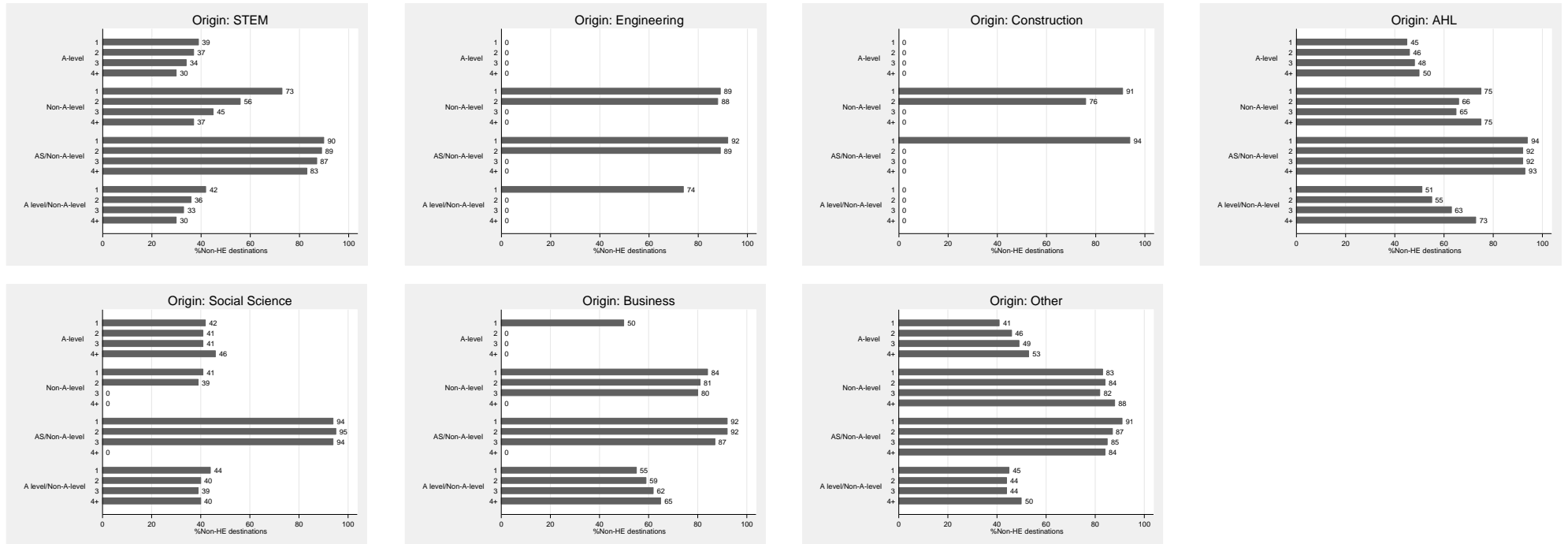
The percentage of students progressing to HE in the year after KS5 is very similar between students taking “A-Levels only” routes and those taking “A-Level and Non-A-Level” (56% and 52%, see Table 1 below), but much lower for pupils with Non-A-Level qualifications (17%) or those combining AS-Levels and Level 3 Non-A-Level qualifications (7%).

When looking more specifically at people from each route **not progressing to HE** by the degree of specialisation at KS5 (see Figure 2 below), we find that Non-A-Level routes lead to a much higher proportion of students not progressing compared to the “academic” routes (A-Levels and Non-A-Level qualifications along-side A-

Levels). Those combining AS Level and Non-A-Level education have the highest percentage of students choosing non-HE for almost all subjects and degrees of specialisation at KS5.

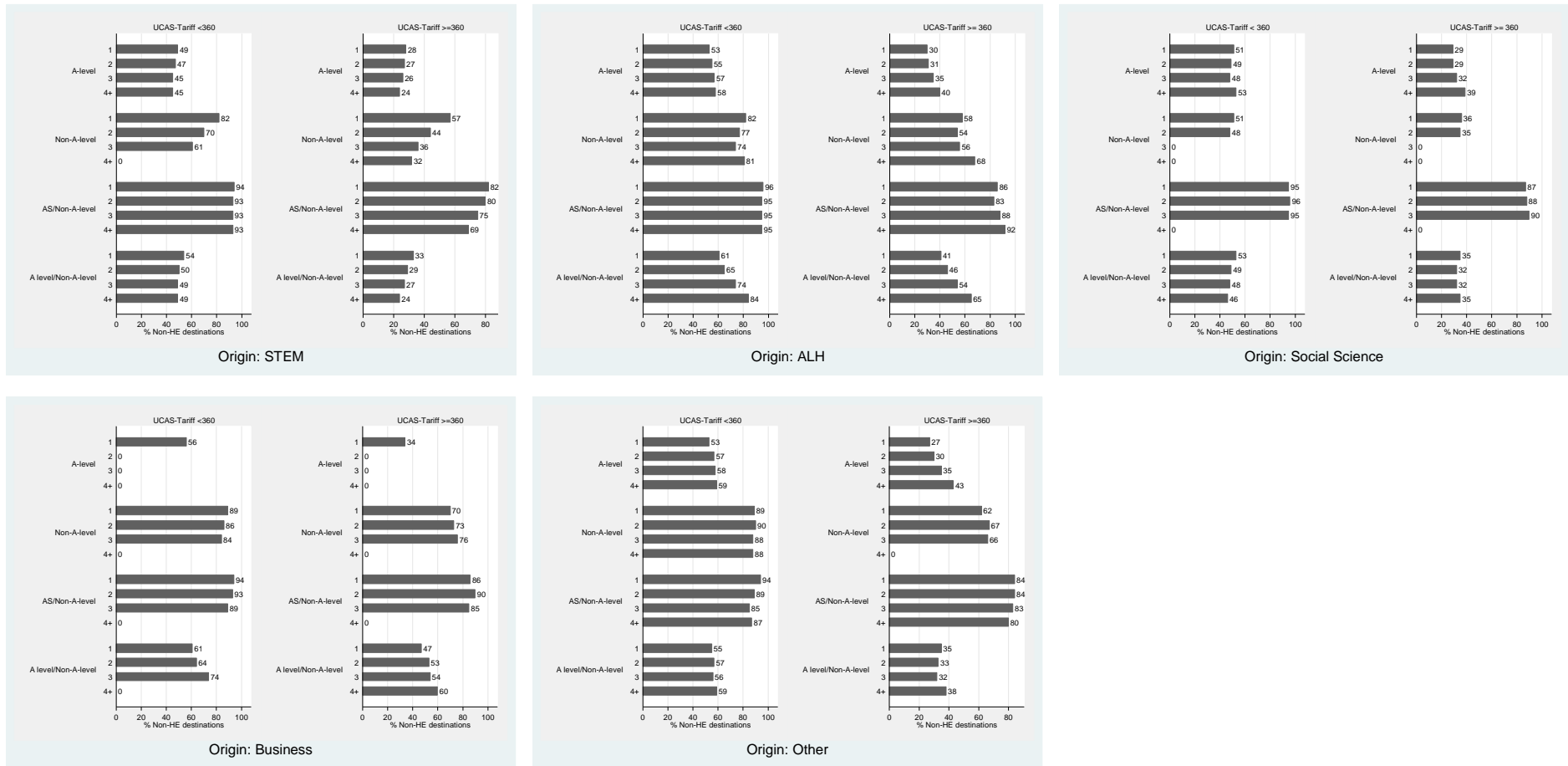
Using the derived UCAS tariff, which makes A-Levels and Non-A-Level qualifications more comparable in terms of achievement, we then focus on high achievers obtaining at least 360 (“old style”) UCAS points for A-Levels or Non-A-Level qualifications and continue to find – with differences by subject specialisation in KS5 – that people with Non-A-Level qualifications are much less likely to attend university (Figure 2 and 3).

**Figure 2: Percentage with transition to non-HEI destinations by subject and number of subjects within route**



Source: KS5-HESA linked database (DfE)

**Figure 3: Percentage with transition to non-HEI destinations by subject and number of subjects within route and UCAS tariff**



Source: KS5-HESA linked database (DfE)



## Differences in the quality of the HEIs chosen by KS5 route

For all KS5 leavers who then actually do enrol at university, there are considerable differences in the types of institution attended (Russell Group, top third, or post – 1992 university), see Table 1. Students with A-Levels and A-Levels combined with Non-A-Level qualifications show very similar KS5-HE transition rates in the year after they leave KS5 (56% and 51% respectively). In contrast, only 7 % of learners with combinations of AS-levels and Non-A-Level qualifications progress to HE, while 17% of those with only Non-A-Level qualifications do it.

Despite little difference in HE subject choices between KS5 routes, there are great differences in the quality of the HEIs attended. The lower part of Table 1 shows that for students with A-levels and A-Levels combined with Non-A-Level qualifications, around half attend Top Third universities. In contrast, the majority of students with Non-A-Level qualifications study at post-1992 universities (76% for only Non-A-Level and 69% for people combining AS Level and Non-A-Level).

**Table 1: Percentage of students in a Higher Education destination by route\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
Non HE	43.8	82.6	93.3	48.4	244,900
HE	56.2	17.4	6.7	51.5	162,100
Total	172,500	105,600	43,700	85,100	
All with HE destination by main subject of course					
STEM	34.9	42.5	39.5	38.1	59,600
Languages, Art and Humanities	26.1	25.3	21.9	24.3	41,300
Social Science	17.9	10.4	11.2	16.2	26,700
Business & Administration	10.0	12.5	16.7	10.3	17,000
Other & Combined	8.1	2.5	5.2	7.5	11,800
Education	3.0	6.8	5.5	3.6	6,000
Total	97,000	18,400	3,000	43,900	162,100
HE characteristics of all with HE destination					
Top Third	46.4	15.1	14.1	45.6	68,200
Russell Group	32.0	7.9	7.4	33.6	47,400
Post 1992	43.9	76.1	68.7	45.2	78,400
Total	97,000	18,400	3,000	43,900	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE)

## Econometric analysis

Findings of the econometric analysis – conditional on a wide range of important individual and school level characteristics – confirm the selectivity of education progression of students leaving KS5 with Non-A-Level qualifications, as found in the descriptive analysis.

# 1 Introduction

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## 1.1 Aims and objectives

Our study analyses students' choices when leaving Key Stage 4 (KS4) to Key Stage 5 (KS5) for pupils progressing to either academic (i.e. A-Level) or vocational programmes (i.e. Non-A-Level programmes such as BTECs). Using linked administrative data, which follow 650,000 pupils leaving English secondary schools in 2009/10 until 2012/13, we describe how young people's educational choices in KS5 affect the transition to Higher Education (HE). We consider differences in observable characteristics of learners and learning providers at a much greater level of detail than previous studies exploiting the large scale data properties of the census-level education register.

In the main part of the study, we describe the educational routes chosen after KS4, i.e. Non-A-Level or A-Level routes, and subject specialisation, and explain their association with progression to HE. We make use of descriptive and econometric methods to exploit rich information about previous achievement during compulsory education and socio-economic indicators. Our main contribution is the investigation of how specific KS5 choices affect subsequent education outcomes, progression to HE and the type of Higher Education Institution (HEI) attended.

## 1.2 Research context

Positive average return to Level 3 qualifications and apprenticeships has been estimated by the literature (e.g. McIntosh, 2006 and 2007). However, there are significant differences in earnings among graduates and non-graduates (Blundell et al., 2005), graduates attending different types of institutions (Hussain et al., 2009, Chevalier and Conlon, 2003) and graduates choosing different subject categories (Walker and Zhu, 2011, Walker and Zhu, 2013, Chevalier, 2011). In particular, these studies suggest a wage premium between 6% and 16% for students attending more prestigious HEI compared with graduates from less prestigious institutions. Their results also suggest that subject choices have an important implication on future salary, with subjects allied to medicine being the ones with the highest return.

A previous attempt to follow a cohort of students and explain their educational choices is Hupkau et al. (2016). The authors use administrative datasets for KS4 2010 cohort to examine the post-16 choices of learners. Their results show that students with low level qualifications progress to other low level qualifications or leave education. Furthermore, the type of Level 3 qualification achieved is correlated with subsequent enrolment at a university: A-levels students are more likely to enrol on a bachelor's degree than students with other qualifications, such as Applied Generals, or Tech Levels. We expand their analysis describing the transition to different paths by considering also the importance of specialisation in the decision making process related to HE.



## 1.3 Summary of results

### 1.3.1 Analysis of school-level data

In the first part of this report, we analyse the transition from KS5 to HE using school level data of the academic year 2011/12 (published by the Department for Education), which represents the cohort analysed with individual-level pupil data in the main part of this study. Key findings are:

- Students leaving an **independent school** are the least likely to start an apprenticeship or to be in employment the subsequent year compared to pupils leaving other types of KS5 schools.
- **Selectivity of the school** attended during KS5 is an important predictor for higher educational choices:
  - Between 60% and 70% of leavers from selective institutions are in HE during the academic year 2012/13 (compared to around 50% for comprehensive schools).
  - School level data also report the **specific type of university attended**: Of the KS5 leavers from independent schools, 40% go to a top third HEI compared to 18% of those from maintained schools and 8% of leavers of further education colleges.
  - 45% of individuals attending a selective school, on average, go to a top third HEI in the academic year after leaving KS5, compared to 17% of the comprehensive schools and academies.
- A description of HE transitions of KS5 leavers from schools with higher and lower shares of pupils with FSM eligibility shows considerable differences in HE transitions depending on student body of schools: Of the KS5 leavers from the 991 schools with at least 10% FSM-eligible students, 46.5% of students progressed to HE in 2012/13 compared to 56.8% of KS5 leavers with fewer than 10% of FSM-eligible students.

### 1.3.2 Analysis of individual level data

#### KS4 to KS5 transition and Level 3 'routes'

In the main part of the study, we look into the destinations of all pupils leaving KS4 in 2009/10. People either continue education in Level 3 routes at KS5, work towards Level 2 qualifications (or lower Levels) or leave education entirely. Out of the 650,000 pupils leaving KS4 at the end of the academic year 2009/10, 37% did not progress to Level 3/KS5. These KS4 leavers are either not in education or remain in a Level 2 qualification (i.e. at the same level as GCSE) or start learning below Level 2. Of those progressing to Level 3 qualifications, the majority are A-Level students (27%) or those combining A-Levels and Non-A-Level qualifications (13%), while 16% are in Non-A-Level programmes and 7% combine AS-Levels with Non-A-Level programmes.

## Subject specialisation at KS5

### *Subjects taken*

We then focus on students progressing to KS5 and look into specific subject choices and degree of specialisation. We find that 72% of all A-Level students have at least one Level 3 qualification in the social sciences, followed by students having at least one qualification in Art, Languages and Humanities (66%), STEM (53%), the residual subject category (42.5%) and Business (14%). There is less subject combination in Non-A-Level programmes KS5 students with this choice often have only one large programme, e.g. a BTEC National Diploma.

When looking into specialisation within KS5 qualifications, the percentage of A-level only students with at least two qualifications in the same subject area is quite similar for STEM, arts, humanities and languages and social science, 34%, 33% and 35% respectively. However, for a higher degree of specialisation with three or more qualifications in the same subject area, students focusing on STEM subjects specialise most often: 20% of all A-Level students undertake at least three A-Levels in STEM.

### KS5 choices and implications for university education

Similar to Hupkau et al. (2016), we find that students leaving KS5 with a Non-A-Level certificate are far less likely to enrol on a bachelor's degree, even if they achieve the same or higher UCAS-Tariff than A-level students.

The percentage of students progressing to HE in the year after KS5 is very similar if we compare the "A-Levels only" route with people combining "A-Level and Non-A-Level" (56% and 52%), but much lower for pupils with Non-A-Level qualifications (17%) or those with AS-Levels and Level 3 Non-A-Level qualifications (7%).

When looking more specifically at people **not progressing to non-HE** from each route by the degree of specialisation at KS5, we find that Non-A-Level routes lead to a much higher proportion of students not progressing, compared to the "academic" routes (students with A-Levels and a Non-A-Level qualification along-side A-Levels). Those combining AS Level and Non-A-Level education have the highest percentage of students choosing non-HE for almost all subjects and degrees of specialisation.

Based on attainment, we derive the UCAS tariff of all Level 3 qualifications to make A-Levels and other Non-A-Level qualifications more comparable in terms of achievement. When we focus on high achievers obtaining at least 360 ("old style") UCAS points for A-Levels or Non-A-Level qualifications and continue to find – with differences by subject specialisation in KS5 – that people with Non-A-Level qualifications are much less likely to attend university (Figures 2 and 3).

### Analysis using Probit models

Findings of the econometric analysis – conditional on a wide range of important individual and school level characteristics – confirm the selectivity of education progression of students leaving KS5 with Non-A-Level qualifications.

## 1.4 Implications

Our central finding is the limited tertiary education progression of young people achieving Non-A-Level qualifications in KS5 (compared to A-Levels as an alternative choice), even when academic performance would suggest great benefits from further investment in education. When applying a UCAS-Tariff making academic performance more comparable, larger shares of A-Level students with low performance progress to HE compared to Non-A-Level students with high performance.

As Non-A-Level qualifications are more often taken by students from economically disadvantaged backgrounds (as discussed in our research on *Peer Effects and Social Influence in Post-16 Educational Choice*, Hedges and Speckesser 2017), a lack of opportunities of education progression has adverse effects on social mobility. An improvement of this situation would be a system of tertiary education, which would offer similar opportunities for education progression for both A-Level and Non-A-Level students of high performance.

## 1.5 Outline of the report

This report is structured as follows: Section 2 presents a description of the education system in England and the findings from the school-level analysis. In section 3, we report findings from the analysis of individual learners, from the transition from KS4 to KS5, the educational routes and subjects chosen during KS5 and the transition to HE after the end of KS5 in 2012/13. In section 4, we conduct an econometric analysis explaining particular education outcomes. We discuss and conclude in section 5.

## 2 School-level analysis

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### 2.1 The English education system

#### 2.1.1 Primary and secondary education

The English education system is divided into five stages: early years, primary, secondary, Further Education (FE) and Higher Education (HE). Education is compulsory from the September after children turn 5 up to age 18<sup>3</sup>. At age 5 children enter Key Stage 1 and are assessed at age 7. After that, they start Key Stage 2, which concludes with a test at age 11. The transition to secondary education typically occurs at this age.

Secondary education is provided by state-funded schools, which students can attend without charge up to age 16, and independent ones – privately run.

The most common state-funded schools providing secondary education are:

- Community schools
- Academies and free schools
- Grammar schools

Among these schools, academies and free schools are state funded but have much more freedom over how they do things. This greater freedom is granted to help innovate and raise standards.

Secondary schools can be either comprehensive or selective. Comprehensive schools tend to admit pupils without selecting them by ability, while selective schools, such as grammar schools and most independent schools, select their students on the basis of their academic ability.

At the end of lower secondary education (Key stage 4, KS4), students have to undertake exams for the General Certificates of Secondary Education (GCSEs) and are expected to achieve a full Level 2 qualification, defined as 5 GCSEs. They usually undertake exams in 8 to 10 subjects, and their outcome affects the course of study they can access the following year.

Students who achieve 5 or more GCSEs at grades A\*-C do not encounter problems in progressing to Level 3 qualifications as their educational choice for upper secondary/non-tertiary education, see e.g. Crawford et al. (2011). Most of these students choose A-

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<sup>3</sup> Education was compulsory until age 16 until 2012. School leaving age was raised to 17 in 2013 and to 18 in 2015 (students have to stay in some sort of education between age 16-18, but this can include employment with a substantial training element).

Levels (as our analysis in Section 4 shows) in Key Stage 5. Apart from A-levels, there is a wide range of Non-A-Level qualifications from which post-16 students can choose. As Hupkau et al. (2016) report, there are 3,729 qualifications at Level 3 in England. Moreover, as of May 2016, there were 9,835 qualifications at Level 2 and below approved for learners aged 16 to 18. Students, who do not achieve the pre-requisites to study for Level 3 qualifications continue to study at Level 2 or even below and are not included in KS5 data. In contrast to Level 3 qualifications (which normally last for 2 years), such Level 2 or Below Level 2 qualifications for learners with lower GCSE attainment are often not full time and may last for less than the full academic year.

To make matters more complicated, students can simultaneously pursue different categories of qualifications at different levels, but we follow the principal that the highest level of learning aim defines the KS5 Level of learning (which is then always Level 3).

### 2.1.2 Higher education

University-level education takes place in primarily Higher Education Institutions<sup>4</sup> (HEIs), which differ in research and teaching missions. Russell group universities are the more research-intensive, while some quality indicators define what “Top Third” universities are. Twenty-four leading UK universities form the so-called “Russell Group”. These institutions are committed to maintaining high research levels and an outstanding teaching and learning experience. This makes them a group recognised as excellent in the UK and worldwide. In contrast, post-1992 universities, traditionally known as the “polytechnics”, focus on primarily education at a higher professional level, but are limited in terms of scientific education and research.

Each year UK students complete a student satisfaction questionnaire. The results of this survey are used, along with other important criteria, such as teaching and research quality, to provide a ranking of the UK universities. There are three national rankings of UK universities compiled and published annually: “The Complete University Guide”, which we use in this work, The *Guardian* rankings, and *The Times* and *The Sunday Times* joint rankings. We use the top third of institutions as a category because this provides a good proxy for public and employer opinion about the best Universities to attend in terms of employability. It is not a strict relationship because some courses in the other two thirds of universities will be more competitive than some courses in the top third.

There are significant differences in earnings among graduates and non-graduates and between graduates of different universities (see Chevalier and Conlon 2003). On average, graduates who obtained a Bachelor’s degree in more prestigious universities have a higher return to their degrees compared to graduates from post-1992 universities.

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<sup>4</sup> In the following, we exclude further education or sixth form colleges engaged in higher education. This has three reasons: First, most of this provision is below degree level. Second, HEI quality indicators like mission groups do not apply. Third, student data from such providers are not collected by HESA. HESA data include university study, i.e. also programmes below degree level, but more than 95% suggest enrolment in first degrees.

## 2.2 School-level analysis

In the following, we analyse the student destination data at school level. The database used for this analysis combines school performance tables and destination data, both published by the Department for Education (DfE) for KS5 leavers in the academic year 2011/2012. This is the year in which the majority of 2009/10 KS4 cohort, which we analyse in the main part of this study, left KS5.

We conducted the analysis distinguishing among five categories of schools: Academy, Maintained Schools, Independent Schools, Further education Colleges and other types of schools – a residual category. In particular, the maintained school category is composed of schools overseen by a Local Authority (“community maintained” school). It includes: Community school, Foundation schools, Voluntary Aided schools, and Voluntary Controlled schools. Other type of school includes Sixth form Centre/Consortia, Free school, and Non-maintained special schools.

For each school, we observe the number of students who entered KS5 examination and managed to obtain the qualification. We also have information on the percentage of students entering specific destinations post-KS5, among which we find Further Education and Other, Apprenticeships, Higher Education, Employment or Employment with training and Training or Education, employment and training combination. These destinations are the focus of our analysis.

In Table 2.1 and subsequent tables in this section we provide the three summary measures: number of institutions reporting at least six students with this KS5 destination (for 6 or fewer students the information is suppressed), average number of leavers with this FEI/HEI destination (in percentages), across all schools with at least six people with this destination, and standard deviation of this percentage.

**Table 2.1: KS5 leavers destination in 2012/13 by school type\***

	FE/Other	App.	HEI	Employment (incl. with training)	Combinations outside HEI
Academy					
Number of schools/colleges	711	513	731	731	731
Mean % to FEI / HEI by school	13.75	5.35	51.14	5.97	0.27
Standard Deviation	8.58	4.51	18.92	7.71	1.23
Maintained Schools					
Number of schools/colleges	1120	794	1,142	1142	1142
Mean % to specific FEI /HEI by school	15.89	5.81	50.59	5.33	0.3
Standard Deviation	8.13	4.59	16.25	7.12	1.5
Independent Schools					
Number of schools/colleges	527	396	580	580	580
Mean % to specific FEI / HEI by school	10.37	0.16	51.58	0.06	0.01
Standard Deviation	8.43	1.29	24.69	0.62	0.26
Further Education					
Number of schools/colleges	327	321	330	330	330
Mean % to specific FEI / HEI by school	18.77	5.36	35.02	7.35	0.93
Standard Deviation	9.47	3.56	16.28	6.19	1.08
Other types of Schools					
Number of schools/colleges	31	31	41	41	41
Mean % to specific FEI / HEI by school	14.9	5	39.73	3.32	0.17
Standard Deviation	6.89	4.92	25.47	6.65	0.77

\*Note: Table reports number of observations, mean and standard deviation, figures for mean and standard deviation are obtained from percentages.

Source: Destination tables KS5 leavers 2011/12 (DfE)

Table 2.1 reports summary statistics for 2011/12 KS5 leavers' destination in 2012/13. The available information captures the destination of KS5 leavers for 2,824 schools, aggregated by type of school. Maintained school is the most populated category with 1,142 schools. KS5 Leavers from these 1,142 schools have been observed in HE, while apprenticeships represent a chosen destination only for students of 794 maintained schools. Academies compose 26% of the total schools, while other types of school represent the smallest category with 41 schools.

The statistics presented in Table 2.1 suggest that, on average, 52% of independent school leavers choose HE while work/training related choices tend to be the less frequently chosen alternatives for them. The lowest average percentage of leavers choosing HE is registered for pupils leaving Further Education Colleges in 2011/12. Those students are more likely to choose employment or employment with training when

compared with pupils from different types of institutions. Apprenticeships are chosen, on average, by about 5% of leavers of our categories except for Independent schools (0.16%).

Table 2.2 presents the same analysis accounting for the admission policy of the institution. We consider three admission policies: comprehensive, selective and other<sup>5</sup>.

**Table 2.2: KS5 leavers destination in 2012/13 by school type and admission policy\***

	FE/Other	App.	HEI	Employment (incl. with training)	Combinations outside HEI
<b>Academies</b>					
Comprehensive Academy					
Number of schools/colleges	570		426	589	589
Mean % to specific FEI/HEI by school	14.98		5.68	48.28	6.11
Standard Deviation	8.48		4.54	18.32	7.64
Other Academy					
Number of schools/colleges	33		25	34	34
Mean % to specific FEI/HEI by school	17.64		7.04	38.79	13.97
Standard Deviation	8.04		5.04	14.81	11.64
Selective Academy					
Number of schools/colleges	108		62	108	108
Mean % to specific FEI/HEI by school	6.07		2.35	70.59	2.68
Standard Deviation	3.82		2.35	7.38	3.45
<b>Maintained Schools</b>					
Comprehensive Maintained Schools					
Number of schools/colleges	1002		708	1014	1014
Mean % to specific FEI/HEI by school	16.18		5.91	50.92	5.08
Standard Deviation	7.96		4.5	14.77	6.61
Other Maintained Schools					
Number of schools/colleges	62		50	72	72
Mean % to specific FEI/HEI by school	19.35		7	31.01	10.56
Standard Deviation	8.45		5.77	19.83	11.89
Selective Maintained Schools					
Number of schools/colleges	56		36	56	56
Mean % to specific FEI/HEI by school	6.89		2.22	69.8	3.11
Standard Deviation	3.72		2.71	8.53	4.84
<b>Independent Schools</b>					
Comprehensive Independent Schools					
Number of schools/colleges	3		3	3	3
Mean % to specific FEI/HEI by school	14.67		6.33	53	3.67
Standard Deviation	4.51		3.79	16.46	3.51
Other Independent Schools					

<sup>5</sup> Other admission policy includes: Modern, non-selective, not applicable and not collected



	FE/Other	App.	HEI	Employment (incl. with training)	Combinations outside HEI
Number of schools/colleges	482		366	534	534
Mean % to specific FEI/HEI by school	10.43		0.12	50.91	0.04
Standard Deviation	8.59		1.19	25.09	0.54
Selective Independent Schools					
Number of schools/colleges	42		27	43	43
Mean % to specific FEI/HEI by school	9.33		0	59.81	0
Standard Deviation	6.53		0	17.98	0
<b>Further Education</b>					
Other Further Education					
Number of schools/colleges	327		321	330	330
Mean % to specific FEI/HEI by school	18.77		5.36	35.02	7.35
Standard Deviation	9.47		3.56	16.28	6.19
<b>Other schools</b>					
Comprehensive, Other types of school					
Number of schools/colleges	2		2	2	2
Mean % to specific FEI / HEI by school	21.5		15	60	0
Standard Deviation	4.95		9.9	14.14	0
Other admission policy, other types of school					
Number of schools/colleges	29		29	39	39
Mean % to specific FEI / HEI by school	14.45		4.31	38.69	3.49
Standard Deviation	6.83		3.85	25.59	6.78

\*Note: Table reports number of observations, mean and standard deviation, figures for mean and standard deviation are obtained from percentages.

