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Post-Compulsory Education in England: Choices and Implications

Claudia Hupkau*, Sandra McNally**+, Jenifer Ruiz-Valenzuela*, Guglielmo Ventura*

Abstract:

Most students do not follow the 'academic track' (i.e. A-levels) after leaving school and only about a third of students go to university before the age of 20. Yet, progression routes for the majority that do not take this path but opt for vocational post-compulsory education are not as well-known and not subject to the same degree of discussion in the media or in academia. In this paper we track decisions made by all students in England who left compulsory education after having undertaken the national examination (GCSE) at age 16 in the year 2009/10. We find that A-levels and vocational equivalents at Level 3 are equally strong predictors of staying on in education up to the age of 18 and achieving a Level 3 qualification before the age of 20. Our findings are more troubling in relation to lower levels of learning: most people classified as pursuing 'Level 2' qualifications at age 17 do not progress any higher up the education qualification ladder. With respect to apprenticeships, the people accessing intermediate or Level 2 apprenticeships are *lower achieving* on average, and although the people accessing advanced apprenticeships are a little higher achieving than the average, they have a completely different profile than those students who undertake A-levels and go to university. In the public debate, it is often suggested that those undertaking A-levels should instead take up an apprenticeship. Our analysis suggests that this scenario is unlikely unless the type of apprenticeships on offer change in such a way as to appeal to these high achieving students. However, at a time of rising concern about UK inequality, it is more important than ever to focus on educational opportunities for all. One key focus should be on tackling the problem that our research reveals: that those lower down the educational ladder lack clear progression routes.

Keywords: vocational education, apprenticeships, progression routes

JEL codes: I20, I24, I28

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Executive Summary

Most students in England do not follow the ‘academic track’ (i.e. A-levels) after completing compulsory education and only about a third of students go to university before the age of 20. The students who do follow the academic track have much higher prior attainment and are much less likely to come from a disadvantaged background than the average student. Yet, progression routes for the majority that do not take this path but opt for vocational post-compulsory education are not as well-known and not subject to the same degree of discussion in the media or in academia. This partly has to do with the complexity of the vocational education system and the difficulty of deciphering available data. While A-level students merely have to choose the subjects in which to take their exams, students on the vocational path face a much more diverse choice set, with thousands of available courses varying widely in length, level, degree of difficulty and specialisation. Many of them have uncertain value in the labour market and often low prospects for progression on to higher levels of education. If we are to tackle long-standing problems of low social mobility and a long tail of underachievers, it is essential that post-16 vocational options come under proper scrutiny. This paper is a step in that direction.

We use linked administrative data to track decisions made by all students in England who completed compulsory education after having undertaken the national examination - the General Certificate of Secondary Education (GCSE) - at age 16 in the year 2009/10. We follow them through the next four years, to the age of 20. We observe the educational choices at each stage, until each student leaves the publicly funded education system.

We categorise the many different types of available post-16 qualifications into several broad categories and we look at the probability of achieving various outcomes by the age of 20, conditional on the path chosen at age 17. We also take into account the influence of demographics, prior attainment and secondary school attended on outcomes. We look at later educational outcomes known to have a positive return in the labour market: staying on in education up to age 18, achieving an upper secondary (Level 3) qualification, commencing a bachelor’s degree, attending a prestigious university belonging to the Russell Group¹, commencing some other form of tertiary (Level 4 and above) education and commencing an apprenticeship.

Classification of post-16 activities is complicated by the fact that many students pursue different qualifications simultaneously. We develop a methodology for classifying learners according to their highest level of learning and their main educational activity at the age of 17. While this is fairly straightforward for vocational qualifications that are equivalent to A-levels in the sense that they are Level 3, it has not proven possible to do this for most lower-level qualifications, which are too diverse to be put into simple categories. The sheer complexity of the system is particularly important to address. It suggests that complaints about careers

¹ We classify universities as selective if they belong to the Russell Group. The Russell Group consists of 24 research intensive Higher Education Institutions in the United Kingdom. For more information, visit <http://russellgroup.ac.uk>.

information and guidance might arise from the attributes of the system itself and not only because too little attention is given to it by educational institutions.

We find that A-levels and vocational equivalents at Level 3 are equally strong predictors of staying on in education up to the age of 18 and achieving a Level 3 qualification before the age of 20, which is known to be a positive predictor of earnings and employment. A-levels are the dominant pathway to university – and in particular for Russell Group universities. However, according to UCAS (2016), vocational equivalents to A-levels (Tech Levels and Applied Generals) are increasingly used as entry routes to university, either to bachelor's degrees or other higher level pathways below the level of a bachelor's degree (e.g. Foundation Degrees or Certificates of Higher Education), although they account for a much smaller number overall.

Our findings are more troubling in relation to lower levels of learning. For those pursuing Level 2 qualifications at age 17, usually because they have not done well enough in their GCSE exams, there is no clear trajectory to higher subsequent levels of learning. Most people classified as pursuing Level 2 qualifications at age 17 do not progress any higher up the education qualification ladder: Only about 44% achieve a Level 3 qualification by the age of 20. This is true for only 16% observed at Level 1 and below at the age of 17. Furthermore, many people observed at low levels of qualification continue to study these low level qualifications for multiple years, even though these courses are often of fairly short duration and might be pursued part-time. In just this one cohort, around 10,000 students are observed working towards low-levels of qualification for four consecutive years. An important question for the future is whether the way “second chances” are offered in the current system is as good as it could be for learners and whether current provision is cost-effective. It is also of importance that a substantial number of young people who cannot access upper secondary courses (Level 3) at age 17 are in institutions that are less well-resourced than higher achieving students. Colleges of Further Education have less funding per head because their client group consists mainly of post-16 students or adults, while schools receive more funding per head. These students are also much more likely to come from disadvantaged backgrounds than the average student. What happens to such students should be a key concern for all who are interested in increasing social mobility.

About one-fifth of students in the cohort we study are observed on an apprentice at some point between the age of 18 and 20. At any time one time, between 7 and 13.5% of students in our cohort are engaged in apprenticeships. We observe young people on two general types of apprenticeships: intermediate (or Level 2) apprenticeships and advanced (or Level 3) apprenticeships. There is of course much variation within these categories, with some apprenticeships being more demanding and prestigious than others. In this paper, we only consider apprenticeships as two broad categories (i.e. intermediate and advanced), leaving more in-depth analysis for future work. The people accessing intermediate or Level 2 apprenticeships are *lower achieving* on average (in terms of GCSE performance) compared to the average student in the cohort. Although the people accessing advanced apprenticeships (about 40% of all those on apprenticeships) are a little higher achieving than the average, they have a completely different profile than those students who undertake A-levels and go to university: The latter are much higher achieving and less likely to come from a low income

background than the former. In the public debate, it is often suggested that those undertaking A-levels should instead take up an apprenticeship. Our analysis suggests that this scenario is unlikely unless the type of apprenticeships on offer change in such a way as to appeal to these high achieving students. However, the system as it operated over the time period covered by our study has been helpful to students who would not have had the possibility to go to university (given their school grades) and thus may serve social mobility to the extent that these apprenticeships really improve labour market prospects in the medium term, which current research suggests is indeed the case.

1. Introduction

Well-known problems of the English education system include a ‘long tail’ of underachievers, low levels of social mobility and a complex system of vocational education (e.g. Bagaria *et al.* 2013; Musset and Field, 2013; Wolf, 2011). These issues are connected because low achievers are more likely to be from poor family backgrounds, less likely to be able to pursue the academic pathway at age 16, and very likely to enter vocational education. However, the policy debate on how to improve social mobility too often appears to neglect vocational education, emphasising instead early years, schools and widening access to higher education.² In recent times, much policy focus has centred on apprenticeships. However, only a small share of students start apprenticeships³, and they are rarely taken up immediately after completing compulsory education at age 16.⁴ If there is to be broader societal change in terms of reducing low attainment and achieving social mobility, there needs to be a greater focus on the sort of vocational education that is offered immediately after compulsory education. For those undertaking A-levels, the route is relatively well-known. However, for the majority of students who do not undertake A-levels (i.e. over 50%), the available options are more diverse and it is not as easy to understand where they lead to. Despite the number of people affected, vocational education receives much less attention in academia and the national press than A-levels and university education.

This paper is an attempt to use detailed administrative data to demystify a complex system and to understand progression for a recent cohort of young people from the age of 16 (when they undertake GCSE examinations) to the age of 20. More specifically, we use administrative data on a whole cohort of school leavers (completing GCSEs in 2009/10⁵) and follow them as they progress through the education system each year until the age of 20. We categorise the many different types of post-16 qualifications they take into several broad categories and we look at the probability of achieving various later educational outcomes by the age of 20, conditional on the path chosen at age 17. Of course, ultimately, one would want

² Fewer than 40% of young people commence a bachelor’s degree and access is strongly influenced by attainment up to age 16 (Chowdry *et al.* 2013). Thus, widening access to university is unlikely to substantively address problems of social mobility.

³ Just over one-fifth of the cohort considered here are on an apprenticeship at some point between the age of 16 and 20.

⁴ For a significant number of people, there is progression within levels of apprenticeships. For the cohort considered here, just under half of advanced (i.e. level 3) apprenticeships come from those who had completed an intermediate (i.e. level 2) apprenticeship.

⁵ We have repeated the exercise for the 2010/11 cohort (which we can observe up to age 19) and results are very similar.

to know how post-16 choices map on to labour market outcomes. In future work, we will link the education data analysed in this paper to labour market data. This will allow us to observe the students of our relatively young cohort at an older age.⁶ An advantage of looking at a recent cohort is that the analysis is more contemporary for young people today. This is important in the light of considerable reform to vocational qualifications that have taken place over time.

The outcomes considered in this paper are as follows: staying on in education up to age 18, achieving an upper secondary (Level 3) qualification by the age of 20, commencing a bachelor's degree (overall and at a Russell Group institution) by the age of 20, commencing some other form of tertiary (Level 4 and above) education by the age of 20 and commencing an apprenticeship between the age of 18 and 20, distinguishing between an apprenticeship of any sort and an advanced apprenticeship (Level 3).⁷

Although staying on in some form of education up to 18 has been mandatory from 2015, this was not the case for the cohort analysed here. England is a country with a relatively high number of young people classified as 'not in education, employment or training' (House of Commons, 2016) and research has shown that there are wage scarring effects from youth unemployment (see for instance Gregg and Tominey, 2005). We therefore regard staying on in education as a desirable intermediate outcome for students below the age of 19.

The outcome of achieving a Level 3 qualification is of interest because most of the economic literature finds a positive average return to qualifications at this level, whether they are academic (A-level) or vocational. The same studies find that going to university, engaging in other forms of tertiary learning and commencing an apprenticeship have a positive average return (Blundell et al. 2005, Dearden et al. 2002, McIntosh, 2006, 2007). However, many people leave the education system with lower level qualifications (i.e. below Level 3) and there is more controversy over the extent to which this offers much to young people in the way of future employment and earnings. Studies based on survey or cohort data (e.g. Dearden et al. 2004) find very low returns whereas those based on administrative data (e.g. Bibby et al., 2014, 2015; Conlon and Patrignani, 2011, 2013) find positive returns.⁸

⁶ Smith, Joslin and Jameson (2015a, 2015b) show the importance of tracking students a good number of years after completion of level 3 studies in order to get a full picture of who gains access to higher education (and this is especially important for students on apprenticeships).

⁷ Even though apprenticeships above level 3 exist, we observe very few individuals on a higher apprenticeship (level 4 or above) in our data.

⁸ Crucially, studies differ on the choice of control group and in their methodology. The availability of more comprehensive administrative data will soon make it possible to compare studies on a 'like for like' basis and it will become clear whether differences are driven by data issues or by methodology. Most importantly, we will come to a better understanding of longer term trajectories for students who pursue different educational routes.

Our primary interest is the extent of association between the main category of qualification undertaken at age 17 and these later outcomes. Of course, the choice of educational pathway at age 17 and outcomes is mediated by other individual characteristics, most notably prior achievement. We look at the association between individual characteristics, choices undertaken at age 17 and the selected outcomes. We then consider the association between educational choices at age 17 and outcomes having taken account of observable characteristics of individuals (i.e. prior attainment, demographics and secondary school attended). Although we do not interpret this as causal, this exercise does give a clearer indication of the relationship between the educational pathway itself and our outcome measures.⁹

We find that even though most people do not take A-levels, it is by far the biggest single category of post-16 education. For many schools, this is the only post-16 qualification available (although this is slowly changing). A-levels are the dominant route to university and it is rare that people with other types of qualification make it to a Russell Group university. However, the main categories of upper secondary Level 3 qualifications (A-levels, Applied Generals and Tech Levels) are similarly good in terms of leading to the achievement of a Level 3 qualification by the age of 20. In other words, conditional on other individual characteristics, there are no major differences in the probability to drop-out or achievement of a ‘good qualification’ at Level 3 post-16 for different Level 3 pathways chosen at age 17.

