

POST-COMPULSORY EDUCATION IN ENGLAND: CHOICES AND IMPLICATIONS

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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, which partly has to do with the complexity of the vocational education system and the difficulty of deciphering available data. 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 left compulsory education after having undertaken the national examination – the General Certificate of Secondary Education (GCSE) – at age 16 in the year 2009/10. We track them up to the age of 21, as they progress through the education system and (for some) into the labour market. We categorise the many different types of post-16 qualifications into several broad categories and we look at the probability of achieving various educational and early labour market outcomes, conditional on the path chosen at age 17. We also take into account the influence of demographics, prior attainment and the secondary school attended. Our findings illustrate the strong inequality apparently generated by routes chosen at age 17, even whilst controlling for prior attainment and schooling up to that point

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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. In recent times, much policy focus has centred on apprenticeships. However, only just over one-fifth of the cohort considered here are on an apprenticeship at some point between the ages of 16 and 20, and are rarely taken up immediately after leaving school. 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 leaving school. For those undertaking A-levels, the route is relatively well-known. However, for the majority of students who do not undertake A-levels (over 50 per cent), the available options are more diverse and it is not as easy to understand where they lead to.

This paper is an attempt to use detailed administrative data on publicly-funded education to demystify a complex system and to understand progression for a recent cohort of young people from the age of 16 (when they completed their compulsory education and undertook the General Certificate of Secondary Education (GCSE) examinations) to the age of 20 (and a little longer for those who enter the labour market). We categorise the many different types of post-16 qualifications they take into several broad categories

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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. We link the education data to administrative data on employment and earnings for the subsample who enter the labour market shortly after that time (over half the cohort are still in education in 2015, the last year of our data). 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 educational 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 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').

Although staying on in some form of education or training up to age 18 has been mandatory from 2015,¹ 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 some form of 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. 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, McIntosh and Morris, 2016). 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, with available studies showing conflicting findings depending on the control group chosen and the data source used (e.g. Dearden *et al.*, 2004; Bibby *et al.*, 2014, 2015; Conlon and Patrignani, 2011, 2013).

Our primary interest in this paper, however, is the extent of association between the main category of qualification undertaken at age 17 and these later outcomes. Of course, the relationship between the choice of educational

pathway at age 17 and the various outcomes might be mediated by other individual characteristics (most notably prior achievement). We therefore consider the association between these choices and outcomes after taking account of observable characteristics of individuals (i.e. prior attainment, demographics and 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.² With regard to labour market outcomes, we need to be even more cautious with the interpretation because only about half of the cohort have left education in time to observe them in the latest year of information on employment and earnings (2015).

We find that the main categories of upper secondary Level 3 qualifications are very similar with respect to the probability of achieving a Level 3 qualification by the age of 20 (conditional on other individual characteristics). However, our findings are more troubling in relation to lower levels of learning. For those pursuing a Level 2 qualification at age 17 and nothing higher, there is no clear trajectory to high subsequent levels of learning. Most people do not progress any higher up the education qualification ladder. An important question for future research is 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 (e.g. as shown by Belfield *et al.*, 2017).

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 on offer for young school leavers (aged 17–20) 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. However, 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. In the public debate, university and apprenticeships are sometimes suggested as alternatives of equal value. In reality, however, they are often alternatives pursued by people with very different academic profiles.

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 outcomes in relation to pathways chosen at age 17. In Section 5, we relate outcomes to pathways, conditional on students' prior attainment and other characteristics. We conclude in Section 6.

2. Post-compulsory education in England

In England, compulsory education starts the September after children turn 5 and progresses according to four 'Key Stages' until the age of 16, when students undertake high stakes national examinations (i.e. GCSEs). Up until this point, education is fairly homogenous in terms of the curriculum and exams. But after age 16, there are many different possibilities with regard to subject and institution of study (see figure 1). For a student who has done well at GCSEs (as defined by obtaining 5 or more GCSEs at A*-C including English and Maths), it will be relatively easy to progress to upper secondary education at Key Stage 5 to study Level 3 qualifications. The best-known educational qualifications at this stage are A-levels, academic qualifications that are typically taken in three subjects over two years and are the traditional prerequisites for university entrance. They are more often undertaken in schools or sixth form colleges (specialising in 16-18 education) than further education colleges. The

latter institutions provide most vocational and remedial education for young people (as well as for adults).

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 in principle undertake any of 3,729 qualifications (of course students' choices will be limited by what's available locally).³ 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. 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 relating to size (i.e. 150 guided learning hours or more), assessment and recognition by employers/universities (see Department for Education, 2015a). There is a similar category at Level 2 (Tech Certificates). Only qualifications that can be grouped into these categories can be included in Performance Tables of institutions (from 2017 onwards).

Qualifications that are categorised as either Applied Generals or Tech Levels are usually larger qualifications containing several modules or subjects. UCAS (2016)

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	Classroom-based Entry level - level 3	Employer-based Level 2 - Level 6	Further education colleges Private education providers Other public providers		
		17-18	13	Upper sec	Key Stage 5	Level 3 A/AS levels/Applied Generals/Tech Levels	Sixth form colleges / Schools				Vocational, technical education and remedial education	Apprenticeships and other on-the job education and training
		16-17	12									
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	Key Stage 2	National tests	Primary schools					
		10-11	6									
		9-10	5									
		8-9	4		Key Stage 1					Teacher assessments		
		7-8	3									
		6-7	2									
	5-6	1	Reception		Pre-school settings							
	4-5	R										
	0-4		Pre-school									

Notes: *The leaving age in England when individuals must engage in some form of education or training became 17 in 2014 and 18 in 2015. **Level 2 in GCSEs is achieved with grades A*-C.

describes these pathways, which are increasingly being pursued alongside A-levels or on their own.⁴ 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 providers 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, 2015b).

