Further Education: Social Mobility, Skills and Second Chances

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1. Introduction

This report presents findings from the latest in a series of investigations that shed new light on the value of learning in Further Education (FE) in England, using matched ILR-WPLS[1] administrative data (including, Thomson et. al., 2010; Patrignani and Conlon, 2011; Buscha and Urwin, 2013; Bibby et. al., 2014; Cerqua and Urwin, forthcoming 2015a; 2015b; Bibby et. al., 2015; forthcoming 2015a; 2015b). This programme of analysis has uncovered good returns to learning at all levels of FE, and challenges the previous findings from survey-based studies (most notably the findings from Dearden et. al., 2004, flagged in the Wolf Report, 2011) that estimated insignificant, or even negative, returns to learning at Level 2 and below (for instance, NVQ2 and NVQ1). Professor Wolf has publicly 'welcomed Professor Urwin's research'[2], as there is a recognition that the ILR-WPLS administrative data overcomes many of the limitations faced by previous surveyed-based studies (for instance, Greenwood et al. 2007; Dickerson and Vignoles 2007; McIntosh and Garrett, 2009).

This report, partly supported by BIS, takes this programme of investigation further, with a detailed study of the role that FE plays in the education pathways of young people, as they make the transition from (i) school-to-work; (ii) to Higher Education; and (iii) to other forms of skill acquisition, such as Apprenticeships. Such a study is long overdue, but has only now become possible following the creation of new administrative datasets (in this case a matched NPD-ILR-HESA[3] dataset and a matched ILR-WPLS-HESA dataset). Studies of NPD and HESA data investigating issues of socio-economic background have been carried out in the past, but they have not been able to separately identify participation in Further Education (for instance, Chowdry et. al., 2013). For the first time this study is able to fill this evidence gap, and the new insights it provides have significant implications for policymakers tasked with questions of social mobility, productivity and skills acquisition.

Section 2 begins with a discussion of findings from the work carried out prior to this study. This previous programme of investigation has used administrative datasets (linked to the ILR) to identify good labour market returns to learning within Further Education. As we shall see, the focus of FE on helping the most disadvantaged in society has been one of the main reasons that this value added, particularly at Level 2 and below (e.g. NVQ1 and NVQ2), has not been previously captured by researchers. There are many individuals in FE who are learning at Level 2 and below, beyond compulsory school leaving age. These individuals are, by definition, attempting to make-up for relatively poor performance at school (as they are studying at a level below that expected of the average school leaver) – FE provides a 'second-chance route' to skills acquisition for individuals who would otherwise be unemployed or working in unskilled, low paid, jobs. Section 2 explains how the inability of previous [survey-based] studies to fully recognise this role of FE, lead to systematic under-estimates of the labour market returns to FE learning at Level 2 and below.

[1] We use a version of the Individualised Learner Record (ILR) that contains details of all Further Education Learning in England between 2002/2003 and 2012/2013 and the Work and Pensions Longitudinal Study (WPLS) that contains information on earnings for financial years 2004/2005 to 2012/2013; and data on benefit and employment status from April 1998 to October 2013.

[2] *Times Educational Supplement* (2015), "Exclusive: level 2 qualification can add 12% to students' earnings, study finds", 4th September.

[3] Linking the National Pupil Database (NPD); Individualised Learner Record (ILR) and data on Higher Education from the Higher Education Statistics Agency (HESA) and also a separate dataset that links the ILR to information from the Work and Pensions Longitudinal Study (WPLS).

Section 3 presents the findings from analysis of a newly created NPD-ILR-HESA dataset, matched and cleaned to the highest standards as part of the current study. The predominance of those from more disadvantaged backgrounds in FE has been alluded to in previous studies [for instance in the Wolf Report and in Dearden et. al., 2004; and more recently, Gloster et. al., 2015], but as Section 3 shows, it's extent has been significantly understated. Our analysis shows FE to be an essential education pathway through which many individuals have the opportunity for social mobility; as those from disadvantaged backgrounds recover from poor performance in the state school system, using FE as a route to Higher Education and other forms of skill acquisition such as Apprenticeships.

From Section 2 we have extensive evidence that the previous findings of poor returns to FE learning were a result of data limitations; from Section 3 we find that FE provides an essential pathway to higher skills acquisition, and this is especially important for those in society who are born to disadvantage. Section 3 also begins to hint at the fact that those from more disadvantaged backgrounds experience significant enhancements to their productivity whilst studying at FE – i.e. they don't simply register for courses at FE and achieve little. However, it is Section 4 where we provide compelling evidence that some of the largest productivity gains are secured by those learners born to the highest levels of disadvantage – many of whom would be unemployed, inactive or in low productivity employment, without the opportunity for skills acquisition in FE. FE caters to the most disadvantaged, and in many categories of learning we consider, it boosts their productivity by the largest amount.

Finally, Section 5 concludes and brings our various findings together. As the government's most recent report into UK productivity[4], emphasises: "A nation flourishes when it uses the full skills of all its people in all parts of that nation". This report shows how English Further Education ensures that the most disadvantaged 'parts' of the nation have the opportunity to develop their skills, and progress to higher levels of achievement. In this study we uncover a raft of evidence that directly challenges many of the current perceptions of FE, and in Section 5 we consider how far the fundamental rethink of policy needs to go, in light of this.