Source: Destination tables KS5 leavers 2011/12 (DfE)

On average, between 60% and 70% of KS5 leavers in 2011/2012 from selective schools (either maintained schools or academies) choose HE. KS5 leavers from these schools are least likely to leave education to employment. Students leaving a selective independent school<sup>6</sup> choose exclusively education destinations. The highest number of students leaving KS4 for apprenticeships or employment or employment with training was found for Academies with “other” admission policy.

Table 2.3 and Table 2.4 allow to further explore HE destination of the 2011/12 leavers. Table 2.3 suggests that Independent school leavers are the ones with the highest average of entry in a top third HEI (40.19%) compared to 18% for maintained schools, while only 7.88% of Further Education leavers enrol at a top third HEI.

Table 2.4 shows that more than 45% of individuals attending a selective school progress, on average, to a top third Higher education institution in the subsequent academic year.

<sup>6</sup> Independent schools are not obliged to submit destination data.

This number increases sharply if 'total HE' is considered as the destination, ranging from about 51% to almost 71%. Furthermore, none of the leavers of a selective independent school went to 'Other HE providers' the subsequent year. Also other selective institutions register a percentage of around 0 for the 'Other HE providers' category. The highest percentage for the latter category is observed for 'Other Further education', about 4%.

**Table 2.3: Higher Education destination by institution type**

	All higher Education	Top third of HEIs	Russell Group	Other HE providers
Academy				
Number of schools/colleges	731	627	634	440
Mean % to specific HEI by school	51.14	22.85	15.17	0.87
Standard Deviation	18.92	17.05	14.02	2.15
Maintained Schools				
Number of schools/colleges	1142	999	953	689
Mean % to specific HEI by school	50.59	18.12	12.39	1.04
Standard Deviation	16.25	12.13	9.79	2.4
Independent Schools				
Number of schools/colleges	580	518	505	458
Mean % to specific HEI by school	51.58	40.19	31.64	0.12
Standard Deviation	24.69	19.73	18.21	1.26
Further Education				
Number of schools/colleges	330	289	262	274
Mean % to specific HEI by school	35.02	7.88	5.47	3.81
Standard Deviation	16.28	8.54	6.60	3.96
Other types of school				
Number of schools/colleges	41	27	28	23
Mean % to specific HEI by school	39.73	16.26	9.93	1.96
Standard Deviation	25.47	9.37	7.64	3.17

Source: Destination tables KS5 leavers 2011/12 (DfE)

We explore additional factors which may affect educational choices at school level, such as the percentage of free school meal eligible students, persistent absence ratio above 15%, and subjects offered by the institution. In order to understand the subjects offered by schools, we linked the school-level data with the Learning Aim Reference Data Set (LARA), which allow identifying subjects for individual qualifications.

**Table 2.4: Higher education destination by institute type and admission policy**

	All higher Education	Top third of HEIs	Russell Group	Other HE providers
Comprehensive Academy				
Number of schools/colleges	589	494	499	348
Mean % to specific HEI by school	48.28	17.96	11.51	1.01
Standard Deviation	18.32	11.89	9.53	2.35
Other Academy				
Number of schools/colleges	589	494	499	348
Mean % to specific HEI by school	48.28	17.96	11.51	1.01
Standard Deviation	18.32	11.89	9.53	2.35

	All Education	higher HEIs	Top third of Russell Group	Other HE providers
Selective Academy				
Number of schools/colleges		108	108	72
Mean % to specific HEI by school		70.59	48.56	0.25
Standard Deviation		7.38	14.56	0.8
Comprehensive Maintained Schools				
Number of schools/colleges		1014	897	618
Mean % to specific HEI by school		50.92	17.03	1.09
Standard Deviation		14.77	9.69	2.37
Other Maintained Schools				
Number of schools/colleges		72	46	36
Mean % to specific HEI by school		31.01	6.37	1.19
Standard Deviation		19.83	5.86	3.62
Selective Maintained Schools				
Number of schools/colleges		56	56	35
Mean % to specific HEI by school		69.8	45.11	0.06
Standard Deviation		8.53	15.39	0.34
Comprehensive Independent Schools				
Number of schools/colleges		3	3	3
Mean % to specific HEI by school		53	18.67	0.67
Standard Deviation		16.46	9.5	1.15
Other Independent Schools				
Number of schools/colleges		534	474	421
Mean % to specific HEI by school		50.91	39.57	0.13
Standard Deviation		25.09	19.87	1.31
Selective Independent Schools				
Number of schools/colleges		43	41	34
Mean % to specific HEI by school		59.81	48.9	0
Standard Deviation		17.98	15.5	0
Other Further Education				
Number of schools/colleges		330	289	274
Mean % to specific HEI by school		35.02	7.88	3.81
Standard Deviation		16.28	8.54	3.96
Comprehensive, Other types of school				
Number of schools/colleges		2	1	2
Mean % to specific HEI by school		60	34	0
Standard Deviation		14.14		0
Other admission policy, other types				
Number of schools/colleges		39	26	21
Mean % to specific HEI by school		38.69	15.58	2.14
Standard Deviation		25.59	8.85	3.26

Source: Destination tables KS5 leavers 2011/12 (DfE)

Table 2.5 provides information on destinations of KS5 leavers who attended an institution where at least 10% of students is eligible for Free School Meal (FSM).

**Table 2.5: KS5 leaver's destination in 2012/13 given percentage of FSM eligible students in the school**

	FE/Other	App.	HEI	Employment (incl. with training)	Combinations outside HEI
Less than 10% of students eligible for FSM					
Number of schools/colleges	787	576	788	788	788
Mean % to specific FEI / HEI destination	12.3	4.77	56.81	5.54	0.21
Standard Deviation	6.86	3.28	13.47	6.3	0.85
At least 10% of students eligible for FSM					
Number of schools/colleges	959	671	991	991	991
Mean % to specific FEI / HEI destination	17.35	6.39	46.46	5.59	0.34
Standard Deviation	8.9	5.38	18.28	8.04	1.69
Unobserved					
Number of schools/colleges	524	391	575	575	575
Mean % to specific FEI / HEI destination	10.25	0.12	51.87	0.06	0.01
Standard Deviation	8.33	1.15	24.56	0.62	0.25

*Source: Destination tables KS5 leavers 2011/12 linked with school census tables 2011/12 (DfE)*

We further distinguish looking into schools with higher shares and lower shares of pupils with Free School Meal eligibility and find quite significant differences: There are 991 schools with at least 10% of students eligible for FSM in our database. On average, 6.4% of students in these schools choose an apprenticeship while 46.5% of students progressed to HE in 2012/13. Compared to this, students from schools with less than 10% of FSM-eligible students more often progress HE (56.81%), and are less likely to choose apprenticeships (4.77%).

Another important result is that the school's percentage of FSM eligibility students matters for the quality of HEIs destinations (Table 2.6). In fact, students from schools with fewer than 10% students eligible for FSM are, on average, twice as likely as leavers from schools with at least 10% students eligible for FSM to attend a top third institution when they enrol in university, and more than twice as likely to study in a Russell Group institution, 19.1% and 8.1% respectively. This finding contextualises with previous research on deprived family circumstances and lower educational attainment later in life (see for example Carneiro and Heckman, 2002).

**Table 2.6: Higher education destination by percentage of FSM eligible students in the school**

	All higher Education	Top third of HEIs	Russell Group	Other HE providers
Less than 10% of students eligible for FSM				
Number of schools/colleges	788	759	740	471
Mean % to specific HEI	56.81	26.96	19.13	0.91
Standard Deviation	13.47	15.26	12.86	1.81
At least 10% of students eligible for FSM				
Number of schools/colleges	991	787	771	603
Mean % to specific HEI	46.46	13.22	8.13	0.99
Standard Deviation	18.28	9.63	7.4	2.66
Unobserved				
Number of schools/colleges	575	516	503	455
Mean % to specific HEI	51.87	40.38	31.8	0.13
Standard Deviation	24.56	19.63	18.13	1.27

*Source: Destination tables KS5 leavers 2011/12 linked with school census tables 2011/12 (DfE)*

A similar pattern is observed when looking into schools with low attendance. Learners in a school with at least 10% of students in persistent absence above 15% are more likely, on average, to start an apprenticeship the following academic year. Instead, they are less likely to enrol into HE and even if they choose to enrol into a Bachelor's degree they are less likely to study in a top third institution or in a Russell group university, as shown in Appendix 1, Table A1.1.

We conduct the same analysis considering the subjects offered by the school attended using examination subjects and qualifications. We use this information to construct a variable indicating which subject category has the highest number of subject examinations within the school. This allows to identify a school as offering: mainly STEM subjects, mainly arts, humanities and languages subjects (AHL), mainly Social Science subjects, mainly Business Law and Administration subjects and a residual category, Other.

**Table 2.7: Leavers destination given subjects offered by the school**

	FE/Other	App.	HEI	Employment (incl. with training)	Combinatio ns outside HEI
Mainly STEM					
Number of schools/colleges	543	407	563	563	563
Mean % destination	17.51	6.27	43.32	5.42	0.36
Standard Deviation	9.67	5.93	19.64	7.81	1.41
Mainly AHL					
Number of schools/colleges	1,918	1436	1947	1,947	1,947
Mean % destination	13.56	3.98	52.7	4.33	0.26
Standard Deviation	8.07	3.68	17.4	6.14	0.91
Mainly Social Science					
Number of schools/colleges	185	142	196	196	196
Mean % destination	16.66	4.68	43.33	6.16	0.5
Standard Deviation	11.02	4.57	22.58	8.97	1.46
Mainly Business Law Administration					
Number of schools/colleges	3	4	7	7	7
Mean % destination	15.67	10	6	1.86	0.57
Standard Deviation	13.65	11.8	10.25	4.91	1.51
Mainly Other					
Number of schools/colleges	20	19	26	26	26
Mean % destination	14.5	6.84	31.73	2.73	1.58
Standard Deviation	8.51	10.11	22.86	5.02	6.48

Source: Destination tables KS5 leavers 2011/12 linked with LARA database (DfE)

Table 2.7 shows the destination of students conditioning on the subjects offered by the school. Students attending schools that offer mainly AHL tend, on average, to choose HE more often than students attending schools specialising in other subject categories. Schools offering mainly Business Law and Administration subjects are the ones with the lowest percentage of leavers progressing to HE (10.25%) and the one highest percentage of leavers choosing to start an apprenticeship (10%). Schools offering mainly STEM courses and Social Sciences have a similar percentage of leavers enrolling in tertiary education (43.3%). Similar patterns are observed considering HEI types as shown by Table A1.3 in Appendix 1.

## 3 Analysis of individual student data

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### 3.1 Data

#### 3.1.1 Source data

This part of the analysis uses government register data at individual level from the National Pupil Database (NPD) linked to records from the Higher Education Statistics Agency (HESA). Both data sets hold individual level information that allows us exploring educational choices of pupils from KS4 via KS5 into the first year of HE (2012/13). The main purpose of our analysis is to follow the cohort of 2009/10 KS4 leavers up through KS5 and into their HE destination. Both data are at census level and include high quality data on education choices and outcomes:

- The **National Pupil Database** (NPD) combines information collected from a variety of sources, such as schools, Local Authorities and awarding bodies. The information is processed by the Department of Education and made available for research purposes after a data access process is completed. The NPD database contains examination results and key information on pupils and characteristics of the school attended. We extract information about gender, ethnicity, and eligibility for free school meals, GCSEs achievement and institution type attended for KS4 leavers in the academic year 2009/10.
- Student data provided by the **Higher Education Statistics Agency** (HESA) hold a wide range of characteristics, such as university attended, term time accommodation, parental education and subject studied. We use these data to classify a student as attending a Russell Group, a top third or a post-1992 university<sup>7</sup>.

#### 3.1.2 Data merging

In the 2009/10 KS4 leaver cohort, about 650,000 pupils leave lower secondary education (KS4) with GCSE exams. We use these data to obtain the KS4 leavers' demographic characteristics, such as gender and ethnicity, and a binary indicator variable of whether a pupil is eligible for FSM to capture some socio-economic background. KS4 data are then linked to KS5 records, allowing us to track KS4 to KS5 transition at the individual level for

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<sup>7</sup> It is worth noting that HESA data do not cover all Higher Education participation in the country. First, data are limited to 168 university-type providers. The 241 further education or sixth form colleges (FECs) delivering higher education are not included. However, the great majority of the provision outside universities is below degree level (Foundation degrees and Higher National Diplomas and Certificates), see <http://www.hefce.ac.uk/analysis/HEinEngland/providers/colleges/>. In comparison, fewer than 5% of our student records in HESA data have planned durations of less than three years. We limited the analysis to transitions into HESA data because they offer a near-complete picture of the progression to degree levels.



about 63% of KS4 leavers enrolling in a vocational (Non-A-Level) or general (A-Level) qualification.

Linked NPD KS4 and KS5 data are then combined with the HESA data of the academic year 2012/13 (representing about 25% of the students who undertook GCSE exam in the 2009/10 academic year). The database is then used to follow the educational trajectories of KS5 leavers. Here, we explore the transition from a particular KS5 route, including subject choice, to whether students attended HE and whether they took the same subject category or a different one. We also use the linked dataset to understand if demographic and socio-economic factors have influenced the specific type of HEI attended.

The linked NPD-HESA data are then analysed by broad groups of socio-demographic characteristics, such as gender, ethnicity and eligibility for free school meals; and we use these groups to describe the implications of each characteristic on educational path. This helps to identify similarities and differences in the transition patterns for different groups. Finally, we use the available information in the KS5 dataset to construct a UCAS tariff variable, to analyse whether high and low achievement within the different routes of KS5 education on HEI enrolment.

### 3.1.3 Processing

We implement some processing to extract one record for each pupil in the KS4 dataset. KS5 duplicates entries were eliminated following a similar approach. We then extract qualifications with valid marks from KS5, and focus on qualifications, which are relevant for educational progression and access to university. This generates a database formed of about 407,000 KS5 students (one line for each student), about 63% of the original KS4 cohort.

As previously mentioned, we distinguish four different “KS5 routes” to describe the qualifications taken by students. The four routes capture a large number of qualifications included in KS5 database, and from which students can choose after KS4. The routes are:

- A-Level only in KS5
- A-Level combined with Non-A-Level (e.g. BTEC qualifications) in KS5
- AS Level combined with Non-A-Level in KS5
- Non-A-Level only

The number of subjects was also reduced to high-level areas: The initial KS5 dataset included 1,318 subject codes, which we aggregated into 7 broad categories:

- Science, Technology, and Mathematics excluding of Engineering (STEM)
- Engineering (Non-A-Level only)
- Construction (Non-A-Level only)
- Arts, humanities and languages
- Social Sciences
- Business

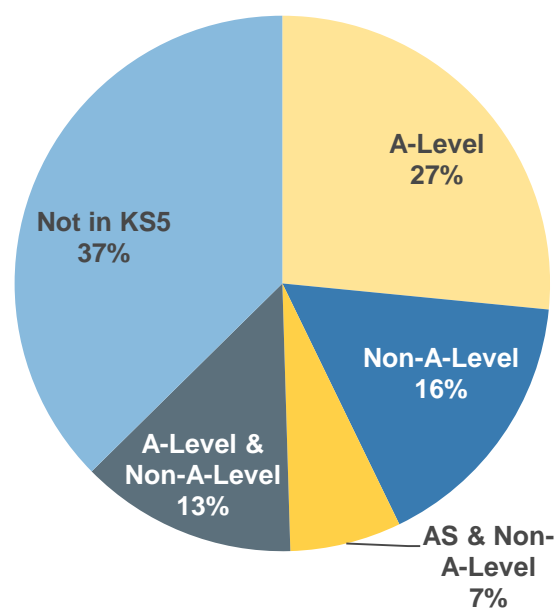
■ Other (mainly Non-A-Level)

We did not include Engineering and Construction in the STEM category because they were practically all Non-A-Level qualifications and also often apply to Level 3 Apprenticeships. We also implemented an aggregation for the subjects chosen in HE. The HE STEM category includes Engineering and Construction, but includes a subject area not found in KS5 specialisation (education). We use these differences in subjects to understand the impact of subject choice on transitions from KS5 to HE. It is worth noting that A-Levels are in most cases, and Non-A-Level education also in many cases, covering more than one subject, so that individual KS5 students progressing to HEI can appear more than once in the analysis shown below when looking at differences by subject choice.

## 3.2 KS4 to KS5 transition and ‘routes’ of Level 3 education

This section describes destinations of pupils leaving KS4 in 2009/10. Each individual either continues their educational path in a KS5 route, continues to work towards Level 2 qualifications (or lower Levels) or leaves education entirely. We identify four possible ‘routes’ within KS5, which depend on the qualification chosen by the pupil. These routes are: A-Level only; Combined A-Level and Non-A-Level; Combined AS Level and Non-A-Level and Non-A-Level only. Figure 3.1 shows the destination of 650,000 pupils who left KS4 in the academic year 2009/10. 37% of the cohort did progress to Level 3/KS5. These leavers are either not in education or remain in a Level 2 qualification (i.e. at the same level as GCSE) or start a qualification below Level 2.

**Figure 3.1: 2009/10 KS4 leaver’s destination**



Source: KS4 and KS5 linked NPD database (DfE).

The second highest share of leavers is the 'A-Level only' route, 27%, while A-level in combination with a Non-A-Level qualification is chosen by 13% of leavers and AS-Level in combination with a Non-A-Level qualification is chosen by 7% of leavers. Non-A-Level qualifications only are undertaken by 16% of the leavers.

We also consider transitions by important demographic and socio-economic characteristics and other important factors, which may affect the transition route, such as GCSE achievement and school type attended at KS4. The cohort of interest is composed of approximately 650,000 pupils, with slightly more males than females (51.3% and 48.7% respectively) as shown in Table 3.1.

**Table 3.1: Percentage of KS4 leavers in each destination route by gender**

	A-Level	Non A-Level	AS/ Non-A-Level	A-Level/ Non-A-Level	Non in KS5	Total	
Female	29.6	16.5	7.0	14.7	32.2	<i>100</i>	316,600
Male	23.7	16.0	6.4	11.5	42.3	<i>100</i>	333,400
	54.2	49.4	50.9	54.9	41.9		48.7
	45.8	50.6	49.1	45.1	58.1		51.3
	100	100	100	100	100		100%
Total	172,600	105,600	43,700	85,100	243,000		650,000

Note: Table reports row and column percentage, row percentage is in Italic. Total is approximated to the nearest hundred.

Source: KS4 and KS5 linked NPD database (DfE).

Male students are less likely to progress to Level 3 qualifications at KS5 (32.2% of female leavers do not take the KS5 route compared to 42.3% not progressing to Level 3 qualifications among males). Similarly, males are less likely to take A-Levels only and A-Levels in combination with a Non-A-Level qualification. There are no notable differences between males and females in terms of progression to AS-Levels in combination with Non-A-Level qualifications and Non-A-Level qualifications only.

**Table 3.2: Percentage of KS4 leavers in each destination route by ethnicity**

	A-Level	Non-A-Level	AS/ Non-A-Level	A-Level/ Non-A-Level	Non in KS5	Total	
Ethnicity							
Non-White	<i>29.9</i>	<i>18.2</i>	<i>7.4</i>	<i>14.7</i>	<i>29.9</i>	<i>100</i>	102,000
	<i>17.7</i>	<i>17.6</i>	<i>17.2</i>	<i>17.6</i>	<i>12.5</i>	<i>15.7</i>	
White	<i>23.4</i>	<i>17.1</i>	<i>7.0</i>	<i>12.8</i>	<i>39.7</i>	<i>100</i>	482,200
	<i>65.5</i>	<i>78.0</i>	<i>77.7</i>	<i>72.3</i>	<i>78.7</i>	<i>74.2</i>	
Unobserved	<i>44.2</i>	<i>7.1</i>	<i>3.4</i>	<i>13.1</i>	<i>32.3</i>	<i>100</i>	65,900
	<i>16.9</i>	<i>4.4</i>	<i>5.1</i>	<i>10.1</i>	<i>8.8</i>	<i>10.1</i>	
	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>		
Total	172,600	105,600	43,700	85,100	243,000		650,000

Note: Table reports row and column percentage, row percentage is in *italic*. Total is approximated to the nearest hundred.

Source: KS4 and KS5 linked NPD database (DfE).

Table 3.2 shows routes by ethnic groups. We distinguish between white and non-white individuals and analyse their transition from KS4 to one of the five possible destinations. Given that ethnicity is unobserved for 8.8% of our population it is difficult to draw string conclusions on ethnicity from this data. There are some differences found here, especially the lower share of the white groups to engage in A-Level education and an about then percentage points higher share of people not found in KS5 education.

**Table 3.3: Percentage of KS4 leavers in each destination route by free school meal eligibility**

	A-Level	Non-A-Level	AS/Non-A-Level	A-Level/Non-A-Level	Non in KS5	Total	
FSM							
Non FSM	<i>26.8</i>	<i>17.3</i>	<i>7.4</i>	<i>14.2</i>	<i>34.3</i>	<i>100</i>	501,300
	<i>77.9</i>	<i>82.1</i>	<i>85.2</i>	<i>83.6</i>	<i>70.7</i>	<i>77.1</i>	
FSM	<i>11.6</i>	<i>18.0</i>	<i>5.4</i>	<i>6.9</i>	<i>58.1</i>	<i>100</i>	77,500
	<i>5.2</i>	<i>13.2</i>	<i>9.6</i>	<i>6.2</i>	<i>18.5</i>	<i>11.9</i>	
Unobserved	<i>41.1</i>	<i>6.9</i>	<i>3.2</i>	<i>12.1</i>	<i>36.8</i>	<i>100</i>	71,200
	<i>16.9</i>	<i>4.6</i>	<i>5.2</i>	<i>10.1</i>	<i>10.8</i>	<i>11.0</i>	
	<i>100</i>	<i>1,000</i>	<i>100</i>	<i>100</i>	<i>100</i>		
Total	172,600	105,600	43,700	85,100	243,000		650,000

Note: Table reports row and column percentage, row percentage is in *italic*. Total is approximated to the nearest hundred.

Source: KS4 and KS5 linked NPD database (DfE).

In Table 3.3, we show differences in routes by FSM eligibility (around 78,000 pupils in the academic year 2009/10, about 12% of the cohort). The table shows that not doing a Level 3 qualification is the most frequent destination for this group (58%) and way above the

34% for non-FSM pupils. Similarly, the gap is very large for the A-Level only route with 12% of those eligible for FSM taking A-Levels only compared to 27% for non-FSM group. When excluding the group of the non-KS5 KS4 leavers (not done in this Table), the breakdown of all KS4 going to KS5 would show 43% of the FSM group taking up Non-A-Level qualifications compared to 26% of the non-FSM group. Taken together this implies a preference of the FSM group for Non-A-Level subjects, which could potentially lead to earlier employment.

**Table 3.4: Percentage of KS4 leavers in each destination route by school type attended**

	A-Level	Non-A-Level	AS/Non-A-Level	A-Level/ Non-A-Level	Non in KS5	Total	
School type							
Maintained school	25.6	17.4	7.3	13.5	36.2	100	540,600
Independent	61.4	6.5	4.1	18.0	10.0	100	46,800
Other	8.4	13.2	4.0	6.0	68.5	100	62,600
	80.3	89.3	89.9	85.7	80.4		83.2
	16.7	2.9	4.4	9.9	2.0		7.2
	3.0	7.8	5.7	4.4	17.6		9.6
	100	1000	100	100	100		
Total	172,600	105,600	43,700	85,100	243,000		650,000

Note: Table reports row and column percentage, row percentage is in *Italic*. Total is approximated to the nearest hundred.

*Source: KS4 and KS5 linked NPD database (DfE).*

We also describe routes followed after KS4 outcome by school type (Table 3.4), i.e. whether pupils were in a maintained, independent school or 'other' schools. 83.2% of the population attended a maintained school. Destination patterns appear different when we account for the type of school attended during KS4. The destination chosen most often by maintained school students and 'other school' students is to not progress to Level 3 qualifications at KS5. In contrast, only 10% of independent school pupils do not progress to Level 3 subjects compared to 36.2% from maintained school and 68.5% from 'other schools'.

The majority of students from independent schools chose to progress to the A-Level only route, 61%, while the proportion of students from other types of school choosing the same destination is much lower: 25.6% of students from maintained schools and 8.4% from 'Other schools'. The percentage of students not choosing A-Levels is much lower for students from independent schools compared with the other two types.

**Table 3.5: Percentage of KS4 leavers in each destination route by GCSE achievement**

	A-Level	Non-A-Level	AS/ Non-A-Level	A-Level/ Non-A-Level	Non in KS5	Total	
Fewer than 5 GCSEs at A*-C	<i>2.1</i>	<i>20.3</i>	<i>3.0</i>	<i>2.6</i>	<i>72.0</i>	<i>100</i>	279,500
At least 5 GCSEs at A*-C	<i>45.0</i>	<i>13.2</i>	<i>9.5</i>	<i>21.0</i>	<i>11.3</i>	<i>100</i>	370,500
	<i>3.3</i>	<i>53.9</i>	<i>19.3</i>	<i>8.6</i>	<i>82.8</i>		43.0
	<i>96.7</i>	<i>46.1</i>	<i>80.7</i>	<i>91.4</i>	<i>17.2</i>		57.0
	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>		
Total	172,600	105,600	43,700	85,100	243,000		650,000

Note: Table reports row and column percentage, row percentage is in *Italic*. Total is approximated to the nearest hundred.

Source: KS4 and KS5 linked NPD database (DfE).

Next, we describe destinations from KS4 by GCSE achievement, i.e. whether pupils achieved at least 5 GCSE at A\*-C or not, which distinguishes KS4 leavers with Level 2 attainment from those below Level 2. A Level 2 attainment is usually the entry requirement for further study towards a Level 3 qualification and people reaching this threshold will not typically encounter problems enrolling for a Level 3 qualification.

Table 3.5 presents a description of the transition from KS4 to the five possible routes accounting for GCSE achievement. 57% of the cohort of interest managed to obtain at least 5 GCSE at A\*-C, and these students are also very likely to choose a route which includes A-Levels qualifications. In fact, 45% of the 370,500 students with at least 5 GCSE at A\*-C did A-level only, while an addition 21% choose A-Levels in combination with Non-A-Level qualifications. Students with good GCSE achievement tend to largely choose A-Levels (66% when including those doing A-Levels along-side a Non-A-Level qualification), while 72% of low achievers end up not doing Level 3 qualifications at KS5.

### 3.3 Subject choice and specialisation in KS5

In order to understand the factors driving students' decision making processes, this section looks at the characteristics of KS5 leavers, in terms of their subject choice and degree of specialism at KS5 and the impact this has on their choices around HE participation and type of institution attended.