Our findings are more troubling in relation to lower levels of learning. For those pursuing a Level 2 qualification at age 17 and nothing of a higher level (usually because they have not achieved the pre-requisites for Level 3 courses), there is no clear trajectory to high subsequent levels of learning. Most people do not progress any higher up the education qualification ladder. Furthermore, it is very hard to simplify the many types of lower-level vocational qualifications into general categories. It is hard to infer much about the quality or the progression possibilities of a particular Level 2 qualification from its broad category (and often impossible from its title alone – which could also be said of many higher-level vocational qualifications). Many people pursuing low levels of qualification are in the further education system for multiple years, often without progressing to higher levels, even though these low level courses are mostly of a fairly short duration. An important question for future research is

⁹ The relationship between educational qualifications and outcomes could be interpreted as causal if there are no omitted variables that influence both outcome variables and the decision to enter particular courses of study at age 17. Although we do control for many important factors (e.g. school attended at age 16, prior attainment, demographic variables), we think this would still be a strong assumption in this context.

whether second chances offered in the current system for those who do not succeed in school are as good as they could be and whether their provision is cost-effective. It is also of importance that the substantial number of young people who cannot access upper secondary courses (of Level 3) at age 17 are in institutions that are less well-resourced than higher-achieving students (i.e. Colleges of Further Education have less funding per head because their client group consists mainly of post-16 students or adults; schools receive more funding per head because of the age composition of the students they serve).

Finally, in relation to apprenticeships, we find that students taking them up have a completely different profile from those entering higher education. The majority of apprenticeships taken up by young school leavers in our data are intermediate apprenticeships (i.e. of Level 2). There are also relatively few such opportunities compared to other countries and to higher education choices. The people accessing intermediate apprenticeships are *lower achieving* on average (in terms of GCSE performance) compared to the average student in the cohort. People accessing advanced (Level 3) apprenticeships are a little higher achieving than the average, but they are completely different from those going to university, who are much higher achieving than the average.¹⁰ In the public debate, university and apprenticeships are sometimes portrayed as alternatives of equal value. In reality, however, they are often alternatives pursued by people with very different academic profiles. Our analysis of qualification categories suggests that there is no route that could be described as a typical pre-apprenticeship qualification, meaning that people who end up on an apprenticeship take a large variety of qualifications and there are no specific qualifications that stand out. The different categories of qualifications do not strongly predict who accesses an apprenticeship programme. Those that do end up as apprentices are more likely to have come from a low educational category (level 2 or below) than a high educational category at age 17 – particularly after conditioning on their characteristics such as prior attainment, socio-economic background and demographic characteristics.

The remainder of this paper is structured as follows: Section 2 gives a brief outline of the education system in England. Section 3 describes the data and our educational classification. Section 4 describes progression and outcomes where we look at (a) transitions between age 17 and 18; (b) second chances and ‘getting stuck’; (c) intermediate outcomes; (d)

¹⁰ People undertaking level 3 (or advanced) apprenticeships at some stage between age 17 and 20 are similar in their average GCSE achievement to those undertaking level 3 vocational qualifications at age 17 (Tech Levels or Applied Generals), although less likely to have achieved a grade C in GCSE English or Maths.

characteristics of learners; (e) outcomes conditional on learner characteristics and; (f) heterogeneity within Level 2 Vocational qualifications. We conclude in Section 5.

2. The Education System in England

In England, compulsory education starts the September after children turn 5 and progresses according to four ‘Key Stages’. The learning requirements of each Key Stage are set out in the National Curriculum and subject to either teacher assessments or national tests at the end of each stage: age 7 (Key Stage 1), age 11 (Key Stage 2), age 14 (Key Stage 3) and age 16 (Key Stage 4). Achievements at each stage are categorised into Levels. At the end of primary school, students are expected to achieve Entry Level, at the end of lower secondary schooling, students are expected to achieve a Level 2, and at the end of upper secondary schooling students should have obtained a Level 3 qualification. The transition from primary to secondary school is typically at the end of Key Stage 2 (age 11) and lower secondary education takes place between ages 11 and 16. At the end of this time, students undertake exams for the General Certificate of Secondary Education (GCSEs), typically in 8 to 10 subjects. This exam is high stakes both for students and schools. GCSE results are published in the School Performance Tables, where an important indicator is the percentage of students obtaining 5 or more GCSEs and equivalent qualifications at grades A*-C. The results in this exam – and in particular whether a student gets at least a grade C in English and Maths – will influence what course of study students are able to access the following year.

Up to 2013, students could choose to leave education completely at the age of 16, although few did.¹¹ From the age of 16 students’ choices expand considerably with regard to qualifications and the institution of study they can attend. This is depicted in Figure 1. A student who has done well at GCSEs (as defined by obtaining 5 or more GCSEs at grades A*-C) will have no problem progressing to their upper secondary education at Key Stage 5 to study Level 3 qualifications. The best-known educational qualifications at this stage are A-levels, which are academic qualifications. These are typically taken in 3 subjects over 2 years and are the traditional prerequisites for university entrance.¹² They may be undertaken in schools or sixth

¹¹ Since 2013, students need to stay on in some form of education (which can be part-time) up to the age of 17. In 2015, this was raised to age 18. As students can get educated in many different institutions post-16, it is not clear how enforceable this law is.

¹² Up to recently, students undertook ‘AS-levels’ at age 17 (i.e. half a full A-level).

form colleges (specialising in 16-18 education) or in further education colleges. The latter are mostly very big institutions that also provide vocational and remedial education both for young people and adults.

Apart from the well-known A-levels, a plethora of vocational qualifications is available for post-16 learning and even though some efforts have been made to simplify the picture with recent reforms, educational choices remain very diverse and complex. At Level 3 alone, students in England in the 16 to 18 age group can choose among 3,729 qualifications.¹³ These include qualifications now classified as Applied Generals and Tech Levels, two relatively new categories which group qualifications in order to provide clearer alternative pathways to A-levels.¹⁴ They are usually larger qualifications containing several modules or subjects. UCAS (2016) describes these pathways, which are increasingly being pursued alongside A-levels or on their own.¹⁵ Applied General qualifications provide learning in a vocational area, for example applied science, business or sport, and enable learners to develop transferable knowledge and skills. Initially these qualifications were not considered a definitive route into university but this has changed in recent years. From 2016 all Applied General qualifications must have the written support of at least three Higher Education Institutions as fulfilling requirements for a range of higher education courses, either in their own right or alongside other Level 3 qualifications. Tech levels are designed for students who have a clear idea about the occupation they want to pursue. They are vocational and equip students with the specialist knowledge they need for a specific occupation, such as engineering, computing or hospitality. They can also facilitate progression into higher education. The Department for Education describes them as ‘rigorous advanced technical qualifications on a par with A-levels’ (Department for Education, 2015c). We discuss these qualifications further in the context of our categorisation in Section 3.

¹³ Qualifications approved for learning for 16 to 18 year olds are listed under Section 96 of the Learning and Skills Act 2000. From academic year 2015/16 onwards the number of qualifications approved for future performance tables has been reduced considerably. Of the Section 96 vocational qualifications at Level 3 previously valid for performance tables, so far only 107 qualify as Applied Generals qualifications and 284 as Tech Levels. For more information see <http://www.education.gov.uk/section96/>.

¹⁴ It is important to note that many of the actual qualifications classified as Applied Generals or Tech Levels today are modified versions of long-established awards. In this cohort the classification - and requirements for being one or the other - hadn't yet been applied, so students in our study would have been taking the old versions of the qualifications.

¹⁵ For example, at age 18, about 9.1% of the students doing A-levels as a main activity were also doing Applied Generals and 2.3% were also doing Tech levels. Nearly one-third of those doing Applied Generals as a main activity at age 18 were also doing A-levels, whereas this was true for 10.5% of those doing Tech levels as a main activity.

There are many students who at 16 do not meet the prerequisites of Level 3 qualifications and must study at Level 2 (i.e. at the same level as GCSE) or even Level 1 or Entry Level. As of May 2016, there were 9,835 qualifications at Level 2 and below approved for learners aged 16 to 18, 2,063 of which were at Entry Level, meaning at the level of a primary school leaver.¹⁶ An added complication is that the majority of students are engaged in several different qualifications at different levels and of different types simultaneously. For example, a student pursuing a Level 3 course might also be undertaking a Level 2 course in English or Maths if they did not obtain at least a grade C at GCSE in those subjects. Some students are taken on as apprentices at the age of 17. However, few people get on to an apprenticeship programme immediately after GCSEs, and take vocational courses in preparation to entering an apprenticeship. Our data shows that it is more common to enrol on an apprenticeship programme from age 18 onwards.

Most post-16 vocational learning takes place in further education colleges, of which there were 215 in England as of April 2016 (Association of Colleges, 2016). However, schools, sixth form colleges, specialist colleges and private providers also offer learning to individuals aged 16 and above. We provide further details on learning providers in Section 3.

3. Data and Educational Classification

This analysis combines information in various administrative data sets that makes it possible to track most students in England from the time they finish their compulsory full-time education at age 16 up to the time that they leave the education system or enter Higher Education. We follow students who undertook their GCSE exam in the academic year 2009/10 and follow them up to the age of 20 (documenting if they left the system). Even though earlier cohorts of learners can be followed, we choose a recent cohort of school leavers, making our analysis more relevant for the current policy context. Appendix 1 provides more detailed information of how the dataset used for the analysis was constructed.

The linked administrative data sets come from the National Pupil Database (Key Stage 2, Key Stage 4, Key Stage 5 and the pupil level census), linked to the Individual Learner Record (ILR) and Higher Education Statistics Agency (HESA) data.

¹⁶ Contrary to other countries where qualifications are typically age specific, many of these qualifications are actually designed for and largely taken by adults. This can partly explain the quantity of possible qualifications available in England.

Classification of education engagement

As discussed above, when students complete their compulsory school education, many educational pathways will have good GCSEs as a pre-requisite and there are various options available at Level 3. These are often 2 year programmes and can, if successfully completed, facilitate a student's progression to university or a vocational alternative at Level 4 and above. However, many students do not make the entry requirements for a Level 3 course in their first year of post-compulsory education (age 17). In this case, they will pursue a Level 2 course of study or even need to start at a level below that (Level 1 or Entry level). These courses are typically not full-time and do not usually last a whole academic year. However, as we will see, many students are observed on such courses in multiple years.

For our purposes, it is important to find a classification of pupils' activity that can underpin the analysis of different vocational pathways without being too narrow and specific (as this would complicate the analysis excessively) or too general (as this would limit what we can learn from the study). As part of a recent reform of vocational qualifications carried out by the Coalition government in the aftermath of the Wolf Report, the Department of Education (DfE) has created a set of categories for non-A-level qualifications at Level 3 and non-GCSE qualifications at Level 2 that will be included in Performance Tables from 2017 onwards. These categories are:

- At Level 3: Applied Generals and Tech Levels
- At Level 2: Tech Certificates

The purpose of this new categorisation is to restrict the number of qualifications permitted for measuring an educational establishment's performance to a subset that fulfils certain criteria: qualifications falling into one of the aforementioned categories have to be assessed synoptically¹⁷; they need to have a size of at least 150 guided learning hours and in the case of Tech Levels at least 300 guided learning hours; and they need to be publicly recognised by employers (in the case of Tech Levels and Tech Certificates) and Higher Education Institutions (in the case of Applied Generals).¹⁸ We thus use these categories as the basis of our own classification system. As most of these qualifications have been around for some time, they can be classified retrospectively for students starting their post-16 education in 2010/11.

¹⁷ The agreed definition established by the DfE is as follows: "A form of assessment which requires a candidate to demonstrate that s/he can identify and use effectively in an integrated way an appropriate selection of skills, techniques, concepts, theories, and knowledge from across the whole vocational area, which are relevant to a key task." (Department for Education, 2015, p. 20).

¹⁸ More details on the criteria for these qualifications can be found in Department for Education (2015a), Section 2.

There are many qualifications that do not fit into these categories, which we categorise as ‘Vocational Level 2’ and ‘other Level 3’ respectively. The former is a relatively large group. Distinctive groups at Level 3 include Key Skills or NVQs. NVQs are generally taken by people in employment or on an apprenticeship or undertaking voluntary work, although part-time college students with a work-placement can also undertake them. Key Skills or functional skills at Level 2 generally consist of remedial English and/or Maths. However, these types of qualifications are usually undertaken alongside other vocational qualifications.

Students may pursue different levels and types of learning simultaneously. To categorise learners, we first assign them to their highest level of qualification (which for our cohort can be between Entry Level, the level of a primary school leaver, and Level 6, the level of a bachelor’s degree) and then to the category in which they spend most of their educational time based on the guided learning hours¹⁹ associated with each qualification. Appendix 2 provides a detailed description of how students were classified into different categories of educational activity.