2. Further Background

As already suggested, previous research estimated that many individuals studying at Level 2 and below (particularly NVQ2 and NVQ1) did not secure good returns from FE learning. Sections 3 and 4 of this report present evidence that further challenges this viewpoint, showing that the focus of FE on helping the most disadvantaged has been one of the main reasons that this value has not previously been recognised. This section describes how a five year programme of research commissioned by the Department for Business Innovation and Skills (BIS), using administrative data, has begun to uncover this previously hidden value added from FE learning. There is some amount of technical detail underpinning the discussion, but the essence of our argument is relatively straightforward:

1. When attempting to estimate the value that an individual gains from any form of learning, we have to obtain an estimate of what they would have earned if they had not achieved (for instance) an NVQ2 vocational qualification (assuming we are measuring value in terms of earnings returns).
2. The standard econometric approach is to create a comparison (or control) group of individuals who do not achieve the qualification, but who are 'otherwise identical' to the group possessing

[4] HM Treasury (2015), *Fixing the foundations: Creating a more prosperous nation*, July

the qualification - providing a credible estimate of what the individuals with an NVQ2 would have earned if they had not obtained the NVQ2 (in technical terms, the 'counterfactual'[5]).

3. When we have an estimate of (i) what the individual is earning after achieving the NVQ2 and (ii) what they would have earned if they didn't have the NVQ2, we can gauge the value added – the difference between the two. As Dearden, Reed and Van Reenen (2005) emphasise, this value added proxies the increase in productivity, as it is a multiple of the increase in earnings.

Statistical approaches accept that the two groups (those with, and those without the NVQ2 qualification) are unlikely to be 'otherwise identical', and use techniques to control for any differences. However, individuals who hold an NVQ2 qualification as their highest form of learning are a unique group, with relatively limited labour market prospects. They are undertaking learning outside of compulsory education (i.e. within FE), but at a level that we typically expect school leavers to achieve. It is particularly challenging to create estimates of what these learners would have earned, in the absence of the NVQ2. In previous survey-based studies, the control groups generated counterfactual estimates that were too high (i.e. over-estimating what the individual would have earned in the absence of the NVQ2 qualification), resulting in negative estimated earnings returns in many instances.

We have a situation where disadvantaged individuals are more likely to select into Further Education and this 'widening participation' role of FE is one of its many strengths. These disadvantaged individuals would gain a particularly low wage if they did not engage in FE learning and their counterfactual estimates therefore need to be particularly low. Unfortunately, survey-based studies have estimated returns that are falsely deflated because the control groups used have much better labour market prospects[6], and the information in survey datasets has not been adequate to overcome this problem. Previous studies have over-estimated what FE learners would have earned in the absence of the FE qualification, and therefore under-estimated the returns to FE learning. A similar argument seems to apply to a lot of Entry-Level learning in FE and learning at Level 1 - though returns at this level seem particularly variable depending on the subject taken (see for instance, the analysis of Numeracy and Literacy learning undertaken by Cerqua and Urwin, forthcoming 2015a); and likely depends on the targeting of qualifications to relevant learners (see for instance, analysis of FE learning undertaken by the unemployed, in Bibby et. al., forthcoming 2015a,b).

To overcome the possibility that this was the reason for estimated poor returns in survey-based studies, Buscha and Urwin (2013) and Bibby et. al. (2014), estimate labour market returns to FE learning[7], by comparing those who achieve their highest FE learning aim, relative to those who have the same highest learning aim, but do not achieve and/or drop-out[8]. This has the potential to

[5] Called so, because it is counter to the factual state of the world – we do not observe this value and have to use econometric methods to get a handle on it. See Treasury *Green Book* for more details.

[6] More technically, the survey-based studies have suffered from negative selection into FE on unobservable characteristics. They compare FE learners to a control group who do not select into FE, and do not managed to control for the implied differences within a multivariate framework.

[7] Including the (i) earnings returns, (ii) employment probability premiums and (iii) probability of being on active benefits.

[8] The estimate of value added is obtained by comparing the returns of those who have a particular highest learning aim (for instance NVQ2) and achieve; with the returns of those who have the same highest learning aim, but do not achieve. We use the terminology of *non-achievement* 'and/or' *drop-out* as we have used both early drop-outs and later non-achievers as controls, and our findings remain robust (see for instance, Buscha, F., Cerqua, A. and Urwin, P. (2014a), "Estimating earnings returns to vocational qualifications using administrative data", presented *WPEG*, 2014; *BIS Skills Policy Analysis Academic Panel* 2014).

overcome the problems of [unobserved] negative selection into FE, as the control group flag that they 'are the sort of individual who takes this qualification as a highest learning aim'.

Buscha and Urwin, (2013) identified good labour market returns across most learning undertaken within FE and obtained estimates of the impact of learning at Level 2 that were diametrically opposed to those in previous survey-based studies. However, this was only a starting point, as there are also potential weaknesses with this approach. We did not have the necessary evidence to refute the charge that unobservable characteristics or events were possibly driving selection into achievement, and these were also correlated with subsequent labour market outcomes. For instance, it is possible that unobservable motivation or commitment is important in differentiating achievers and non-achievers, so that achievers would potentially receive a higher return whatever their level of qualification. From a method perspective, there are a number of such 'unobservables' that can be assumed broadly constant over the period of our analysis (time-invariant); together with some, such as divorce and illness which are time-varying in their potential (unobservable) impacts.