We are limiting this analysis to the four routes leading to Level 3 qualifications required for HE entry and exclude people unlikely to progress to HE in the time period covered by the data (Level 2 and below). For all KS5 Level 3 students, Table 3.6 looks at subject choice and degree of specialisation for each of these Level 3 routes. Main subjects are shown in columns and the degree of specialisation is shown by the four "blocks of outputs" in the Table (each block showing degree of specialisation for each within the Level 3 routes). Moving down the table, each block illustrates an increasing level of specialisation, from no specialisation in the first block followed by 2, 3 and '4 or more' qualifications in the subject area. As individual students, specifically A-Level students, have very often more than one subject, low degrees of specialisation include students in more than one category. This is

less the case for Non-A-Level qualifications, which often only cover one subject, and with increasing specialisation within the A-Levels group.

As a result, we find that 72% of all A-Level students have at least one Level 3 qualification in the social sciences, followed by students having at least one qualification in Art, Languages and Humanities (66%), STEM (53%), the residual subject category (42.5%) and Business (14%).

When looking into specialisation at A-Levels/in KS5 qualifications, the percentage of A-level only students with at least two qualifications in the same subject area is quite similar for STEM, arts, humanities and languages and social science, 34%, 33% and 35% respectively. However, for a higher degree of specialisation with three or more qualifications in the same subject area, STEM is the subject specialised in most often: 20% of pupils undertaking at least three A-Levels in STEM.

We repeat this analysis in order to show differences by gender, ethnic groups, FSM eligibility, GCSEs achievement and type of school attended, see Appendix 2. Comparing the information available in the tables presented in Appendix 2, we find that there is gender bias in subject choice. Females are less likely than males to have at least one qualification in a STEM subject (45% of female and 63% of male students). The difference in uptake of STEM between male and female students decreases when we consider at least three A-Level qualifications in the same STEM category, dropping from an 18 percentage point difference (45% compared to 63% as mentioned above) to a 13 percentage point difference (14% compared to 27%), see Table A2.1 in Appendix 2. More generally, female students have a preference for arts, humanities and languages subjects.

Appendix 2 includes a further, more detailed breakdown of the differences in subject specialisation by individual characteristics. The key findings of this analysis can be summarised as follows:

- Students, who have been FSM eligible in their KS4 time, are less often specialising in STEM (Table A2.2 in Appendix 2)
- KS5 students more often specialise in STEM subjects if their GCSE achievement was higher (i.e. those with at least 5 GCSE's with A\*-C compared to those starting KS5 with lower attainment, Table A2.3 in Appendix 2)
- There are no differences in subject specialisation by ethnic groups (Table A2.4 in Appendix 2)
- There is higher specialisation in STEM subject by students in KS5 coming from independent and other schools in KS4 than from maintained schools. There is lower specialisation in the Social Sciences for students in those KS5 institutions.

**Table 3.6: Percentage of students choosing a KS5 subject by route**

	STEM	Engineering	Construction	Arts, Languages and Humanities	Social Science	Business	Others	Total
At least one qualification in the same subject								
A-Level only	53.6	0.0	0.0	66.4	71.5	14	42.5	172,600
Non-A-Level only	15.3	5.5	3.0	24.8	2.3	17.7	49.8	105,600
AS-Level and Non-A-Level	27.1	2.1	*	59.6	39.1	19.6	43.2	43,700
A-Level and Non-A-Level	54.7	*	*	65.1	59.5	23.7	70.44	85,100
Total	167,200	7,400	3,500	222,200	193,600	71,600	204,800	
At least two qualifications in the same subject								
A-Level only	33.9	0.0	0.0	33.1	34.8	0.1	9.8	172,600
Non-A-Level only	3.5	*	*	6.8	0.6	2.3	7.4	105,600
AS-Level and Non-A-Level	10.5	*	*	24.4	10.5	3.8	14	43,700
A-Level and Non-A-Level	33.7	*	*	33.7	24.1	5.2	34.5	85,100
Total	95,600	1000	300	103,800	85,700	8,600	60,200	
At least three qualifications in the same subject								
A-Level only	20.1	0.0	0.0	12.1	10.1	0.0	2.2	172,600
Non-A-Level only	1.2	*	*	2	0.00	*	1.3	105,600
AS-Level and Non-A-Level	4.2	*	*	8.6	1.9	*	3.3	43,700
A-Level and Non-A-Level	21.9	0.0	0.0	15.9	6.3	*	13.5	85,100
Total	56,400	100	<100	40,300	23,500	1,600	18,200	
At least four qualifications in the same subject								
A-Level only	7	0.00	0.00	2.4	*	0.00	*	172,600
Non-A-Level only	*	0.00	0.00	*	0.0	*	*	105,600
AS-Level and Non-A-Level	1.2	0.00	0.00	2.4	*	*	*	43,700
A-Level and Non-A-Level	11.6	0.00	0.00	6.5	*	*	3.5	85,100
Total	22,700	<100	<100	11,200	3,200	300	4,300	

Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE).



## 3.4 Destinations from KS5

### 3.4.1 Students not progressing to HE

We look into the transition of KS5 students into HE and non-HE destinations before we focus on the routes and subject specialisation in KS5 and their relevance to making the transitions to HE and to study specific areas in HE<sup>8</sup>.

We first describe KS5 students in each route choosing non-HE by the degree of specialisation at KS5 (see Figure 3.2). This figure shows clearly that Non-A-Level routes or combinations of Non-A-Level qualifications and AS-Levels lead a larger proportion of students outside of HE compared to academic routes (A-Levels and a Non-A-Level qualification along-side A-Levels). Those combining AS Level and Non-A-Level education have the highest percentage of students choosing non-HE (around 90% or higher) for almost all the subjects, with the exception of Business and Other, for which similar percentages of KS5 students with Non-A-Level/AS combinations and A-Levels qualifications do not progress to HE. Generally, students achieving A-Levels have destinations outside HE reported for 30%-40%, depending on the subject specialisations in KS5, with those having 4 or more STEM AA-Levels showing the smallest share not progressing to HE.

In contrast, the overwhelming majority of KS5 leavers, who took Non-A-Level qualifications, are not progressing to HE (except for social science graduates and those specialising in non-A-Level STEM). These differences in non-HE outcomes are likely to be caused by differences in labour market preferences of students (with many of the Non-A-Level educations preparing for occupational roles), differences in ability and labour demand for people having these qualifications.

In addition, people found to have combined AS-Level and Non-A-Level qualifications combined may have different ability: they are likely to chosen the A-Level route initially and then changed with AS-Levels to Non-A-Level qualifications, which offered more specialisation, potential to achieve or labour market value than continuing towards A-Levels. In contrast, those combining Non-A-Levels and A-Levels are much more similar to A-Level only students in their non-HE rates. This suggests that combinations of A-Levels and Non-A-Level qualifications are chosen by students with comparatively high ability, who aim to add something practical to standard university-entry qualifications. Combinations found in the data e.g. suggest that some performing arts qualifications, which are primarily BTECs, are included in this subject choice.

Another interesting finding is that in the social sciences, we observe very similar percentages of students not enrolling in HE regardless of whether they come from A-Level or Non-A-Level routes. 41% and 39% of students holding at least one or two Non-A-Level qualifications in the social science do not choose to progress to HE – very similar to A-Level students, while the corresponding non-HE destinations are much higher e.g. for

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<sup>8</sup> The subject category in the HESA dataset is defined using the main subject studied through the variable `he_xjacs01`.

students with a STEM specialisation or arts, humanities and languages. It is not clear whether the lower non-HE transition rate for the social sciences results from poorer employment prospects for students with a Non-A-Level qualification (and hence the need to further invest at HE level) or a preference of this group of students intending to enrol at HE and therefore making this choice from the start at KS5.

Among all subject categories, STEM is the one with the lowest percentage of students not progressing to HE for all routes. 30% of the students with at least four qualifications in STEM subjects decide not to progress to HE.

### 3.4.2 KS5 specialisation and enrolment and subjects in HE

#### Subjects

In this part, we describe the transition to HE in the year following successful KS5 achievement by KS5 route and subject specialisation (Figure 3.3). We focus on the four main subject groups STEM, social sciences, arts, humanities and languages and business as the construction and engineering categories were too sparsely populated to allow for a more detailed breakdown of subject specialisation.

We find that students choosing STEM during KS5 are also more likely to choose it when enrolling for a Bachelor's degree: The percentage of students staying in a STEM subject at university ranges from 15% (registered for AS level/Non-A-Level students with at least one STEM qualification) to 49% (observed for A-level students with at least four A-levels in STEM). Other categories show lower transition rates from KS5 subjects to HE subjects (e.g. students with one social science A-Level have about 13% of them enrolling in a social science), but more generally, there is an increasing rate of transition to the same HE subject with increasing level of specialisation, although this is less the case for students with Non-A-Level qualifications or e.g. in business studies as a subject area of KS5 specialisation. For business, the KS5 subject to HE subject correspondence ranges from 8% to 19%. The pattern emerging from Figure 3.6 suggests that specialisation plays a role in defining future educational choices in terms of subjects chosen at degree level. This is also confirmed by looking into the proportion of students leave KS5 with some subject specialisation, who then do not follow the same subjects at university (Figure 3.6). There are around 30% of all having at least one STEM A-Level not progressing to STEM as an HE subject, similar to those with one arts, humanities and languages A-Level. The more specialisation here, the more we see people remaining in the same subject field, for example, 20% of the KS5 students with at least 3 STEM A-Levels then study at university a non-STEM subject, etc. The proportion of KS5 students changing subjects from SK5 to HE is largest in the social sciences, where one third of the group having at least three A-Levels in the subject area do not continue in HE.

#### Differences in KS5-HE transitions by prior attainment

In this part of the description, we use the information available in the linked administrative database to derive the UCAS tariff points associated with all A-Levels and Non-A-Level qualifications and grades achieved, which are relevant to HE entry, so that attainment becomes comparable. UCAS tariff points provide an important guideline for universities to

compare applicants and help them to make offers to potential students on the basis of past attainment.

We follow the “old” style UCAS point system in place when the cohort described here made the KS5 to HE transition and describe the KS5 to HE transition for groups with 360 UCAS points, who are the high achievers at KS5 and those with less than 360 points. 360 points are indicating the upper end of academic performance, with students obtaining either three A-Levels at A or a BTEC National Diploma (currently referred to as an Extended Diploma /QCF) with DDD grade.

Figure 3.5 shows that UCAS tariff is an important variable to explain the progression to HE as students with a UCAS tariff of at least 360 are far less likely to show a non-HE destination after KS5. On the one hand, for example, obtaining at least 360 UCAS points for A-Levels in STEM subjects decreases the percentage of students not progressing to HE by 19 to 21 percentage points (depending on the number of STEM A-Levels obtained).

On the other hand, while the overall rate of KS5 leavers not progressing to HE remains higher for those with Non-A-Level qualifications in STEM compared to STEM A-Levels, this group also shows much reduced rates of people not progressing to HEI. A similar pattern to the one described for STEM subjects can be observed for all other subject categories. Again, for social science, similar student proportions progress to HE regardless of the route chosen at KS5 (except for those combining AS-Levels and Non-A-Level qualifications).

Figure 3.6 shows that students performing well during KS5 are also more likely to continue studying the same subject when enrolling at university. In particular, A-Level students specialising in arts, humanities and languages show an increase of between 10 and 20 percentage points for transition to the same subject category when considering students with at least 360 UCAS points compared to those with lower attainment. The largest increase in transitions from KS5 to HE within the subject was found for students in the AS level and Non-A-Level route.

Finally, we also describe whether changes in the subject between KS5 and HE are related to differences in attainment based on UCAS tariff points (Figure 3.7). Here, we find that those with higher UCAS tariff – both with Non-A-Level qualifications and A-Levels – show higher shares of students changing subject compared to those with lower UCAS tariff.

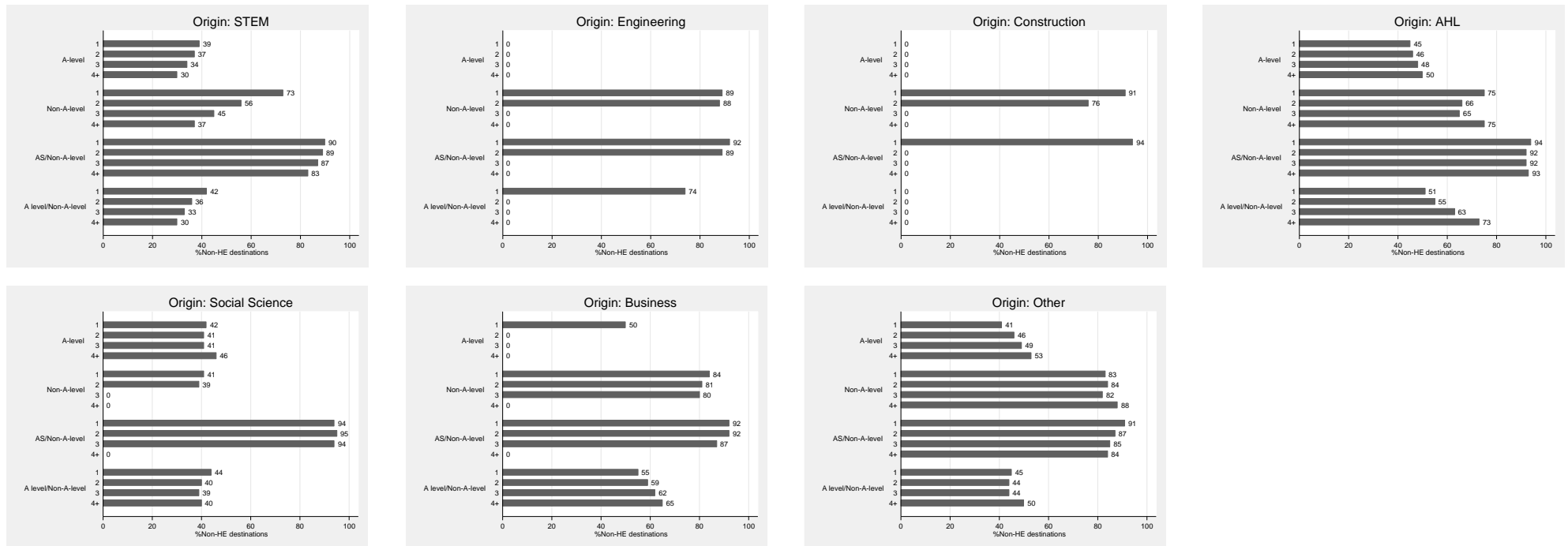
### **Differences in KS5-HE transitions conditional on prior attainment**

We repeated the whole analysis presented above looking into differences in observable characteristics and socio-economic background (gender, ethnicity, free school meal eligibility, and GCSEs achievement), which are presented in Figures A3.1 to A3.12 in Appendix 3. The following is a summary of the findings:

- The decision to not attend university, stay in the same subject category or move to a different one is similar for females and males. However, there are differences in proportions of non-HE destinations, which are generally higher for male students and those with FSM eligibility.

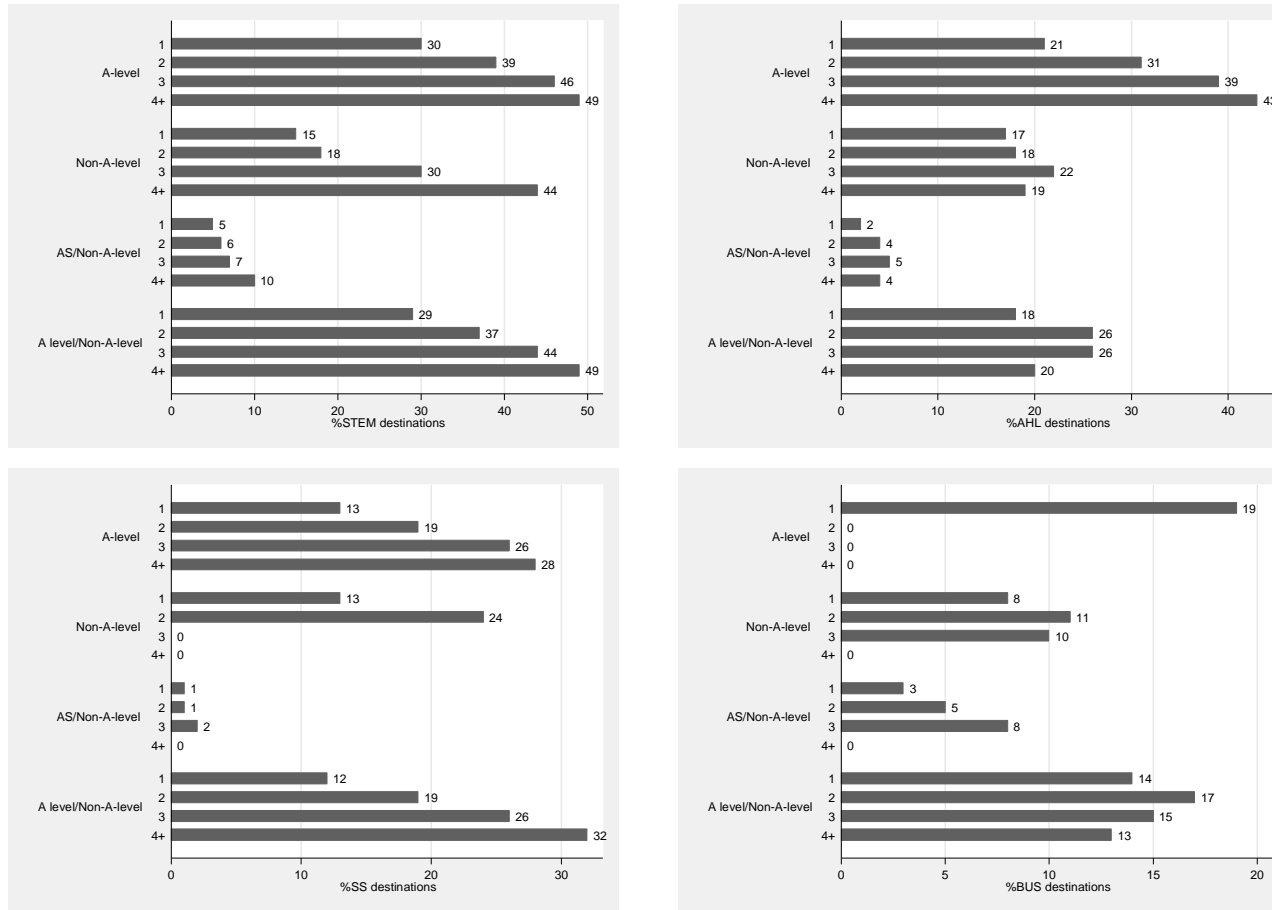
- Pupils who achieved less than 5 GCSEs at A\*-C are more likely to not progress to HE, regardless of the subject chosen during KS5. We also observe that the route chosen in KS5 matters for high achievers at KS4. In fact, pupils with at least 5 GCSEs at A\*-C in a route with A-Levels are more likely to choose the same subject category at university compared with low achievers, as shown in Figure A3.5.
- There is a higher transition rate to non-HE destinations for white students compared to other ethnic groups, regardless of the subject chosen at KS5. Moreover, non-white students are slightly more likely to study a subject in the same subject category when in HE.
- Similar percentages of students choosing other than their KS5 subjects at university are observed for non-white and white students, except for students in art, humanities and languages. White students are also less likely to choose a subject that does not belong to the latter category when they enrol to university, if they studied a subject within that category during KS5.

**Figure 3.2: Percentage with transition to non-HEI destinations by subject and number of subjects within route**



Source: KS5-HESA linked database (DfE).

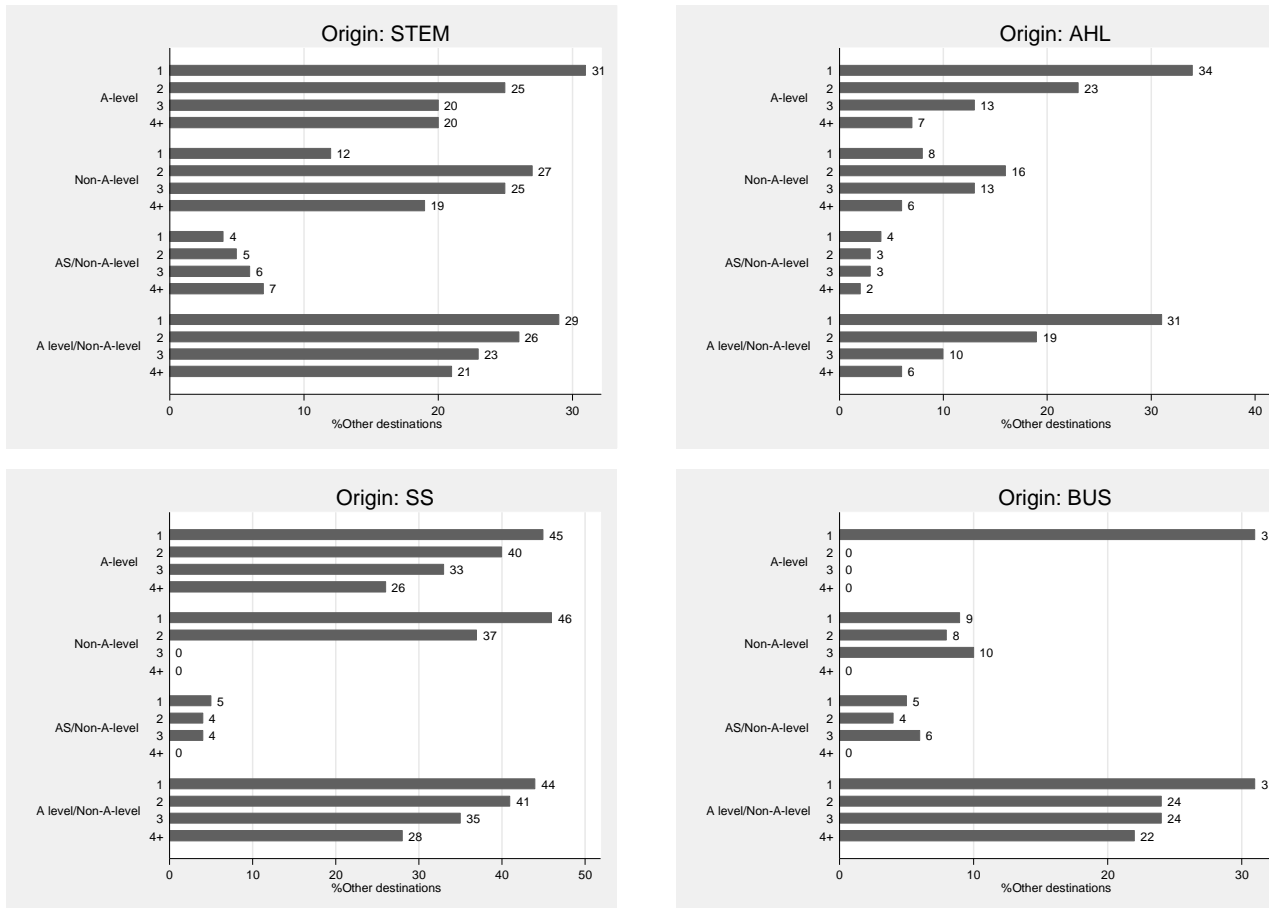
Figure 3.3: Percentage with transition to HEI studying same subject by number of subjects within route\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).

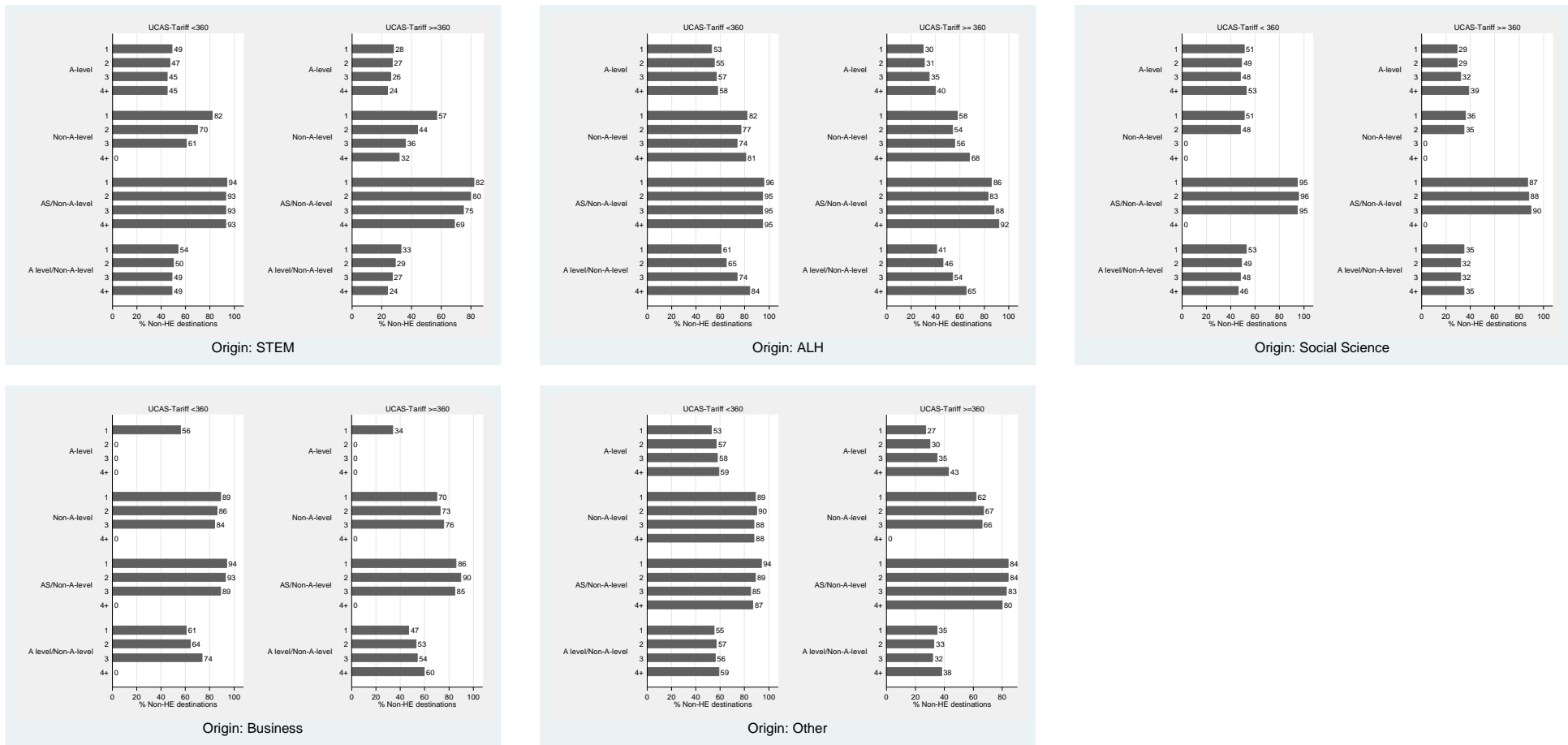
Figure 3.4: Percentage with transition to HEI studying different subject by number of subjects within route\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE)