In Table 1 we show the percentage of this cohort according to their educational activity in each year between the ages of 17 and 20. We classify those on an apprenticeship programme as a separate category.

A-levels are the predominant pathway at age 17 and 18, accounting for about 45% of the cohort at age 17 and 38% of the cohort at age 18. Applied Generals and Tech Levels attract about 5% and 4% of the cohort respectively at the age of 17 – but this increases to 9% and 7%, respectively, by the age of 18. Together with the two small residual Level 3 categories (other Level 3 and Key Skills/NVQs), about 60% of the cohort is observed on a Level 3 programme at age 18. Students at Level 2 comprise about 13% of the cohort at age 17 and 9% at age 18. Tech certificates currently only represent a small share of learners. Level 2 learning is dominated by the diffuse category of ‘Vocational qualifications’ that contains all Level 2 qualifications that do not fall under the Tech Certificate, Key/Functional Skills or the GCSE category. Students at Level 1 and below account for about 11% of the cohort at age 17 and 6% at age 18. About 7% of the cohort of students on an apprenticeship at age 17. This increases to over 10% in every subsequent year.²⁰ The highest share is intermediate (Level 2) apprenticeships, although the share of advanced (Level 3) apprenticeships increases as the cohort ages. By the age of 20, 35% of the cohort has commenced some form of Level 4 or

¹⁹ Guided learning hours are a measure of a qualification’s size.

²⁰ Overall, about 22% of this cohort undertake an apprenticeship at some point between the age of 16 and 20.

above course of study and this is typically a bachelor's degree at university. All other educational categories diminish in importance by age 19 and 20 – as people exit the education system and enter the labour market.

Tables 2a and 2b describe categories of qualifications by some of their key characteristics: awarding bodies; five most popular subject areas; examples of popular qualifications and institution of study. Contrary to what is the case in most other countries, England has a unique system of awarding bodies. This means that rather than public organisations awarding qualifications, it is independent 'not-for-profit/private companies', so-called awarding bodies, who design and award qualifications.²¹ Although there were 158 recognised Awarding Organisations in England as of May 2016 (Ofqual, 2016), our analysis shows that just a few dominate in qualifications delivered for the age group under analysis in this paper. Pearson Ltd in particular dominates for Applied Generals and Tech Levels. At Level 2 City and Guilds and Pearson Ltd collectively account for well over 50% of qualifications (excluding GCSEs, where AQA dominates). Judging from some of the popular qualifications within these categories, in many cases it would be difficult to infer the category of qualification from its title. BTEC diplomas are very dominant amongst Applied Generals, although they can also appear within other categories (such as Tech Levels) – albeit with lower frequency. The fact that such a range of similar sounding qualifications across similar subject areas can be found within different categories suggests that choice is not easy for the learner without careful guidance about what different pathways involve. It is also clear from Tables 2a and 2b that the choice offered will vary by institutional type. Schools and academies mainly offer A-levels, and other types of Level 3 qualifications only to a much smaller extent, if at all. They do not typically offer pure (post-16) Level 2 courses of study, and if they do this, it is typically to students pursuing Level 3 qualifications at the same time. Further education colleges are the dominant providers in most categories of vocational qualifications. Private (non-college) providers only represent a significant proportion within vocational qualifications at Level 2, key and functional skills at Level 2 and qualifications below Level 2. Finally, it is clear that some of the lower-level qualifications have a strongly remedial character, especially in Maths and English.

²¹ However, this is not true for apprenticeships. For example, in German-speaking countries qualifications connected to apprenticeships are awarded by Chambers of Commerce run by employer organisations.

4. Progression and Outcomes

4.1. Progression from age 17 to 18

Since 2015 it has been compulsory for people to stay on in some form of education (at least on a part-time basis) up to the age of 18. Although the cohort of interest in this paper had the option of leaving education completely from the age of 16, few did so in practice. However, there is a drop-off between the age of 17 and 18, where about 12% of the cohort is no longer observed in the data (Table 1). Although some of these young people could be in jobs (as opposed to ‘not in education, employment or training’), it is probable that jobs on offer for young people of this age are of fairly low quality.

In terms of progression, one might expect those observed on Level 1 or Level 2 programmes at the age of 17 to have advanced by a level the next year. As for Level 3 programmes of study, these are typically of two years’ duration and one would expect there to be a high degree of persistence for these students between the age of 17 and 18.

The transitions actually made for this cohort between age 17 and 18 are shown in Table 3. For simplicity, we show the transition matrix for the main categories only, excluding the categories that account for very small numbers of students at age 17 (as shown in Table 1).²²

As expected, the three main Level 3 categories (A-levels, Applied Generals and Tech levels) show a high degree of persistence across the two years. The percentage of students starting out on A-levels, Applied Generals and Tech levels still on the programme one year later (at age 18) is 81%, 72% and 79% respectively. Where people switch educational category between age 17 and 18, it is usually to another Level 3 programme or to an apprenticeship. The percentage leaving education by age 18 (‘not observed’) is below 4% for those on Level 3 qualifications at age 17 generally and a little higher for those on vocational Level 3 qualifications at age 17 (6-7%, depending on the category).

It might be expected that students pursuing a Level 2 qualification at age 17 would progress to a Level 3 qualification one year later, if they remain in education. However, the overall rate of progression from Level 2 to Level 3 is only about 39%. About 25% of those pursuing a Level 2 programme of study at age 17 are observed working towards a qualification of the same level the following year and 8% move down a level; 14% commence an Apprenticeship and 17% are not observed in education by age 18.

²² The categories omitted from the table are: Mainly KS/NVQ at Level 3, Mainly key/functional skills at Level 2; and GCSEs.

Thus, there is no systematic pattern of progression for those pursuing Level 2 qualifications (and nothing of a higher level) at age 17. The highest rate of progression from Level 2 to Level 3 between ages 17 and 18 is for those starting out on Tech Certificates. About 26% of this group progress to Level 3 Tech Levels at age 18. For overall progression to Level 3 the numbers for Tech Certificates appear more favourable than for the broad class of other Level 2 vocational qualifications. With regard to the percentage commencing an Apprenticeship at age 18, these two sub-categories look very similar.

A very high percentage of students pursuing qualifications at level 1 or below ('Below Level 2') either leave education the following year (20%) or stay on working towards a below Level 2 qualification (30%). However, 38% progress to a Level 2 qualification the following year and 8.6% start an apprenticeship.

For those starting out on an apprenticeship at age 17, the majority (80%) are still on an apprenticeship programme the following year and 10.5% have left education. The remaining 10% are mainly undertaking qualifications at Level 3 (4%), Level 2 (3.1%) or Below Level 2 (2.6%).

4.2. *Second Chances or Getting Stuck?*

One major role of further education is to provide second chances to those who either did not achieve the expected outcomes in school or left school at the age of 16 and decide to go back into education after a period of unemployment (or employment), or both. One of the striking aspects of Table 3 is how many people stay at or below Level 2 courses of study as their main educational activity for more than one year. These courses are not necessarily full-time and they are generally designed to last a year or less.²³ However, many learners starting out on these courses at age 17 will not have done well at school (as reflected in their GCSE examinations) and may need to take courses over more than one academic year to make sufficient progress. However, there is also a possibility that young people get 'stuck' within further education on courses that don't seem to lead anywhere. It should also be borne in mind that prior to 2013, colleges were paid per qualification delivered whereas since then they are paid per learner. The per qualification based funding system is said to have incentivised learning providers to offer as many easily achievable qualifications as possible, because full payment by the funding body was subject to learners achieving the qualification (Wolf, 2011).

²³ On average, courses at below level 2 have 82 guided learning hours (GLH) as compared to Level 2 courses which on average have 190 GLH. The actual duration of a below Level 2 course is 5 months on average. For a Level 2 course, the actual duration is 7 months on average.

The extent to which such learners benefit from their extended time in further education (doing courses of a similar level) is an important question to be addressed in the future, with the use of labour market data.

In Table 4 we show how many students are observed on programmes of study at Level 2 or below for 2, 3 and 4 years between the age of 17 and 20. We also show this for 2, 3 and 4 *consecutive* years between these ages. The number in each column is the percentage of people who chose a particular main activity at age 17 who subsequently are observed studying at Level 2 or below as their main educational category. For example, of those pursuing any Level 2 qualification at age 17, 29% were observed working at this level for 2 years, 11% for 3 years and 3% for 4 years. For the majority of students, these are consecutive years.

About 10% of the whole cohort is observed on Level 2 or below learning for at least 2 years (and slightly lower – 9.1% - for two consecutive years). The overall percentage for 3 years and 3 consecutive years is 4.4% and 3.2% respectively. A small percentage of the cohort (1.7%) is observed on these programmes of study for all four years. Although the percentage of students observed working towards low-level qualifications for 3 and 4 consecutive years is small, in absolute terms this still represents over 18,000 and 10,000 students, respectively. If this is true for every cohort of students, the overall number of individuals in the system working on low-level qualifications for consecutive years is much higher.

4.3. *Outcomes*

Although the main concern is how learning activities at age 17 translate into labour market outcomes, the best we can do for this young cohort of learners is to define ‘intermediate outcomes’, which are known to have positive average returns in the labour market. They are as follows: staying on in education up to age 18, achieving a Level 3 qualification, commencing an apprenticeship (overall and at Level 3), commencing a bachelor’s degree, attending a Russell Group university and participating in some form of level 4 or above learning activity other than a bachelor’s degree. In Table 5a, we show the number of people in each category, and their composition in terms of their main educational activity at age 17. In Table 5b, we show the probability of achieving a particular outcome conditional on the learning undertaken at age 17. We later consider how other characteristics of students (such as prior attainment) affect these conditional probabilities.

Starting first with the composition of individuals achieving each outcome (Table 5a), those starting out on some type of Level 3 learning at age 17 account for the majority of students for each outcome variable except for those starting an apprenticeship, where they account for

around 40%. The most dominant Level 3 qualification across all categories is A-levels, which is not surprising because A-levels constitute the single biggest category of learners at age 17. They account for nearly half of those still observed in education at age 18, 63% of those achieving a Level 3 qualification by the age of 20, 83.5% of those commencing a bachelor's degree by the age of 20, almost all those observed in a Russell Group university (94.5%) and 48% of those undertaking a Level 4 and above qualification that is not a bachelor's degree. However, such students are less frequently observed amongst those who commence an apprenticeship by the age of 20. They account for 26% of those starting any type of apprenticeship between the age of 18 and 20 and about 30% of those starting a Level 3 apprenticeship between these ages.

Students pursuing any category of Level 2 (or below) qualifications at age 17 account for a relatively small number of people achieving any of the outcomes considered here, both because they constitute a much smaller share of learners and because they are less likely to achieve these outcomes. Those categorised as taking vocational qualifications at Level 2 and qualifications below Level 2 account for about 9% and 10%, respectively, of all those students staying on in education up to age 18. They also comprise a reasonable share of those starting an apprenticeship between the age of 18 and 20 (at 11% and 10% respectively). A high share of those on apprenticeships between age 18 and 20 were already on an apprenticeship at age 17 (i.e. 28% for any apprenticeship and 34% for a Level 3 apprenticeship).

In Table 5b, we consider the percentage of people achieving various outcomes conditional on their main educational activity at age 17. For example, of those pursuing any type of Level 2 qualification at age 17, 83% stayed on in education up to age 18; 44% achieved a Level 3 qualification by age 20; 23% commenced an apprenticeship (with 7.7% on a Level 3 apprenticeship), 5.8% went to university and 3% went into some other Level 4 or above type of learning. The Table shows that all learners who start out at Level 3 have a high probability of staying on in education up to 18 and achieving a level 3 qualification by the age of 20. However, the probability of going to university – and especially of going to a Russell Group university – is much higher for those who were on the A-level pathway at age 17. Having said that, the percentage of students who pursue Applied Generals or Tech levels at age 17 and who subsequently go on to study a bachelor's degree is sizeable – even if this is not the dominant pathway. For Applied Generals and Tech levels, the percentage of students going to commencing a bachelor's degree is 29% and 26% respectively. A further 8% and 12% pursue non-bachelor Level 4 and above courses of study by the age of 20.