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 below that (at 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. 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 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 for entering an apprenticeship. Our data show that it is more common to enrol on an apprenticeship programme from age 18 onwards.

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 and the educational (and to some extent labour market) choices they make thereafter. We follow students who undertook their GCSE examinations in the year 2009/10 and follow them up to the age of 20 (documenting if they left the

education system) and slightly older if they enter the labour market after the age of 21 (i.e. the year 2014/15). Further details about how data were constructed and the analysis is provided in Hupkau *et al.* (2016).

The linked administrative data sets come from the National Pupil Database, linked to the Individual Learner Record (ILR) and Higher Education Statistics Agency (HESA) data. We also link this to HMRC data on employment and earnings from the Longitudinal Educational Outcomes data set (LEO). We consider employment and earnings in the tax year 2015, conditional on having completed education at age 21.

Classification of education engagement

We use the new categorisations described above (Applied Generals and Tech Levels at Level 3 and Tech Certificates at Level 2) to categorise qualifications where possible. 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 (see Hupkau *et al.*, 2016 for further details).

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 %
Above level 3	0.00	0.04	25.32	35.44
<i>Level 3 qualifications</i>				
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 Key Skills/ 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	6.90	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	0.20
<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	0.01	0.10	0.23
<i>Unknown qualification Not observed</i>	5.48 6.01	1.65 11.77	0.00 30.86	0.00 38.62
Total	574,967	574,967	574,967	574,967

Note: Columns add up to 100%.

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 at age 17 (which for our cohort can be between Entry Level, the level of a primary school leaver, and Level 3) and then to the category in which they spend most of their educational time based on the guided learning hours associated with each qualification.

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 ages 17 and 18, accounting for about 45 per cent of the cohort at age 17 and 38 per cent of the cohort at age 18. Applied Generals and Tech Levels attract about 5 per cent and 4 per cent of the cohort respectively at the age of 17 – but this increases to 9 per cent and 7 per cent, respectively, by the age of 18. Together with the two small residual Level 3 categories (other Level 3 and Key Skills/NVQs), about 60 per cent of the cohort is observed on a Level 3 programme at age 18. Students at Level 2 comprise about 13 per cent of the cohort at age 17 and 9 per cent at age 18. Tech certificates only represent a small share of learners for this cohort. 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 per cent of the cohort at age 17 and 6 per cent at age 18. The number of students starting on an apprenticeship is about 7 per cent of the cohort at age 17. This increases to over 10 per cent in every subsequent year.⁵ The highest share is intermediate – or Level 2 – apprenticeships, although the share of advanced – or Level 3 – apprenticeships increases as the cohort ages. By the age of 20, 35 per cent of the cohort has commenced some form of Level 4 or above course of study and this

Table 2. Characteristics of learners by ‘main educational activity’ selected at age 17

	Level 3					Level 2			Level 1 & Entry Level	Apprenticeship		
	Total	A-Levels	Applied Generals	Tech Levels	Other Level 3	Total Level 3	Tech Certificates	Vocational quals. at Level 2	Total Level 2	Below Level 2	Level 2	Level 3
	%	%	%	%	%	%	%	%	%	%	%	
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	31.2	58.8
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	41.6	17.1
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	31.6	22.2
Male	50.9	45.9	48.6	52.9	41.0	46.4	18.3	56.7	51.5	65.5	52.8	76.7
White	82.7	80.1	82.2	87.7	89.9	81.5	93.6	82.1	83.1	85.2	92.0	87.3
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	96.7	94.6
Special Education Needs	24.7	8.9	19.1	20.1	18.3	11.3	34.4	39.2	38.8	60.7	30.3	18.7
Total	574,967	257,764	30,438	25,519	20,247	333,985	10,317	54,816	72,926	62,342	32,232	7,258

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

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

In table 2, we show characteristics of learners according to their main activity at age 17 (omitting categories that account for very few students, namely those whose primary classification is 'Key Skills/National Vocational Qualification (KS/NVQ) Level 3, 'Key/Functional Skills Level 2, and 'GCSEs'; we also omit students who have an unknown qualification 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. ever eligible for free school meals (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 ever being eligible for FSM. However, a significant minority of people in these categories do not have a C in both English and Maths (around 10 per cent), although this compares favourably to the average in the population, which is 27 per cent.

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. Those commencing a Level 2 apprenticeship at age 17 are lower achieving than the average person in terms of GCSE results but higher achieving than those students undertaking Level 2 qualifications as a main activity. Those commencing a Level 3 apprenticeship at age 17 are quite similar to the average in the population in terms of achieving five or more good GCSEs, though they are less likely to have obtained a grade C in English and Maths. In the latter respect, they are also lower achieving than those who start out on Tech levels at age 17. Those starting an Apprenticeship at age 17 are more likely to be male (though only markedly at Level 3), and more likely to be white and to speak English as a first language. Those commencing an Apprenticeship at Level 2 are a little more likely to have at some point been eligible to receive free schools meals than the average person but the opposite is true of those commencing a Level 3 Apprenticeship at age 17.