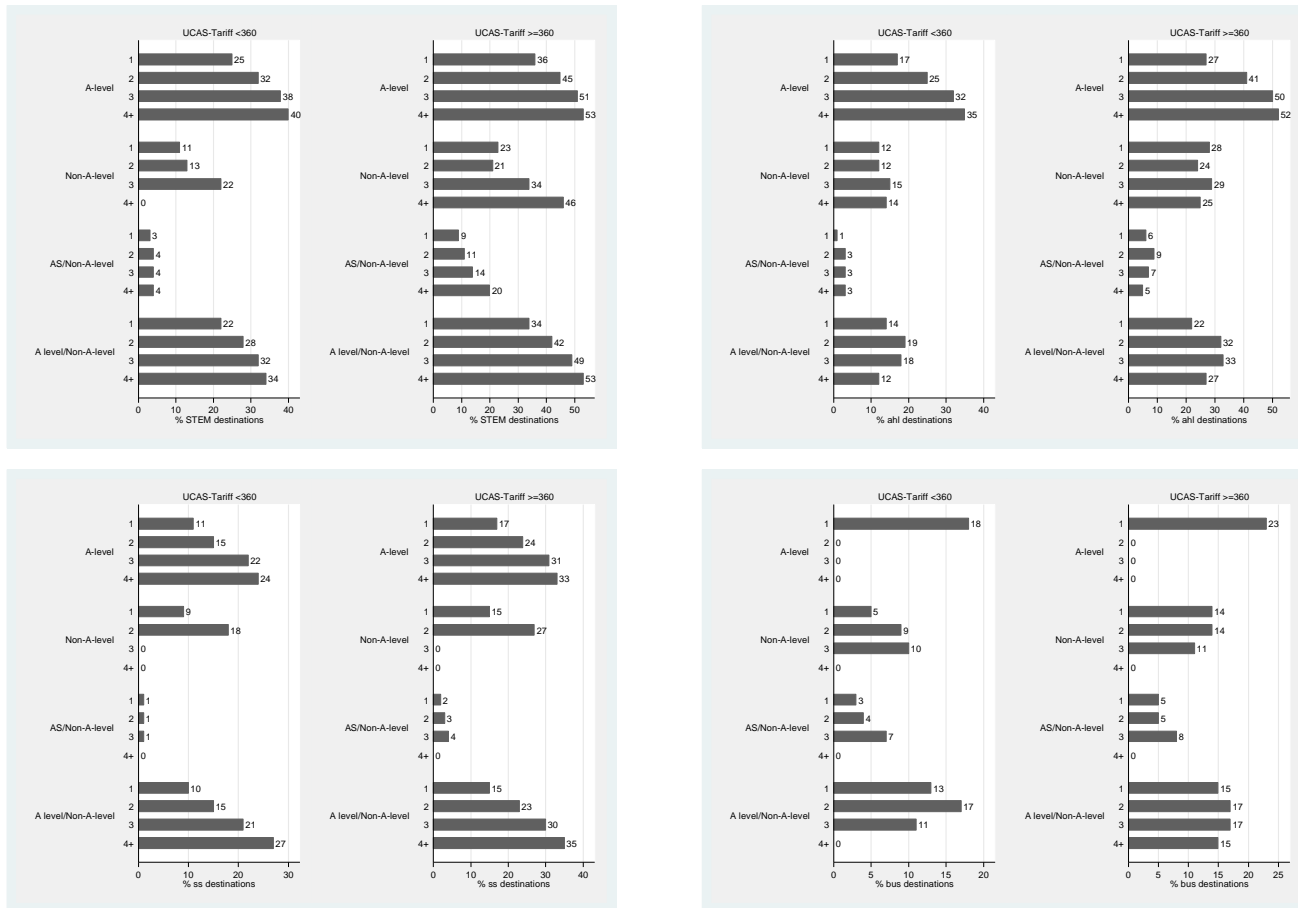
Figure 3.5: Percentage with transition to non-HEI destinations by subject and number of subjects within route and UCAS tariff



Source: KS5-HESA linked database (DfE)



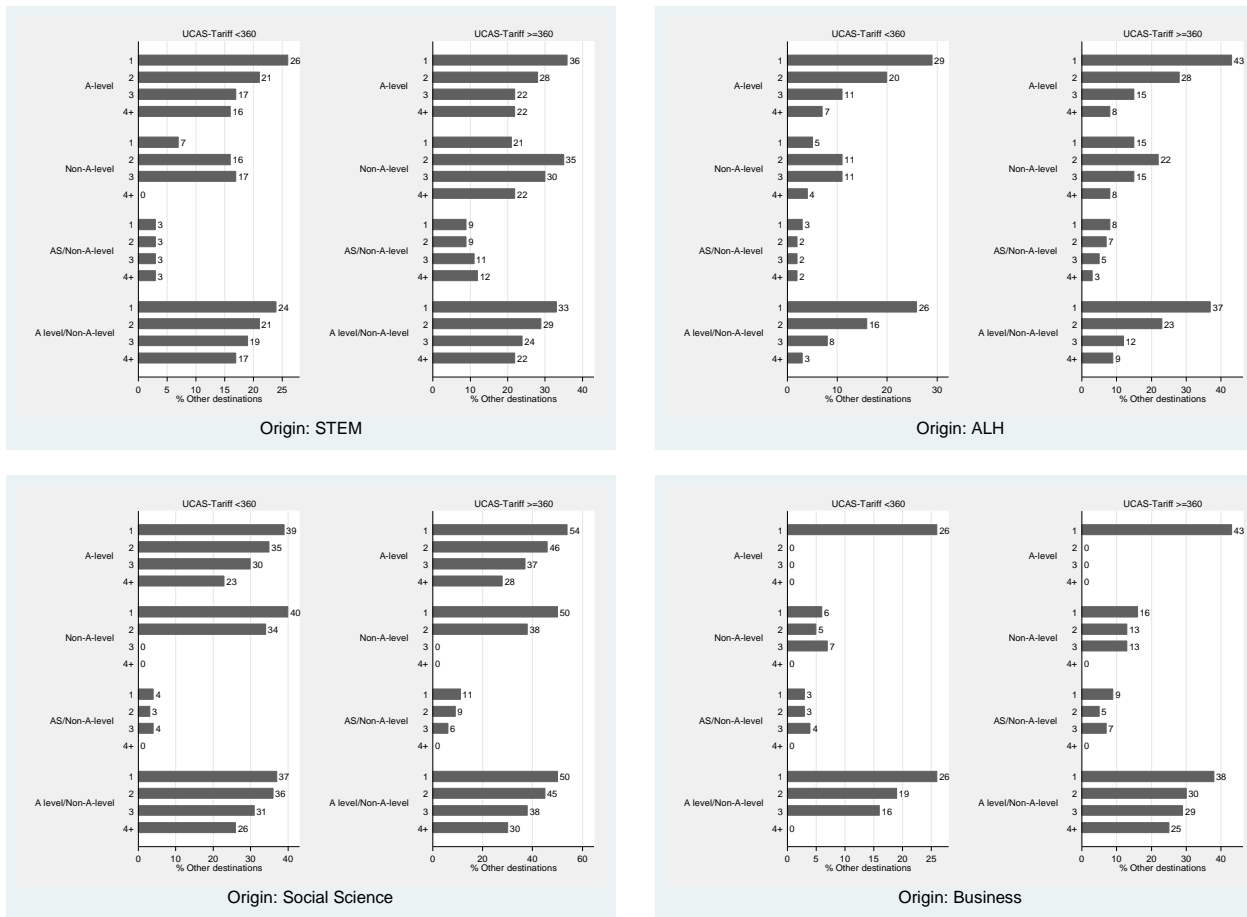
Figure 3.6: Percentage with transition to HEI studying same subject by number of subjects within route and UCAS tariff\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE)

**Figure 3.7: Percentage with transition to HEI studying different subject by number of subjects within route and UCAS tariff**



Source: KS5-HESA linked database (DfE)

### 3.4.3 Differences in the quality of the HEIs chosen by KS5 route

In the final part of the descriptive analysis, we focus on all KS5 leavers from the data, who have made a successful transition into HE and describe their course characteristics and the types of institution attended (Russell Group, top third, or post – 1992 university). Table 3.7 describes the share of all KS5 students making the transition to HE and then restricts the analysis to all found in HEIs.

Students with A-Level combined with Non-A-Level show very similar KS5-HE transition rates 56% and 51% respectively. In contrast, only 7 % of learners with combinations of AS levels and Non-A-Level qualifications progress to HE, while 17% of those with only Non-A-Level qualifications do it.

**Table 3.7: Percentage of students in a Higher Education destination by route\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
Non HE	43.8	82.6	93.3	48.4	244,900
HE	56.2	17.4	6.7	51.5	162,100
Total	172,500	105,600	43,700	85,100	
All with HE destination					
STEM	34.9	42.5	39.5	38.1	59,600
Languages, Art and Humanities	26.1	25.3	21.9	24.3	41,300
Social Science	17.9	10.4	11.2	16.2	26,700
Business & Administration	10.0	12.5	16.7	10.3	17,000
Other & Combined	8.1	2.5	5.2	7.5	11,800
Education	3.0	6.8	5.5	3.6	6,000
Total	97,000	18,400	3,000	43,900	162,100
HE characteristics of all with HE destination					
Top Third	46.4	15.1	14.1	45.6	68,200
Russell Group	32.0	7.9	7.4	33.6	47,400
Post 1992	43.9	76.1	68.7	45.2	78,400
Total	97,000	18,400	3,000	43,900	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE)

Among students enrolled in HE, STEM subjects represent the category chosen most often, ranging from 42.5% for students with Non-A-Level qualifications to 35% for A-Levels only achievers. The subject choice least frequently observed is either education (3.0% of all A-level students and 3.6% of all students who had combined A-Level and KS5 Non-A-Level qualifications. Students with Non-A-Level only least often choose the other and combined subjects (2.5% and 5.2%).

The lower part of Table 3.7 shows that students with A-level and combined A-Level/Non-A-Level qualifications are found similarly in about half of all cases in Top Third universities. In contrast, the majority of students with Non-A-Level qualifications study at

post-1992 universities (76% for only Non-A-Level graduates and 69% for those with combinations of AS Level and Non-A-Level).

### **Differences in the quality of the HEIs conditional on prior attainment**

As before, we also provide descriptions of course and HEI characteristics separately for KS5 students having achieved high UCAS tariff of more than 360 points or less than that (Table 3.8). Overall, we find that 71.5% of students with at least 360 UCAS points in A-Level qualifications progress to HE, compared to 47.1% of those with lower attainment. While those with combinations of A-Levels Non-A-Level qualifications show only slightly smaller transition rates to HE, which equally differ by UCAS tariff, only 36.1% of those having achieved Non-A-Level qualifications go to HE if their UCAS tariff indicates high prior attainment.

We also find substantial differences between the types of HEIs depending on UCAS tariff and qualifications: Only 16.4% of students of all students with A-Levels and 360 or higher UCAS tariff study at post-1992 university. The corresponding percentage for students with less than 360 UCAS point is 68.6%. In contrast, of those obtaining Non-A-Level qualifications making their way to HE, 85% of the group with less than 360 UCAS tariff and 66% of those with high prior attainment are in post-1992 institutions.

The percentages of students in Russell Group and top third institutions are also much lower for students with Non-A-Level qualifications compared to A-Levels. Of those students with high UCAS tariff from Non-A-Level routes going to university, only 14% go to a Russell group HEI, compared to 58% of HEI students from the A-Level route. The share of students in Top Third places is three times lower for people from the Non-A-Level route compared to A-Level students.

There are no large differences in terms of chosen subjects in HE for high and low achievers at KS5. STEM is the most popular subject in all routes for both groups with high and low previous attainment, while the other subject groups present similar percentages among the two groups.

**Table 3.8: Percentage of students in a Higher Education destination by route and UCAS tariff\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
<b>&lt; 360 UCAS POINTS</b>					
Non HE	52.9	88.2	95.2	58.8	187,900
HE	47.1	11.8	4.8	41.2	80,100
Total	108,400	81,400	35,300	42,800	
<b>At least 360 UCAS POINTS</b>					
Non HE	28.5	63.9	85.2	37.9	57,100
HE	71.5	36.1	14.8	62.1	82,200
Total	64,200	24,300	8,400	42,300	
<b>&lt; 360 UCAS POINTS</b>					
Only HE destination					
STEM	32.5	38.9	37.7	35.1	27,200
Languages, Art and Humanities	26.6	25.7	19.1	23.6	20,500
Social Science	17.1	10.1	11.7	15.7	12,700
Business & Administration	12.9	13.1	18.9	14.6	10,800
Other & Combined	6.6	2.3	6.5	5.4	4,700
Education	4.3	9.9	6.2	5.5	4,200
Total	51,100	9,600	1,800	17,700	80,000
<b>At least 360 UCAS POINTS</b>					
Only HE destination					
STEM	37.7	46.5	41.8	40.2	32,400
Languages, Art and Humanities	25.5	24.8	25.7	24.8	20,700
Social Science	18.7	10.8	10.6	16.5	14,000
Business & Administration	6.7	11.7	13.8	7.4	6,200
Other & Combined	9.8	2.8	3.4	8.8	7,100
Education	1.6	3.4	4.7	2.3	1,700
Total	45,900	8,800	1,300	26,300	82,100
<b>&lt; 360 UCAS POINTS</b>					
HE Characteristics					
Russell Group	8.3	2.1	3.6	6.6	5,700
Top Third	19.4	7.4	9.1	15.6	13,600
Post 1992	68.6	85.4	71.2	72.8	57,300
Total	51,100	9,600	1,800	17,700	
<b>At least 360 UCAS POINTS</b>					
HE Characteristics					
Russell Group	58.3	14.2	12.5	51.7	41,700
Top Third	76.5	23.6	21.0	65.8	54,700
Post 1992	16.4	65.9	65.4	26.6	21,100
Total	45,900	8,800	1,300	26,300	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred. Russell Group and Top Third are not mutually exclusive.

Source: KS5-HESA linked database (DfE)

In Appendix 4, we provide further detail of the differences in subject choice and quality of the HEI by demographic and socio-economic characteristics. The following findings can be summarised:

- Types of HEIs attended by gender and route are very similar when looking into the different KS5 routes (Table A4.1).
- For those attending university, we find substantial differences in subjects chosen by female and male students. Although STEM is the favourite subject category for both groups, male students tend to choose it more often than female ones and the percentage increases when we consider Non-A-Level routes. Female students show a stronger preference for arts, humanities and language and education.
- FSM eligibility and subject choice are widely unrelated. However, those with FSM eligibility are less likely to attend a Russell group or top third university either with A-Level route or Non-A-Level education (although there are wide level differences, Table A4.3).
- Looking into previous KS4 achievement, we found that low GCSEs achievers are less likely to start a bachelor's degree, attend a Russell group or top third university or choose a STEM subject (similar findings were previously presented for KS5 achievement, Table A4.2). Unlike KS4 achievement, ethnicity only seems to affect the proportion of students choosing HE, and has no effect on the type of HE institution attended, with white pupils less likely to enrol into HE (as previously discussed).
- Finally, as shown in Table A4.5 in Appendix 4, there is a high percentage of students from independent schools attend a Russell group or top third institution even after choosing a Non-A-Level path during KS5.

## 4 Econometric analysis

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### 4.1 Model set-up

#### 4.1.1 HE outcomes and choice of variables

In this section, we present estimations from econometric models explaining education choices using different outcome variables. These are:

- A dichotomous variable, which we set equal to one if the person **attends university** and zero otherwise.
- A categorical variable showing for **three possible choices**: enrolling into a top third HEI, attending another HEI or not pursuing HE).
- A variable showing **students' choice to study same subject** category in KS5 and HE, a different subject or not progressing to HE.

The set of variables chosen as independent variables in our econometric models are: age when a student took their GCSEs, gender, ethnicity, FSM eligibility, achievement at KS2 and KS3, number of GCSEs achieved at A\*-C, educational route, subject category and degree of specialisation (as defined in previous sections<sup>9</sup>), whether their study included a Non-A-Level qualification, UCAS tariff, the Index of Multiple Deprivation (IMD), and interaction between route and UCAS tariff.

The choice of variables results from the descriptions shown earlier, which suggested that educational choices are related to an individual's prior educational achievement and their demographic and socio-economic characteristics. Thus, it is important to account for such factors if we want to explain what is driving the decision to enrol into a university degree, the type of chosen institution and the subject choice in HE.

Also implied in the previous section was that achieving 360 UCAS points, the choice of the KS5 routes and school types (e.g. independent schools) positively influence HE destinations, compared to people with less than 360 points or coming from other routes. For this reason, we believe it is important to account for a possible interaction between education routes and UCAS tariff.

To further control student ability, we make use of additional information on pupils' achievement at KS2 and KS3 available in the KS4 NPD database. In particular, we define two binary variables, for KS2 and KS3 respectively, which equals 1 if the student achieved level 5 in English, Mathematics or Science and 0 otherwise.

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<sup>9</sup> We previously defined specialisation as obtaining three qualifications within the same subject category.

It is well known that economic conditions in local areas where students grew up play an important role in shaping educational trajectories. This factor is captured here using the government's IMD index for 2015. This is the official measure of relative deprivation for small areas (or neighbourhoods) in England, with a ranking system which classifies areas from 1 (most deprived area) to 32,844 (least deprived area). Deprivation 'deciles' are published alongside ranks. The use of deciles, allows us to obtain a variable ranging from 1 to 10 with 10 representing the least deprived 10% of small areas in England and 1 representing the most deprived.

## 4.1.2 Findings

### Explaining transitions to HE as opposed to non-HE destinations

Using Ordinary least square (OLS) we estimate the influence of the independent variables on whether or not people study at HE using the equation:

$$y_i = \mathbf{x}'_i \boldsymbol{\beta} + u_j + \varepsilon_i$$

where:  $y$  is the first outcome variable discussed above-equal to 1 if person  $i$  progresses to HE and 0 otherwise;  $x$  is a vector containing the independent explanatory variables listed above; the intercept(s),  $u_j$  represents school  $j$ 's characteristics, and  $\varepsilon$  represents a stochastic (error) component.

We show estimates of the effects of a change in the independent variables on the probability that the student enrolls in HE in Table 4.1 for three different model specifications. These specifications differ by the choices of the independent variables, to test whether the findings are consistent across different assumptions about the nature of the relationship between the explanatory variables and whether or not a learner progresses to HE. If the conclusions are consistent across the different specifications, we can be more confident that they are accurate.

Column 1 of Table 4.1 shows the effect on the probability of progression to HE of qualification mix at KS5 only, and suggests that choosing a Non-A-Level route has a negative impact on enrolling in HE compared to A-levels. The obtained estimates are statistically significant at the 1% significance level<sup>10</sup>, and the largest effect is registered for the route AS Levels/Non-A-Level – which decreases the probability of attending university by 49.4% compared to the 'A-level only' route. By comparison, choosing A-levels in combination with a Non-A-Level qualification only decreases the probability of attending university by 4.6% compared to A-Levels.

Because other factors may be correlated with combinations of qualifications and whether or not the student attended university (an endogeneity problem), the estimates in column 1 may be biased. For this reason, we add an extended set of control variables to the specification (Column 2). The results of the extended model suggest the presence of downward bias in the Column 1 estimates because the estimates on the KS5 route variables in Col. 2 are lower. The negative effect of choosing a Non-A-Level route

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<sup>10</sup> Applying heteroskedasticity-consistent standard errors throughout the models



decreases from 39% to 21%, decreases slightly for AS Level combined with Non-A-Level qualifications (from 49% to 36%) and remains about the same 4.6% for students combining A-Levels with Non-A-Level qualifications (compared to the base category of A-Levels only).

In this specification, we also account for differences in performance based on the variable showing whether the KS5 qualifications resulted in more or less than 360 UCAS tariff. The effect here is strictly positive and qualifications generating more than 360 UCAS points increase the probability of enrolling at HE by 20% compared to students with lower attainment. The interaction of this variable with the route shows small negative effects enrolment for students with Non-A-Level and A-Level/Non-A-Level combinations, but a sizeable coefficient for KS5 students with AS-Levels combined with Non-A-Level qualifications (-12%). This means that people leaving KS with AS-Levels in combined with Non-A-Level qualifications with a performance similar 3 A-Levels with A grade still have a 12% lower probability than A-Level only students.

**Table 4.1: Linear probability model results**

Reference Category		(1)	(2)	(3)
Qualification mix at KS5 (A-Levels only)	Non-A-Level only	-0.388*** (0.002)	-0.208*** (0.004)	-0.152*** (0.004)
	AS/Non-A-Level	-0.494*** (0.002)	-0.358*** (0.002)	-0.345*** (0.002)
	A-Level/Non-A-Level	-0.046*** (0.002)	-0.046*** (0.003)	-0.045*** (0.003)
White	Age at GCSEs		0.002*** (0.000)	0.002*** (0.000)
	Male		-0.026*** (0.001)	-0.024*** (0.001)
	Non-White		0.086*** (0.002)	0.065*** (0.002)
Non-Eligible for FSM	Unobserved Ethnicity		0.073*** (0.017)	0.049*** (0.017)
	FSM eligibility		-0.011*** (0.003)	-0.010*** (0.002)
	Unobserved FSM eligibility		-0.059*** (0.017)	-0.030* (0.017)
Level 5 in Science, Math or English in KS2	At least 5 GCSEs A*-C		0.108*** (0.002)	0.100*** (0.002)
	Not level 5 in science math or English in KS2		-0.033*** (0.002)	-0.025*** (0.002)
	Unobserved KS2 achievement		-0.039*** (0.003)	-0.013*** (0.003)
Level 6 in Science, Math or English in KS3	Not level 6 in science math or English in KS3		-0.039*** (0.003)	-0.038*** (0.003)
	Unobserved KS3 achievement		-0.010** (0.004)	-0.016*** (0.005)
	At least one qualification	At least one qualification in STEM		0.062***

Reference Category	(1)	(2)	(3)
in Arts, Language and Humanities		(0.002)	(0.002)
At least one qualification in business		-0.036***	-0.039***
		(0.002)	(0.002)
At least one qualification in construction		-0.045**	-0.029
		(0.019)	(0.019)
At least one qualification in engineering		-0.101***	-0.089***
		(0.009)	(0.009)
At least one qualification in other subjects		0.040***	0.028***
		(0.002)	(0.002)
At least one qualification in social science		0.045***	0.038***
		(0.002)	(0.002)
At least 3 A-Levels in ALH		0.000	-0.003
		(0.004)	(0.004)
At least 3 A-Levels in STEM	At least 3 A-Levels in other subjects	-0.045***	-0.046***
		(0.008)	(0.008)
	At least 3 A-Levels in social science	0.023***	0.019***
		(0.004)	(0.004)
	At least 1 qualification in ALH in only Non-A-Level route	0.060***	0.060***
		(0.004)	(0.004)
	At least 1 qualification in business in only Non-A-Level route	0.032***	0.019***
		(0.004)	(0.004)
	At least 1 qualification in construction in only Non-A-Level route	0.053***	0.045**
At least 1 qualification in STEM in only Non-A-Level route		(0.019)	(0.020)
	At least 1 qualification in engineering in only Non-A-Level route	0.091***	0.083***
		(0.011)	(0.010)
	At least 1 qualification in other subjects in only Non-A-Level route	-0.041***	-0.036***
		(0.004)	(0.004)
	At least 1 qualification in social science in only Non-A-Level route	0.116***	0.043***
		(0.011)	(0.012)
	UCAS tariff >=360	0.207***	0.191***
		(0.002)	(0.002)
	IMD decile unobserved	-0.004	-0.013***
		(0.005)	(0.005)
	1st IMD decile	-0.013***	-0.031***
		(0.003)	(0.004)
	2nd IMD decile	-0.008**	-0.024***
		(0.003)	(0.003)
10 <sup>th</sup> IMD decile	3rd IMD decile	-0.015***	-0.027***
		(0.003)	(0.003)
	4th IMD decile	-0.019***	-0.023***
		(0.003)	(0.003)
	5th IMD decile	-0.023***	-0.023***
		(0.003)	(0.003)
	6th IMD decile	-0.019***	-0.017***
		(0.003)	(0.003)

Reference Category		(1)	(2)	(3)
	7th IMD decile		-0.021*** (0.003)	-0.021*** (0.003)
	8th IMD decile		-0.013*** (0.003)	-0.014*** (0.003)
	9th IMD decile		-0.006* (0.003)	-0.009*** (0.003)
	Interaction KS5 Non-A-Level only and at least 360 UCAS points		-0.019*** (0.004)	-0.017*** (0.004)
Interaction A-Level only and at least 360 UCAS points	Interaction AS Level/KS5 Non-A-Level and at least 360 UCAS points		-0.122*** (0.005)	-0.094*** (0.005)
	Interaction A-Level/Non-A-Level and at least 360 UCAS points		-0.030*** (0.004)	-0.027*** (0.004)
	Maintained school		-0.021*** (0.002)	
Other school	Independent school		-0.001 (0.005)	
	School with small cohort		0.041*** (0.002)	
School with big cohort	School with medium cohort		0.075*** (0.002)	
	Constant	0.562*** (0.001)	-0.040 (0.036)	0.000 (0.001)
	School FE	NO	NO	YES
	Observations	407038	407038	407038
	Adj. R-Squared	0.163	0.234	0.127

Note: Robust standard errors in brackets. \* p-value<0.1; \*\* p-value<0.05; \*\*\* p-value<0.01.

Source: Estimates obtained using NPD linked database

In addition to UCAS Tariff, we further include attainment at the previous Key Stages in order to capture differences in the long-term education success and find significant effects in addition to KS5 achievement and UCAS Tariff, pointing towards further heterogeneity: Students who achieved at least 5 GCSEs at A\*-C have an 11% higher chance of enrolling in HE than students who did not achieve their 5 GCSEs. Even the achievement at KS2 and KS3 long before still show significant effects when including other variables: KS5 leavers, whose KS2 achievement was lower than Level 5 (expected level) or whose KS3 achievement was lower than Level 6 in any of the core subjects (English, Maths and Science), show an about 3% lower probability to enrol in HE, other things being equal.

In our final specification, we include school fixed effects. These fixed-effects capture differences at the level of schools in the progression to HE (results in Column 3 of Table 4.1) and capture further heterogeneity than what can be controlled for by individual characteristics. As a consequence, most of the estimates individual characteristics decrease slightly when being compared to the ones reported in Column 2. The negative effect of the Non-A-Level route decreases to a negative change in the probability on the progression to HE by 15%.

The FSM variable continued to show a significant effect on enrolment in HE of minus 1% along with the effects of disadvantaged family backgrounds captured in the IMD variables, which are largest not for those identified with the highest deprivation, but the 5<sup>th</sup> to 7<sup>th</sup> decile, indicating relatively greater barriers to progress to HE for young people from the lower income households rather than the most deprived.

The other important demographic characteristics with significant coefficient on whether or not HE is attended are ethnicity and gender. As was discussed previously in the descriptive analysis, non-white students are more likely to choose HE than white students (9% and 7% in the Fixed Effects modes). There is also a gender bias, with male KS5 leavers – other things being equal – having a 2.5% lower probability to attend HE.

### Transitions to Top and other HEIs and non-HE destinations

In our two other outcome variables, we look into whether young people made transitions into  $k$  specific destinations (Top HEIs/Other HEIs; same subject or different subject) compared to non-HE as an alternative outcome. Since these outcomes are no longer binary choices, but include three potential choices, we use a multinomial Probit model to estimate the association between the independent variables and the probability of choosing alternative  $k$ . The Probit model specifies the probability that an individual  $i$  selects alternative  $k$  is as follows:

$$p_{ik} = p(y_i = k) = \Phi(x'_{ik}\beta)$$

where  $x$  is a vector containing the independent variables and an intercept, and  $\Phi$  represents the standard normal cumulative density function. The Probit estimates the effects of the independent variables on the following outcomes:

- Enrolling into a top third institution, attending a university not in the top third or not pursuing HE (Table 4.2)
- Studying the same subject category in KS5 and HE, different subjects in KS5 and HE or not enrolling in HE (Table 4.3)

In Table 4.2 and Table 4.3, each column reports the marginal effect of the specific independent variables on the probability of the outcome represented by the column, e.g. for the Table 4.2, selecting a top third university (Columns 1-2), a non-top third institution (Columns 3-4) and not pursuing HE (Columns 5-6). The two columns for each of the outcomes are reporting the estimates with and without controlling for school-level differences in fixed effects specifications.