Two striking aspects of Table 5b apply to lower level learners. Firstly, of those who pursue (at age 17) Tech Certificates or vocational qualifications at Level 2, the percentage that achieves a Level 3 qualification by the age of 20 is 49% and 45% respectively. Thus, educational progression is not what we see for the majority of these learners, but it can and does happen for almost one half of students. Secondly, the percentage of those who commence an apprenticeship of either Level 2 or Level 3 is higher for those observed at either of the Level 2 categories compared to those starting out on any Level 3 category. Even those students pursuing a Level 1 or below qualification at age 17 have a similar (or higher) probability of commencing an apprenticeship between the age of 18 and 20 compared to those starting out on a Level 3 qualification. The policy discussion around apprenticeships often depicts apprenticeship as an alternative to going to university. However, this data shows that many apprenticeships are being taken up by those who would not otherwise have gone to university. Furthermore, it appears that apprenticeships do not appeal to the same extent to students with the necessary pre-requisites to access Level 3 courses of study at age 17 as to those with low achievement at age 16.

However, this analysis does not take account of any characteristics of students that might have influenced their choices at age 17 (e.g. prior attainment or family background) and their probability of achieving various outcomes. In the next section we will account for such characteristics.

4.4. Characteristics of learners

In Table 6, we show characteristics of learners according to their main activity at age 17. The characteristics we consider are: Whether they had achieved 5 or more GCSEs at grades A*-C including English and Maths, whether they had not achieved a grade C in both English and Maths at GCSEs, whether they have ever been eligible for free school meals (FSM), their gender, their ethnicity, whether they speak English as a first language and whether they are classified as having special educational needs.

Looking at the Level 3 main activities at age 17, unsurprisingly those undertaking A-levels as their main activity stand out as having very high achievement at GCSE compared to the average in the population and compared to every other Level 3 category. They are also much less likely to be disadvantaged (i.e. eligible for FSM). Those undertaking Applied Generals and Tech levels are more like the average in the population in terms of GCSE attainment and the probability of being eligible for FSM. However, a significant minority of

people in these categories do not have a C in both subjects (around 10%), although this compares favourably to the average in the population, which is 27%.

Those categorised as having Level 2 or below as their main activity at age 17 are much less likely to have achieved good grades at GCSE than the average person or those undertaking Level 3 as their main activity. However, it might be considered as something of a puzzle that as many as 16% of people undertaking Tech Certificates and 11% of people undertaking Vocational Level 2 have good GCSEs (i.e. 5 or more grades A*-C) and yet they choose not to progress to a Level 3 course of study at age 17. Also, it is surprising that as many as 5% of students who achieved good GCSEs including English and Maths are seen undertaking qualifications of below level 2 as their main activity one year later.

Finally, those commencing an apprenticeship at age 17 are lower achieving than the average person in terms of GCSE results. However, compared to those undertaking Level 2 qualifications as a main activity, they are more likely to have achieved good GCSE and less likely to have failed to obtain a grade C in both English and Maths. They are similar to the average person in terms of the probability of being from a low income background but more likely to be male, white and to have English as a first language.

In Table 7, we consider characteristics of those who achieve good educational outcomes by the age of 20. The profile of those who stay on in education up to 18 is similar to the average person in the population, reflecting the fact that most people stay on up until this age. However, they achieve better GCSEs on average and are a little less likely to be from a poor family background or classified as having special educational needs. Those who achieve a level 3 qualification by the age of 20 differ from the average person mostly in terms of the probability of being from a poor family background (21% have ever been eligible for free school meals compared to 28% on average), being classified as having special educational needs, and in terms of GCSE results, where they are likely to have done considerably better than the average. Those commencing an apprenticeship between the age of 18 and 20 have a similar profile to those commencing an apprenticeship at age 17 (discussed above). They have a similar probability of being from a poor family background to the average person and are more likely to be male, white and speak English at home. There is a considerable gap in terms of GCSE performance: Overall, 55% of this cohort left school with good GCSE grades (including English and Maths). This compares to 46% of those who start an apprenticeship between age 18 and 20. However, those who commence a Level 3 Apprenticeship are (slightly) higher achieving than average: 57% achieve good GCSEs. Nonetheless, this is very different from the profile of those going to university, where 89% have good GCSEs. Much fewer of those going

to study a bachelor’s degree are from poor family backgrounds (17% compared to 28% on average). This pattern is even more extreme for those going to a Russell group university. Those who commence another form of Level 4 or above learning have a similar profile to the average person on many dimensions but are less likely to come from a low income background and are a lot more likely to have achieved good GCSE grades at age 16.

4.5. *Outcomes conditional on learner characteristics*

When considering how outcomes relate to the educational qualification undertaken at age 17, it is useful to ‘net out’ other characteristics of individuals that affect both choices at age 17 and later outcomes. We do this by regressing our outcomes of interest on choices at 17 and individual level characteristics. For example, prior attainment at GCSE will strongly influence the options available at age 17. In our regressions, we can control for prior attainment at age 11 and 16 (i.e. KS2 and KS4 results), demographics (being eligible for free school meals, special educational needs status, gender, ethnicity, whether English is the first language spoken), and the school attended at Key Stage 4. Even though we cannot claim a causal relationship between qualification choices and outcomes as there may be other unobserved attributes of individuals that influence choices at 17 and outcomes (e.g. ability, preferences, motivation, parental influence, etc.), our rich set of control variables allows us to compare qualifications on a more ‘like for like’ basis. Most importantly, we can purge some of the effect of selection of more or less advantaged students into particular types of learning that may bias the observed correlation between activity at age 17 and outcomes.

More specifically, we estimate an OLS regression as follows:

$$Y_{it} = \beta_0 + \beta_1 QUAL_i + \beta_2 X_i + \alpha_t + \alpha_s + \epsilon_{it}$$

Where Y is the outcome of interest for individual i , at time t . The coefficient of interest is β_1 which shows the relationship between the qualification undertaken at age 17 and the outcome variable Y . The regression controls for a vector of individual-level characteristics X_i (i.e. prior attainment at age 11 and 16 and demographics), a fixed effect for the secondary school attended (α_s) and a set of year dummies (α_t).

In Figures 2-7, we plot the regression coefficients associated with the main educational activity chosen at age 17 and various outcomes discussed above, with and without controlling for the above-named characteristics. In every case, the comparison group is students who

started at below Level 2 at age 17. The full set of regression results for all outcomes is shown in Appendix 3.

Figure 2 shows that students who undertook A-levels as their main activity at age 17 were more likely than the comparison group (i.e. below Level 2) to stay on in education up to the age of 18. Without including controls they were about 17 percentage points more likely to stay on, with controls they are 12 percentage points more likely to stay on. Those undertaking Tech Certificates are just as likely to stay on in education as the comparison group, whereas those undertaking vocational Level 2 qualifications are slightly more likely to stay on. Figure 3 shows that all those undertaking Level 2 qualifications are much more likely to have achieved a Level 3 qualification by age 20 (compared to below Level 2 learners), and there isn't much difference between those studying Tech Certificates or Level 2 vocational qualifications in this respect.

Figures 2 and 3 show that after we take into account individual characteristics, the relative advantage of A-levels compared to other Level 3 learning in leading individuals to staying on in education up to age 18 and achieving a Level 3 qualification by age 20 disappears. The interpretation is that the apparent superiority of A-levels (in this respect) is actually driven by the fact that more able and more advantaged students tend to take them.

Controlling for individual characteristics does not make much of a difference to results for “staying on” for those who undertake learning at Level 2 at age 17. However, coefficients for completing a Level 3 qualification by age 20 reduce from 33.5 percentage points to 28.2 percentage points for those starting out on Tech Certificates and from 29 percentage points to 24 percentage points for those initially pursuing vocational qualifications at Level 2. This means that for these two latter groups, the positive association with the outcome variable is partially driven by selection of abler and more advantaged students into these qualification categories compared to the omitted group (those learning at below Level 2). This is also suggested by the summary statistics in Table 6.

Figures 4 and 5 show these associations for whether the individual commences a bachelor's degree by age 20 (Figure 4) and whether he/she commences other higher level (level 4 and above) learning by age 20 (Figure 5). As can be seen in Figure 4, those pursuing any Level 2 learning at age 17 (and nothing of a higher level) are not very likely to commence a bachelor's degree by age 20. Although Figure 4 shows that individual characteristics do mediate the relationship between qualifications chosen and the probability of commencing a bachelor's degree, the ranking between categories of Level 3 qualifications is broadly maintained: Those undertaking A-levels are well over twice as likely as those undertaking

Applied Generals or Tech levels to commence a university degree by the age of 20. Applied Generals and Tech Levels offer a similar probability of commencing a bachelor's degree, which may be surprising as Tech Levels are a group of qualifications intended to offer entry into the labour market rather than higher education. Both groups of qualifications seem to fare better than other Level 3 qualifications in this respect.

Figure 5 shows that students engaged in Tech levels at 17 are about 11 percentage points more likely than below Level 2 learners to have commenced learning at level 4 or above by age 20 (excluding bachelor's degrees). They are followed by Applied Generals, other level 3 qualifications and A-levels. The probabilities for most Level 2 qualifications are higher than the baseline by between 1 and 3 percentage points. Those undertaking apprenticeships at age 17 look similar to those undertaking Level 2 Vocational qualifications, with probabilities of commencing a Level 4 activity of about 3 percentage points higher relative to the comparison group. However, from Table 1 we know that the overall probability of commencing a Level 4 non-degree activity is much lower than the probability of commencing a bachelor's degree, which could reflect either a lack of supply or a lack of demand for this option, or both. As can be seen from Figure 5, controlling for individual characteristics only has a modest effect on the association between the category of activity at age 17 and the probability of participating in a Level 4 or above educational activity by age 20.

In Figures 6 and 7, we show the regression coefficients of commencing an apprenticeship (Figure 6) and a Level 3 apprenticeship (Figure 7) between the age of 18 and 20 on learning at age 17, including and excluding control variables. Starting with Figure 6, the negative bars for A-levels, Applied Generals and Tech levels reflect the fact that those in the comparison group (i.e. below level 2) are *more* likely to enter an Apprenticeship than individuals in these other categories. This is further accentuated when taking account of individual characteristics. However, other categories of learners (mainly at Level 2) have a higher probability of commencing an apprenticeship than the comparison group. However, after we take into account individual characteristics, the advantage over the comparison group diminishes for people classified as undertaking a Tech Certificate or Level 2 Vocational qualification. Those studying other Level 3 qualifications are no longer more likely to commence an apprenticeship when we include our set of control variables, suggesting that their characteristics drive the positive association in the raw data.

Finally, in Figure 7 we consider the probability of commencing a Level 3 apprenticeship between the age of 18 and 20. Overall, only 8.1% of the cohort commence a Level 3 Apprenticeship between ages 18 and 20. For the most part, the qualification categories

do not strongly predict who will get on to a Level 3 apprenticeship at this age after other characteristics have been taken into account, with coefficients ranging between 1.5 percentage points for A-levels and 4 percentage points for Tech Levels and Tech Certificates. A key insight is that after taking account of individual characteristics, no one undertaking a Level 3 qualification is any more likely than the comparison group to be observed on a Level 3 apprenticeship between the age of 18 and 20, and some are actually less likely (those on A-levels and Applied Generals). Those undertaking Tech Certificates and Vocational Level 2 qualifications are more likely to be observed on a Level 3 apprenticeship between the ages 18 and 20 (by about 2.5 percentage points) than those on below Level 2 courses. Thus, if an individual wanted to know which qualifications at age 17 were most likely to give him/her access to an apprenticeship, one could not say much about which qualification category was more or less likely to achieve this aim.

4.6. Heterogeneity within Level 2 Vocational qualifications.

A significant number of students are classified in the broad category of Level 2 vocational qualifications (9.5% of the cohort). It was difficult to think of an appropriate narrower breakdown. There is clearly much heterogeneity within this category. As illustrated in Table 2b, even though City & Guilds and Pearson dominate this category (accounting for 47% of qualifications taken), courses in this category are designed by a wide array of awarding bodies and are in a very large number of different subject areas. In this sub-section we attempt to explore differences in outcomes by these two dimensions of heterogeneity: whether those in this classification study for a qualification with one of the big awarding bodies (Pearson or City & Guilds) and whether they are studying a STEM subject (i.e. science, technology, engineering or maths).

We re-estimate regressions discussed above. Firstly, we re-estimate the regressions including controls for whether a student is working towards a qualification with a major awarding body and the interaction of whether he/she is classified as ‘Vocational Level 2’ with this variable.²⁴ Results showing selected coefficients are shown in the upper panel of Table 8. Undertaking a course of study with a major awarding body is advantageous (though generally the advantage is quite small) for all outcomes except for whether a student gets on to a Level 3 apprenticeship between the ages of 18 and 20 (where the coefficient is negative but small).

²⁴ The same regressions have been run interacting all the main categories of learning at age 17 with the variables of interest. The results are the same.

The interaction effects suggest that this advantage does not always hold for who in addition to taking a course of study with a major awarding body are also classified as undertaking ‘vocational Level 2 courses’. It doesn’t hold with respect to staying on in education up to age 18 or commencing an apprenticeship (in general and at Level 3). However, there is an advantage with respect to achieving a Level 3 qualification by the age of 20, commencing a bachelor’s degree and (to a small extent) pursuing some other Level 4 (or above) learning by the age of 20. The interpretation is that students who undertake ‘Vocational Level 2’ courses are better off undertaking this with a major awarding body if their aim is to progress in education outside of apprenticeships.