Put simply, if people are dropping out because of illness, family breakdown or other negative (one-off) impacts, then we would expect drop-outs to provide artificially low counterfactual estimates (as these negative impacts would likely reduce their employment prospects) and we would therefore be over-estimating returns (assuming we could not capture these one-off negative impacts in our regression framework). Similarly, if achievers are simply more motivated (something we cannot capture) then we would falsely attribute their higher returns to learning – when it is partly due to them being more motivated than non-achievers.

In Bibby et. al. (2014) we took the research further, using more advanced econometric techniques (Coarsened Exact Matching [CEM] with difference-in-differences[9]) together with additional dissections of the data, to see whether some of these weaknesses were evident. The results held up very well and further re-enforced the suggestion that we were uncovering the true value added of lower-level learning in FE, that had been hidden to those using survey datasets[10]. As Table 2 suggests, this was further validated by the fact that any differences between the survey-based studies and or own analysis of administrative data are concentrated at Level 2 (and below). Estimates at Level 3 and above (for instance NVQ3) are almost identical – lending further weight to our assertion that the survey-based studies had missed returns because of unobservable negative selection into FE (which we show in Section 3, is much less pronounced at levels of learning at Level 3 and above).

[9] Matching methods account for differences in characteristics between treated and control by matching each treated individual (achiever) to one or more control individual (non-achiever); who are as similar as possible with respect to a given set of pre-treatment variables. In recent years, a number of papers have highlighted the misapplication of matching methods by some researchers. As a result, a new class of matching methods has emerged - dubbed "monotonic imbalance bounding (MIB)" (see Iacus et al., 2011) - that curtails the misuse of these techniques and CEM is a version of this method. CEM temporarily 'coarsens' each conditioning variable into meaningful categories; matches exactly on these 'coarsened' data, and then retains only the original (uncoarsened) values of the matched data. If different numbers of treated and control units appear in different strata, the econometric model must weight or adjust for the different stratum sizes. Iacus et al. (2011) show that the CEM dominates commonly used existing matching methods in its ability to reduce imbalance, model dependence, estimation error, bias, variance, mean square error, and other criteria.

[10] Part of our matching function includes the previous two years of earnings and therefore ensures that we have 'parallel trends' in earnings over this period. The difference-in-differences estimator (with earnings as our outcome) then better assures that our estimates were not biased because of time-invariant unobservables. Additional dissections of the data (most notably the comparison of returns for L2 achievers against L3 non-achievers; and L2 non-achievers against L1 achievers) suggests that non-achievers are not suffering one-off unobservable (time-varying) impacts that negatively impact their earnings outcomes. We also carry out the CEM analysis for employment outcomes.

Table 1: Estimated earnings returns from previous survey-based studies (as summarised in McIntosh, 2009) compared to estimates from two ways of analysing new admin. data

	1. Highest survey-based estimates, from McIntosh (2009) review	2. Regression estimates using admin. data	3. Matching and diff-in-diffs estimates with admin. data
NVQ2, women	*1%*	**10%**	**11%**
NVQ2, men	**5%**	**11%**	**10%**
NVQ3, women	**10%**	**12%**	**11%**
NVQ3, men	**13%**	**15%**	**13%**

However, even at this more recent point (the report came out in Dec 2014) it was possible (though highly unlikely given the evidence already amassed) that higher estimated impacts were a result of non-achievers experiencing one-off negative impacts that over-inflated estimated returns.

Forthcoming reports (Bibby et. al., 2015a; 2015b) and an academic paper (Bibby et. al., 2015) provide the final evidence required to confirm that our programme of work using admin data is capturing the true returns to learning in FE. These forthcoming findings focus solely on the unemployed, but we still have around 350,000 FE learning aims to analyse between 2006 and 2008; and around 500,000 in the more recent 2011/2012 period (though obviously we can consider fewer years of returns in the latter case). Once again we are concentrating on the most disadvantaged in society, and here we produce irrefutable evidence that FE learning provides good returns (even for groups of unemployed who face particular challenges to secure employment). The aim here is not to get into methodological detail, but for those who are interested, this forthcoming analysis:

- Uses CEM to ensure (FE learner) treated and control groups are exactly matched on a wide range of observable characteristics – most importantly labour market histories.
- We ensure that there are no statistically significant differences in employment outcomes between treated and comparison group for 5 years prior to benefit claim start date (and therefore learning start date) – using a 99% confidence interval. This ensures that treated and control do not differ in terms of time-invariant unobservables. For instance we cannot observe motivation, but it is highly improbable that any differences in motivation between treated and control do not manifest themselves for 5 years and then suddenly do so at the point of engaging in FE learning[11].
- Finally, we carry out this approach to analysis, using two control groups to create counterfactual outcomes. We compare (i) achievers V non-achievers (as in previous studies) and also (ii) achievers V a control group who we do not see engaging in FE learning during the same period (the 'No-FE' control group). Whether we create counterfactual outcomes using the non-achievers or the *No-FE* control group, we identify good employment returns to FE learning for unemployed learners. Why is this the final piece of evidence needed? Learning start dates for the No-FE control group are imputed (according to their characteristics), as we need to match them to a group who do undergo learning (the FE achievers). It seems inconceivable that this No-FE group

[11] In the published report for BIS we match on 5 years of employment history and in an associated academic paper we match on 8 years for a subset of qualifications taken by the short-term unemployed.

suffer a one-off unobservable impact that negatively impacts their employment outcomes, at the same point as their imputed learning start date – this goes a long way to rule out the possibility that our estimates are driven by time-varying unobservables.