The results show a positive and statistically significant effect on the probability of choosing a top third institution for male KS5 leavers (2-3%), a negative effect on the probability of enrolling into a non-top third institution but again a positive impact on choosing not to attend university (consistently with previously discussed results). This set of results indicates that males are less likely than females to choose HE, but when they chose to enrol in a bachelor's degree their gender has a positive impact on their decision to enrol in top institutions.

Being eligible for FSM decreases the probability of selecting top third institutions by about 0.9-1% compared to non-eligible students. It also increases the probability of not choosing university (about 1 %), while enrolment outside top third institutions is not affected.

Consistent with this result, living in the least deprived 10% of small areas in England, increases the probability to not choose HE and decreases the probability of enrolling in a top third institution, when compared with students from the most affluent small area. However, the enrolment in university education outside top third institutions is unaffected in the fixed effects estimates.

Among the variables describing previous educational achievement, a strong determinant of educational outcome is the result obtained in KS5 (UCAS tariff). This variable is always statistically significant at the 1% level and always has a large effect size on the choice between the three alternatives. When controlling for school fixed effects, achieving a UCAS tariff of 360 and more increases the probability of attending a top HEI by more than 30%. It also reduces the probability to attend a non-top third HEI or not to continue to HE by between 10% and 15%. This is evidence for the top HEIs to be very successfully targeting KS leavers who have evidenced his performance in the KS5 results.

**Table 4.2: Multinomial Probit results for second outcome variable**

Reference Category		(1) Top third Institutions	(2)	(3) Other university	(4)	(5) Non-HE	(6)
	Age at GCSEs	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
	Male	0.002** (0.001)	0.003** (0.001)	-0.033*** (0.002)	-0.030*** (0.002)	0.031*** (0.002)	0.027*** (0.002)
	Non-White	0.044*** (0.001)	0.022*** (0.002)	0.059*** (0.002)	0.049*** (0.002)	-0.103*** (0.002)	-0.071*** (0.003)
White	Unobserved Ethnicity	0.020 (0.025)	0.004 (0.022)	0.093*** (0.033)	0.047* (0.027)	-0.112*** (0.036)	-0.052* (0.030)
	FSM eligibility	-0.013*** (0.002)	-0.009*** (0.002)	-0.001 (0.003)	-0.002 (0.003)	0.014*** (0.003)	0.011*** (0.003)
Non-FSM eligible	Unobserved FSM eligibility	-0.001 (0.025)	0.004 (0.022)	-0.089*** (0.033)	-0.034 (0.027)	0.090** (0.036)	0.030 (0.030)
	At least 5 GCSEs A*-C	0.064*** (0.002)	0.016*** (0.002)	0.103*** (0.003)	0.098*** (0.002)	-0.167*** (0.003)	-0.114*** (0.003)
	Not level 5 in science math or English in KS2	-0.047*** (0.001)	-0.037*** (0.002)	0.003 (0.002)	0.008*** (0.002)	0.044*** (0.002)	0.028*** (0.002)
Level 5 in science math or English in KS2	Unobserved KS2 achievement	-0.019*** (0.002)	-0.021*** (0.002)	-0.012*** (0.003)	0.010*** (0.003)	0.031*** (0.003)	0.011*** (0.003)
	Not level 6 in science math or English in KS3	-0.014*** (0.005)	0.010** (0.004)	-0.076*** (0.005)	-0.056*** (0.005)	0.090*** (0.006)	0.047*** (0.005)
Level 6 in science math or English in KS3	Unobserved KS3 achievement	0.005* (0.003)	0.002 (0.004)	-0.028*** (0.005)	-0.020*** (0.005)	0.023*** (0.005)	0.019*** (0.006)
	Non-A-Level only	-0.080*** (0.004)	-0.017*** (0.004)	-0.153*** (0.005)	-0.122*** (0.005)	0.234*** (0.005)	0.139*** (0.006)
Qualification mix at KS5 (A-Levels only)	AS/Non-A-Level	-0.140*** (0.004)	-0.047*** (0.003)	-0.384*** (0.004)	-0.399*** (0.004)	0.524*** (0.005)	0.445*** (0.004)
	A-Level/Non-A-Level	-0.006*** (0.002)	0.008*** (0.003)	-0.040*** (0.002)	-0.047*** (0.003)	0.046*** (0.003)	0.039*** (0.003)

Reference Category		(1) Top third Institutions	(2)	(3) Other university	(4)	(5)	(6) Non-HE
At least one qualification in Arts, Language and Humanities	At least one qualification in STEM	0.049*** (0.001)	0.058*** (0.001)	0.008*** (0.002)	-0.005*** (0.002)	-0.056*** (0.002)	-0.053*** (0.002)
	At least one qualification in business	-0.041*** (0.001)	-0.065*** (0.002)	0.018*** (0.002)	0.022*** (0.002)	0.022*** (0.002)	0.043*** (0.003)
	At least one qualification in construction	-0.172*** (0.044)	-0.077*** (0.030)	0.040 (0.035)	0.032 (0.031)	0.132*** (0.045)	0.045 (0.035)
	At least one qualification in engineering	-0.075*** (0.010)	-0.067*** (0.011)	-0.055*** (0.014)	-0.040*** (0.014)	0.130*** (0.015)	0.107*** (0.015)
	At least one qualification in other subjects	-0.009*** (0.001)	-0.015*** (0.002)	0.061*** (0.002)	0.048*** (0.002)	-0.052*** (0.002)	-0.033*** (0.002)
	At least one qualification in social science	0.019*** (0.001)	0.017*** (0.001)	0.028*** (0.002)	0.026*** (0.002)	-0.047*** (0.002)	-0.043*** (0.002)
	At least 3 A-Levels in ALH	-0.016*** (0.002)	-0.033*** (0.003)	0.037*** (0.003)	0.038*** (0.003)	-0.021*** (0.004)	-0.005 (0.004)
	At least 3 a levels in other subjects	-0.089*** (0.005)	-0.131*** (0.007)	0.051*** (0.007)	0.063*** (0.007)	0.038*** (0.008)	0.068*** (0.008)
At least 3 A-Levels in STEM	At least 3 A-Levels in social science	0.017*** (0.002)	0.020*** (0.003)	0.007** (0.004)	0.002 (0.003)	-0.025*** (0.004)	-0.023*** (0.004)
	At least 1 qualification in AHL in only Non-A-Level route	-0.002 (0.004)	0.022*** (0.004)	0.058*** (0.005)	0.038*** (0.004)	-0.055*** (0.005)	-0.060*** (0.005)
	At least 1 qualification in business in only Non-A-Level route	0.046*** (0.004)	0.081*** (0.004)	-0.038*** (0.005)	-0.061*** (0.005)	-0.008 (0.006)	-0.020*** (0.006)
	At least 1 qualification in construction in only Non-A-Level route	0.191*** (0.045)	0.119*** (0.031)	-0.103*** (0.037)	-0.060* (0.032)	-0.088* (0.047)	-0.059 (0.037)
At least 1 qualification in STEM in only Non-A-Level route	At least 1 qualification in engineering in only Non-A-Level route	0.097*** (0.012)	0.100*** (0.013)	-0.010 (0.016)	-0.003 (0.015)	-0.087*** (0.018)	-0.097*** (0.017)
	At least 1 qualification in other subjects in only Non-A-Level route	0.007* (0.004)	0.041*** (0.004)	-0.088*** (0.005)	-0.086*** (0.004)	0.081*** (0.005)	0.045*** (0.005)
	At least 1	0.135***	0.120***	-0.084***	-0.095***	-0.050***	-0.024*

Reference Category	(1) Top third Institutions	(2)	(3) Other university	(4)	(5)	(6) Non-HE
qualification in social science in only Non-A-Level route	(0.006)	(0.008)	(0.011)	(0.012)	(0.012)	(0.013)
UCAS tariff >=360	0.188*** (0.002)	0.302*** (0.002)	-0.103*** (0.002)	-0.148*** (0.002)	-0.085*** (0.003)	-0.154*** (0.003)
IMD decile unobserved	-0.018***	-0.018***	0.022***	0.006	-0.004	0.012**
1st IMD decile	(0.003) -0.045*** (0.002)	(0.004) -0.027*** (0.003)	(0.005) 0.036*** (0.004)	(0.005) -0.005 (0.004)	(0.006) 0.010** (0.004)	(0.006) 0.032*** (0.004)
2nd IMD decile	-0.034*** (0.002)	-0.026*** (0.003)	0.032*** (0.003)	0.001 (0.004)	0.002 (0.004)	0.024*** (0.004)
3rd IMD decile	-0.036*** (0.002)	-0.028*** (0.003)	0.026*** (0.003)	0.001 (0.004)	0.010*** (0.004)	0.028*** (0.004)
4th IMD decile	-0.034*** (0.002)	-0.028*** (0.003)	0.020*** (0.003)	0.004 (0.003)	0.015*** (0.004)	0.024*** (0.004)
5th IMD decile	-0.029*** (0.002)	-0.025*** (0.003)	0.011*** (0.003)	0.001 (0.003)	0.018*** (0.004)	0.024*** (0.004)
6th IMD decile	-0.022*** (0.002)	-0.019*** (0.003)	0.008** (0.003)	0.003 (0.003)	0.014*** (0.004)	0.017*** (0.004)
7th IMD decile	-0.025*** (0.002)	-0.023*** (0.003)	0.008** (0.003)	0.001 (0.003)	0.017*** (0.004)	0.021*** (0.004)
8th IMD decile	-0.016*** (0.002)	-0.015*** (0.003)	0.008** (0.003)	0.001 (0.003)	0.008** (0.003)	0.014*** (0.004)
9th IMD decile	-0.014*** (0.002)	-0.014*** (0.002)	0.013*** (0.003)	0.005* (0.003)	0.000 (0.003)	0.009** (0.004)
Interaction KS5 Non-A-Level only and at least 360 UCAS points	-0.082*** (0.003)	-0.256*** (0.003)	0.257*** (0.004)	0.279*** (0.004)	-0.176*** (0.005)	-0.023*** (0.005)
Interaction A-Level only and at least 360 UCAS points	-0.087*** (0.006)	-0.253*** (0.006)	0.226*** (0.007)	0.288*** (0.007)	-0.139*** (0.008)	-0.035*** (0.008)
Interaction A-Level/Non-A-Level and at least 360 UCAS points	-0.024*** (0.002)	-0.061*** (0.003)	0.043*** (0.004)	0.054*** (0.004)	-0.018*** (0.004)	0.007* (0.004)
Maintained school	0.009*** (0.001)		-0.041*** (0.002)		0.032*** (0.003)	
Other School Independent school	0.047*** (0.003)		-0.121*** (0.005)		0.074*** (0.005)	
School with small cohort	0.002 (0.001)		0.058*** (0.002)		-0.060*** (0.003)	
School with big cohort	0.028*** (0.001)		0.052*** (0.002)		-0.080*** (0.003)	
School FE	NO	YES	NO	YES	YES	NO

407,038 Observations; Wald chi2(94) = 125644.74

Note: Standard errors in brackets. \* p-value<0.1; \*\* p-value<0.05; \*\*\* p-value<0.01.

UCAS tariff continues to have an effect on outcomes when combined with selected routes at KS5. The combined effect of Non-A-Level routes and UCAS tariff above 360 points is consistent with the previous findings – it is always statistically significant and has a different magnitude and direction for the three alternatives. In particular, having more than 360 points in Non-A-Level qualifications only decreases the probability of getting a place in a top third institution by 25% compared to students with more than 360 UCAS points in A-levels only. Having Non-A-Level and A-levels qualifications and being a high achiever at KS5 decreases the probability of enrolling into a top third university by only 6% compared to A-Level students.

We also find that the subject choice has an important influence on enrolling in undergraduate study: Having at least one qualification in a STEM subject increases the probability of enrolment in a top third institution by 6% compared with choosing at least one subject in arts, language and humanities.

### **Subject choice in KS5 and outcomes**

In the final part of the econometric analysis, we estimate the relevance of the KS5 subject choices for the subjects taken in HE and the alternative outcome of no progression to HE in a multinomial Probit model. The characteristics associated with the non-HE destination are similar to those shown in the other models, suggesting a high probability of leaving education with Non-A-Level education during KS5 and the importance of the attainment as shown in the UCAS Tariff.

Since A-Level students have a combination of different subjects, there are generally more opportunities for them to also study the subject taken during KS5 during their undergraduate degree, whereas the primarily single-subject Level 3 Non-A-Level courses (such as construction and engineering) are more often associated with people making subject changes.

For those specialising in their A-Levels subjects, there is some evidence for a higher probability to remain in the same subject area: Compared to those studying three A-Levels in STEM subjects, A-Level graduates with three subjects in art, humanities and languages (AHL) more often remain in the subject and less often change, while three A-Levels in “other subjects” more often change subjects. Social science specialisation does not seem to bring any significant effects (in the Fixed Effects specification).

When looking into the Non-A-Level qualifications more narrowly (compared to on STEM Non-A-Level qualification), any one of the specific subject areas increase the probability to continue studying for the same subject with the exception of the “other subjects”, which are more often affected by subject choice when starting undergraduate studies just as for A-Level students. Compared to Non-A-Level STEM, the other Level 3 Non-A-Level qualifications are also less often associated with the non-HE outcome.

Overall, the findings suggest that Level 3 qualifications outside of A-Levels more often lead to subject changes (as people had specialised earlier).



**Table 4.3: Multinomial Probit results for third outcome variable**

Reference Category		(1)	(2)	(3)	(4)	(5)	(6)
		Same subject category in KS5 and HE		Different Subject in KS5 and HE		Destination outside HE	
White	Age at GCSEs	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
	Male	-0.030*** (0.002)	-0.028*** (0.002)	0.001 (0.001)	0.001 (0.001)	0.029*** (0.002)	0.027*** (0.002)
	Non-White	0.078*** (0.002)	0.049*** (0.002)	0.028*** (0.001)	0.021*** (0.001)	-0.106*** (0.002)	-0.071*** (0.003)
	Unobserved Ethnicity	0.124*** (0.038)	0.047 (0.029)	0.013 (0.021)	0.007 (0.018)	-0.138*** (0.038)	-0.054* (0.030)
Non-FSM eligible	FSM eligibility	-0.009*** (0.003)	-0.008** (0.003)	-0.003 (0.002)	-0.003 (0.002)	0.012*** (0.003)	0.011*** (0.003)
	Unobserved FSM eligibility	-0.104*** (0.039)	-0.031 (0.029)	-0.013 (0.021)	-0.001 (0.018)	0.117*** (0.038)	0.033 (0.030)
Level 5 in science math or English in KS2	At least 5 GCSEs A*-C	0.121*** (0.003)	0.075*** (0.003)	0.041*** (0.002)	0.039*** (0.002)	-0.162*** (0.003)	-0.114*** (0.003)
	Not level 5 in science math or English in KS2	-0.040*** (0.002)	-0.027*** (0.002)	-0.001 (0.001)	0.001 (0.001)	0.041*** (0.002)	0.027*** (0.002)
	Unobserved KS2 achievement	-0.034*** (0.003)	-0.018*** (0.003)	-0.003* (0.002)	0.005** (0.002)	0.037*** (0.003)	0.013*** (0.003)
Level 6 in science math or English in KS3	Not level 6 in science math or English in KS3	-0.054*** (0.006)	-0.016*** (0.005)	-0.034*** (0.004)	-0.028*** (0.003)	0.087*** (0.006)	0.044*** (0.005)
	Unobserved KS3 achievement	-0.008* (0.005)	-0.011** (0.005)	-0.005 (0.003)	-0.006* (0.003)	0.012** (0.005)	0.017*** (0.006)
Qualification mix at KS5 (A-Levels only)	Non-A-Level only	-0.190*** (0.005)	-0.123*** (0.005)	-0.058*** (0.003)	-0.043*** (0.003)	0.248*** (0.006)	0.166*** (0.006)
	AS/Non-A-Level	-0.421*** (0.005)	-0.365*** (0.004)	-0.110*** (0.003)	-0.105*** (0.003)	0.531*** (0.005)	0.470*** (0.004)
	A-Level/Non-A- Level	-0.030*** (0.003)	-0.036*** (0.003)	-0.008*** (0.002)	-0.011*** (0.002)	0.038*** (0.003)	0.046*** (0.003)
	At least one qualification in STEM	0.114*** (0.002)	0.105*** (0.002)	-0.048*** (0.001)	-0.050*** (0.001)	-0.066*** (0.002)	-0.055*** (0.002)
At least one qualification in Arts, Language and Humanities	At least one qualification in business	0.011*** (0.002)	0.008*** (0.002)	-0.051*** (0.002)	-0.049*** (0.002)	0.040*** (0.002)	0.042*** (0.003)
	At least one qualification in construction	-0.166*** (0.043)	-0.092** (0.037)	0.040** (0.020)	0.036* (0.019)	0.127*** (0.042)	0.056 (0.036)
	At least one qualification in engineering	-0.064*** (0.015)	-0.052*** (0.014)	-0.095*** (0.013)	-0.062*** (0.011)	0.160*** (0.016)	0.114*** (0.015)
	At least one qualification in other subjects	0.053*** (0.002)	0.041*** (0.002)	-0.012*** (0.001)	-0.009*** (0.001)	-0.041*** (0.002)	-0.032*** (0.002)
	At least one qualification in	0.050***	0.047***	-0.004***	-0.006***	-0.046***	-0.041***

Reference Category	(1) Same subject category in KS5 and HE	(2)	(3) Different Subject in KS5 and HE	(4)	(5) Destination outside HE	(6)
social science	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
At least 3 A-Levels in ALH	0.066***	0.061***	-0.062***	-0.061***	-0.004	-0.000
At least 3 a levels in other subjects	-0.116***	-0.132***	0.059***	0.062***	0.056***	0.070***
At least 3 A-Levels in STEM	(0.007)	(0.008)	(0.004)	(0.004)	(0.008)	(0.008)
At least 3 A-Levels in social science	0.009**	0.000	0.016***	0.017***	-0.025***	-0.017***
At least 1 qualification in AHL in only Non-A-Level route	(0.003)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
At least 1 qualification in business in only Non-A-Level route	0.170***	0.120***	-0.070***	-0.051***	-0.100***	-0.069***
At least 1 qualification in construction in only Non-A-Level route	(0.005)	(0.005)	(0.003)	(0.003)	(0.005)	(0.005)
At least 1 qualification in engineering in only Non-A-Level route	0.031***	0.009	0.017***	0.017***	-0.047***	-0.025***
At least 1 qualification in STEM in only Non-A-Level route	(0.006)	(0.005)	(0.004)	(0.003)	(0.006)	(0.006)
At least 1 qualification in other subjects in only Non-A-Level route	0.034	0.095**	-0.011	-0.027	-0.023	-0.068*
At least 1 qualification in engineering in only Non-A-Level route	(0.046)	(0.038)	(0.021)	(0.019)	(0.045)	(0.038)
At least 1 qualification in social science in only Non-A-Level route	0.174***	0.132***	-0.067***	-0.031**	-0.107***	-0.102***
At least 1 qualification in other subjects in only Non-A-Level route	(0.017)	(0.016)	(0.016)	(0.012)	(0.019)	(0.017)
At least 1 qualification in social science in only Non-A-Level route	-0.165***	-0.086***	0.055***	0.030***	0.111***	0.056***
At least 1 qualification in social science in only Non-A-Level route	(0.005)	(0.005)	(0.003)	(0.003)	(0.005)	(0.005)
UCAS tariff >=360	0.171***	0.109***	-0.064***	-0.068***	-0.107***	-0.041***
IMD decile unobserved	(0.010)	(0.012)	(0.009)	(0.009)	(0.012)	(0.014)
1st IMD decile	0.172***	0.175***	0.020***	0.011***	-0.192***	-0.186***
2nd IMD decile	(0.002)	(0.002)	(0.001)	(0.001)	(0.003)	(0.003)
3rd IMD decile	-0.004	-0.010*	0.001	-0.003	0.003	0.014**
4th IMD decile	(0.005)	(0.005)	(0.003)	(0.003)	(0.006)	(0.006)
5th IMD decile	-0.013***	-0.024***	0.000	-0.010***	0.013***	0.034***
10 <sup>th</sup> IMD decile	(0.004)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
1st IMD decile	-0.008**	-0.020***	0.001	-0.006**	0.007*	0.026***
2nd IMD decile	(0.004)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
3rd IMD decile	-0.015***	-0.023***	-0.002	-0.006***	0.017***	0.029***
4th IMD decile	(0.004)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
5th IMD decile	-0.018***	-0.021***	-0.004	-0.005**	0.022***	0.026***
	(0.003)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)
	-0.022***	-0.021***	-0.004**	-0.005**	0.026***	0.026***
	(0.003)	(0.004)	(0.002)	(0.002)	(0.004)	(0.004)

Reference Category		(1)	(2)	(3)	(4)	(5)	(6)	
		Same subject category in KS5 and HE		Different Subject in KS5 and HE		Destination outside HE		
Interaction A-Level only and at least 360 UCAS points	6th IMD decile	-0.015*** (0.003)	-0.012*** (0.004)	-0.007*** (0.002)	-0.006*** (0.002)	0.021*** (0.004)	0.018*** (0.004)	
	7th IMD decile	-0.018*** (0.003)	-0.017*** (0.003)	-0.006*** (0.002)	-0.005*** (0.002)	0.024*** (0.004)	0.022*** (0.004)	
	8th IMD decile	-0.012*** (0.003)	-0.012*** (0.003)	-0.003 (0.002)	-0.003 (0.002)	0.015*** (0.004)	0.015*** (0.004)	
	9th IMD decile	-0.004 (0.003)	-0.008** (0.003)	-0.002 (0.002)	-0.002 (0.002)	0.006* (0.003)	0.010*** (0.004)	
	interaction Non- A-Level only and at least 360 UCAS points	-0.029*** (0.005)	-0.092*** (0.004)	0.072*** (0.003)	0.071*** (0.002)	-0.043*** (0.005)	0.021*** (0.005)	
	interaction AS Level/ Non-A- Level and at least 360 UCAS points	0.021*** (0.008)	-0.024*** (0.007)	0.014*** (0.005)	0.027*** (0.005)	-0.035*** (0.008)	-0.003 (0.008)	
	interaction A- Level/Non-A- Level and at least 360 UCAS points	-0.020*** (0.004)	-0.019*** (0.004)	-0.015*** (0.002)	-0.010*** (0.002)	0.036*** (0.004)	0.028*** (0.004)	
	Maintained school	-0.024*** (0.002)		-0.005*** (0.002)		0.029*** (0.003)		
	Other School	Independent school	-0.014*** (0.005)		0.002 (0.003)		0.012** (0.005)	
	School with big cohort	School with small cohort	0.034*** (0.003)		0.021*** (0.002)		-0.054*** (0.003)	
	School with medium cohort	0.066*** (0.002)		0.023*** (0.002)		-0.089*** (0.003)		
	School FE	NO	YES	NO	YES	NO	YES	

407,038 Observations; Wald  $\chi^2(94) = 95712.23$

Note: Clustered standard errors in brackets. \* p-value<0.1; \*\* p-value<0.05; \*\*\* p-value<0.01.

Source: Estimates obtained using NPD linked database

## 5 Conclusion

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Continued education investment should be the first choice for young people following both A-Level and Non-A-Level routes in KS5 if they show a strong performance and very good achievement. For these students, attending tertiary education yields significant returns to education investment, especially in terms of life-time earnings.

However, this study based on school-level data and linked education records for 650,000 English secondary school leavers found large differences in patterns of progression to HE, depending partly on differences in school type attended, but most importantly on the choice between following A-Level and Non-A-Level routes in KS5. We find that even students with successful achievement of Non-A-Level qualifications generating as many UCAS credits as good A-Levels less often progress to HE than A-Level students of weaker performance. If Non-A-Level achievers progress to HE, they also less often attend the more prestigious universities.

While we acknowledge that this difference is likely to result from the higher labour market value of Non-A-Level qualifications and preferences for quick labour market entry of the students undertaking such qualifications, a background of vocational and technical education decreases education progression. Since such qualifications are more often taken by students from economically disadvantaged backgrounds, the lack of progression also adversely affects social mobility.

Which options to improve the situation could be looked at in the light of the findings of this study?

1. **Young people need to be well informed** about how KS5 choices affect their education progression. A selection into Non-A-Level routes, while likely to have higher initial labour market value, is likely to curtail educational progression.
2. A disadvantaged family background remains a barrier for young people to progress to A-Levels with long-term negative effects on social mobility. **Improving targeted financial support** for families would be another important mechanism to increase progression to A-Levels and further tertiary education.
3. Students with successful achievement in Non-A-Level programmes would benefit from a tailored offer of tertiary education, which is specific in that it builds on existing vocational and technical education and skills. In ongoing research, we find evidence that higher vocational education (Levels 4 and 5) such as Higher National Diplomas (HND) are an important mechanism for progression from Non-A-Level qualifications, especially for mature students (Espinoza and Speckesser, 2019, forthcoming). McIntosh and Morris (2016) and Conlon et al. (2017) show that Level 4 and 5 qualifications have a strong earnings premium in the labour market.

Therefore, we believe that **improving the provision of higher vocational programmes** could be an important building block to improve progression routes for

students with high performance in Non-A-Level qualifications. Programmes would have to offer both attractive education credentials with value in the labour market and access to further education investment for high-ability students to enable progression for the best students to the highest academic or technical qualifications.

4. Finally, the introduction of the Apprenticeship Levy resulted in new Apprenticeship Standards, many involving **Higher Apprenticeships**, which can create further opportunities for tertiary education at either Levels 4 and 5 or degree (or equivalent) based on employer funding.