4. Outcomes

Educational outcomes

Starting first with the composition of individuals achieving each outcome (table 3a), those starting out on

any 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 per cent. 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 per cent of those achieving a Level 3 qualification by the age of 20, 83.5 per cent of those commencing a bachelor's degree by the age of 20, almost all those observed in a Russell Group university (94.5 per cent) and 48 per cent 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 per cent of those starting any type of apprenticeship between the ages of 18 and 20 and about 30 per cent 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 per cent and 10 per cent, 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 ages of 18 and 20 (at 11 per cent and 10 per cent respectively). A high share of those on apprenticeships between ages 18 and 20 were already on an apprenticeship at age 17 (i.e. 28 per cent for any apprenticeship and 34 per cent for a Level 3 apprenticeship).

In table 3b, 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 per cent stayed on in education up to age 18; 44 per cent achieved a Level 3 qualification by age 20; 23 per cent commenced an apprenticeship (with 7.7 per cent on a Level 3 apprenticeship), 5.8 per cent went to university and 3 per cent 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

Table 3a. Achievement of intermediate outcomes by age 20

Main activity at age 17	Staying on at age 18	Achieved Level 3 qual. 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
	%	%	%	%	%	%	%	%
Level 3								
<i>Any Level 3 qualification</i>	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
Level 2								
<i>Any Level 2 qualification</i>	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
Level 1 and Entry Level								
Below Level 2	9.9	2.6	9.6	5.2	0.2	0.1	1.4	10.9
Apprenticeship								
Apprenticeship Level 2	5.7	2.6	22.6	21.9	0.5	0.2	2.7	5.6
Apprenticeship Level 3	1.3	1.6	5.2	12.3	0.3	0.2	3.4	1.3
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 3b. Achievement of outcomes by age 20 conditional on activity at age 17

Main activity at age 17	Staying on at age 18	Achieved Level 3 qual. 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
	%	%	%	%	%	%	%	No.
Level 3								
<i>Any Level 3 qualification</i>	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
Level 2								
<i>Any Level 2 qualification</i>	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
Level 1 and Entry Level								
Below Level 2	80.5	15.8	18.2	3.9	0.8	0.0	0.5	62,342
Apprenticeship								
Apprenticeship Level 2	89.5	40.9	83.2	40.6	3.7	0.4	3.6	39,488
Apprenticeship Level 3	89.4	31.1	82.9	31.8	2.7	0.3	1.9	32,232
Apprenticeship Level 3	89.7	83.8	84.6	79.4	7.9	0.9	10.9	7,258
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

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

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 on to commence a bachelor's degree is 29 per cent and 26 per cent respectively. A further 8 per cent and 12 per cent pursue non-bachelor Level 4 and above courses of study by the age of 20.

Two striking aspects of table 3b 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 per cent and 45 per cent 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 ages 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, these data show 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.

Early labour market outcomes

In table 4, we show the percentage of males and females who have left education by the age of 21, conditional on their main educational activity at age 17. We separate men and women for analysis of labour market outcomes because of the possibility that fertility decisions will impact on them differently and because of very different earnings conditional on some educational choices (e.g. table 4 shows that median earnings for women with below Level 2 qualifications is £5,810 whereas it is £8,284 for men).

Table 4. Labour market outcomes in 2015 conditional on activity at age 17 (outcomes conditional on not being in education)

Main activity at age 17	Males			Females		
	Not in education at age 21 %	Employed at least one day %	Annual gross earnings (median)	Not in education at age 21 %	Employed at least one day %	Annual gross earnings (median)
Level 3						
<i>Any Level 3 qualification</i>	33	92	11,598	30	92	11,326
A-Levels	26	92	11,888	23	93	11,805
Applied Generals	52	92	10,564	48	92	10,329
Tech Levels	52	91	11,127	53	91	10,264
Other Level 3	58	93	12,031	59	92	11,178
Level 2						
<i>Any Level 2 qualification</i>	65	90	9,840	68	87	8,718
Tech Certificates	74	88	10,657	74	87	9,251
Vocational qualifications at Level 2	64	90	9,884	66	87	8,690
Level 1 and Entry Level						
Below Level 2	71	87	8,284	70	80	5,810
Apprenticeship						
Apprenticeship Level 2	67	87	13,904	67	85	10,767
Apprenticeship Level 3	69	87	13,285	67	85	10,613
Apprenticeship Level 3	61	90	16,283	64	88	12,377
Unknown	58	90	9,866	56	89	8,862
Not observed	75	84	10,044	71	80	7,613
Total	49	89	10,738	42	88	9,910

Note: The percentages on labour market outcomes are derived only from those who can be matched between the education data sets and the labour market data sets. This is 86 per cent of the overall cohort (493,687 students).

For the cohort as a whole, women are more likely to be in education at age 21 than men (i.e. 58 per cent of them compared to 51 per cent of men). For both men and women, the probability of being in education is strongly correlated with the pathway undertaken at age 17. Those who started out studying for A-levels are very likely still to be in education. About 40–50 per cent of those who started out on some other Level 3 qualification at age 17 are still in education at age 21. However, for those who started out at a Level 2 qualification or below, at least two-thirds are in the labour market by the age of 21. This is also true of those who started out on an apprenticeship at this age.