We now have evidence produced to the very highest standards of academic investigation that show good returns to FE learning; compared to studies that suggested poor returns using data that was not able to account for the fact that FE helps the poor and disadvantaged. As we have undertaken this work, other researchers have begun to use drop-outs as a control group in studies of returns to learning in (for instance) US Community Colleges, publishing in prestigious economic journals (Jepsen et. al. 2014). The case for totally re-evaluating our view of FE is now irresistible, and in this latest programme of research we produce further evidence to support this assertion.

3. Routes through the education system

This Section details the routes taken through the education system by three cohorts of young people who turned 16 during the academic years 2001/02 to 2003/04. By the start of the 2014/15 academic year, they would have been aged 26 to 28; and for each of these 1.9 million individuals, we build a record of their attainment at the end of compulsory schooling and subsequent participation and attainment in education and training. This is based on analysis of the National Pupil Database (NPD) matched to the Individualised Learner Record (ILR) and Higher Education Statistics Agency Student Record (HESA). Table 2 more formally summarises the data sources used in this study.

Table 2: Data sources used in this analysis

	Source
Attainment in examination data at age 15 in England	NPD
Attainment in examination data at ages 16, 17 and 18 in England	NPD
School registrations from 2001/02 onwards in England	NPD
Participation and attainment in publicly-funded (and some privately-funded) education and training in the Further Education Sector in England	ILR
Participation and attainment in higher education in the UK	HESA

Over the period under study, NPD data can be considered complete in terms of general qualifications (GCSEs, A levels) achieved by young people in England up to the age of 18. For the 2003/04 cohort, the NPD is mostly complete in terms of other types of qualification from *Entry-level* to *NQF*[12] *Level 3* (A level equivalent), particularly for pupils counted in Secondary and Post-16 Performance Tables. The ILR covers participation and achievement in publicly-funded education and training in the Further Education (FE) sector in England; and HESA has complete coverage of participation and achievement in the Higher Education (HE) sector in the United Kingdom.

Our analysis does not include qualifications achieved at schools and FE Colleges outside England (including overseas), professional qualifications, privately-funded qualifications and qualifications achieved in schools that were out-of-scope of Secondary School Performance Tables in 2001/02 and 2002/03; and 16-18 Performance Tables in 2003/04 and 2004/05[13]. In this Section of the report, we

[12] National Qualification Framework.

[13] The scale of missing data is low for the latter category but is unknown for the other categories. Similarly, we cannot rule out a small number of record linkage errors across data sources, which lead to erroneous educational profiles created for a very small number of individuals - for instance individuals who are observed to participate in higher education despite not being observed to have achieved any prior qualifications.

consider some of the most important pathways taken by different groups of young people within these cohorts.

We capture differences in social background for state-funded school pupils using Free School Meal (FSM) eligibility [as identified in the NPD] and, for those who are not recorded in the NPD as eligible for FSMs, we use the 2001 version of the Output Area Classification (OAC) to create indicators of relative disadvantage[14], based on the characteristics of the census area in which they were resident at the age of 15[15]. Thus, our 1.9 million individuals across cohorts of school leavers are split into (i) a FSM group (considered as the most disadvantaged); and (ii) a number of 'Not FSM' Groups (running from *Not FSM Group 1*, which has the highest levels of disadvantage outside of the FSM group; to *Not FSM Group 7*, which has the lowest levels of relative disadvantage)[16]; (iii) pupils who attended independent schools and (iv) the 'other' group[17]. The strength of OAC over other area-based disadvantage measures such as IDACI is that a) the geographical area used (output areas) is small and b) it can tell us about the relative advantage of small areas as well as relative disadvantage. The weakness, of course, is that it describes the area rather than the individual – it is a proxy of the individual's level of social disadvantage/advantaged, based on characteristics of their specific post code at age 15.

The Reverse Socio-economic Gradient of FE

As Figure 1 suggests, across the entire group of 1.9 million school leavers, we find that 41% had participated in higher education by the end of 2013/14 (the 'grey' columns) and, as we would expect from previous work with this data (see for instance, Chowdry et. al., 2013), there is a strong socio-economic gradient to this level of educational participation; which also reflects the socio-economic gradient in level 3 (A level and equivalent) attainment at 18 (the 'orange' columns); and which in turn reflects the socio-economic gradient in attainment at 15 (the blue column represents the proportion who had achieved Level 2 English and Maths [L2EM] by the age of 15). In the most part, the 'steps' in this gradient are almost exactly correlated with our indicators of disadvantage.