## References

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- Blundell R, Dearden L, Sianesi B. (2005), Evaluating the effect of education on earnings: models, methods and results from the National Child Development Survey, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 168(3), 473-512
- Britton J, Dearden L, Shephard N, Vignoles A (2016), How English domiciled graduate earnings vary with gender, institution attended, subject and socio-economic background, Institute for Fiscal Studies Working Paper W, 16
- Carneiro P, Heckman J J (2002), The evidence on credit constraints in post-secondary schooling, *The Economic Journal*, 112(482), 705-734
- Chevalier A (2011), Subject choice and earnings of UK graduates, *Economics of Education Review*, 30(6), 1187-1201
- Conlon G, Chevalier A (2003), Does it pay to attend a prestigious university? Centre for the Economics of Education (CEE) Discussion Paper, P0033
- Conlon G, Patrignani P, Hedges, S (2017), The earnings differentials associated with vocational education and training using the Longitudinal Education Outcomes, CVER Research Discussion Paper CVERDP007
- Crawford C, Meschi E, Vignoles A (2011), Post-16 Educational Choices And Institutional Value Added At Key Stage 5. CEE DP 124
- Espinoza H, Speckesser, S (2017), An analysis of medium-term labour market and earnings effects of university compared to higher technical education, Progress report for CVER Project 1.10
- Hedges, S, Speckesser, S (2017), Peer Effects and Social Influence in Post-16 Educational Choice, CVER Research Discussion Paper CVERDP008
- Hupkau C, McNally S, Ruiz-Valenzuela J, Ventura G (2017), Post-compulsory education in England: choices and implications, *National Institute Economic Review*, 240(1), R42-R57
- Hussain I, McNally S, Telhaj S (2009), University quality and graduate wages in the UK, CEE DP 99.
- McIntosh S (2006), Further Analysis of the Returns to Academic and Vocational Qualifications, *Oxford Bulletin of Economics and Statistics*. 68(2): 0305-9049.
- McIntosh S (2007), A Cost–Benefit Analysis of Apprenticeships and Other Vocational Qualifications, Research Report RR834. Department for Education and Skills
- McIntosh S, Morris D (2016), Labour Market Returns to Vocational Qualifications in the Labour Force Survey, CVER Research Discussion Paper CVERDP002

Walker I, Zhu Y (2011), Differences by degree: Evidence of the net financial rates of return to undergraduate study for England and Wales *Economics of Education Review*, 30(6), 1177-1186

Walker I, Zhu Y (2013), The impact of university degrees on the lifecycle of earnings: some further analysis

Wolf A (2011), *Review of Vocational Education: The Wolf report*, Department for Education and Department for Business Innovation and Skills

Wolf, A (2016), 'Remaking Tertiary Education: Can we create a system that is fair and fit for purpose?', Education Policy Institute

## Appendix 1

**Table A1. 1: KS5 leaver's destination in 2012/13 by percentage of persistent absence of students in the school**

	FE/Other	App.	HEI	Employment (incl. with training)	Combinations outside HEI
<i>&lt; 10% of students in persistent absence</i>					
Number of schools/colleges	1,429	1,019	1,447	1,447	1,447
Mean % destination	14.22	5.36	52.89	5.55	0.26
Standard Deviation	7.94	4.38	16.22	7.2	1.35
<i>At least 10% of students in persistent absence</i>					
Number of schools/colleges	226	158	241	241	241
Mean % destination	21.08	7.66	38.63	5.76	0.43
Standard Deviation	9.67	5.7	18.59	8.27	1.69

*Source: Destination tables KS5 leavers 2011/12 linked with school absence tables 2011/12 (DfE)*

**Table A1. 2: Higher education destination by percentage of persistent absence in the school**

	All higher Education	Top third of HEIs	Russell Group	Other HE providers
<i>&lt; 10% of students in persistent absence</i>				
Number of schools/colleges	1,447	1,279	1,263	859
Mean % destination	52.89	21.55	14.56	0.86
Standard Deviation	16.22	14.58	12.03	2.03
<i>At least 10% of students in persistent absence</i>				
Number of schools/colleges	241	178	163	161
Mean % destination	38.63	8.58	5.33	1.32
Standard Deviation	18.59	7.44	5.58	3.25

*Source: Destination tables KS5 leavers 2011/12 linked with school absence tables 2011/12 (DfE)*



**Table A1. 3: Higher education destination given subjects offered by the school**

	All higher Education	Top third of HEIs	Russell Group	Other HE providers
Mainly STEM				
Number of schools/colleges	563	415	388	387
Mean % destination	43.32	15.04	9.49	1.27
Standard Deviation	19.64	14.63	11.61	3.15
Mainly Arts Languages and Humanities				
Number of schools/colleges	1,947	1,814	1,768	1,293
Mean % destination	52.7	25.55	18.84	1.11
Standard Deviation	17.4	18.13	15.66	2.28
Mainly Social Science				
Number of schools/colleges	196	160	156	142
Mean % destination	43.33	16.22	10.42	1.2
Standard Deviation	22.58	16.53	13.3	2.93
Mainly Business Law Administration				
Number of schools/colleges	7	4	4	4
Mean % destination	6	0	0	1.25
Standard Deviation	10.25	0	0	2.5
Mainly Other Subjects				
Number of schools/colleges	26	19	17	19
Mean % destination	31.73	19.26	14.18	2.95
Standard Deviation	22.86	20.12	16.95	7.46

Source: Destination tables KS5 leavers 2011/12 linked with subject's tables 2011/12 and LARA (DfE)

## Appendix 2

**Table A2. 1: Percentage of students choosing a KS5 subject by route and gender\***

	STEM	Engine- -ering	Construc- -tion	Arts, Language and Humanities	Social Science	Business	Others	Total
<i>At least one qualification in the same subject</i>								
<b>Females</b>								
A-Level only	45.3	0.0	0.0	76.3	76.2	11.3	41.7	93,600
Non-A-Level only	9.1	0.6	*	26.7	2.5	13.7	64.3	52,100
AS-Level and Non-A-Level	19.2	*	*	67.0	43.6	16.2	46.6	22,200
A-Level and Non-A-Level	47.0	*	*	73.3	64.9	20.5	73.5	46,700
Total	73,400	400	100	134,400	112,700	30,900	117,200	
<b>Males</b>								
A-Level only	63.5	0.0	0.0	54.5	65.9	17.2	43.5	78,900
Non-A-Level only	21.4	10.3	5.8	23.1	2.2	21.7	35.7	53,500
AS-Level and Non-A-Level	35.2	4.0	0.9	52.0	34.4	23.0	39.5	21,500
A-Level and Non-A-Level	64.2	1.6	*	55.2	53.0	27.6	66.8	38,400
Total	93,700	7,000	3,400	87,700	81,000	40,700	87,600	
<i>At least two qualifications in the same subject</i>								
<b>Females</b>								
A-Level only	25.7	0.0	0.0	42.1	38.2	0.0	9.6	93,600
Non-A-Level only	2.9	*	*	7.7	0.6	1.7	8.6	52,100
AS-Level and Non-A-Level	6.7	*	*	30.0	12.6	2.9	16.1	22,200
A-Level and Non-A-Level	26.7	*	0.0	41.2	27.2	4.1	37.1	46,700
Total	39,500	<100	<100	69,400	51,600	3,500	34,400	
<b>Males</b>								
A-Level only	43.7	0.0	0.0	22.4	30.7	0.0	9.9	78,900
Non-A-Level only	4.2	1.4	0.5	5.9	0.6	2.9	6.2	53,500
AS-Level and Non-A-Level	14.4	0.7	*	18.7	8.4	4.7	11.8	21,500
A-Level and Non-A-Level	42.3	*	*	24.7	20.4	6.5	31.4	38,400
Total	56,000	1,000	300	34,300	34,100	5,100	25,700	
<i>At least three qualifications in the same subject</i>								
<b>Females</b>								
A-Level only	13.9	0.0	0.0	16.4	10.7	0.0	2.4	93,600
Non-A-Level only	1.0	0.0	*	2.5	0.0	0.2	1.6	52,100
AS-Level and Non-A-Level	2.7	0.0	*	10.9	2.4	0.5	4.0	22,200
A-Level and Non-A-Level	16.4	0.0	0.0	20.2	6.9	1.0	15.1	46,700
Total	21,800	0	<100	28,600	13,800	700	11,000	
<b>Males</b>								
A-Level only	27.4	0.0	0.0	7.0	9.3	0.0	2.1	78,900

	STEM	Engine- ering	Construc- tion	Arts, Language and Humanities	Social Science	Business	Others	Total
Non-A-Level only	1.4	*	*	1.5	0.0	0.4	0.9	53,500
AS-Level and Non-A- Level	5.8	*	*	6.3	1.5	0.8	2.7	21,500
A-Level and Non-A- Level	28.6	*	0.0	10.5	5.5	1.3	11.5	38,400
Total	34,600	100	<100	11,700	9,800	900	7,100	
<i>At least four qualifications in the same subject</i>								
<b>Females</b>								
A-Level only	3.7	0.0	0.0	3.4	1.3	0.0	0.5	93,600
Non-A-Level only	0.2	0.0	0.0	0.6	0.0	0.0	0.2	52,100
AS-Level and Non-A- Level	0.7	0.0	0.0	3.2	0.2	0.1	0.7	22,200
A-Level and Non-A- Level	7.2	0.0	0.0	8.4	1.0	0.1	4.0	46,700
Total	7,000	0	0	8,100	1700	100	2,600	
<b>Males</b>								
A-Level only	10.9	0.0	0.0	1.2	1.4	0.0	0.4	78,900
Non-A-Level only	0.3	*	*	0.4	0.0	*	*	53,500
AS-Level and Non-A- Level	1.8	*	0.0	1.7	*	*	0.5	21,500
A-Level and Non-A- Level	17.0	0.0	0.0	4.2	0.9	*	3.0	38,400
Total	15,600	<100	<100	3,100	1,500	200	1,700	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE).

**Table A2. 2: Percentage of students choosing a KS5 subject by route and FSM**

	STEM	Engineering	Construction	Arts, Language and Humanities	Social Science	Business	Others	Total
<i>At least one qualification in the same subject</i>								
<b>Non-FSM</b>								
A-Level only	52.8	0.0	0.0	66.1	71.6	13.7	46.8	134,400
Non-A-Level only	13.9	5.7	3.1	24.2	1.5	17.5	50.2	86,700
AS-Level and Non-A-Level	26.8	2.1	0.5	59.7	39.1	19.5	44.3	37,200
A-Level and Non-A-Level	53.6	0.8	*	65.0	59.2	24.0	72.3	71,100
Total	131,300	6,400	3,000	178,300	154,300	57,900	174,400	
<b>FSM</b>								
A-Level only	48.5	0.0	0.0	63.5	72.1	13.9	31.0	9,000
Non-A-Level only	17.5	4.9	2.9	21.9	*	20.3	46.2	14,000
AS-Level and Non-A-Level	26.8	*	*	57.6	37.8	19.4	39.6	4,200
A-Level and Non-A-Level	47.3	*	*	62.4	54.6	30.1	65.2	5,300
Total	10,500	800	400	14,500	11,100	6,500	14,400	
<i>At least two qualifications in the same subject</i>								
<b>Non-FSM</b>								
A-Level only	33.2	0.0	0.0	33.1	34.9	*	11.3	134,400
Non-A-Level only	2.7	0.8	0.3	6.1	0.3	2.2	7.7	86,700
AS-Level and Non-A-Level	10.3	0.4	*	24.8	10.4	3.7	14.5	37,200
A-Level and Non-A-Level	32.4	*	*	33.9	23.9	5.3	36.4	71,100
Total	73,900	900	300	83,200	68,000	7,100	53,200	
<b>FSM</b>								
A-Level only	31.8	0.0	0.0	29.2	38.4	*	7.9	9,000
Non-A-Level only	2.3	*	*	4.5	*	2.9	5.9	14,000
AS-Level and Non-A-Level	8.9	*	0.0	21.8	10.7	4.0	12.0	42,000
A-Level and Non-A-Level	23.4	*	*	28.9	21.6	7.6	30.2	5,300
Total	4,800	100	<100	5,700	5,100	1,000	3,600	
<i>At least three qualifications in the same subject</i>								
<b>Non-FSM</b>								
A-Level only	19.5	0.0	0.0	12.1	10.1	0.0	2.7	134,400
Non-A-Level only	0.8	*	*	1.8	0.0	0.3	1.3	86,700
AS-Level and Non-A-Level	4.1	*	*	8.7	1.9	0.7	3.5	37,200
A-Level and Non-A-Level	20.7	*	0.0	16.1	6.3	1.1	14.2	71,100
Total	43,200	100	<100	32,500	18,700	1,300	16,200	
<b>FSM</b>								
A-Level only	19.3	0.0	0.0	10.5	12.9	0.0	2.1	9,000
Non-A-Level only	*	*	*	1.2	0.0	*	0.9	14,000
AS-Level and Non-A-Level	3.6	*	0.0	7.5	*	*	2.6	4,200
A-Level and Non-A-Level	13.5	*	0.0	12.5	5.7	2.1	12.4	5,300
Total	2700	<100	<100	2100	1600	200	1100	
<i>At least four qualifications in the same subject</i>								
<b>Non-FSM</b>								

	STEM	Engine- ering	Construc- -tion	Arts, Language and Humanities	Social Science	Business	Others	Total
A-Level only	6.8	0.0	0.0	2.4	1.4	0.0	0.6	134,400
Non-A-Level only	*	*	*	0.5	0.0	*	*	86,700
AS-Level and Non-A- Level	1.2	*	*	2.5	*	*	0.7	37,200
A-Level and Non-A- Level	10.7	*	0.0	6.7	1.0	0.2	3.8	71,100
Total	17,300	<100	<100	9,300	2,600	200	3,900	
<b>FSM</b>								
A-Level only	6.3	0.0	0.0	2.2	1.8	0.0	*	9,000
Non-A-Level only	*	0.0	0.0	*	0.0	*	*	14,000
AS-Level and Non-A- Level	*	0.0	0.0	*	*	*	*	4,200
A-Level and Non-A- Level	6.3	0.0	0.0	5.1	*	*	4.0	5,300
Total	1,000	0	0	600	200	<100	300	

Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE).

**Table A2. 3: Percentage of students choosing a KS5 subject by route and GCSEs achievement**

	STEM	Engi- neeri ng	Constru- ction	Arts, Language and Humanities	Social Science	Business	Others	Total
<i>At least one qualification in the same subject</i>								
<b>&lt; 5 GCSEs</b>								
A-Level only	27.3	0.00	0.00	77.9	49.7	12.8	28.5	5,700
Non-A-Level only	14.8	5.3	3.9	21.8	0.5	19.0	47.8	56,900
AS-Level and Non-A-Level	18.8	*	*	64.0	21.6	16.7	41.1	8,400
A-Level and Non-A-Level	36.3	*	*	70.6	31.7	30.4	57.6	7,300
Total	14,200	3,200	2,200	27,500	7,300	15,200	36,500	
<b>&gt;= 5GCSEs</b>								
A-Level only	54.6	0.00	0.00	65.9	72.3	14.0	43.0	166,800
Non-A-Level only	15.9	5.8	2.0	28.3	4.6	16.3	52.1	48,800
AS-Level and Non-A-Level	29.0	2.3	0.5	58.6	43.3	20.0	43.7	35,300
A-Level and Non-A-Level	56.5	0.7	*	64.6	62.1	23.1	71.6	77,800
Total	152,900	4,200	1,200	194,800	186,400	56,400	168,300	
<i>At least two qualifications in the same subject</i>								
<b>&lt; 5 GCSEs</b>								
A-Level only	14.7	0.0	0.0	41.4	22.5	*	10.8	5,700
Non-A-Level only	2.0	0.6	0.2	4.5	0.1	2.5	6.8	56,900
AS-Level and Non-A-Level	5.7	*	*	23.0	4.1	3.3	14.2	8,400
A-Level and Non-A-Level	12.7	*	*	34.0	8.7	7.2	29.5	7,300
Total	3,400	400	100	9,300	2,300	2,200	7,800	
<b>&gt;= 5GCSEs</b>								
A-Level only	34.6	0.00	0.0	32.8	35.2	*	9.7	166,800
Non-A-Level only	5.4	0.9	0.3	9.5	1.1	2.0	8.1	48,800
AS-Level and Non-A-Level	11.6	0.4	*	25.0	12.1	3.8	13.9	35,300
A-Level and Non-A-Level	35.7	*	*	33.7	25.5	5.0	35.0	77,800
Total	92,200	700	200	94,300	83,400	6,300	52,300	
<i>At least three qualifications in the same subject</i>								
<b>&lt; 5 GCSEs</b>								
A-Level only	8.4	0.00	0.00	17.0	6.0	0.0	3.1	5,700
Non-A-Level only	0.4	*	*	1.2	0.0	0.3	1.1	56,900
AS-Level and Non-A-Level	2.3	*	*	6.9	*	*	3.4	8,400
A-Level and Non-A-Level	7.2	*	0.00	14.7	1.6	2.1	13.5	7,300
Total	1,400	<100	<100	3,300	500	400	2,000	
<b>&gt;= 5 GCSEs</b>								
A-Level only	20.5	0.00	0.00	11.9	10.2	0.0	2.2	166,800
Non-A-Level only	2.2	*	*	2.9	*	0.3	1.5	48,800
AS-Level and Non-A-Level	4.7	*	*	9.0	2.2	0.7	3.4	35,300
A-Level and Non-A-Level	23.3	*	0.00	16.0	6.7	1.1	13.5	77,800
Total	55,000	<100	<100	37,000	23,000	1,200	16,100	
<i>At least four qualifications in the same subject</i>								
<b>&lt; 5 GCSEs</b>								
A-Level only	3.0	0.0	0.0	2.7	*	0.0	*	5,700
Non-A-Level only	*	*	*	0.3	0.0	*	*	56,900
AS-Level and Non-A-Level	0.6	0.0	0.0	1.8	*	*	*	8,400

	STEM	Engi- neeri ng	Constru- ction	Arts, Language and Humanities	Social Science	Business	Others	Total
A-Level and Non-A-Level	3.1	0.0	0.0	5.6	*	*	4.8	7,300
Total	500	<100	<100	900	<100	<100	500	
<b>&gt;=5 GCSEs</b>								
A-Level only	7.1	0.0	0.0	2.4	1.4	0.00	0.5	166,800
Non-A-Level only	0.4	*	*	0.7	*	*	*	48,800
AS-Level and Non-A-Level	1.4	*	0.0	2.6	*	*	0.6	35,300
A-Level and Non-A-Level	12.4	0.0	0.0	6.6	1.1	0.1	3.4	77,800
Total	22,200	<100	<100	10,300	3,200	200	3,700	

Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE).

**Table A2. 4: Percentage of students choosing a KS5 subject by route and ethnicity**

	STEM	Engineering	Construction	Arts, Language and Humanities	Social Science	Business	Others	Total
At least one qualification in the same subject								
<b>Non-white</b>								
A-Level only	59.4	0.0	0.0	58.2	71.6	15.7	33.6	30,500
Non-A-Level only	23.5	4.8	1.7	21.5	1.6	25.9	40.4	18,600
AS-Level and Non-A-Level	32.1	2.3	*	52.7	38.6	25.1	38.5	7,500
A-Level and Non-A-Level	57.9	0.8	*	55.8	58.2	30.1	67.6	15,000
Total	33,500	1,200	400	34,000	33,700	16,000	30,700	
<b>White</b>								
A-Level only	50.7	0.0	0.0	68.0	71.7	13.2	49.1	113,000
Non-A-Level only	12.4	5.8	3.4	24.4	1.3	16.1	51.7	82,400
AS-Level and Non-A-Level	25.7	2.1	0.5	61.1	39.0	18.2	45.1	34,000
A-Level and Non-A-Level	52.1	0.8	0.1	67.1	59.1	23.0	72.9	61,500
Total	108,200	6,000	3,000	158,900	131,700	48,500	158,200	
At least two qualifications in the same subject								
<b>Non-white</b>								
A-Level only	42.1	0.0	0.0	23.4	35.3	*	7.5	30,500
Non-A-Level only	3.4	0.7	*	5.3	*	4.1	5.0	18,600
AS-Level and Non-A-Level	12.6	*	*	18.7	10.0	5.6	12.4	7,500
A-Level and Non-A-Level	36.8	*	*	23.1	22.2	7.2	30.8	15,000
Total	19,900	200	<100	13,000	14,900	2,300	8,800	
<b>White</b>								
A-Level only	30.7	0.0	0.0	35.4	35.1	*	12.1	113,000
Non-A-Level only	2.5	0.8	0.3	6.0	0.2	1.9	8.0	82,400
AS-Level and Non-A-Level	9.6	0.4	*	25.7	10.5	3.4	14.7	34,000
A-Level and Non-A-Level	30.5	*	*	36.2	24.2	5.0	37.2	61,500
Total	58,800	800	300	75,900	58,300	5,800	48,100	
At least three qualifications in the same subject								
<b>Non-White</b>								
A-Level only	27.3	0.0	0.0	7.4	11.1	0.0	1.7	30,500
Non-A-Level only	1.1	*	*	1.3	0.0	0.6	0.7	18,600
AS-Level and Non-A-Level	5.4	*	0.0	6.0	1.8	*	2.7	7,500
A-Level and Non-A-Level	24.6	*	0.0	9.3	5.8	1.6	12.3	15,000
Total	12,600	<100	<100	4300	4,400	400	2,700	
<b>White</b>								
A-Level only	17.4	0.0	0.0	13.2	10.1	0.0	2.9	113,000
Non-A-Level only	0.7	*	*	1.8	0.0	0.3	1.4	82,400
AS-Level and Non-A-Level	3.8	*	*	9.2	1.9	0.6	3.6	34,000
A-Level and Non-A-Level	19.1	*	0.0	17.5	6.3	1.1	14.6	61,500
Total	33,300	100	<100	30,300	15,900	1,100	14,600	
At least four qualifications in the same subject								
<b>Non-white</b>								
A-Level only	8.8	0.0	0.0	1.2	1.5	0.0	0.4	30,500



	STEM	Engineering	Construction	Arts, Language and Humanities	Social Science	Business	Others	Total
Non-A-Level only	*	0.0	0.0	*	0.0	*	*	18,600
AS-Level and Non-A-Level	1.7	0.0	0.0	1.5	*	*	*	7,500
A-Level and Non-A-Level	13.0	0.0	0.0	3.5	0.8	*	3.3	15,000
Total	4,800	0	0	1,100	600	<100	700	
<b>White</b>								
A-Level only	6.25	0.00	0.00	2.7	1.4	0.00	0.6	113,000
Non-A-Level only	*	*	*	0.5	0.0	*	0.1	82,400
AS-Level and Non-A-Level	1.08	*	0.00	2.6	*	*	0.7	34,000
A-Level and Non-A-Level	9.74	0.00	0.00	7.4	1.0	*	3.9	61,500
Total	13,500	<100	<100	8,800	2,200	200	3,500	

Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE).

**Table A2. 5: Percentage of students choosing a KS5 subject by route and KS5 school type**

	STEM	Enginee- ring	Constru- ction	Arts, Language and Humanities	Social Science	Business	Others	Total
<i>At least one qualification in the same subject</i>								
<b>Maintained Schools</b>								
A-Level only	54.5	0.0	0.0	65.8	71.7	12.8	46.9	95,500
Tech/non-A	30.4	3.2	*	19.6	3.9	30.4	57.4	9,900
AS/Non-A-Level	26.1	2.2	*	59.1	38.3	18.7	46.9	23,200
A-Level/Non-A-Level	55.5	0.8	*	64.2	60.1	24.5	71.9	46,400
Total	86,900	1,200	300	108,300	105,600	31,000	94,800	
<b>Independent Schools</b>								
A-level	60.9	0.0	0.0	68.0	70.5	14.7	22.4	24,800
Tech/non-A	87.7	*	*	90.3	83.5	*	88.1	1,200
AS/Non-A-Level	38.1	*	0.0	67.2	42.6	23.2	26.3	900
A-Level/Non-A-Level	75.1	*	*	66.8	65.5	14.7	50.6	6,300
Total	21,300	<100	<100	22,800	23,000	4,900	10,100	
<b>Other Schools</b>								
A-level	48.7	0.0	0.0	66.5	71.6	15.7	44.0	52,300
Tech/non-A	12.8	5.9	3.3	24.5	1.1	16.5	48.5	94,500
AS/Non-A-Level	28.0	1.9	0.4	60.1	39.9	20.5	39.5	19,600
A-Level/Non-A-Level	49.6	0.9	*	66.1	57.7	24.3	72.3	32,300
Total	59,000	6,200	3,200	91,100	65,000	35,700	100,000	
<i>At least two qualifications in the same subject</i>								
<b>Maintained Schools</b>								
A-level	34.7	0.0	0.0	31.8	34.3	*	11.1	95,500
Tech/non-A	7.6	*	*	7.1	*	5.1	11.4	9,900
AS/Non-A-Level	9.2	*	*	22.7	9.7	3.3	15.2	23,200
A-Level/Non-A-Level	32.5	*	0.0	31.4	23.8	5.3	35.3	46,400
Total	51,100	200	<100	51,000	46,100	3,700	31,700	
<b>Independent Schools</b>								
A-level	39.3	0.0	0.0	33.7	32.2	*	1.9	24,800
Tech/non-A	79.8	0.0	0.0	84.0	26.1	*	*	1,200
AS/Non-A-Level	20.9	0.0	0.0	24.0	12.0	*	*	900
A-Level/Non-A-Level	59.1	0.0	0.0	32.2	26.3	2.3	15.8	6,200
Total	14,700	0	0	11,800	10,100	200	1,500	
<b>Other Schools</b>								
A-level	39.9	0.0	0.0	35.2	36.9	*	11.0	52,300
Tech/non-A	2.1	0.8	0.3	5.8	0.2	2.0	7.0	94,500
AS/Non-A-Level	11.5	0.4	*	26.5	11.5	4.4	12.9	19,600
A-Level/Non-A-Level	30.5	*	*	37.2	24.1	5.7	37.2	32,300
Total	29,800	900	300	41,100	29,600	4,600	26,900	
<i>At least three qualifications in the same subject</i>								
<b>Maintained Schools</b>								
A-level	20.3	0.0	0.0	10.8	9.5	0.0	2.7	95,500
Tech/non-A	2.3	*	*	1.8	0.0	*	1.9	9,900
AS/Non-A-Level	3.4	*	*	7.6	1.6	*	3.6	23,200
A-Level/Non-A-Level	20.6	*	0.0	13.7	6.1	1.1	14.3	46,500
Total	30,000	<100	<100	18,600	12,200	700	10,200	

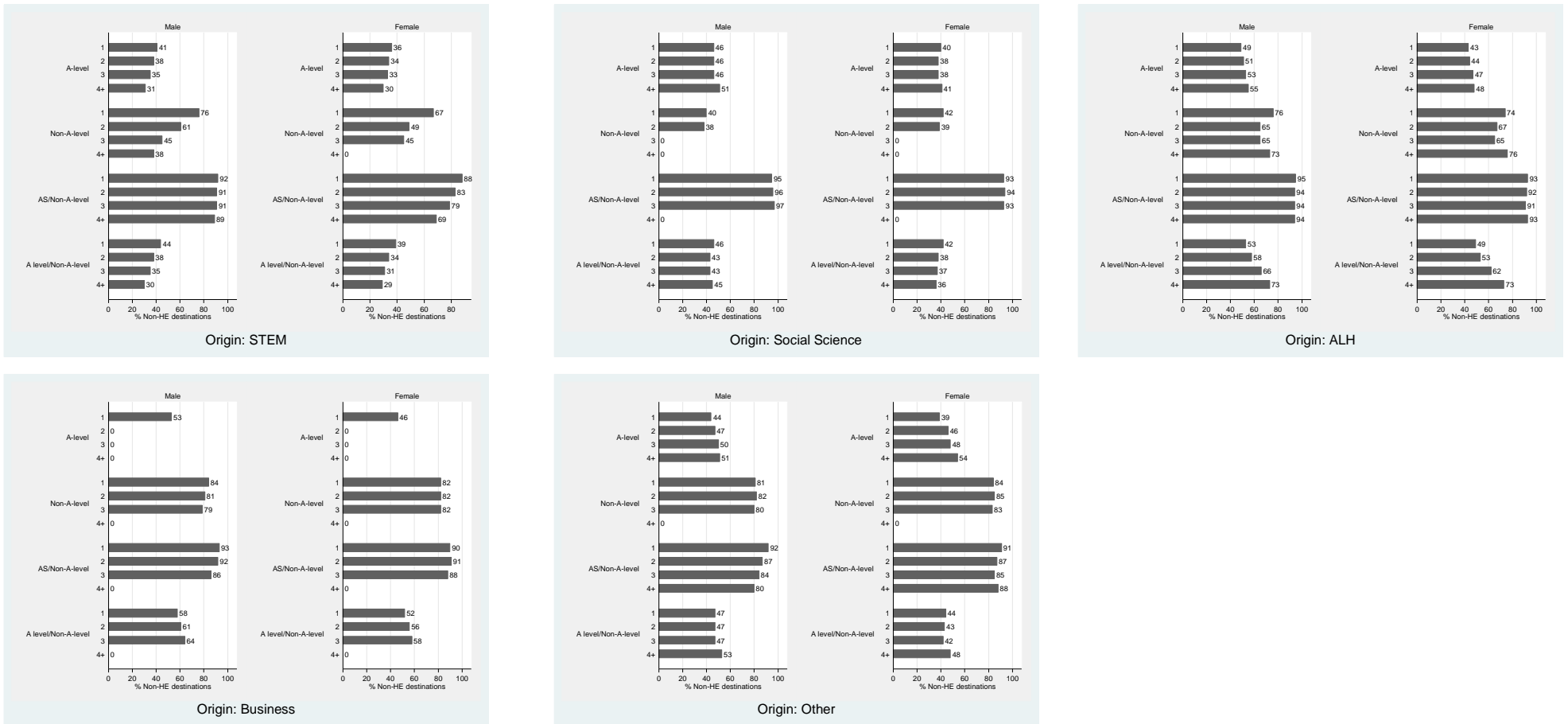
	STEM	Enginee- ring	Constru- ction	Arts, Language and Humanities	Social Science	Business	Others	Total
<b>Independent Schools</b>								
A-level	23.7	0.0	0.0	12.3	8.5	0.0	*	24,800
Tech/non-A	39.8	0.0	0.0	25.2	*	*	0.0	1,200
AS/Non-A-Level	*	0.0	0.0	*	*	*	*	900
A-Level/Non-A-Level	43.6	0.0	0.0	14.1	6.3	*	6.0	6,300
Total	9,200	0	0	4,300	2,500	<100	400	
<b>Other Schools</b>								
A-level	17.9	0.0	0.0	14.5	11.8	0.0	2.5	52,300
Tech/non-A	0.6	*	*	1.7	0.0	0.3	1.2	94,500
AS/Non-A-Level	4.9	*	*	9.7	2.2	0.8	3.2	19,600
A-Level/Non-A-Level	19.5	*	0.0	19.3	6.6	1.5	13.7	32,300
Total	17,200	100	<100	17,400	8,800	900	7,500	
<i>At least four qualifications in the same subject</i>								
<b>Maintained Schools</b>								
A-level	6.9	0.0	0.0	1.8	1.1	0.0	0.6	95,500
Tech/non-A	*	0.0	0.0	*	0.0	*	*	9,900
AS/Non-A-Level	0.9	0.0	0.0	2.2	*	*	*	23,200
A-Level/Non-A-Level	10.6	0.0	0.0	5.1	1.0	*	4.0	46,500
Total	11,800	0	0	4,600	1600	<100	2,600	
<b>Independent Schools</b>								
A-level	8.1	0.0	0.0	2.4	0.9	0.0	*	24,800
Tech/non-A	10.5	0.0	0.0	*	*	0.0	0.0	1,200
AS/Non-A-Level	*	0.0	0.0	*	*	*	*	900
A-Level/Non-A-Level	27.6	0.0	0.0	4.2	*	0.0	*	6,300
Total	3,900	0	0	900	300	<100	<100	
<b>Other Schools</b>								
A-level	6.4	0.0	0.0	3.4	2.0	0.0	0.5	52,300
Tech/non-A	*	*	*	0.5	0.0	*	0.1	94,500
AS/Non-A-Level	1.5	*	0.0	2.7	*	*	0.6	19,600
A-Level/Non-A-Level	9.9	0.0	0.0	8.9	1.0	*	3.4	32,300
Total	7,000	<100	<100	5,700	1,400	200	1,700	

Note: Table reports column percentage. Total is approximated to the nearest hundred. \* indicates that information has been suppressed for data protection.