The table also shows the percentage of men and women who are employed for at least one day in 2015 (conditional on having left education at age 21 and being observed in the administrative data for employment/wages/benefits). There is a relationship with the educational pathway at age 17. The probabilities of being at least employed for a day are (for both men and women) over 90 per cent for all Level 3 categories and 87–90 per cent for Level 2 categories. For lower qualifications (Level 1 and entry level), they are 87 per cent for men and 80 per cent for women.

For those in the labour market in the tax year 2015, the relationship between educational pathway and earnings is also evident, though more so for women than for men, where median earnings is considerably lower for those pursuing below level 2 qualifications at age 17. Those who started an apprenticeship at age 17 earn well above median earnings for the cohort in 2015 for men. Female apprentices also have higher median earnings than many others in the labour market at this age, being of a similar magnitude to those who pursued level 3 pathways at age 17 (and higher for people who started on a Level 3 apprenticeship at this age).

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. Key Stage 2 and Key Stage 4 results), demographics (ever been 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 (and post-16 institutions) that may bias the observed correlation between activity at age 17 and outcomes.

More specifically, we estimate an OLS regression as follows:

$$Y_i = \beta_0 + \beta_1 \text{QUAL}_i + \beta_2 X_i + \alpha_s + \varepsilon_i$$

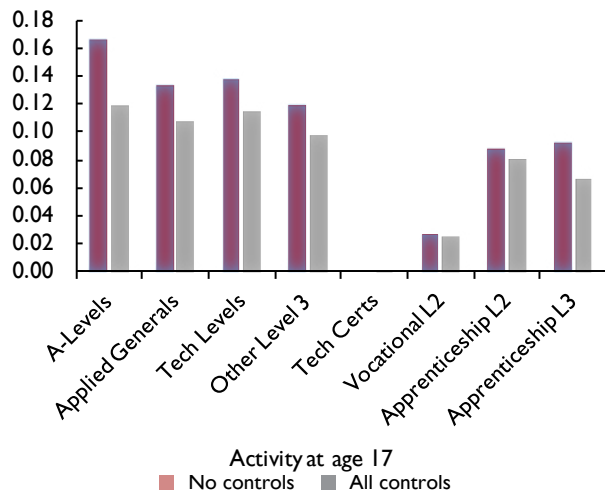
Where Y is the outcome of interest for individual i , at time t . The coefficient of interest is β_1 which shows the relationship between the qualification undertaken at age 17 and the outcome variable Y . The regression controls for a vector of individual-level characteristics X_i (i.e. prior attainment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

Educational outcomes

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 table A1. Almost all the variables of interest are statistically significant (which is not surprising given the size of the data set).

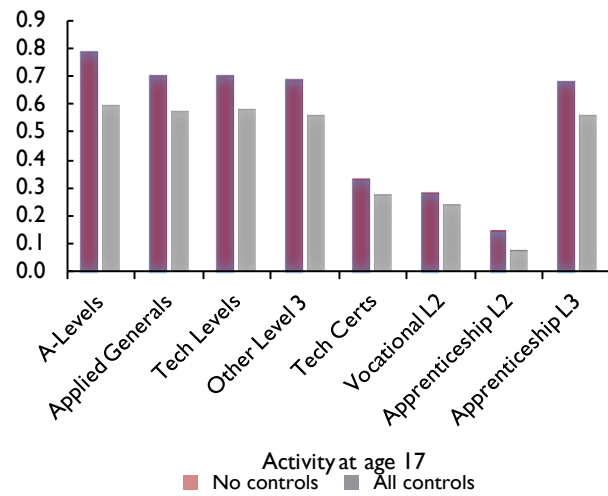
Figure 2 shows that students who undertook A-levels as their main activity at age 17 were more likely than the comparison group (i.e. below Level 2) to stay on in education up to the age of 18. Without including controls they were about 17 percentage points more likely to stay on, with controls they are 12 percentage points more likely to stay on. The decrease in the point estimate underlines the importance of having a rich set of control variables to address, at least partially, selection issues. 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

Figure 2. Staying on in education up to age 18



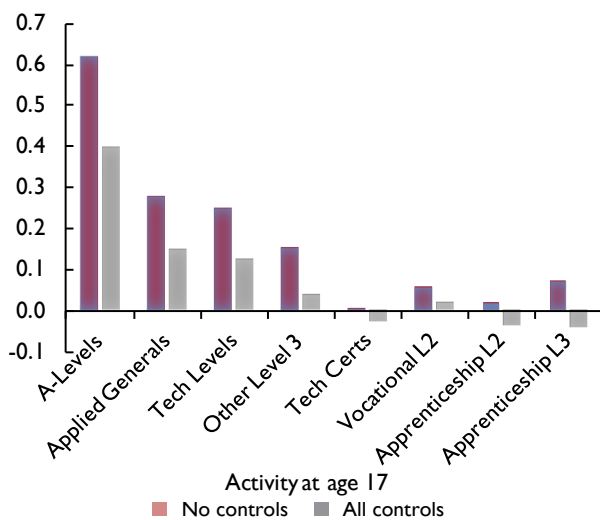
Note: For information on statistical significance, please refer to table A.1.