In a second alternative specification, we expand our regressions by controlling for whether a student studies for a STEM qualification and the interaction between STEM and whether she is classified as ‘Vocational Level 2’. Results are reported in the lower panel of Table 8. Studying for a STEM qualification makes little difference to the probability of staying on in education to age 18. It increases the probability of achieving a Level 3 qualification by age 20 by 2.5 percentage points. However, for those studying for a Vocational Level 2 qualification, it makes no difference (in terms of progression to Level 3) as to whether this qualification is classified as STEM or not. STEM qualifications have a small association with the probability of being in an apprenticeship between age 18 and 20 (negative for any apprenticeship and positive for a Level 3 apprenticeship). However, if a person with a Vocational Level 2 qualification undertakes this in a STEM subject, it does boost their probability of getting on to an apprenticeship. Although studying a STEM subject at age 17 positively influences the probability of going to university, it makes no difference for those who have Vocational Level 2 qualifications. The influence of STEM on the probability of undertaking some other form of Level 4 or above learning is negligible.

Thus, overall for progression to higher levels of education, it matters whether someone undertaking Vocational Level 2 is doing their qualification with a major awarding body (though not whether this is STEM). However, with regard to obtaining an apprenticeship, there is no advantage of undertaking a Vocational Level 2 qualification with a major awarding body. In fact, the opposite is true. However, there is an advantage of undertaking a vocational qualification at Level 2 in a STEM subject for entering an apprenticeship.

5. Conclusion

The majority of students do not undertake academic qualifications in the post-compulsory phase of their education. However, there is no single vocational pathway that is as well-trodden as A-levels. Due to the vast amount of qualifications available post-16 it is difficult to devise a categorisation for the many vocational pathways, particularly those at Level 2. This paper is an attempt at bringing more clarity into the different pathways available and taken by students and where they lead. We devise a new categorisation of learning activities based on the highest level of learning and where the student spends most of his/her educational time.

Students undertaking Level 3 vocational options post-16 have very different characteristics than those who undertake A-levels. They are generally more like the average person in the cohort (in terms of prior attainment and demographics), whereas those who pursue A-levels have much higher GCSE results and are less likely to come from a disadvantaged socio-economic background. However, after controlling for prior attainment, secondary school attended and demographics, the type of Level 3 qualification category (whether academic or vocational) does not affect the staying-on decision (up to age 18) and whether a Level 3 qualification is actually achieved. Those who go to university and particularly Russell Group universities, though, are much more likely to have undertaken A-levels at age 17. However, a significant (and growing) number of students are entering university with Level 3 vocational qualifications.

Nearly one-quarter of students undertake educational qualifications of Level 2 or below at the age of 17 (with many others not observed in the data at all or taking an unknown qualification). These students are much more likely to be from disadvantaged family backgrounds than those undertaking higher levels of qualifications and generally do not have the pre-requisites to start their post-compulsory education at a higher level. The vocational qualifications available for students at this level are so manifold and varied that it is difficult to describe them in a general way. Overall, less than half of these students progress to higher levels of education and many work towards qualifications of the same level for more than one year. Whether or not these learners are being well served by the education system needs further investigation, in particular given their disadvantaged profile. Making an informed choice is particularly difficult at this level in the light of the many options with little clarity on their relative merits.

However, those starting out on lower levels of learning are more likely than those pursuing Level 3 qualifications at age 17 to get on to an apprenticeship (particularly after taking

account of their other characteristics). Making more apprenticeships available to these learners is surely welcome. However, in the public discourse, policy makers often discuss apprenticeships as an alternative to going to university. In reality, most of those taking up apprenticeships would not have been able to go to university. These are choices pursued by students with very different academic profiles. If one wants apprenticeships to be a vehicle for social mobility, it is important that opportunities are expanded for precisely those people who have few other options within the education system. It would not necessarily be a desirable outcome for this group to be crowded-out by students who are able and prepared to go to university.

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Figure 1: The Education System in England

	Age	Year	Phase	Curriculum stages	Qualifications	Institutions		Qualifications	Institutions	
Post compulsory	18+	14	Tertiary		Level 4 & above	Higher education institutions	Further education colleges	Classroom-based Entry level - level 3 Vocational, technical education and remedial education	Employer-based Level 2 - Level 6 Apprenticeships and other on-the job education and training	Further education colleges Private education providers Other public providers
	17-18	13	Upper sec	Key Stage 5	Level 3	Sixth form colleges / Schools				
	16-17	12			A/AS levels/Applied Generals/Tech Levels					
Compulsory education*	15-16	11	Lower secondary	Key Stage 4	Level 2** GCSEs	Secondary schools				
	14-15	10		Key Stage 3						
	13-14	9								
	12-13	8								
	11-12	7	Primary	National tests	Primary schools					
	10-11	6					Key Stage 2			
	9-10	5								
	8-9	4								
	7-8	3					Key Stage 1			
	6-7	2								
5-6	1									
4-5	R	Reception	Teacher assessments	Pre-school settings						
0-4		Pre-school								

Notes: * The leaving age in England where individuals must engage in some form of education or training became 17 in 2013 and 18 in 2015.
 ** Level 2 in GCSEs is achieved with grades A*-C

**Table 1: Composition of learners at different ages
(Cohort undertaking GCSE in 2009/10 at age 16).**

	Age 17	Age 18	Age 19	Age 20
	%	%	%	%
<i>Level 3 qualifications</i>				
Above level 3	0	0.04	25.32	35.44
Mainly A-Levels	44.83	38.15	5.99	0.29
Mainly Applied Generals	5.29	9.24	5.59	1.33
Mainly Tech Levels	4.44	7.41	4.77	1.91
Mainly KS/NVQ Level 3	0.04	0.42	0.43	0.19
Mainly other Level 3	3.52	5.07	3.08	1.46
<i>Level 2 qualifications</i>				
Mainly Tech Certificates	1.79	1.85	1.11	0.61
Mainly vocational qualifications at level 2	9.53	6.9	3.99	2.59
Mainly Key/Functional Skills Level 2	0.48	0.34	0.35	0.23
Mainly GCSEs	0.86	0.24	0.24	0.2
<i>Level 1 and entry level</i>				
Below level 2	10.84	5.88	4.64	3.68
<i>Apprenticeships</i>				
Apprenticeship Level 2	5.61	8.14	8.41	7.17
Apprenticeship Level 3	1.26	2.89	5.11	6.04
Apprenticeship Level 4+	0	0.01	0.1	0.23
<i>Unknown qualification</i>	5.48	1.65	0	0
<i>Not observed</i>	6.01	11.77	30.86	38.62
Total	574,967	574,967	574,967	574,967

Note: Columns add up to 100%.

Table 2a: Qualification Categorisation for Learners at Level 3

Category of Activity	Note	Awarding Bodies <i>(share within category)</i>	Five most popular subject areas <i>(and share of qualifications within category of activity)</i>	Examples of popular qualifications <i>(and share within category of activity)</i>	Institution of Study <i>(share within category)</i>
Mainly A-Levels	Can include AS-levels	5 awarding bodies: AQA (46%); OCR (26%), Pearson (20%); WJEC (7%), IB (0.15%)	<i>(Account for 79% of total)</i> Science & Maths (35%) Languages, Literature & Culture (13%) Arts Media and Publishing (12%) Social Sciences (11%) History, Philosophy and Theology (8%)	Qualifications are only the below (in different subjects): GCE AS-level or GCE A-level	Schools/academies: 66% Sixth form colleges: 21% FE colleges: 10% Private FE: 0 Other FE: 3%
Mainly Applied Generals	They provide learning in a vocational area rather than for a single occupation. Aims to facilitate progression to employment or HE	Pearson is the awarding body for 99% of qualifications in this category	<i>(Account for 95% of total)</i> Leisure, Travel and Tourism (26%) Arts, Media and Publishing (22%) Health, Public Services and Care (19%) Business, Administration and Law (17%) Science and Mathematics (9%)	Usually BTEC diplomas. Top 3 are: Extended diploma in Health care and social care (10%) BTEC extended diploma in Sport (9%) BTEC extended diploma in Business (7%)	Schools/academies: 4% Sixth form colleges: 16% FE colleges: 75% Private FE: 0 Other FE: 3.8%
Mainly Tech Levels	Specific technical vocational qualifications; aims to facilitate progression to employment.	Pearson awards 85% of qualifications in this category. City and Guilds awards 10%,	<i>(Account for 90% of total)</i> Arts, Media and Publishing (36%) Engineering & Manufacturing Technologies (19%) Information and Communication Technology (14%) Agriculture, Horticulture and Animal Care (12%) Leisure, Travel and Tourism (7%)	Top 3 are: Extended diploma in Art and Design (15%) Extended diploma in IT (9%) Extended diploma in creative media production (8%)	Schools/academies: 1% Sixth form colleges: 7% FE colleges: 80% Private FE: 1 Other FE: 11%
Mainly Key Skills (or Functional Skills) or NVQs	Recognised vocational qualifications relating to an industry or sector.	Biggest are: EMTA (30%) City and Guilds (28%) Pearson (12%) OCR (7%)	<i>(Account for 90% of total)</i> Engineering and Manufacturing Technologies (39%) Business, Administration and Law (14%) Retail and Commercial Enterprise (14%) Preparation for Life and Work (13%) Construction, Planning & Built Environment (10%)	Top 3 are: NVQ diploma in Business and Administration (11%) Key Skills in improving own learning and performance (9%) NVQ diploma in Hairdressing (8%)	Schools/academies: 19% Sixth form colleges: 25% FE colleges: 45% Private FE: 4% Other FE: 6%
Mainly Other level 3	Not included above	Biggest are: Pearson (31%); City and Guilds of (19%) and OCR (9%).	<i>(Account for 76% of total)</i> Health, Public Services and Care (52%) Science and Mathematics (7%) Leisure, Travel and Tourism (7%) Arts, Media and Publishing (6%) Business, Administration and Law (6%)	Top 3 are: Extended diploma in public services (13%) Diploma in child care and education (10%) BTEC national diploma in children's care, learning and development (6%)	Schools/academies: 4.5% Sixth form colleges: 12% FE colleges: 79% Private FE: 1.2% Other FE: 2.8%

Note: all information based on cohort finishing GCSE in 2009/10 which we observe up to the age of 20.

Table 2b: Qualification Categorisation for Learners at Level 2 and below

Category of Activity	Note	Awarding Bodies <i>(share within category)</i>	Five most popular subject areas <i>(and share of qualifications within category of activity)</i>	Examples of popular qualifications <i>(and share within category of activity)</i>	Institution of Study <i>(share within category)</i>
Tech Certificate	Recognised by DfE in 2016 Performance Tables (must fulfil particular conditions – see text)	Biggest are: City and Guilds (44%); Vocational training charitable (22%) IMI awards (16%) Pearson (8%)	<i>(Account for 96% of total)</i> Retail and Commercial Enterprise (38%) Engineering and Manufacturing Technologies (21%) Health, Public Services and Care (19%) Agriculture, Horticulture and Animal Care (11%) Construction, Planning & Built Environment (6%)	Top 3 are: Diploma in light vehicle maintenance and repair principles (11%) NVQ diploma in hairdressing (10%) Certificate for the children and young people's workforce (7%)	Schools/academies: 0% Sixth form colleges: 1% FE colleges: 83% Private FE: 1% Other FE: 14%
Vocational Level 2	Qualifications at this level but not included in Performance Tables from 2017	Biggest are City and Guilds (24%) Pearson (23%) Education development international (9%) CITB construction skills (6%)	<i>(Account for 68% of total)</i> Health, Public Services and Care (19%) Retail and Commercial Enterprise (17%) Preparation for Life and Work (12%) Leisure, Travel and Tourism (11%) Engineering and Manufacturing Technologies (10%)	Qualifications in this category are especially diffuse. The top 3 are: Diploma in public services (3%) Award in food safety and catering (3%) Diploma in health and social care (3%)	Schools/academies: 0% Sixth form colleges: 8% FE colleges: 86% Private FE: 3% Other FE: 3%
Key/Functional Skills at Level 2	Mainly English and Maths	Biggest are City and Guilds (36%) Pearson (32%) Education development international (10%) OCR (8%)	This is all classified as 'preparation for life and work'	Top 3 are: Functional skills qualification in English (30%) Functional skills qualification in Mathematics (24%) Functional skills qualification in information and communication technology (ICT) (16%)	Schools/academies: 0% Sixth form colleges: 1% FE colleges: 85% Private FE: 10% Other FE: 3%
GCSEs	Small group repeating GCSEs, usually in English or Maths	Biggest are: AQA (56%) Pearson (25%) OCR (7%) WJEC (6%)	<i>(Account for 97% of total)</i> Science and Mathematics (52%) Languages, Literature and Culture (39%) Preparation for Life and Work (2%) Arts, Media and Publishing (2%) Social Sciences (2%)	Top 3 are: GCSE in Mathematics A (15%) GCSE in English (13%) GCSE in Mathematics B (10%)	Schools/academies: 0.1% Sixth form colleges: 24% FE colleges: 65% Private FE: 2% Other FE: 2%
Below Level 2 (Level 1 and Entry levels 1, 2 and 3)		Biggest are: City and Guilds (30%) Pearson (23%) NCFE (7%) Education development international (6%) OCR (6%)	<i>(Account for 93% of total)</i> Preparation for Life and Work (76%) Construction, Planning & Environment (5%) Health, Public Services and Care (5%) Engineering and Manufacturing Technologies (4%) Retail and Commercial Enterprise (4%)	Top 3 are: Functional skills qualification in Mathematics at entry 3 (7%) Functional skills qualification in English at entry 3 (7%) Functional skills qualification in English (5%)	Schools/academies: 0% Sixth form colleges: 1% FE colleges: 79% Private FE: 13% Other FE: 4%

Note: all information based on cohort finishing GCSE in 2009/10 which we observe up to the age of 20.