Source: KS5 NPD database (DfE)

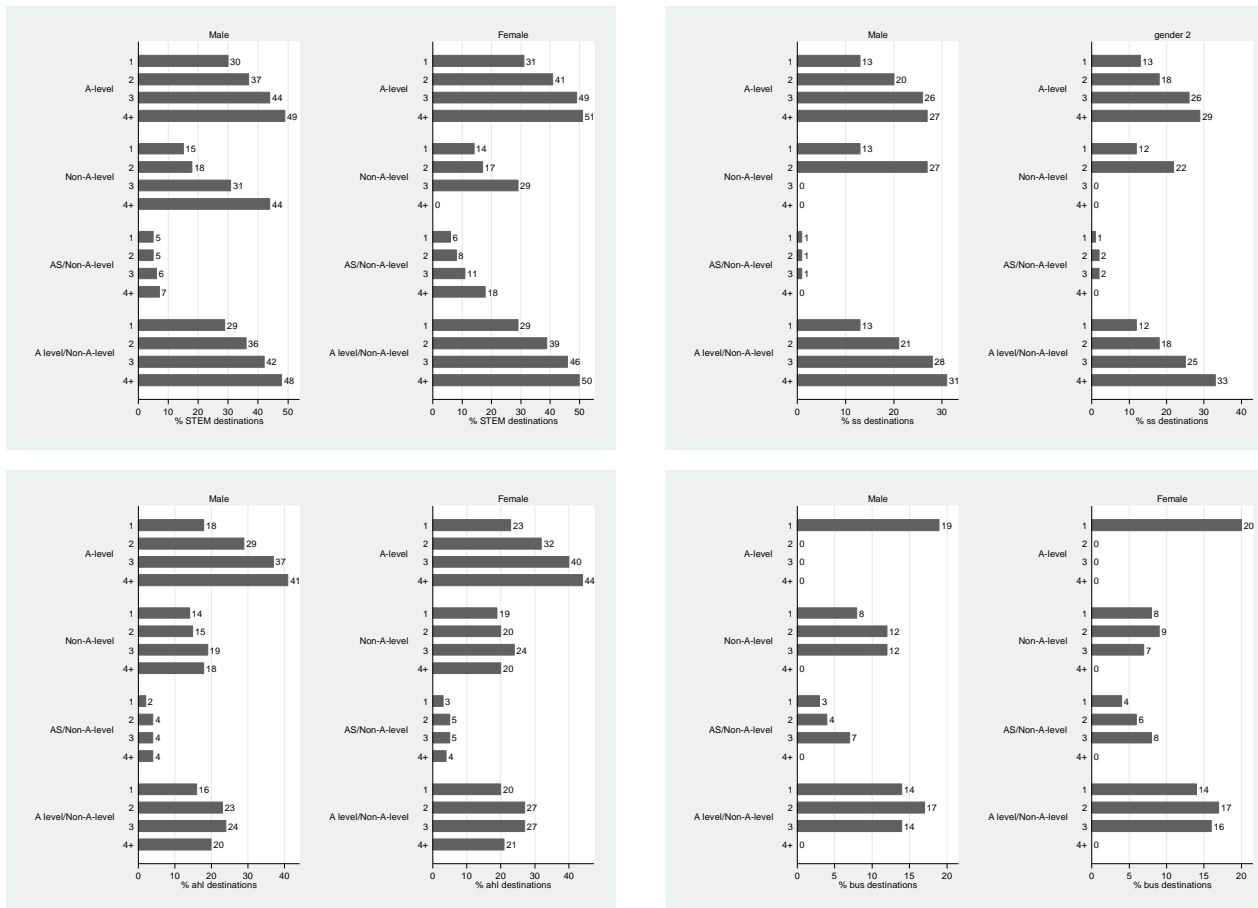
# Appendix 3

Figure A3. 1: Percentage with transition to non-HEI destinations by subject and number of subjects within route and gender



Source: KS5-HESA linked database (DfE).

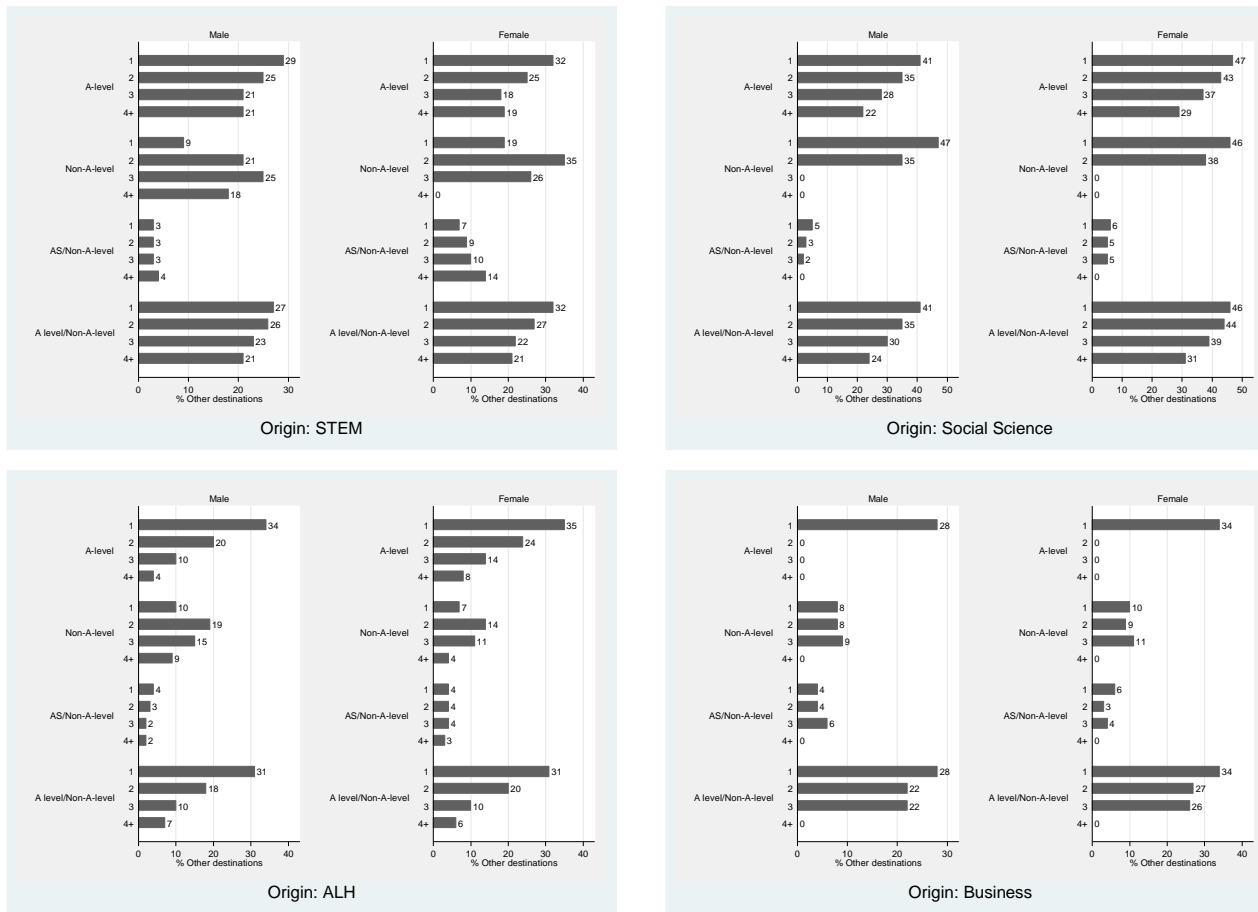
Figure A3. 2: Percentage with transition to HEI studying same subject by number of subjects within route and gender\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).

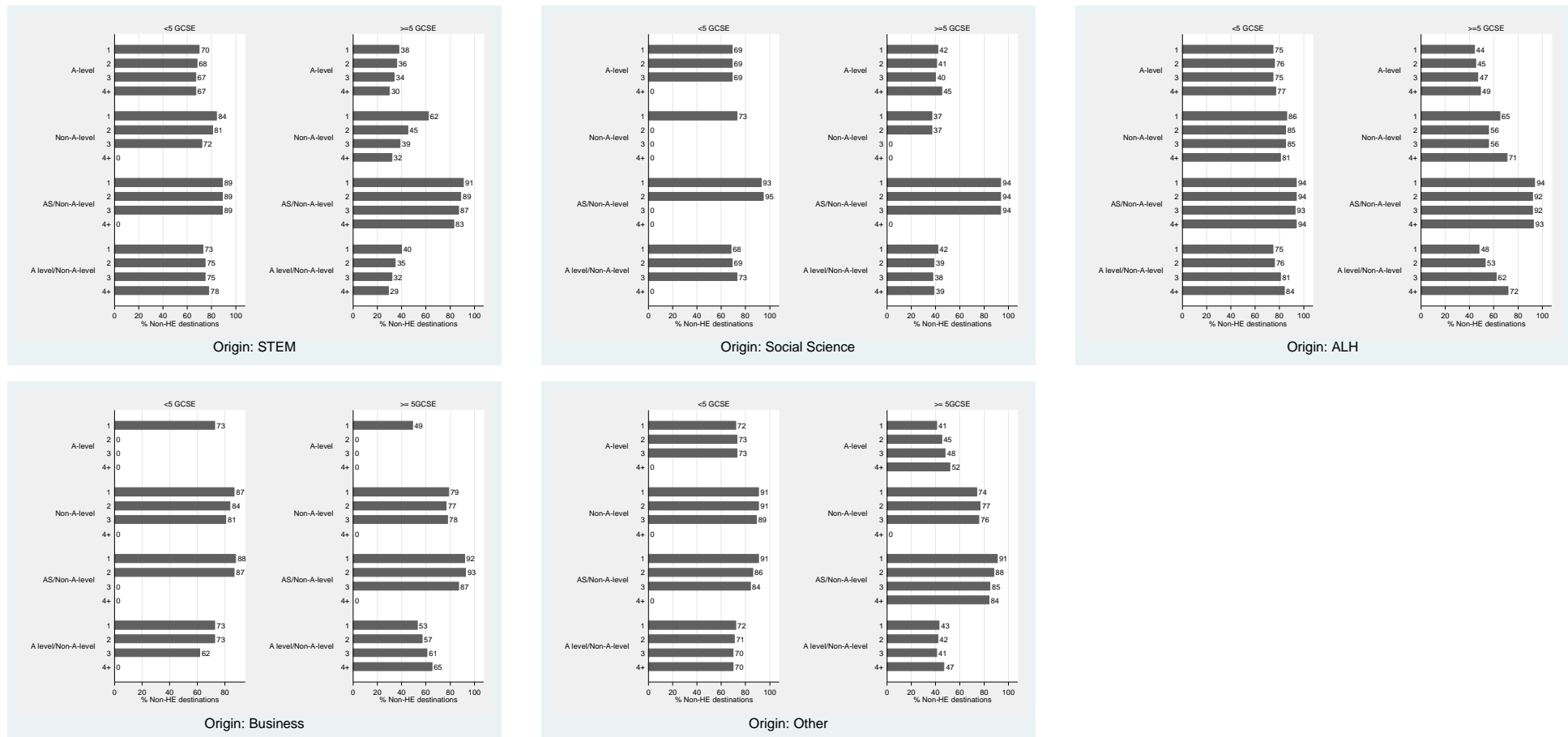
Figure A3. 3: Percentage with transition to HEI studying different subject by number of subjects within route and gender\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

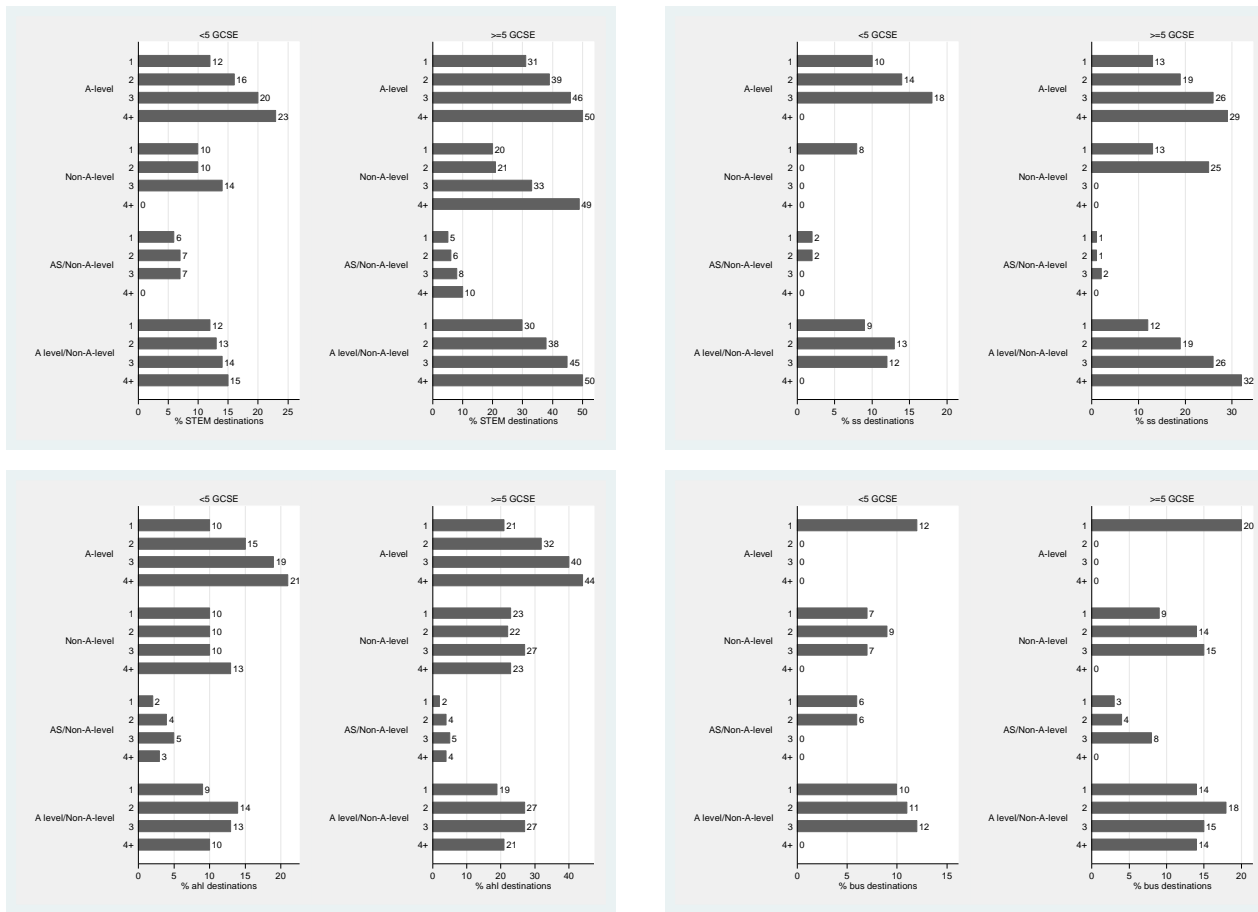
Source: KS5-HESA linked database (DfE).

Figure A3. 4: Percentage with transition to non-HEI destinations by subject and number of subjects within route and GCSEs achievement



Source: KS5-HESA linked database (DfE).

Figure A3. 5: Percentage with transition to HEI studying same subject by number of subjects within route and GCSE achievement\*

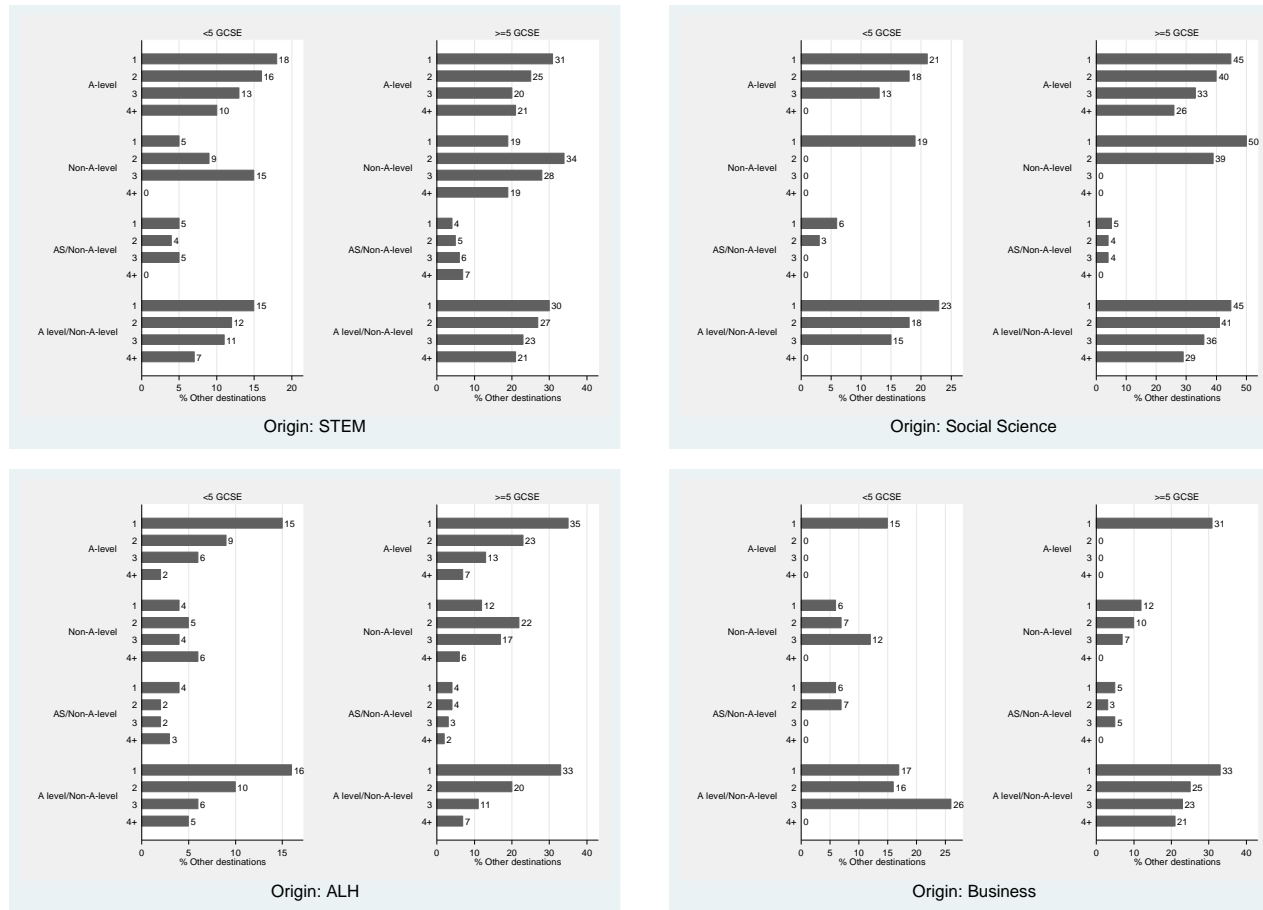


\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).



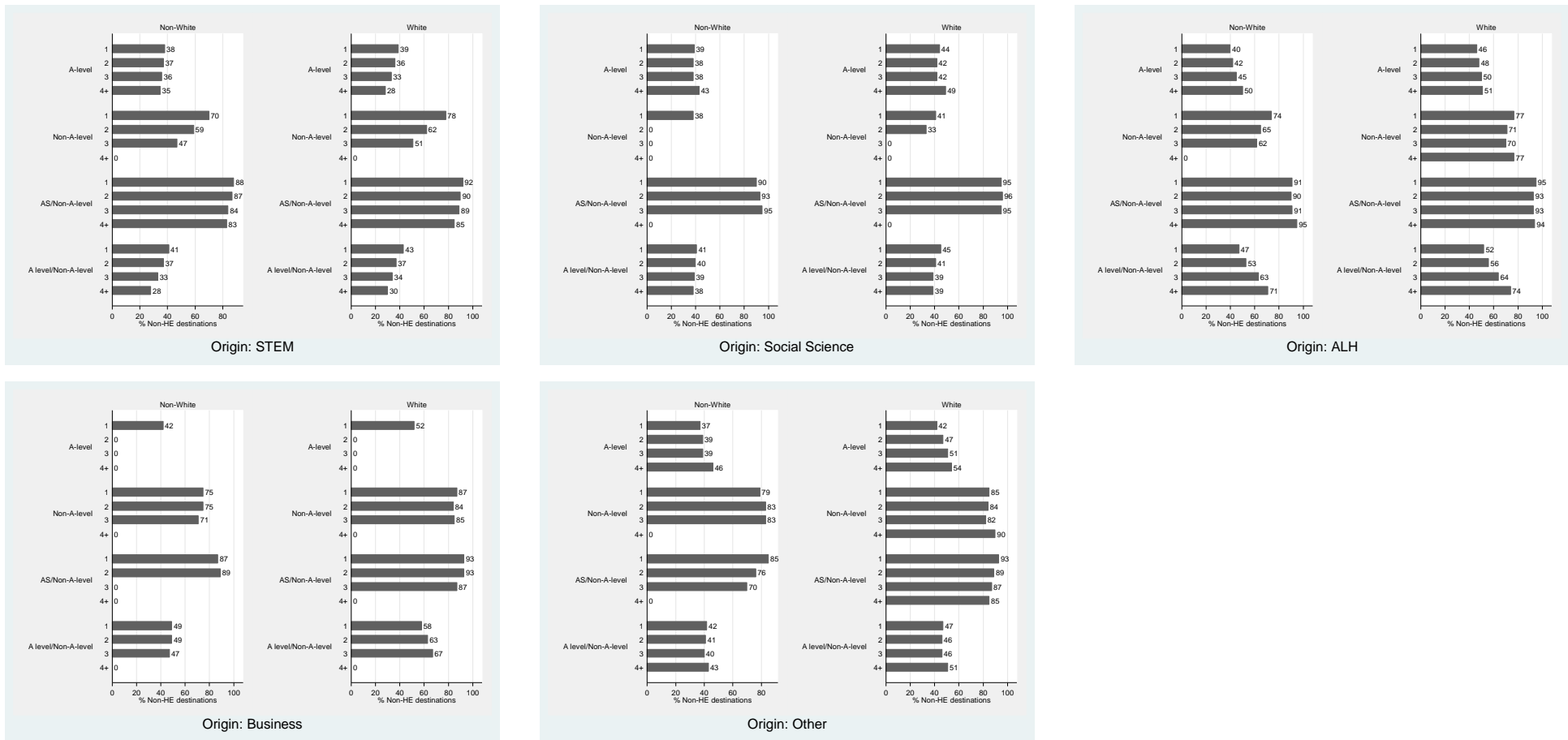
Figure A3. 6: Percentage with transition to HEI studying different subject by number of subjects within route and GCSEs achievement\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

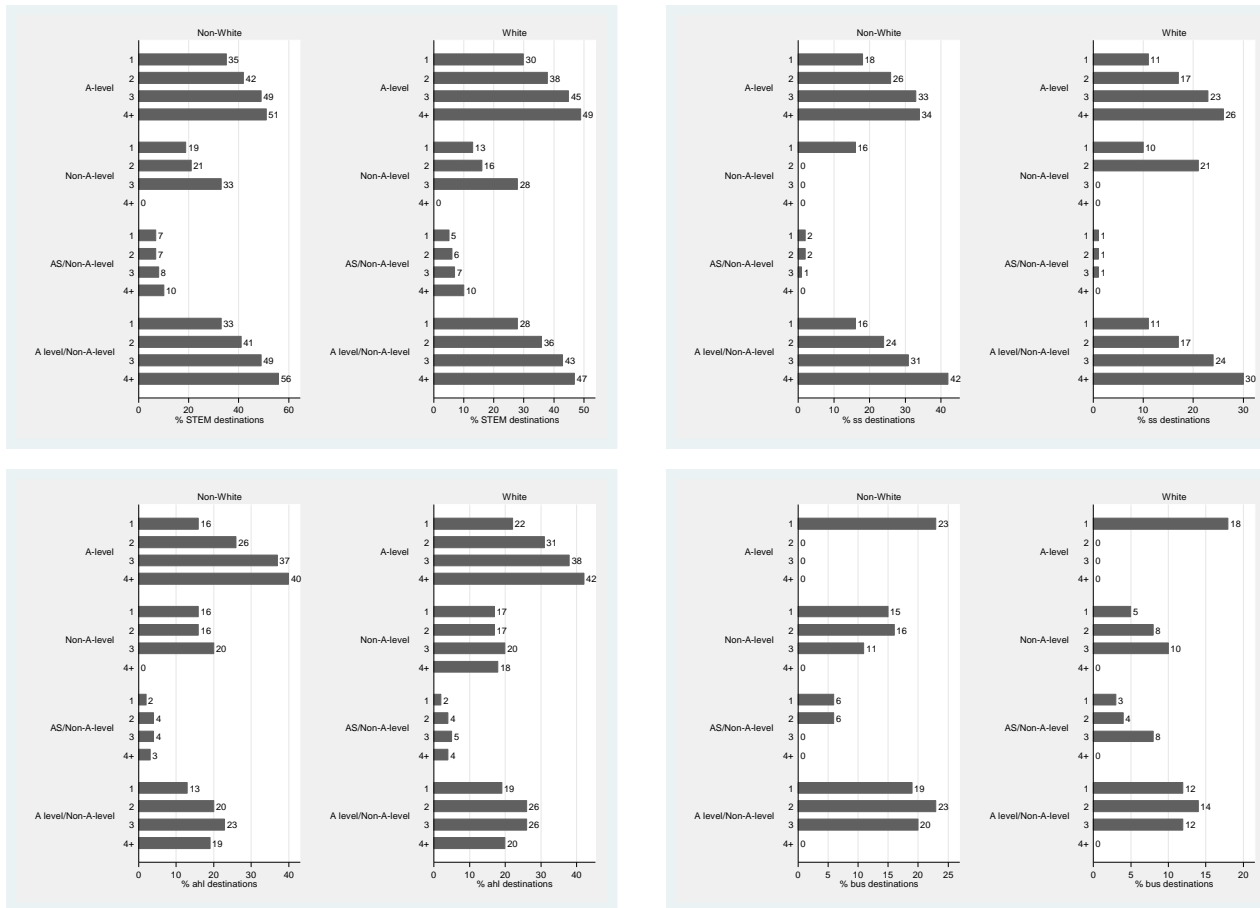
Source: KS5-HESA linked database (DfE).