Figure 3. Achieving a level 3 qualification by age 20



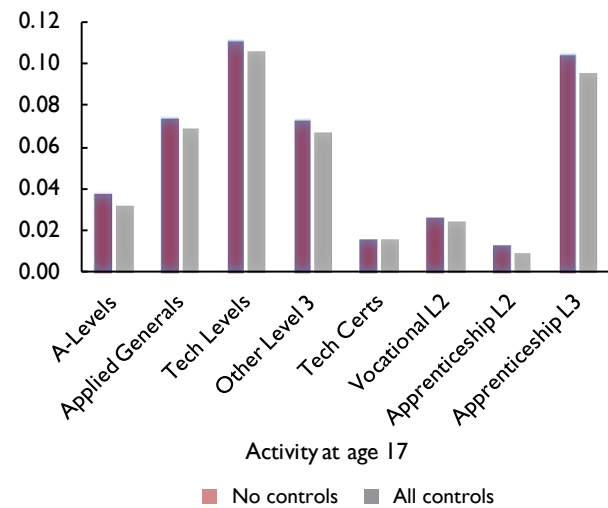
Note: For information on statistical significance, please refer to table A.1.

Figure 4. Commences university degree by age 20



Note: For information on statistical significance, please refer to table A.1.

Figure 5. Commences another Level 4 activity by age 20 (not university degree)



Note: For information on statistical significance, please refer to table A.1.

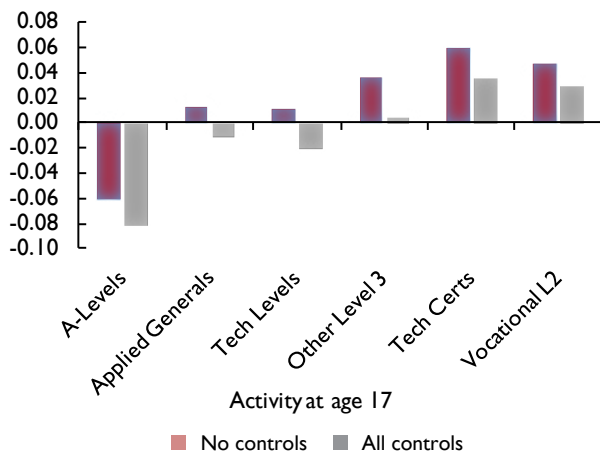
likely to have achieved a Level 3 qualification by age 20 (compared to below Level 2 learners), and there isn't much difference between those studying Tech Certificates or Level 2 vocational qualifications in this respect.

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 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,

Figure 6. Commences an Apprenticeship between age 18 and 20

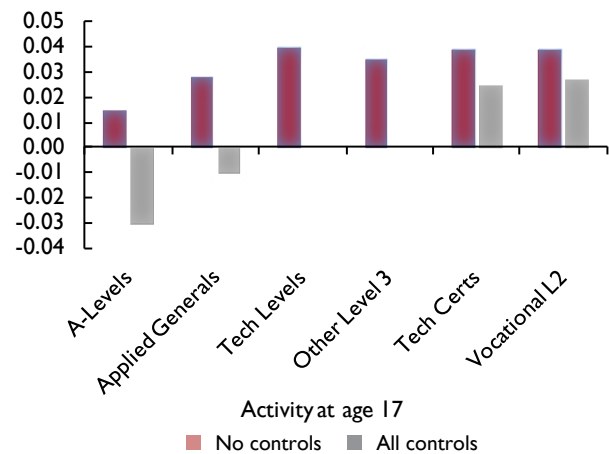


Note: For information on statistical significance, please refer to table A.1.

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. As pointed out above, 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).

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 higher) 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 7. Commences a Level 3 Apprenticeship between age 18 and 20



Note: For information on statistical significance, please refer to table A.1.

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. This is similar for those undertaking Level 2 Apprenticeships. However, those who started out on Level 3 Apprenticeships at age 17 have a relatively high probability of commencing learning at Level 4 or above (excluding degrees) by age 20. The probability is higher than the baseline by about 10 percentage points.

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 that reflect the relationship between the probability of commencing an apprenticeship between 18 and 20 and the main activity at age 17, including and excluding control variables. Figure 6 shows this relationship for all apprenticeships (i.e. Levels 2 and 3) whereas figure 7 shows the relationship for Level 3 apprenticeships.

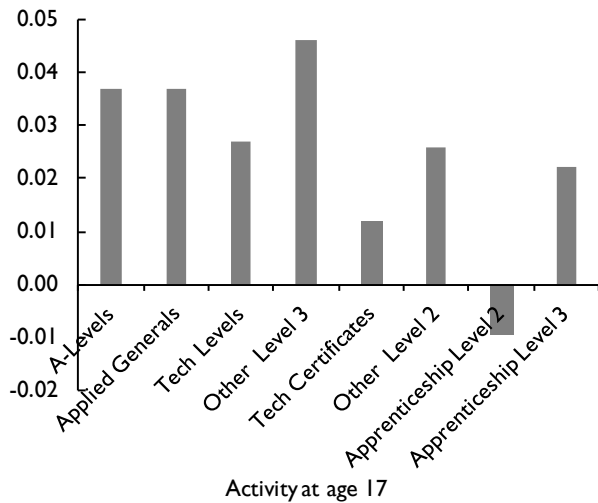
Starting with figure 6, the negative bars for A-levels, Applied Generals and Tech levels reflect the fact that those in the comparison group (i.e. below level 2) are *more* likely to enter an Apprenticeship than individuals in these other categories. This is further accentuated when taking account of individual characteristics. However, other categories of learners (mainly at Level 2) have a higher probability of commencing an apprenticeship than the comparison group. Nevertheless, 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.