What do we mean by a socio-economic gradient? Consider some examples - the FSM Group have a lower proportion (15%) achieving L2EM by age 15, when compared to the 22% amongst our *Not FSM Group 1* and so on, until we get to *Group 7* where 64% achieve L2EM by age 16; and the figure rises to 82% for those in Independent schools. The same is true for achievement of L3 by age 18 and only the 'relatively' low proportions from Group 1 and high proportion from Group 3 going to HE, disrupts the one-to-one relationship between our indicators of socio-economic background and HE participation by 2013/2014. Figure 1 shows a very clear socio-economic gradient, running from low values of participation and achievement for our most deprived (FSM) group; up to the higher values for our most advantaged groups. This socio-economic gradient is observed in most aspects of the education system, and is perhaps one of the main challenges facing policymakers who wish to tackle the intergenerational transfer of social disadvantage.

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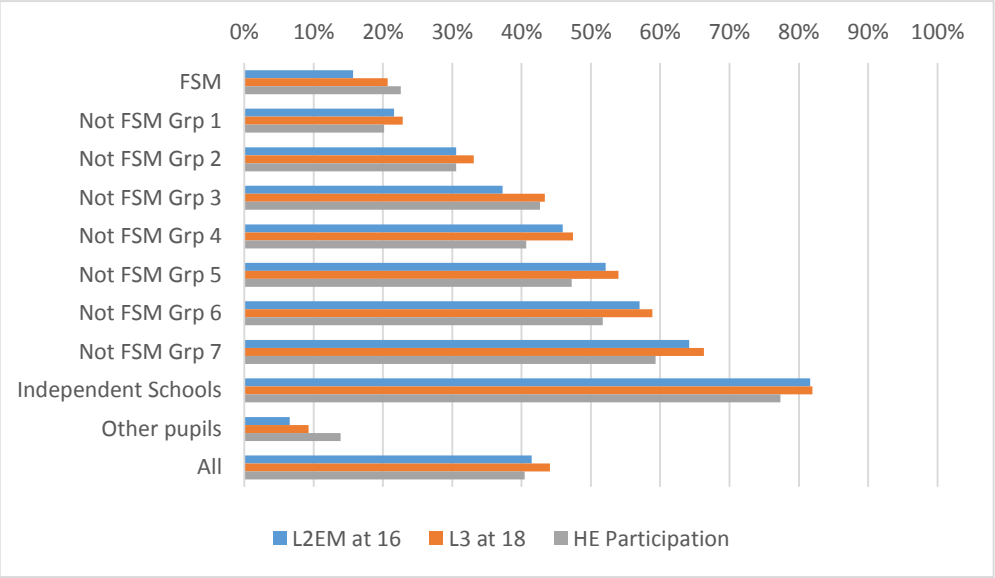
[14] Summarizing distinct domains of disadvantage such as Income Deprivation, Employment Deprivation, Health Deprivation and Disability, Education Skills and Training Deprivation, Barriers to Housing and Services, Living Environment Deprivation, and Crime.

[15] http://neighbourhood.statistics.gov.uk/HTMLDocs/nessgeography/areaclassification/area-classification.htm

[16] For the purpose of this analysis, we collapse the 21 groups of OAC into 7 groups. Note that OAC is a nested classification in which the 21 groups are nested within 7 super-groups. We have not used the 7 super-groups here, rather we have defined our own method of collapsing the 21 groups based upon attainment at age 15.

[17] Which consists of pupils for whom we don't have FSM/ postcode data including those who were at pupil referral units, other educational establishments that are not schools or who were known to have been on roll at a school at some point but weren't at age 16 (this will include young people who have emigrated or died). Data linkage errors notwithstanding, two-thirds of this group is subsequently observed to participate in education in Table 2.

Figure 1: Attainment at age 15, 18 and HE participation by socio-economic group



The question that Table 3 begins to answer is, where is Further Education in all of this? Overall, just above 70% of the cohort had participated in further education up to the end of 2012/13, but Table 3 shows that in stark contrast to other parts of the education system, the raw socio-economic gradient in FE participation runs in the opposite direction. For instance, 71% of the most disadvantaged group attended FE between the ages of 16 and 18; whilst this is true of only 57% of the more advantaged group – for those aged 19+ the socio-economic gradient is even more pronounced. Thus, in direct contrast to post-compulsory participation and achievement in other areas of the education system, Further Education caters to higher proportions of individuals from disadvantaged backgrounds, and lower proportions from more advantaged backgrounds.