Figure A3. 7: Percentage with transition to non-HEI destinations by subject and number of subjects within route and ethnicity



Source: KS5-HESA linked database (DfE).

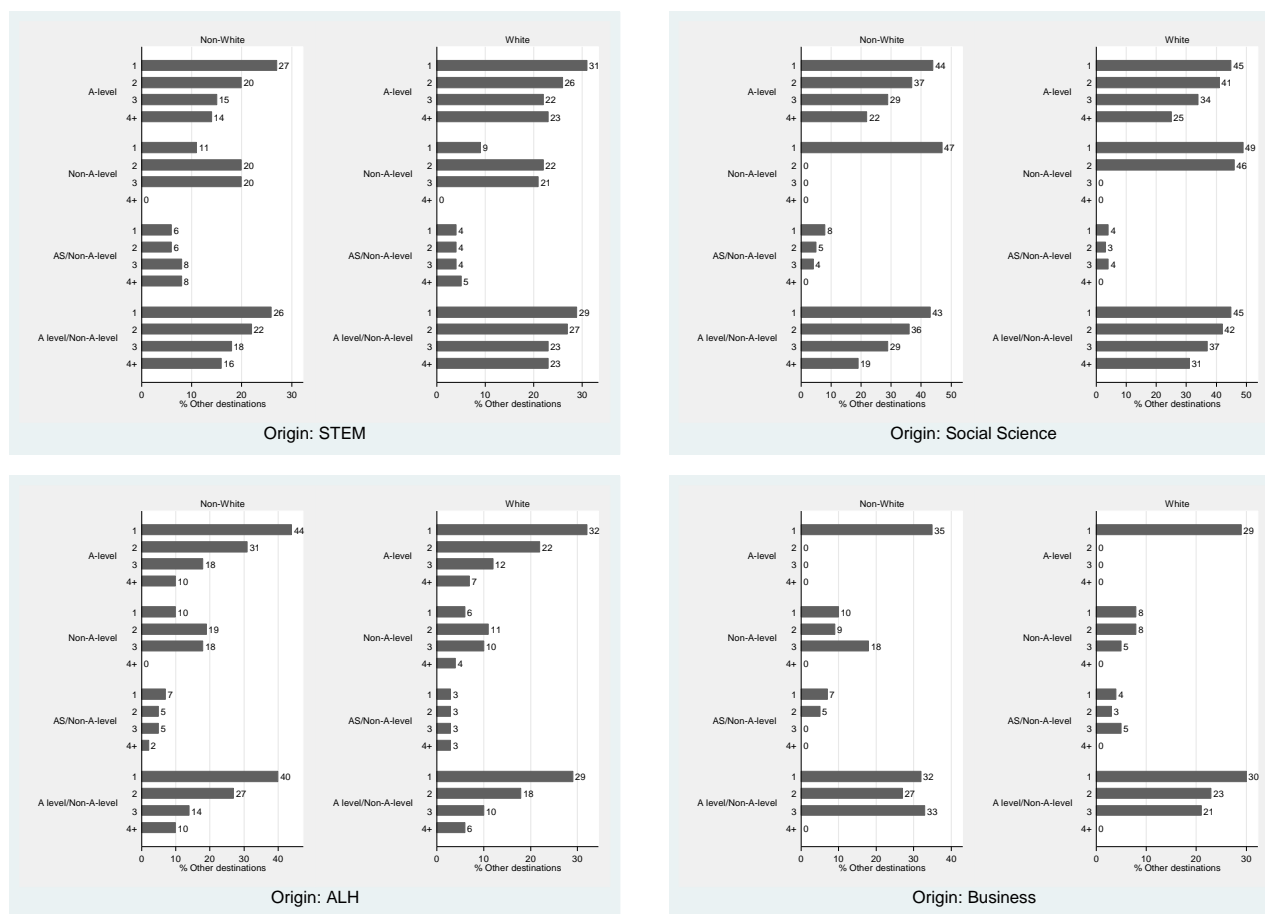
Figure A3. 8: Percentage with transition to HEI studying same subject by number of subjects within route and ethnicity\*



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).

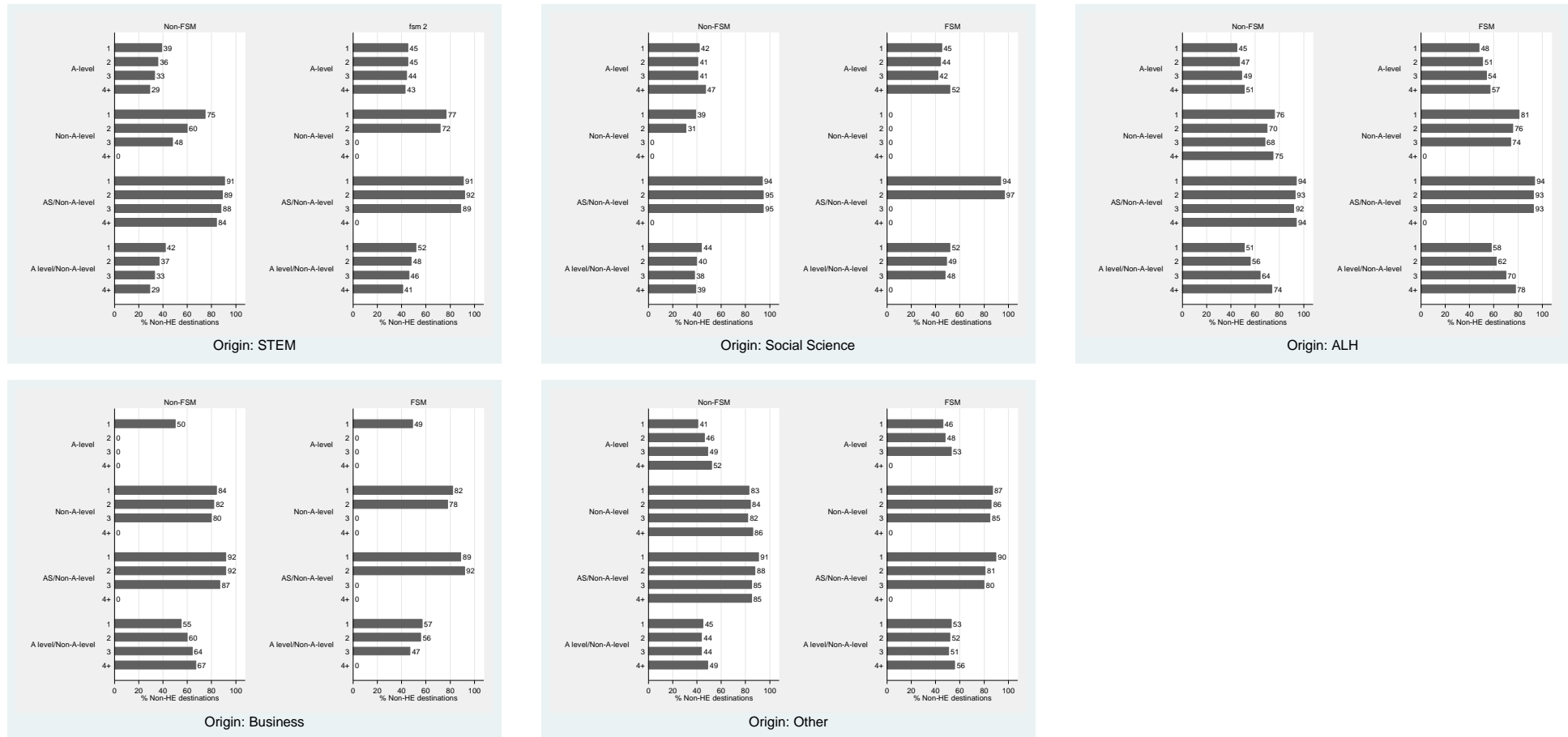
**Figure A3. 9: Percentage with transition to HEI studying different subject by number of subjects within route and ethnicity\***



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

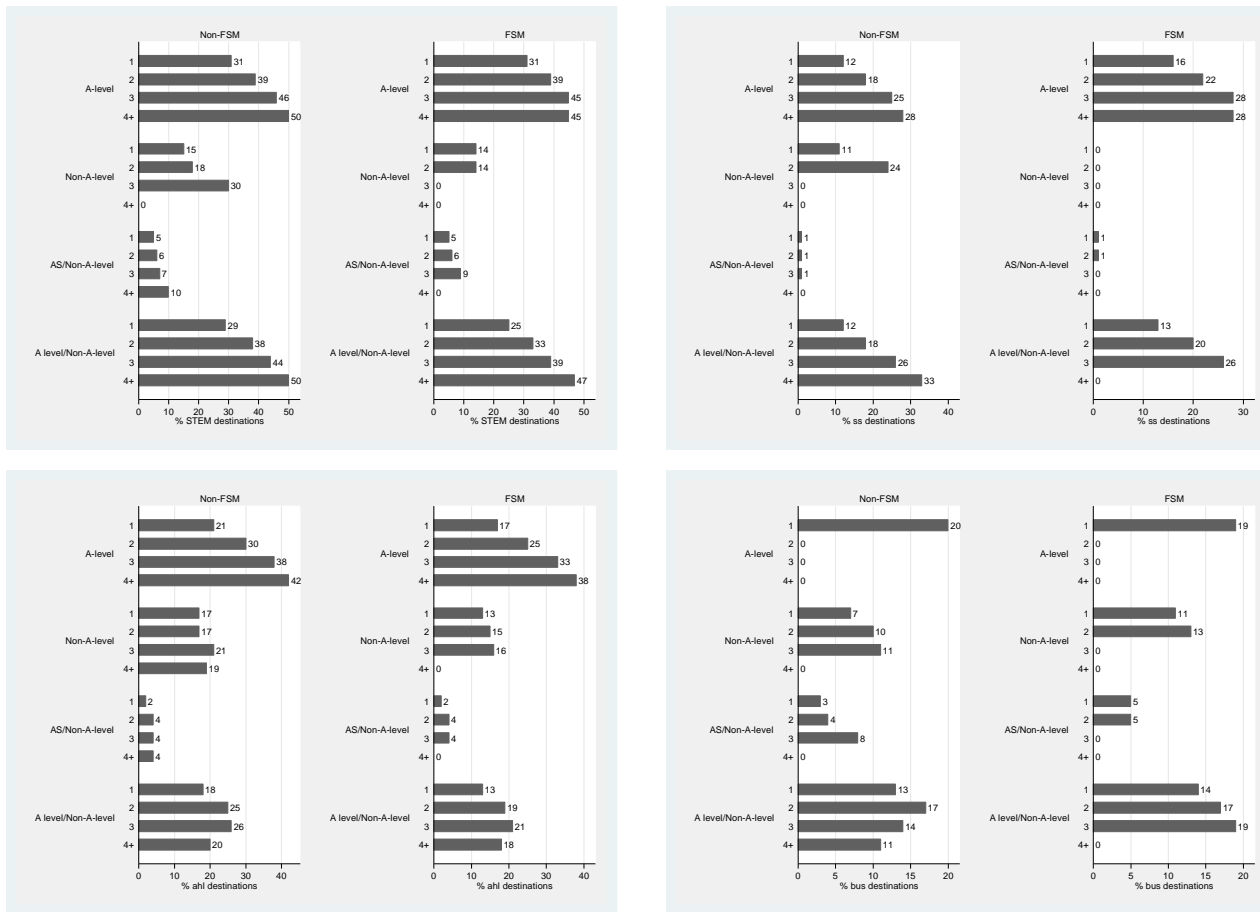
Source: KS5-HESA linked database (DfE).

Figure A3.10: % with transition to non-HEI destinations by subject and number of subjects within route and FSM eligibility



Source: KS5-HESA linked database (DfE).

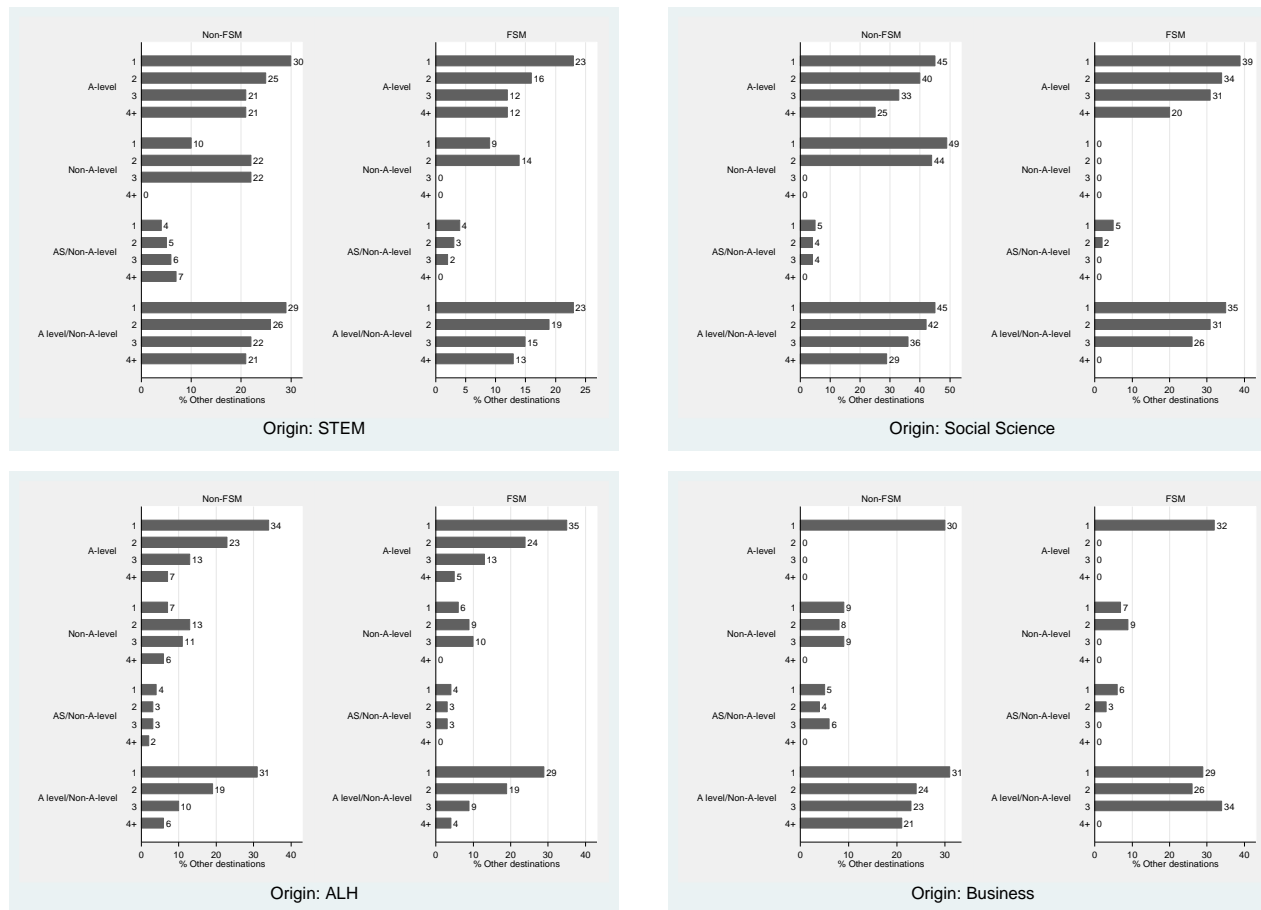
Figure A3. 11: Transition to same subject category in HE by subject, route and FSM eligibility



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).

**Figure A3. 12: Transition to a different subject category in HE by subject, route and FSM eligibility**



\*Note: Restricted to classical subjects/business as engineering/construction and others were sparsely populated

Source: KS5-HESA linked database (DfE).





## Appendix 4

**Table A4. 1: Percentage of students in a Higher Education destination by route and gender\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-Level and Non-A-Level	Total
<i>Female</i>					
Non HE	41.7	82.3	92.5	47.1	124,500
HE	58.3	17.7	7.5	52.9	90,100
Total	93,600	52,100	22,200	46,700	
<i>Only HE destination</i>					
STEM	32.0	33.0	31.6	34.6	29,500
Languages, Art and Humanities	30.7	29.9	25.0	28.4	26,900
Social Science	17.9	11.9	14.3	16.4	16,100
Business & Administration	9.0	11.1	14.8	9.4	8,500
Other & Combined	5.8	2.3	5.5	5.7	4,800
Education	4.7	11.8	8.8	5.6	5,200
Total	54,500	9,200	1,700	24,700	
<i>HE Characteristics</i>					
Russell Group	30.6	7.7	8.4	32.1	25,500
Top Third	44.0	14.3	15.2	43.4	36,300
Post 1992	46.5	76.9	67.8	47.1	45,200
Total	54,500	9,200	1,700	24,700	
<i>Male</i>					
Non HE	46.3	83.0	94.1	50.1	120,300
HE	53.7	17.0	5.9	49.9	72,000
Total	78,900	53,500	21,500	38,400	
<i>Only HE destination</i>					
STEM	38.8	52.2	49.7	42.7	30,000
Languages, Art and Humanities	20.2	20.6	17.8	19.0	14,300
Social Science	17.9	9.0	7.3	15.9	11,500
Business & Administration	11.3	13.8	19.2	11.5	8,500
Other & Combined	11.1	2.7	4.8	9.8	6,900
Education	0.8	1.7	1.3	1.1	700
Total	42,400	9,100	1,300	19,200	
<i>HE Characteristics</i>					
Russell Group	33.7	8.1	6.0	35.4	31,900
Top Third	49.5	16.0	12.7	48.4	33,100
Post 1992	40.5	75.3	69.9	42.7	21,900
Total	42,400	9,100	1,300	19,200	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE).

**Table A4. 2: Percentage of students in a higher destination by route and GCSEs achievement\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
<b>&lt; 5 GCSE A*-C</b>					
Non HE	74.8	89.7	93.0	73.2	68,500
HE	25.2	10.3	7.0	26.8	9,800
Total	5,700	56,900	8,400	7,300	
<i>Only HE destination</i>					
STEM	22.3	40.5	34.9	30.3	3,500
Languages, Art and Humanities	32.2	22.6	19.6	26.2	2,400
Social Science	22.7	11.5	14.5	16.9	1,400
Business & Administration	16.4	17.7	23.1	18.9	1,800
Other & Combined	4.0	1.9	2.9	2.9	200
Education	2.4	5.7	5.1	4.8	500
Total	1,400	5,800	600	2,000	
<i>HE Characteristics</i>					
Russell Group	17.0	2.7	3.4	8.1	600
Top Third	27.7	8.8	10.1	14.4	1,300
Post 1992	65.4	84.1	76.2	77.4	7,800
Total	2,700	12,500	1,600	3,800	
<b>5 or more GCSE A*-C</b>					
Non HE	42.8	74.4	93.3	46.1	176,400
HE	57.2	25.6	6.7	53.9	152,300
Total	166,800	48,800	35,300	77,800	
<i>Only HE destination</i>					
STEM	35.1	43.4	40.6	38.5	56,100
Languages, Art and Humanities	26.0	26.5	22.4	24.2	38,800
Social Science	17.8	9.9	10.4	16.1	25,200
Business & Administration	9.9	10.0	15.1	9.9	15,200
Other & Combined	8.2	2.8	5.8	7.7	11,500
Education	3.0	7.3	5.6	3.6	5,400
Total	71,300	36,300	32,900	35,900	
<i>HE Characteristics</i>					
Russell Group	32.2	10.3	8.4	34.7	46,800
Top Third	46.7	18.1	15.1	47.1	67,000
Post 1992	43.6	72.4	66.9	43.7	70,500
Total	71,300	36,300	32,900	35,900	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE).

**Table A4. 3: Percentage of students in a Higher Education destination by route and FSM eligibility\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
<b>Non- FSM</b>					
Non HE	43.9	83.0	93.6	48.8	200,600
HE	56.1	17.0	6.4	51.2	129,000
Total	134,400	86,800	37,200	71,100	
<i>Only HE destination</i>					
STEM	35.6	43.8	40.9	38.4	48,300
Languages, Art and Humanities	25.8	25.4	21.7	24.3	32,600
Social Science	17.1	9.7	10.3	15.3	20,100
Business & Administration	9.8	11.4	16.0	10.4	13,200
Other & Combined	8.3	2.4	5.1	7.5	9,500
Education	3.4	7.3	5.9	4.0	5,300
Total	75,400	14,800	2,400	36,400	
<i>HE Characteristics</i>					
Russell Group	28.1	5.6	6.2	30.2	33,200
Top Third	42.7	12.8	12.3	42.5	49,900
Post 1992	47.3	78.2	71.0	47.9	66,400
Total	75,400	14,800	2,400	36,400	
<b>FSM</b>					
Non HE	47.7	84.4	92.5	55.3	22,900
HE	52.3	15.6	7.5	44.7	9,600
Total	9,000	14,000	4,200	5,300	
<i>Only HE destination</i>					
STEM	37.6	40.8	36.5	37.3	3,700
Languages, Art and Humanities	21.1	20.1	18.4	18.8	1,900
Social Science	23.1	11.6	14.6	20.7	1,900
Business & Administration	10.9	19.6	20.3	15.0	1,400
Other & Combined	4.2	1.9	4.1	4.1	400
Education	3.1	6.0	6.0	4.1	400
Total	4,700	2,200	300	2,400	
<i>HE Characteristics</i>					
Russell Group	18.1	3.0	2.9	14.4	1,300
Top Third	31.4	9.0	7.9	23.8	2,300
Post 1992	58.1	83.3	71.7	65.6	6,300
Total	4,700	2,200	300	2,400	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE).

**Table A4. 4: Percentage of students in a Higher Education destination by route and ethnicity\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
<b>Non- White</b>					
Non HE	39.8	77.6	89.4	44.5	39,900
HE	60.2	22.4	10.6	55.5	31,600
Total	30,500	18,600	7,500	15,000	
<i>Only HE destination</i>					
STEM	41.1	41.4	38.2	42.7	13,100
Languages, Art and Humanities	15.8	16.6	12.8	13.8	4,800
Social Science	23.0	12.5	16.2	20.6	6,600
Business & Administration	13.1	22.7	23.5	16.3	4,900
Other & Combined	5.2	1.9	2.6	4.2	1,400
Education	1.7	5.0	6.5	2.5	800
Total	18,400	4,100	800	8,300	
<i>HE Characteristics</i>					
Russell Group	24.2	4.7	4.2	26.1	6,900
Top Third	41.4	13.6	11.7	38.5	11,500
Post 1992	49.2	79.5	74.2	51.6	17,200
Total	18,400	4,100	800	8,300	
<b>White</b>					
Non HE	45.3	84.5	94.4	50.4	183,900
HE	54.7	15.5	5.6	49.6	107,000
Total	113,000	82,400	34,000	61,500	
<i>Only HE destination</i>					
STEM	34.1	44.0	41.2	37.1	38,800
Languages, Art and Humanities	28.4	27.3	24.9	26.8	29,700
Social Science	15.8	9.2	8.6	14.3	15,400
Business & Administration	8.9	9.2	13.6	9.1	9,700
Other & Combined	8.9	2.5	6.1	8.2	8,400
Education	3.9	7.8	5.6	4.4	4,900
Total	61,800	12,800	1,900	30,500	
<i>HE Characteristics</i>					
Russell Group	28.5	5.5	6.5	30.1	27,600
Top Third	42.3	11.9	11.8	42.1	40,700
Post 1992	47.6	78.6	69.7	48.2	55,500
Total	61,800	12,800	1,900	30,500	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE).

**Table A4. 5: Percentage of students in a Higher Education destination by route and school type\***

	A-Level	Non-A-Level	AS Level and Non-A-Level	A-level and Non-A-Level	Total
<b><i>Maintained school</i></b>					
Non HE	42.9		81.0	94.7	47.3
HE	57.1		19.0	5.3	52.7
Total	95,500		9,900	23,200	46,500
<b><i>Only HE destination</i></b>					
STEM	36.7		44.1	40.4	39.1
Languages, Art and Humanities	25.5		13.4	15.6	23.1
Social Science	16.8		10.2	11.6	15.4
Business & Administration	9.4		21.2	19.8	10.7
Other & Combined	8.4		2.9	4.9	7.7
Education	3.3		8.3	7.6	4.1
Total	54,500		1,900	1,200	24,500
<b><i>HE Characteristics</i></b>					
Russell Group	29.6		6.3	3.0	31.1
Top Third	44.8		13.7	9.3	44.0
Post 1992	45.2		75.7	71.2	46.5
Total	54,500		1,900	1,200	24,500
<b><i>Independent School</i></b>					
Non HE	40.5		45.3	82.4	36.6
HE	59.5		54.7	17.6	63.4
Total	24,800		1,200	900	6,300
<b><i>Only HE destination</i></b>					
STEM	30.9		29.4	26.4	37.7
Languages, Art and Humanities	28.9		33.9	30.8	26.1
Social Science	20.1		22.9	17.0	20.7
Business & Administration	10.4		6.4	19.5	5.9
Other & Combined	8.6		7.2	6.3	9.2
Education	1.1		0.1 *		0.5
Total	14,800		700	200	4,000
<b><i>HE Characteristics</i></b>					
Russell Group	57.2		74.6	37.7	75.8
Top Third	71.4		87.4	54.7	86.1
Post 1992	20.6		9.6	34.0	9.4
Total	14,800		700	200	4,000
<b><i>Other School</i></b>					
Non HE	47.0		83.3	92.1	52.5
HE	53.0		16.7	7.9	47.5
Total	52,300		94,500	19,600	32,300
<b><i>Only HE destination</i></b>					
STEM	33.7		42.9	40.0	36.8
Languages, Art and Humanities	25.9		26.3	25.9	25.7
Social Science	18.8		9.9	10.4	16.3
Business & Administration	10.9		11.7	14.0	10.9
Other & Combined	7.2		2.3	5.3	6.7

	<b>A-Level</b>	<b>Non-A-Level</b>	<b>AS Level and Non-A-Level</b>	<b>A-level and Non-A-Level</b>	<b>Total</b>
Education	3.5	6.9	4.4	3.7	2,700
<b>Total</b>	<b>27,700</b>	<b>15,800</b>	<b>1,600</b>	<b>15,400</b>	
<i>HE Characteristics</i>					
Russell Group	23.2	5.2	7.7	26.5	11,400
Top Third	36.3	12.3	13.8	37.5	18,000
Post 1992	53.7	79.0	70.4	52.5	36,600
<b>Total</b>	<b>27,700</b>	<b>15,800</b>	<b>1,600</b>	<b>15,400</b>	

\*Note: Table reports column percentage. Total is approximated to the nearest hundred.

Source: KS5-HESA linked database (DfE).