Table 3: Transition matrix: age 17-18

Main activity at Age 18													
Main Activity at Age 17	Level 3					Level 2			Below level 2	Apprent.	Unknown	Not observed	Total
	A-Levels	Applied Generals	Tech Levels	Other	<i>Total Level 3</i>	Tech Certificates	Vocational qualifications at level 2	<i>Total Level 2</i>					
	%	%	%	%	%	%	%	%	%	%	%	%	N.
Level 3													
Any level 3 qualification	63.3	11.2	9.0	5.7	89.2	0.7	2.5	3.5	1.6	6.6	0.5	3.7	334,207
A-Levels	81.0	5.3	2.9	2.1	91.3	0.6	2.0	2.9	1.5	6.4	0.3	2.9	257,764
Applied Generals	4.1	72.3	5.0	1.2	82.7	0.7	1.8	2.7	1.2	5.9	0.2	6.3	30,438
Tech Levels	2.6	1.9	78.9	0.9	84.3	1.7	7.9	10.9	2.5	9.2	2.5	5.7	25,519
Other	4.3	5.8	4.4	63.9	79.0	0.8	2.7	3.8	2.0	6.9	0.3	7.5	20,247
Level 2													
Any level 2 qualification	2.2	11.7	12.9	9.5	39.1	4.1	18.6	24.5	8.3	13.6	0.6	16.8	72,865
Tech Certificates	0.5	2.1	25.8	9.2	45.8	6.1	10.0	17.0	6.1	10.8	0.3	19.7	10,317
Vocational qualifications at level 2	1.5	14.4	11.9	10.5	40.4	3.3	18.7	23.6	7.9	15.0	0.6	16.7	54,816
Key/Functional Skills Level 2	0.6	1.1	1.7	1.4	4.9	12.3	40.6	58.6	8.8	7.1	0.3	12.4	2,785
GCSEs	14.4	7.8	4.1	3.2	29.6	3.7	23.0	31.3	16.6	7.1	1.2	14.3	4,947
Level 1 and Entry level													
Below level 2	0.4	1.0	0.7	0.7	2.8	8.6	28.1	38.3	29.8	8.6	1.0	19.5	62,342
Apprenticeship													
	1.1	1.3	0.9	0.6	4.0	0.5	2.3	3.1	2.6	79.7	0.2	10.5	39,488
Unknown	11.5	17.4	5.8	7.2	42.1	1.4	6.6	8.7	7.9	7.6	19.5	14.2	31,533
Not observed	4.9	1.9	1.9	1.0	9.8	1.2	5.2	7.1	9.9	8.1	0.5	64.5	34,532

Notes: Cohort undertaking GCSEs at the age of 16 in 2009/10. Rows sum to 100%. Only main subcategories of activity at age 17 are shown.

Table 4: Percentage of learners in learning at level 2 or below conditional on activity at age 17

Main activity at age 17	Number of years in learning at or below Level 2			Number of consecutive years in learning at or below Level 2			Total number
	2	3	4	2	3	4	
<i>Level 3</i>							
Any level 3 qualification	1.2	0.1	0.0	1.1	0.1	0.0	333,985
A-Levels	0.8	0.1	0.0	0.7	0.1	0.0	256,819
Applied Generals	2.7	0.3	0.0	2.4	0.3	0.0	30,956
Tech Levels	2.5	0.3	0.0	2.3	0.3	0.0	25,612
Other	3.2	0.5	0.0	2.8	0.5	0.0	20,330
<i>Level 2</i>							
Any level 2 qualification	29.2	11.2	3.2	23.8	7.3	3.2	72,926
Tech Certificates	25.4	8.0	1.6	18.6	4.7	1.6	10,312
Vocational at level 2	28.6	10.8	3.1	22.9	7.0	3.1	54,801
<i>Level 1 and entry level</i>							
Below level 2	39.5	24.0	12.2	40.6	17.1	12.2	62,428
Apprenticeship	3.3	0.5	0.0	2.9	0.5	0.0	39,315
<i>Unknown</i>	9.2	3.0	0.0	7.9	3.0	0.0	31,552
<i>Not observed</i>	7.7	2.1	0.0	6.5	2.1	0.0	34,761
Total	9.9	4.4	1.7	9.1	3.2	1.7	574,967

Note: percentages are conditional on the activity at age 17. Only the main subcategories of learning activity are shown.

Table 5a: Achievement of intermediate outcomes by age 20

	Staying on at age 18	Achieved Level 3 qualification by age 20	Commence apprenticeship: age 18-20	Commence L3 apprenticeship: age 18-20	Commence University Degree	Studying in a Russell Group university	In a Level 4+ learning activity (not degree) by age 20	Total
Main activity at age 17	%	%	%	%	%	%	%	%
<i>Level 3</i>								
Any level 3 qualification	63.4	79.7	38.8	41.8	93.2	96.4	77.7	58.1
A-Levels	49.3	62.8	25.9	30.0	83.5	94.5	47.7	44.8
Applied Generals	5.6	6.8	5.0	4.4	4.5	0.9	10.4	5.3
Tech Levels	4.7	5.7	4.2	4.3	3.4	0.5	12.8	4.5
Other Level 3	3.7	4.4	3.8	3.2	1.7	0.4	6.8	3.5
<i>Level 2</i>								
Any level 2 qualification	12.0	8.4	14.1	12.0	2.2	0.4	9.1	12.7
Tech Certificates	1.6	1.3	2.1	1.7	0.1	0.0	1.0	1.8
Vocational qualifications at level 2	9.0	6.4	10.7	9.2	1.9	0.3	7.6	9.5
<i>Level 1 and entry level</i>								
Below level 2	9.9	2.6	9.6	5.2	0.2	0.1	1.4	10.9
Apprenticeship	7.0	4.2	27.8	34.2	0.8	0.4	6.1	6.9
Unknown	5.3	4.0	5.0	4.1	2.7	1.5	3.8	5.5
Not observed	2.4	1.1	4.7	2.7	1.0	1.3	1.9	6.0
Total	507,304	386,959	118,187	46,814	192,781	43,395	23,087	574,967

Note: columns add up to 100%. The table shows the proportion of people from each learning category at age 17 that achieve a given outcome. Only main subcategories are shown.

Table 5b: Achievement of outcomes by age 20 conditional on activity at age 17

	Staying on at age 18	Achieved Level 3 qualification by age 20	Commence apprenticeship: age 18-20	Commence L3 apprenticeship: age 18-20	Commence University Degree	Studying in a Russell Group university	In a Level 4+ learning activity (not degree) by age 20	Total
Main activity at age 17	%	%	%	%	%	%	%	No.
<i>Level 3</i>								
Any level 3 qualification	96.3	92.4	13.8	5.9	53.8	12.5	5.4	334,207
A-Levels	97.1	94.3	11.9	5.4	62.5	15.9	4.3	257,764
Applied Generals	93.7	86.2	19.5	6.7	28.7	1.3	7.9	30,438
Tech Levels	94.3	86.3	19.3	7.9	25.8	0.9	11.6	25,519
Other Level 3	92.5	84.5	21.9	7.4	16.3	1.0	7.8	20,247
<i>Level 2</i>								
Any level 2 qualification	83.2	44.5	22.9	7.7	5.8	0.2	2.9	72,865
Tech Certificates	80.3	49.3	24.1	7.8	1.4	0.1	2.2	10,317
Vocational qualifications at level 2	83.3	44.8	23.0	7.8	6.6	0.3	3.2	54,816
<i>Level 1 and entry level</i>								
Below level 2	80.5	15.8	18.2	3.9	0.8	0.0	0.5	62,342
Apprenticeship	89.5	40.9	83.2	40.6	3.7	0.4	3.6	39,488
Unknown	85.8	49.6	18.6	6.1	16.2	2.0	2.8	31,533
Not observed	35.5	12.4	15.9	3.6	5.3	1.7	1.3	34,532
Total	88.2	67.3	20.6	8.1	33.5	7.6	4.0	574,967

Notes: The table shows the probability of the outcome conditional on the activity at age 17. Only the main subcategories of activities are shown.

Table 6: Characteristics of learners by ‘main educational activity’ selected at age 17

	Main Activity at age 17										
	Level 3					Level 2			Level 1 and entry level		
	Total	A-Levels	Applied Generals	Tech Levels	Other Level 3	Total Level 3	Tech Certificates	Vocational qualifications at level 2	Total Level 2	Below level 2	Apprenticeship
	%	%	%	%	%	%	%	%	%	%	
Achieved 5+ GCSE at A*-C incl. English & Maths	55.3	89.8	56.7	57.7	56.2	82.3	16.2	10.9	11.6	5.0	36.3
Has not achieved grade C in both English & Maths	26.8	1.2	10.5	9.6	10.9	3.3	51.6	58.3	57.5	83.0	37.1
Ever eligible for FSM (free school meal)	28.1	15.9	28.7	24.4	26.7	18.4	35.7	40.4	40.2	52.3	29.9
Male	50.9	45.9	48.6	52.9	41.0	46.4	18.3	56.7	51.5	65.5	57.2
White	82.7	80.1	82.2	87.7	89.9	81.5	93.6	82.1	83.1	85.2	91.1
Speaks English as the first language	88.9	87.3	90.1	92.4	93.8	88.3	97.0	88.4	89.0	89.6	96.3
Special Education Needs	24.7	8.9	19.1	20.1	18.3	11.3	34.4	39.2	38.8	60.7	28.2
Total	334,207	257,764	30,438	25,519	20,247	333,985	10,317	54,816	72,926	62,342	39,488

Note: percentages are conditional on the activity at age 17. Only the main subcategories of activity are shown.

Table 7: Characteristics of those achieving outcomes by age 20

	Total	Staying on at age 18	Achieved Level 3 qualification by age 20	Commence apprenticeship: age 18-20	Commence L3 apprenticeship: age 18-20	Commence University Degree	Studying in a Russell Group university	In a Level 4+ learning activity (not degree) by age 20
	%	%	%	%	%	%	%	%
Achieved 5+ GCSE at A*-C incl. English & Maths	55.3	59.5	73.2	45.6	56.9	89.1	98.5	68
Has not achieved grade C in both English & Maths	26.8	23	10.3	30	19.8	2.4	0.2	10.6
Ever eligible for FSM (free school meal)	28.1	26.4	20.6	27.7	21.3	16.8	8.9	21.4
Male	50.9	50.2	47.3	54.9	56.5	44.7	46.1	52.3
White	82.7	81.9	80.6	90.1	90.8	75.3	80.2	82.5
Speaks English as the first language	88.9	88.4	87.5	95.2	95.5	83.7	87.7	88.8
Special Education Needs	24.7	22.6	14.7	24.8	18.8	9.5	5.1	17.4
Total	574,967	507,304	386,959	118,187	46,814	192,781	43,395	23,087

Note: Percentages represent the share of individuals having a particular characteristic within the group of those having achieved the particular outcome.