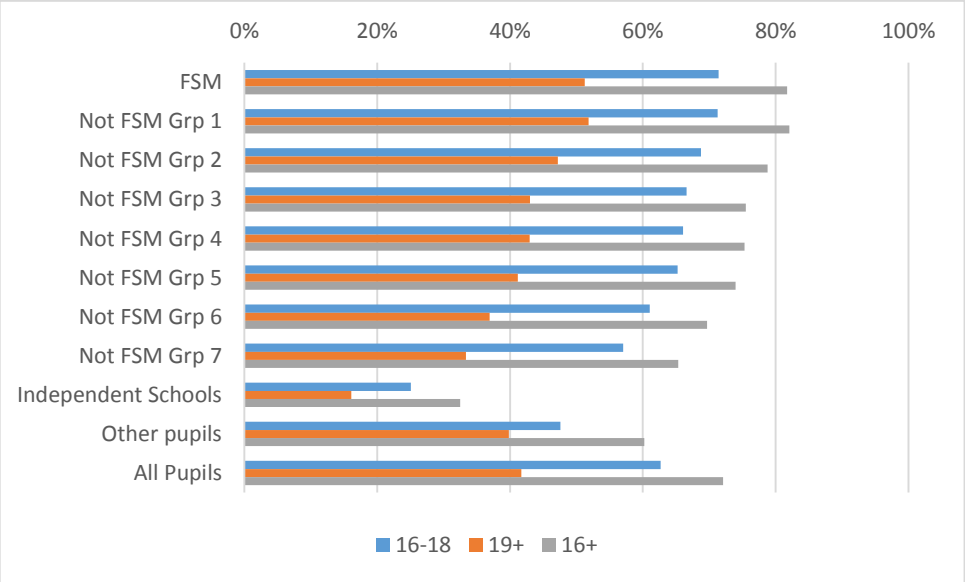
Table 3: Participation in education and training after compulsory schooling

		State-funded schools	Publicly funded FE		Higher Education	Total	Number ('000s)
		16-18	16-18	19+	Any age	Any age	
On Roll state-funded schools at age 15	FSM	19%	71%	49%	23%	89%	239.7
	Not FSM Grp 1	19%	71%	48%	20%	89%	191.2
	Not FSM Grp 2	27%	69%	44%	31%	91%	240.3
	Not FSM Grp 3	34%	66%	40%	43%	94%	185.3
	Not FSM Grp 4	35%	66%	39%	41%	94%	256.0
	Not FSM Grp 5	39%	65%	37%	47%	96%	196.2
	Not FSM Grp 6	44%	61%	34%	52%	96%	201.7
	Not FSM Grp 7	50%	57%	31%	59%	97%	188.0
Independent schools		7%	25%	16%	77%	89%	129.3
Other pupils		7%	47%	40%	14%	66%	69.6
All Pupils		30%	63%	42%	41%	92%	1897.3

The findings from Table 3 will not be 'news' for many in the FE sector, but this is the first time that the extent of this 'reverse' socio-economic gradient has, to the best of our knowledge, been accurately mapped and therefore Figure 2 presents the figures to show more clearly its full extent. More

specifically, when considering the 13 million distinct FE learning aims[18] [for funded learners between 2001/02 and 2012/13] that we see our cohort of 1.9 million young people engaging in[19], there is a clear reverse socio-economic gradient. In direct contrast to higher education participation and continued participation in the state school system, young people born to disadvantage are more likely to participate in further education.

Figure 2: Percentage participating in further education by 2012/13 by socio-economic group at age 15



Attainment at age 15 and Beyond

Individuals first become of interest to this study, by appearing in the Key Stage 4 Performance Tables data at the age of 15, the final year of compulsory schooling. It is important to note that our calculations of performance indicators summarising the qualifications they achieved, cover a time when the prevailing system of secondary school accountability in England was markedly different to today. Until 2003/04, when the last of our three cohorts turned 16, only GCSE and GNVQ qualifications were eligible for inclusion in School Performance Tables. From 2004 onwards, other equivalent qualifications began to be counted, and between 2004 and 2012, there was a rapid expansion of entry into qualifications equivalent to GCSE, which began to be reversed following the Wolf Review of vocational education in 2011 (Wolf, 2011[20]; Parameshwaran & Thomson, 2015[21]). Figure 1 has already hinted at the strong socio-economic gradient to achievement in level 2 attainment by age 15 and level 3 attainment by age 18, but Table 4 takes this analysis further by showing [using four age-15 performance indicators], a clear socio-economic gradient associated with attainment at age 15 across the groups we have created. For instance, only 25% of the FSM group obtain 5 GCSEs at grade A* to C, whilst this is true of 74% of the most advantaged group amongst our cohorts.

[18] Unique on Person Identifier, Aim Code and Start Date.
[19] NPD has been matched to historical ILR files from 2001/02. This matching covers all funding streams except Adult and Community Learning (ACL) and Adult Safeguarded Learning (ASL) streams, as these files cannot be matched to NPD as they do not contain the names of learners
[20] https://www.gov.uk/government/publications/review-of-vocational-education-the-wolf-report
[21] http://www.ingentaconnect.com/content/ioep/clre/2015/00000013/00000002/art00013

Table 4: Attainment at age 15 and socio-economic group, England 2002-2004

		% 5A*-C	% 5A*-C with EM	Average Points Per Student	% 5A*-A	Count (000s)	Percent
On Roll state-funded schools at age 15	FSM	25%	16%	236.2	2%	239.7	13%
	Not FSM Grp 1	32%	22%	271.9	3%	191.2	10%
	Not FSM Grp 2	42%	30%	304.5	6%	240.3	13%
	Not FSM Grp 3	49%	37%	328.4	9%	185.3	10%
	Not FSM Grp 4	58%	46%	357.1	12%	256.0	13%
	Not FSM Grp 5	64%	52%	376.1	15%	196.2	10%
	Not FSM Grp 6	68%	57%	390.2	17%	201.7	11%
	Not FSM Grp 7	74%	64%	409.1	22%	188.0	10%
Independent Schools		86%	81%	421.2	47%	129.4	7%
Other pupils		8%	6%	70.2	2%	69.6	4%
All pupils		52%	41%	328.3	13%	1897.3	

In addition to the attainment categories used in Table 4, we create a classification of young people's highest level of achievement at age 15, presented in Table 5. Young people are allocated to the category based on their highest level of attainment at KS4. As we can see, just over half (52%) of the individuals in the three combined cohorts had achieved level 2 of the National Qualifications Framework (NQF), the equivalent of 5 or more A*-C passes at GCSE, at age 15 (and this drops to 42%, if we include A*-C passes in GCSE English and Maths within the 5)[22]. A further 36% had achieved level 1, the equivalent of 5 or more A*-G passes at GCSE; 6% achieve below level 1 and 6% have no achievement.