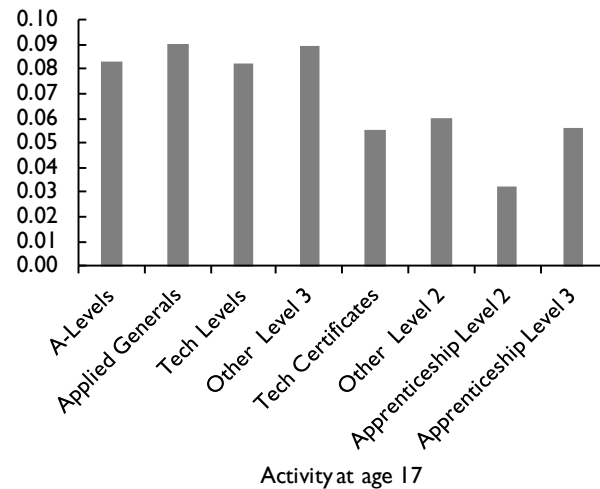
Finally, in figure 7 we consider the probability of commencing a Level 3 apprenticeship between the ages of 18 and 20. Overall, only 8.1 per cent of the cohort commence a Level 3 Apprenticeship between ages 18 and 20. For the most part, the qualification categories do not strongly predict who will get on to

Figure 8. Labour market outcomes conditional on having left education at age 21 and having taken account of controls

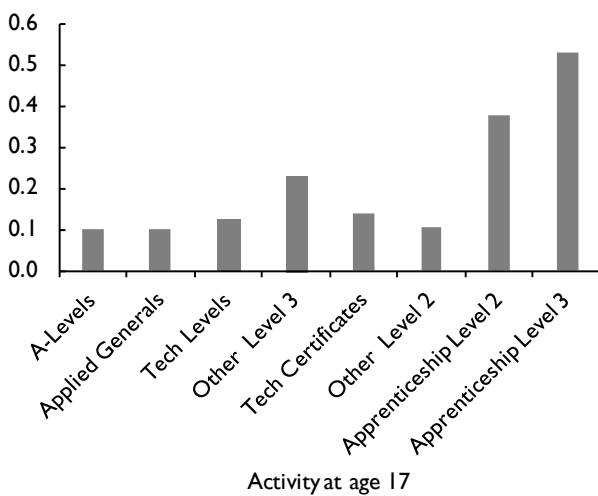
Males: in employment for at least one day (2015)



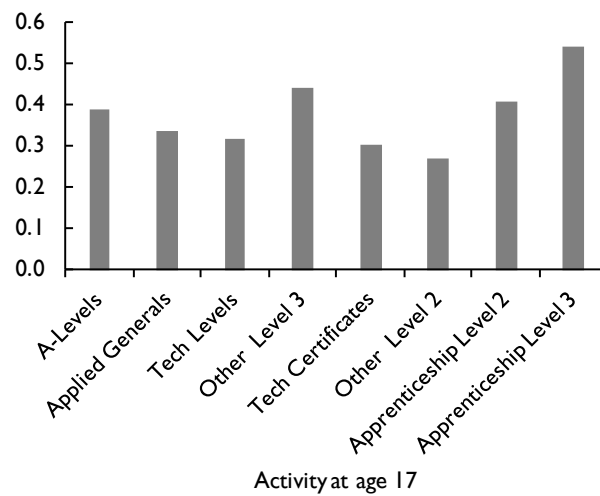
Females: in employment for at least one day (2015)



Males: log yearly gross earnings (2015)



Females: log yearly gross earnings (2015)



Note: For information on statistical significance, please refer to table A.2.

a Level 3 apprenticeship at this age, 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 ages 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 of 18 and 20 (by about 2.5 percentage points) than those on below Level 2 courses.

Labour market outcomes

In figure 8, we show regression coefficients on the two labour market outcomes (in employment for at least one day; log annual gross earnings) for men and women separately. We show coefficients after including the same set of controls described in the previous section. Although the coefficients look very different for men and women, this is a reflection of the base category (i.e. those pursuing a below Level 2 qualification at age 17) which looks very different for men and women (see table 4), with women in this category less likely to be in employment and less well paid.

The figures do not show as strong a gradient for different educational pathways and labour market outcomes compared to many of the educational outcomes. This is not very surprising because over half the cohort is still in education (which is itself related to educational pathways at age 17). To the extent it exists, the gradient is more evident for employment than earnings: those who started out on Level 3 pathways at age 17 are more likely to be in employment at an early age (if they have left education), even conditional on their prior attainment and all other characteristics. This is particularly the case for men.

The most striking aspect of figure 8 is the huge earnings benefit from having started an apprenticeship at age 17 for men compared to all other pathways (and conditional on having completed education at age 21). For women, the apprenticeship payoff is not as stark, though it is higher than other categories for those women who pursued a Level 3 apprenticeship at age 17. Of course this may change as the cohort ages and more students have left the education system.