Table 8: Regressions: Heterogeneity within Level 2 Vocational Qualifications

Main activity at age 17	Staying on at age 18		Achieved Level 3 qualification by age 20		In an apprenticeship at age 18-20		Level 3+ apprenticeship at age 18-20		Commence bachelor's degree by age 20		In a Level 4+ learning activity (not bachelor's degree) by age 20	
<i>Level 2</i>												
Tech Cert	0.001	0.009	0.282*	0.284*	0.037*	0.040*	0.025*	0.028*	-0.026*	-0.025*	0.017*	0.016*
Vocational L2	0.025*	0.058*	0.239*	0.192*	0.030*	0.065*	0.026*	0.044*	0.020*	0.001	0.025*	0.05*
Vocational L2 x major awarding body		-0.039*		0.061*		-0.044*		-0.023*		0.025*		0.013*
Major Awarding body		0.049*		0.012*		0.016*		-0.007*		0.006+		-0.002
Observations	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143
R-squared	0.224	0.225	0.483	0.483	0.212	0.212	0.126	0.126	0.386	0.386	0.029	0.029
<i>Level 2</i>												
Tech Cert	-0.001	-0.001	0.282*	0.281*	0.037*	0.037*	0.025*	0.025*	-0.026*	-0.029*	0.017*	0.017*
Vocational L2	0.025*	0.026*	0.239*	0.238*	0.030*	0.027*	0.026*	0.025*	0.020*	0.022*	0.025*	0.025*
Vocational L2 x STEM		-0.009		0.001		0.065*		0.031*		-0.090*		0.002
STEM		0.010*		0.025*		-0.016*		0.018*		0.091*		-0.002^
Observations	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143	550143
R-squared	0.224	0.224	0.483	0.483	0.212	0.212	0.126	0.127	0.386	0.391	0.029	0.029

Note: Significance levels: * p<0.001, + p<0.01, ^ p<0.05 (standard errors not shown for readability reasons). Standard errors are clustered at the KS4 school level. All regressions include the full set of controls we used in the main regression. See notes to Appendix 3.

Association of main activities with later outcome (with and without other controls)

Note: The comparison group is students who were in a 'below level 2' activity at age 17.

Fig. 2. Staying on in education up to age 18

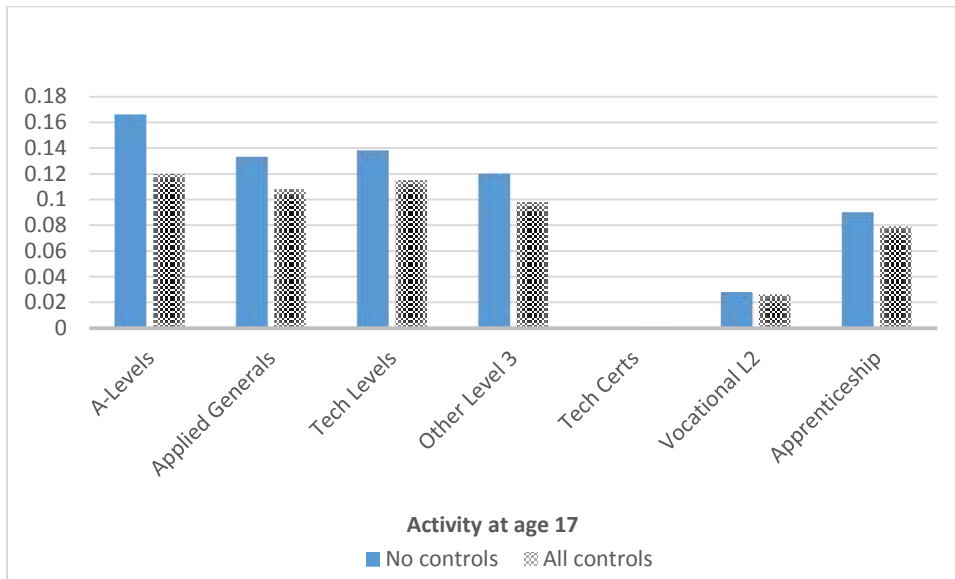


Fig. 3. Achieving a Level 3 qualification by age 20

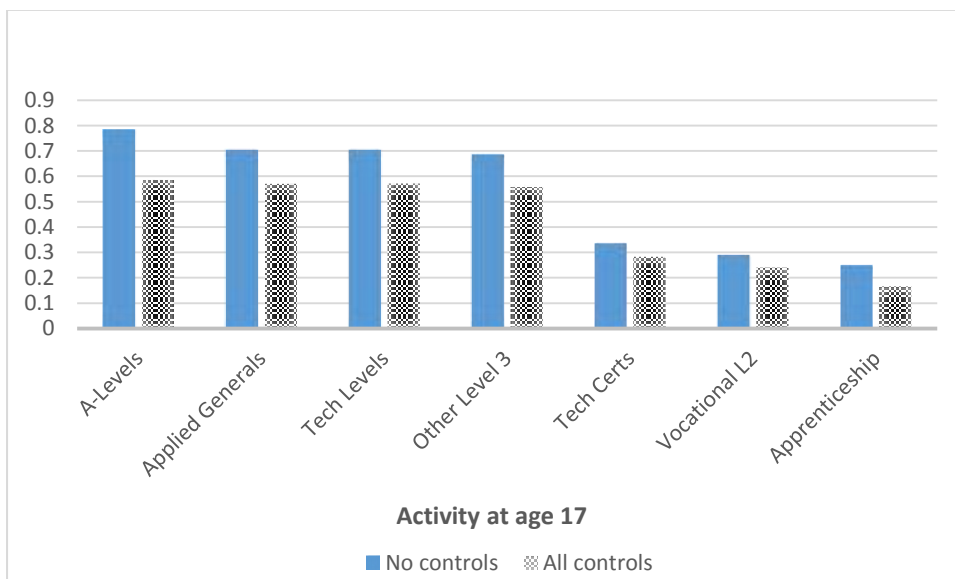


Fig 4. Commences university degree by age 20

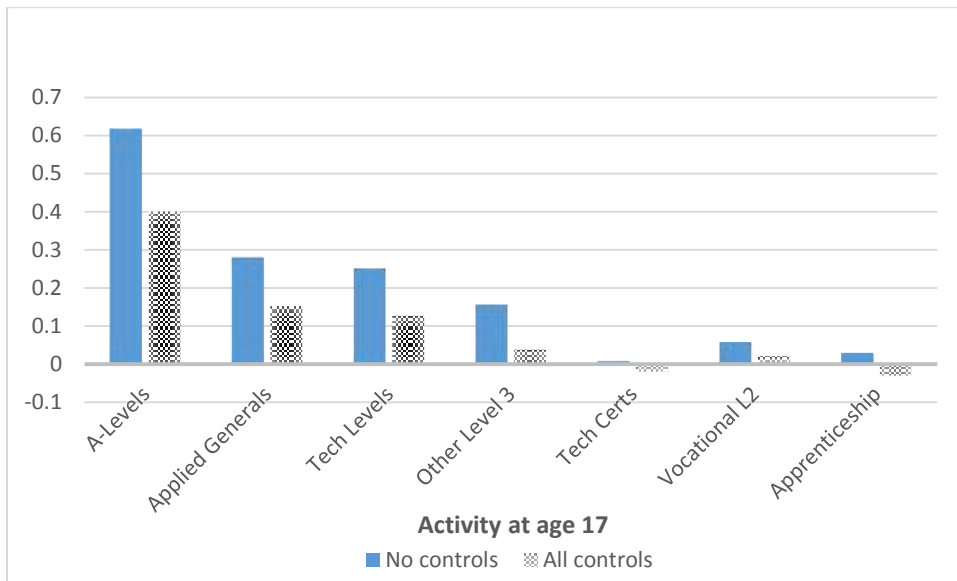


Fig 5. Commences another level 4 activity by age 20 (not university degree)

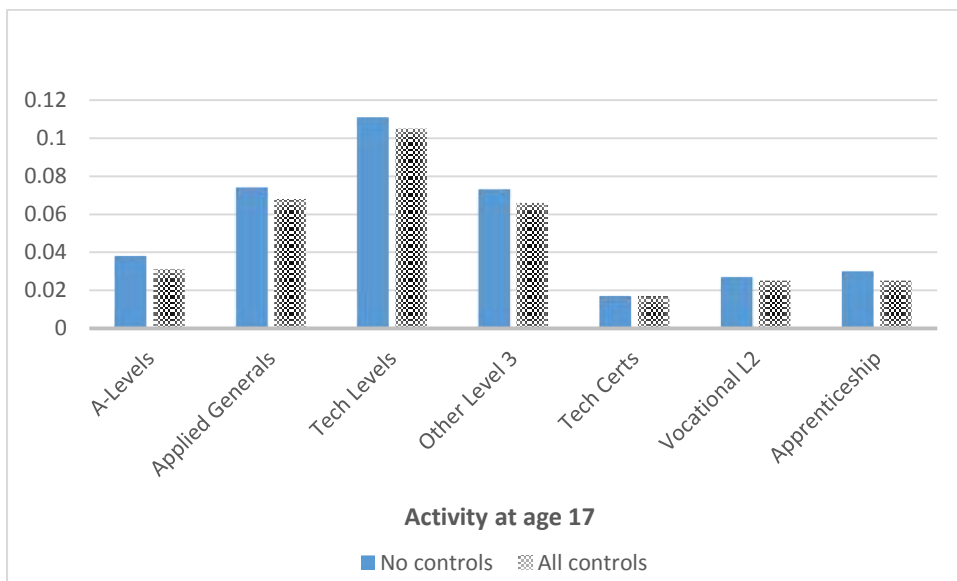


Fig 6: Commences an Apprenticeship between age 18 and 20

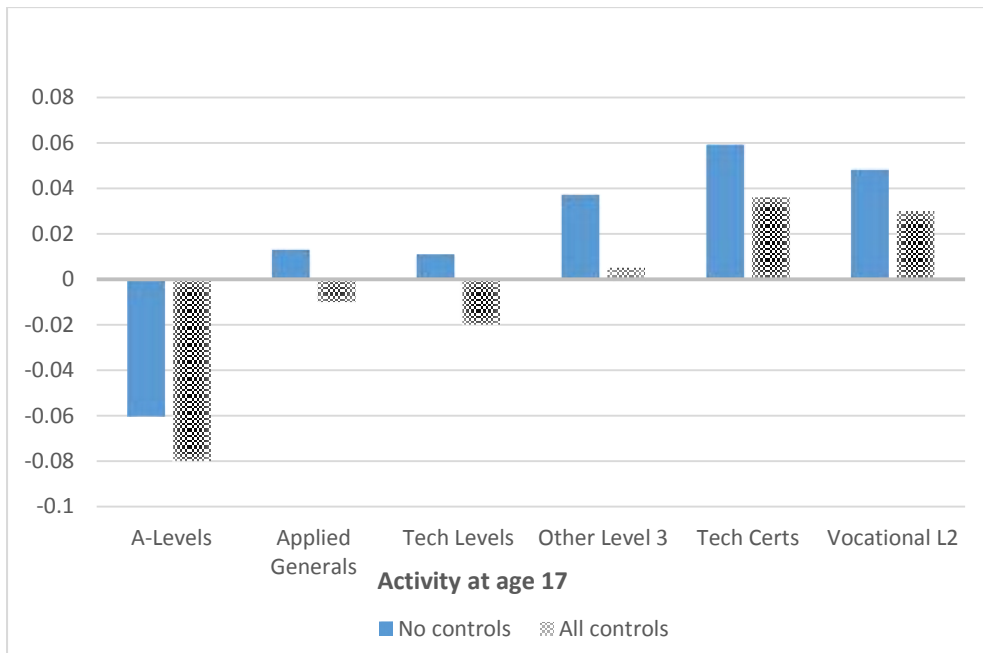
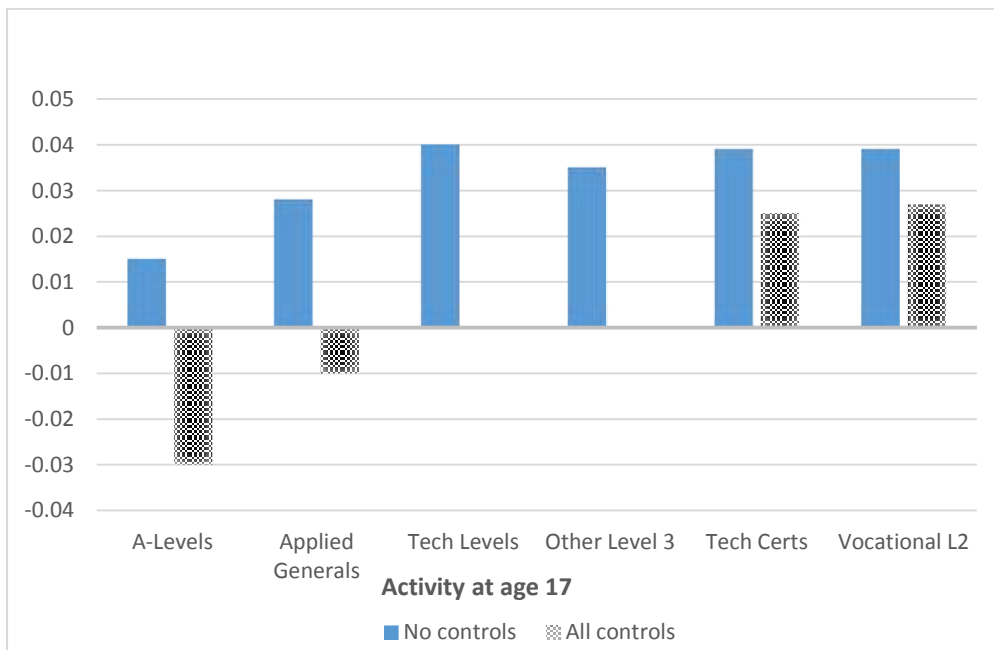