Table 5: Highest level of attainment at age 15, 2002-2004 England

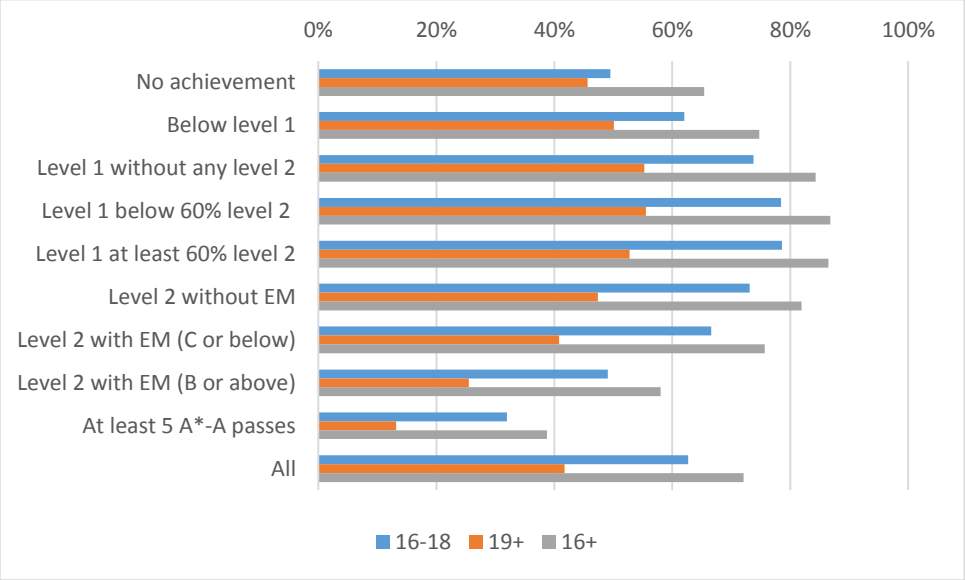
	%	N
No achievement	6%	118.2
Below level 1	6%	122.2
Level 1 without any level 2	14%	257.5
Level 1 below 60% level 2	13%	242.9
Level 1 at least 60% level 2	9%	175.0
Level 2 without EM	10%	194.6
Level 2 with EM (average Grade C and below)	15%	283.4
Level 2 with EM (average Grade B and above)	14%	263.7
At least 5 A*-A passes at GCSE	13%	239.8
All		1897.3

Given the relationship between socio-economic group and attainment at age 15, we would expect participation in FE to vary with respect to attainment at age 15 and Figure 3 details this relationship. We can see that young people who had achieved level 1 (or level 2 without both English and maths) were the most likely to participate in FE, especially between the ages of 16 and 18 but also aged 19+; those who secure qualifications from the school system below the level expected, have the highest

[22] It is important to note that, if we consider cohorts of school leavers ten years later (2011/12 to 2013/14) the percentage with NQF level 2 will be closer to 80% and this is something we return to in our consideration of policy implications.

rates of FE participation – taking up FE learning as a 'second chance', for skills acquisition. Relative to this group, those who leave school with no qualifications or qualification at below level 1, are less likely to be seen engaging with FE, but still nearly 50% of those who leave school with absolutely no qualifications, engage in FE between the ages of 16 and 18. Without FE those leaving school with either no qualifications, or close to no qualifications, have little chance of securing productive activity in the labour market.

Figure 3: Percentage participating in further education by 2012/13 by attainment category at 15, cohorts of 15 year olds 2002-2004 in England



Having calculated the levels of attainment for our cohorts of school leavers at age 15, we then scan the NPD, ILR and HESA data sources for subsequent attainment. The NPD is scanned up to age 18; the ILR up to the end of 2012/13; and HESA to the end of 2013/14. Table 6 presents the findings of this exercise, with the highest level of attainment described using a similar hierarchy to that seen in Table 5[23]. For instance, by the end of 2013/14, 30% of the combined cohort held qualifications at NQF level 6 or above - equivalent to a first degree (with honours), or above. A further 4% held other higher education qualifications (NQF levels 4 and 5).

The Appendix (Tables 16 and 17) to this report provides a more detailed breakdown of the correspondence between Table 5 and Table 6, by socio-economic group and achievement at age 15. However, the question we are now interested in is, where do our cohort of learners engage in the education system, in order to transform the achievement seen in Table 5, to that seen in Table 6?