Overall, these initial results on outcomes reflecting transitions to the labour market should be taken with caution, as they are obtained for a highly selected sample.

6. 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 illustrates why the proposals of the Sainsbury report and the post-16 Skills plan are so badly needed because it envisages a radical simplification of the landscape of technical education provision (Department for Education, 2016). This will simplify vocational education (outside Applied Generals) to fifteen technical routes. There will be a transition year for students who need additional time before making a choice and a core curriculum within each route. The Plan envisages that pathways will be made clear and there will be only one qualification per pathway. If properly implemented, these reforms will radically simplify post-16 choices and trajectories facilitating a more informed choice at age 16.

This paper is an attempt at bringing more clarity into the different pathways that are currently available to 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. We show that 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 varied and defy a simple classification. 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. The case for this is strong when one considers the relatively favourable position such young people have as they make their transition to the labour market (especially reflected in the earnings of young men). 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.

NOTES

- 1 *Education and Skills Act 2008*.
- 2 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, some demographic variables), we think this would still be a strong assumption in this context.
- 3 Qualifications approved for learning for 16 to 18 year olds are listed under Section 96 of the *Learning and Skills Act 2000*. For more information see <http://www.education.gov.uk/section96/>.
- 4 For example, at age 18, about 9.1 per cent of the students doing A-levels as a main activity were also doing Applied Generals and 2.3 per cent 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 per cent of those doing Tech levels as a main activity.
- 5 About 22 per cent of this cohort undertake an Apprenticeship between the ages of 16 and 20.

REFERENCES

- Bagaria, N., Bottini, N. and Coelho, M. (2013), 'Human capital and growth: a focus on primary and secondary education in the UK', in Besley, T. and Van Reenen, J. (eds), *Investing for Prosperity: A manifesto for Growth*, LSE Academic Publishing.
- Belfield, C., Crawford, C. and Sibieta, L. (2017), *Long-run Comparisons of Spending per Pupil across Different Stages of Education*, IFS Report. R126.
- Bibby, D., Buscha, F., Cerqua, A., Thomson, D. and Urwin, P. (2014), 'Estimation of the labour market returns to qualifications gained in English Further Education', BIS Research Paper 195.
- Bibby D., Cerqua A., Gould M., Thomson D. and Urwin, P. (2015), *Further Education: Social Mobility, Skills and Second Chances*, Report for the Department for Business, Innovation and Skills.
- Blundell, R., Dearden, L. and Sianesi, B. (2005), 'Evaluating the impact of education on earnings: models, methods and results from the NCDS', *Journal of the Royal Statistical Society Series A*, 168(3), pp. 473–512.
- Conlon, G. and Patrignani, P. (2011), 'The long term effect of vocational qualifications on labour market outcomes', BIS Research Paper No. 47.
- (2013), 'A disaggregated analysis of the long-run impact of vocational qualifications', BIS Research Paper 106.
- Dearden, L., McGranahan, L. and Sianesi, B. (2004), 'An in-depth analysis of the returns to National Vocational Qualifications obtained at Level 2', CEE Discussion Paper No.46.
- Dearden, L., McIntosh, S., Mychk, M. and Vignoles, A. (2002), 'The returns to academic and vocational qualifications in the UK', *Bulletin of Economic Research*, 54(3), pp. 249–74.
- Department for Education (2015a), *Vocational Qualifications for 16 to 19 year olds: 2017 and 2018 Performance Tables Technical Guidance for Awarding Organisations*, March.
- (2015b), *2017 16 to 19 Performance Tables: Qualifications in the Tech Level Category*, February.
- (2016), *Post-16 Skills Plan*, July, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536043/Post-16_Skills_Plan.pdf.
- Gregg, P. and Tominey, E. (2005), 'The wage scare from male youth unemployment', *Labour Economics*, 12(4), pp. 487–509.
- House of Commons Library (2016), *NEET: Young People Not in Education, Employment or Training*, <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN06705>.
- Hupkau, C, McNally, S., Ruiz-Valenzuela, J. and Ventura, G. (2016), *Post-Compulsory Education in England: Choices and Implications*, CVERDP001, Centre for Vocational Education Research, London School of Economics.
- McIntosh, S. (2006), 'Further analysis of the returns to academic and vocational qualifications', *Oxford Bulletin of Economics and Statistics*, 68(2), pp. 225–51.
- McIntosh, S., and Morris, D. (2016), *Labour Market Returns to Vocational Qualifications in the Labour Force Survey*, CVERDP002, Centre for Vocational Education Research, London School of Economics.
- Musset, P. and Field, S. (2013), *A Skills beyond School Review of England*, OECD Reviews of Vocational Education and Training, OECD Publishing/OECD, <http://dx.doi.org/10.1787/9789264203594-en>.
- UCAS (2016), *Progression Pathways*, https://www.ucas.com/sites/default/files/progression_pathways_report_final_v2_0.pdf.
- Wolf, A. (2011), *Review of Vocational Education: The Wolf Report*, Department for Education and Department for Business Innovation and Skills, <https://www.gov.uk/government/publications/review-of-vocational-education-the-wolf-report>.