Fig 7: Commences a Level 3 Apprenticeship between age 18 and 20



Appendix

Appendix 1: Construction of full education cohort

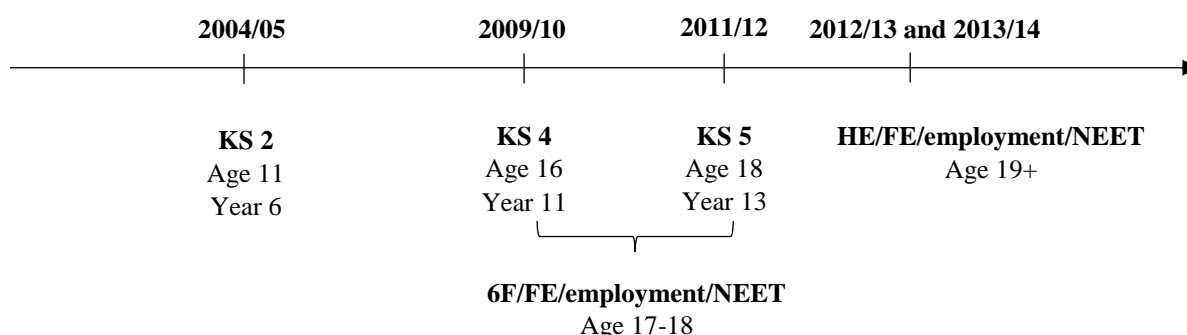
NPD-ILR-HESA based analysis

To study student's educational trajectories we have linked National Pupil Database (NPD) data with Individualised Learner Records (ILR), which provides information on students enrolled in further education but not necessarily in schools, and Higher Education Statistics Agency (HESA) data, which provides information on individuals enrolled at a British Higher Education Institution (HEI). The analysis to date focuses on data for the cohort of students aged 15 at the beginning of the 2009/10 academic year, creating a five-year panel for ages 16 to 20 for this group. We will be extending the analysis to include older cohorts of learners.

This exercise provides us with a relatively complete picture of everyone attending formal, state-funded further education or higher education in England beginning with Key Stage 4 (KS4) results at age 16 until the age of 20.

Figure A.1 below illustrates the timeline of potential education stages at which we are able to track the cohort under analysis.

Figure A.1: Description of Cohort of Learners completing KS4 in 2010



Note: HE: Higher education, FE: Further education, NEET: Not in employment, education or training, 6F: Sixth Form.

Table A.1 provides an overview of the result of the data merging exercise. Almost all students of the 2009/10 KS4 cohort can be matched to their Key Stage 2 outcomes (96%). We find ILR records for an average of 39% of individuals, with coverage being particularly high at age 17 and 18 with 60% and 58%, respectively. Key stage 5 data on AS and A levels is found for 45% of the 17 year-olds and 53% of the 18 year olds. HESA data on higher education participation is found for 24% of 19 year olds.

Table A.1: Result of merging of 2009/10 KS4 cohort

Age	N	KS2 Merged		ILR Merged		KS5 merged		HESA merged	
16	575,057	550,817	96%	48,985	9%	0	0%	10	0%
17	575,057	550,817	96%	339,990	60%	260,069	45%	10	0%
18	575,057	550,817	96%	336,359	58%	305,761	53%	30	0%
19	575,057	550,817	96%	232,687	40%	91,726	16%	139,615	24%
20	575,057	550,817	96%	156,680	27%	7	0%	196,632	34%
Total	2,875,285	2,754,085	96%	1,114,701	39%	657,473	23%	336,297	12%

Appendix 2: Derivation of a classification of learning undertaken by pupils

In order to derive the classification used throughout this report we proceeded in the following way.

In our linked NPD-ILR-HESA data each student has as many entries as learning aims recorded in ILR and KS5 data. Each entry uniquely identifies the qualification that the pupil has studied with information on the name, the level, the awarding body, etc. This information is used to derive indicators for the specific type of qualifications undertaken as well as for their level. For instance, all A-level learning aims were assigned an indicator variable identifying them as an A-Level. This simple procedure was also used for AS-level qualifications, GCSEs, Key Skills and Functional Skills.

Learning aim titles, however, do not contain information on whether classifications are recognised under the Applied Generals, Tech Levels and Tech Certificates categories, which we use in our final categorisation. Hence, we used the official DfE list of these qualifications (Department for Education, 2015b, 2015c, 2015d) to assign the appropriate category for the specific learning aim.

Once we derived these qualifications indicators, a maximum level of learning is assigned to each pupil by taking the highest level among the qualifications the student is undertaking in a given academic year. Then, we follow different approaches to classify people depending on their highest assigned level of activity.

Activity above Level 3

Students doing at least one qualification at Level 4 or above are classified as “Above Level 3”. This includes Certificates of Higher Education, Diplomas of Higher Education and Bachelor Degrees.

Activity at Level 3

For those students which have at least one qualification at level 3 the following steps are followed:

For each student we compute the weighted sum of the number of qualifications that fall in each of the Level 3 groups:

- A-Levels
- Applied Generals
- Tech Levels
- Key Skills/NVQs at Level 3

as marked by the qualification’s indicator. All qualifications that don’t fall into any of these groups are grouped as “Other Level 3”. To do so, we weight each level 3 qualification in terms of its equivalency to an A-level, equal to 360 guided learning hours (glh). When the KS5 A level size variable is not available (for learning aims in the ILR only), we use the guided learning hours from the LARA/LARS database and divide it by 360 to get the A level size measure. When neither the KS 5 A-level size variable nor the guided learning hours are available, we impute the size of the qualification by assigning the typical size of the particular

type of qualification. For instance, for an A-level we assign a weight of 1, for an NVQ, which typically has 260 glh we assign a size of 0.72 (i.e. 260/360), and for Key Skills we assign a size of 0.125 (i.e. 45 glh/360 glh). Further examples include:

- Certificate – 180 GLH – AS size
- Extended certificate – 360 GLH – A level size
- Foundation Diploma – 540 GLH – 1.5 A level size
- Diploma – 720 GLH – 2 A level size
- Extended Diploma – 1080 GLH – 3 A level size

Successively, the relative shares of each of these types of qualifications are computed by dividing the weighted number of qualifications for each group by the total sum of weighted qualifications at Level 3 undertaken by the student. Finally, depending on the predominant share, students are classified into five groups of “Mainly A-Levels”, “Mainly Applied Generals”, “Mainly Tech Levels”, “Mainly KS/NVQ” and “Mainly Other Level 3”. Notice that in case of equal shares, we assign the student to an educational activity group according to the above hierarchy. While this hierarchy is based on subjective judgement, it corresponds largely to the hierarchy borne out by our analysis of successful transitions.

Activity at Level 2

For those students whose highest qualification is at level 2 we follow a similar strategy as for students who have level 3 as their highest level of qualification. Again, we compute the weighted sum of qualifications falling into each of the following categories:

- Tech certificates: This is a specific list of Level 2 qualifications that according to the new 2016 DfE performance table’s guidelines should ensure progress to Tech Levels at level 3. As we said above, the indicator for these qualifications is imported from the DfE list.
- Vocational qualifications at Level 2: This includes a large set of Level 2 qualifications ranging from BTECs to NVQs that for sake of simplicity we group together. In order to derive this category we created the following qualification’s indicators using string matching: BTEC at level 2, NVQ at level 2, Award, Certificate and Diploma at level 2 and ‘other vocational at level 2’. Individuals flagged with any of these indicators are successively classified together in this group.
- Key/Functional Skills Level 2: While many students undertake these qualifications, they are mostly studied complementarily to other qualifications and they rarely constitute the main activity. Therefore, only few students are assigned to this group.
- GCSEs: This category includes individuals that at Level 2 are mainly studying towards GCSEs. Note that for this cohort it was not compulsory to retake GCSEs if level 2 was not achieved.

The weights are constructed by dividing the guided learning hours of each classification (taken from LARA/LARS) by 120 glh, which is the typical size of a GCSE qualification. We then compute the share of each category in the total weighted sum of level 2 qualifications and assign the individual to the category where the highest share of learning aims falls into.

Again in case of equal shares, students are assigned to the different groups according to the hierarchy above.

Activity Below Level 2

All pupils who are only taking qualifications below Level 2 are classified as “Below Level 2”.

Apprenticeship

Sometimes learning aims are delivered as part of an apprenticeship programme. This is notably the case for many work-based qualifications like NVQs (at either Level 2 or 3 and above). Since apprenticeships are perceived and structured as a different type of educational undertaking we categorise them in a separate group of activity. Therefore, all those individuals who are engaged in at least one learning activity as part of an apprenticeship programme are assigned to the “Apprenticeship” category. Notice that this category encompasses apprenticeships at different levels.

Finally we have two residual groups for those students which are either not observed at all in a single year in any of the datasets or are observed in school (they are present in the school census for a given year) but for whom no information are reported as for their precise learning activities. The latter group is thus classified as “Unknown” whereas the former is classified as “Not observed”.

Appendix 3: Regression of outcomes on activity at age 17

	Staying on till age 18	Achieved at least one Level 3 qualification by age 20	Started an apprenticeship between 18-20	Started a Level 3 or above apprenticeship between 18-20	Commences Bachelor's Degree	Studies a vocational qualification at Level 4 or above						
Main activity at age 17												
Level 3												
A-Levels	0.166* (0.002)	0.120* (0.002)	0.785* (0.002)	0.586* (0.003)	-0.064* (0.002)	-0.085* (0.003)	0.015* (0.001)	-0.039* (0.002)	0.617* (0.003)	0.401* (0.003)	0.038* (0.001)	0.031* (0.001)
Applied Generals	0.133* (0.002)	0.108* (0.003)	0.704* (0.003)	0.570* (0.003)	0.013* (0.003)	-0.017* (0.003)	0.028* (0.002)	-0.012* (0.002)	0.280* (0.003)	0.152* (0.003)	0.074* (0.002)	0.068* (0.002)
Tech Levels	0.138* (0.002)	0.115* (0.002)	0.704* (0.003)	0.572* (0.003)	0.011* (0.003)	-0.022* (0.003)	0.040* (0.002)	-0.003 (0.002)	0.251* (0.003)	0.127* (0.003)	0.111* (0.002)	0.105* (0.002)
Other Level 3	0.120* (0.003)	0.098* (0.003)	0.687* (0.003)	0.558* (0.004)	0.037* (0.003)	0.005 (0.004)	0.035* (0.002)	-0.006+ (0.002)	0.156* (0.003)	0.038* (0.003)	0.073* (0.002)	0.066* (0.002)
Level 2												
Tech Certs	-0.002 (0.004)	0.001 (0.004)	0.335* (0.006)	0.282* (0.006)	0.059* (0.005)	0.036* (0.005)	0.039* (0.003)	0.025* (0.003)	0.007* (0.001)	-0.026* (0.002)	0.017* (0.001)	0.017* (0.002)
Vocational L2	0.028* (0.002)	0.026* (0.002)	0.290* (0.003)	0.240* (0.003)	0.048* (0.003)	0.030* (0.003)	0.039* (0.001)	0.027* (0.002)	0.058* (0.002)	0.020* (0.002)	0.027* (0.001)	0.025* (0.001)
Apprenticeship	0.090* (0.002)	0.079* (0.003)	0.250* (0.004)	0.165* (0.003)	0.650* (0.003)	0.605* (0.003)	0.367* (0.003)	0.331* (0.003)	0.029* (0.001)	-0.039* (0.002)	0.030* (0.001)	0.025* (0.001)
Observations	574060	550143	574060	550143	574060	550143	574060	550143	574060	550143	574060	550143
R-squared	0.207	0.224	0.442	0.483	0.188	0.212	0.106	0.126	0.327	0.386	0.015	0.029
Controlling for:												
Demographics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Prior attainment (KS2 and KS4)	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
KS4 school fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Note: Significance levels: * p<0.001, + p<0.01. Standard errors are clustered at the KS4 school level. Notice that only the coefficients for the main subcategories of educational activity are reported. Controls for student demographics are: gender, whether of white ethnicity, whether eligible for FSM, whether SEN. Controls for prior attainment include dummies for whether or not achieved Level 4 in English at KS2, whether or not achieved Level 4 in Maths at KS2, whether or not achieved 5+ GCSEs at A*-C including English and Maths at KS4.