APPENDIX

Table A1. Coefficients of main activity at age 17 on education outcomes

Main 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						
<i>Level 3</i>												
A-Levels	0.166* (0.002)	0.120* (0.002)	0.785* (0.002)	0.597* (0.003)	-0.064* (0.002)	-0.084* (0.003)	0.015* (0.001)	-0.029* (0.002)	0.617* (0.003)	0.401* (0.003)	0.038* (0.001)	0.033* (0.001)
Applied Generals	0.133* (0.002)	0.108* (0.003)	0.704* (0.003)	0.577* (0.003)	0.013* (0.003)	-0.017* (0.003)	0.028* (0.002)	-0.005+ (0.002)	0.280* (0.003)	0.151* (0.003)	0.074* (0.002)	0.069* (0.002)
Tech Levels	0.138* (0.002)	0.115* (0.002)	0.704* (0.003)	0.580* (0.003)	0.011* (0.003)	-0.022* (0.003)	0.040* (0.002)	0.004 (0.002)	0.251* (0.003)	0.127* (0.003)	0.111* (0.002)	0.106* (0.002)
Other Level 3	0.120* (0.003)	0.098* (0.003)	0.687* (0.003)	0.565* (0.004)	0.037* (0.003)	0.005 (0.004)	0.035* (0.002)	-0.000+ (0.002)	0.156* (0.003)	0.038* (0.003)	0.073* (0.002)	0.067* (0.002)
<i>Level 2</i>												
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)	0.241* (0.003)	0.048* (0.003)	0.030* (0.003)	0.039* (0.001)	0.028* (0.002)	0.058* (0.002)	0.020* (0.002)	0.027* (0.001)	0.025* (0.001)
<i>Apprenticeship</i>												
Apprenticeship Level 2	0.089* (0.003)	0.081* (0.003)	0.153* (0.003)	0.082* (0.003)	0.647* (0.003)	0.603* (0.003)	0.279* (0.003)	0.251* (0.003)	0.020* (0.001)	-0.038* (0.002)	0.014* (0.001)	0.010* (0.001)
Apprenticeship Level 3	0.092* (0.004)	0.067* (0.005)	0.680* (0.005)	0.560* (0.005)	0.664* (0.005)	0.614* (0.005)	0.755* (0.006)	0.708* (0.006)	0.072* (0.003)	-0.042* (0.004)	0.104* (0.004)	0.096* (0.004)
Observations	574060	550143	574060	550143	574060	550143	574060	550143	574060	550143	574060	550143
R-squared	0.207	0.224	0.455	0.494	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, whether English is the language spoken at home. 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.

Table A2. Coefficients of main activity at age 17 on labour market outcomes

Main Activity at age 17	Males				Females			
	Employed (at least one day during the year)		Log gross annual earnings		Employed (at least one day during the year)		Log gross annual earnings	
<i>Level 3</i>								
A-Levels	0.047*	0.037*	0.433*	0.101*	0.129*	0.083*	0.739*	0.388*
	(0.003)	(0.004)	(0.012)	(0.014)	(0.004)	(0.005)	(0.016)	(0.018)
Applied Generals	0.046*	0.037*	0.321*	0.102*	0.120*	0.090*	0.582*	0.337*
	(0.004)	(0.004)	(0.016)	(0.017)	(0.005)	(0.006)	(0.019)	(0.020)
Tech Levels	0.037*	0.027*	0.370*	0.124*	0.116*	0.082*	0.603*	0.318*
	(0.004)	(0.005)	(0.017)	(0.018)	(0.006)	(0.006)	(0.019)	(0.021)
Other Level 3	0.056*	0.046*	0.465*	0.228*	0.123*	0.089*	0.703*	0.439*
	(0.005)	(0.005)	(0.017)	(0.018)	(0.005)	(0.006)	(0.018)	(0.019)
<i>Level 2</i>								
Tech Certs	0.013	0.012	0.266*	0.139*	0.0736*	0.055*	0.468*	0.305*
	(0.010)	(0.010)	(0.035)	(0.036)	(0.006)	(0.006)	(0.021)	(0.021)
Vocational L2	0.030*	0.026*	0.197*	0.106*	0.0730*	0.060*	0.380*	0.270*
	(0.003)	(0.004)	(0.013)	(0.013)	(0.005)	(0.005)	(0.018)	(0.018)
<i>Apprenticeship</i>								
Apprenticeship Level 2	-0.004	-0.009 ⁺	0.533*	0.375*	0.050*	0.032*	0.597*	0.407*
	(0.004)	(0.004)	(0.015)	(0.015)	(0.006)	(0.006)	(0.018)	(0.019)
Apprenticeship Level 3	0.031*	0.022*	0.799*	0.531*	0.079*	0.056*	0.777*	0.542*
	(0.006)	(0.006)	(0.023)	(0.023)	(0.012)	(0.012)	(0.035)	(0.037)
Observations	120346	116251	104486	101039	103885	100907	89122	86682
R-squared	0.006	0.048	0.031	0.122	0.021	0.069	0.048	0.132
Controlling for:								
Demographics	No	Yes	No	Yes	No	Yes	No	Yes
Prior attainment (KS2 and KS4)	No	Yes	No	Yes	No	Yes	No	Yes
KS4 schools' fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Worked full-time before age 18	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, whether English is the language spoken at home. 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. An additional dummy variable (equal to 1 if the individual has been employed for at least a whole year before the age of 18) is included in the regressions with controls.