Table 6: Highest level of attainment by 2013/14

	Percentage	Number
No qualifications	3%	49.0
Below Level 2	10%	198.1
Partial Level 2	9%	167.4
Full Level 2	13%	238.8
Partial Level 3	4%	75.9
Full Level 3	16%	297.0

[23] With the ordering of level 2 apprenticeships just after attainment at NQF level 3, reflecting their increased policy importance

Apprenticeship Level 2	7%	140.1
Apprenticeship Level 3	5%	92.0
NQF Level 4-5	4%	71.3
NQF Level 6	23%	438.7
NQF Level 7+	7%	129.0
Total		1897.3

The Safety Net

Before moving on to consider the role of FE in the progression of individuals to Higher Education and other forms of skill acquisition, it is important to note the role of FE for young people who stay on at school after the age of 15 but do not complete level 3 study or achieve further qualifications at level 2 and below. Table 7 shows that 18% of those who stayed on at school did not achieve any further level 2 qualifications at age 16 (Year 12) or any substantive level 3 qualifications at age 17 (Year 13). The majority of these learners will have struggled with A-level courses before dropping out.

Table 7: Rates of a) staying on at school and b) dropping out having stayed on at school by attainment category at 15

	Dropouts (000s)			Numbers (000s)		Rates	
	Year 12	Year 13	All	Staying On	All	Staying On	Dropout
No achievement	1.6	2.5	4.1	15.0	118.2	13%	27%
Below level 1	1.7	1.5	3.2	7.3	122.2	6%	44%
Level 1 without any level 2	5.2	3.8	9.0	22.6	257.5	9%	40%
Level 1 below 60% level 2	6.2	5.5	11.7	35.2	242.9	14%	33%
Level 1 at least 60% level 2	7.8	4.3	12.1	38.1	175.0	22%	32%
Level 2 without EM	10.6	4.7	15.3	66.9	194.6	34%	23%
Level 2 with EM (C or below)	21.6	6.5	28.2	118.3	283.4	42%	24%
Level 2 with EM (B or above)	8.9	4.2	13.0	140.0	263.7	53%	9%
At least 5 A*-A passes	1.8	2.0	3.8	127.6	239.8	53%	3%
All	65.5	34.9	100.4	571.1	1897.3	30%	18%

Table 8 shows how important FE is as a safety-net for many of the young people who 'drop out' of post-compulsory schooling. Of the 100 thousand who dropout from Table 6, 58.6% participated in further education in either the academic year in which they left school or the following year, and 70% of them subsequently participated in either an apprenticeship or level 3 study. These 100 thousand are a relatively small proportion of our overall cohort, but many go on to acquire levels of qualification at FE that transforms their productive potential, having been given a second chance.

Table 8: Category of highest aim undertaken by young people dropping out having stayed on at school

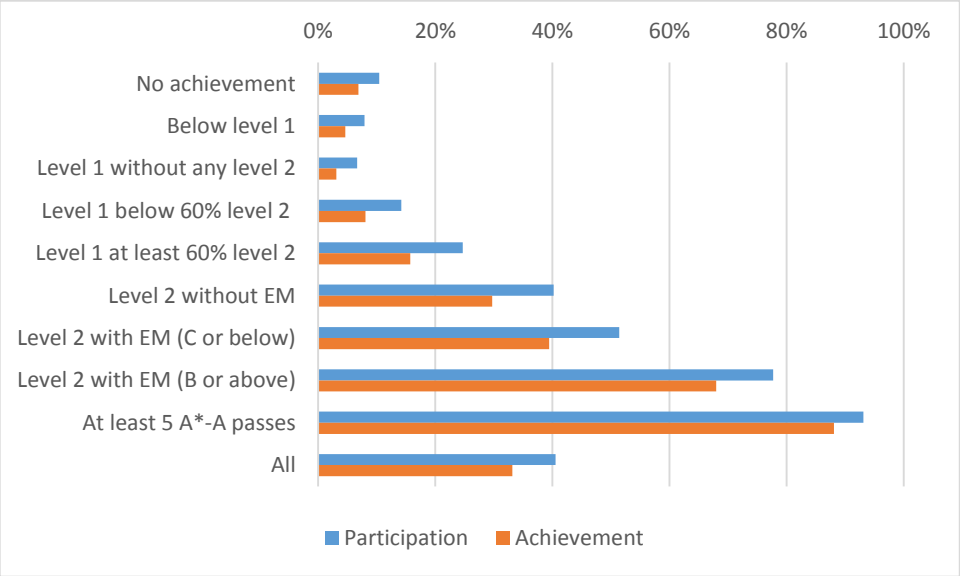
Highest aim studied	N (000s)	Pct
Aims at level 4 and above including higher apprenticeships	0.2	<1%
Aims undertaken as part of an advanced apprenticeship	2.8	5%
Aims undertaken as part of an apprenticeship	8.7	15%
Academic level 3 aims	12.1	21%
Full level 3 aims	12.7	22%
Thin level 3 aims	4.1	7%

Level 3 aims (missing width)	0.4	1%
Full level 2 aims	5.6	10%
Thin level 2 aims	2.6	4%
Level 2 aims (missing width)	1.1	2%
SFL aims at level 1 and below	2.7	5%
Level 1 aims	2.9	5%
Entry level and unassigned level aims	2.6	5%
Total	58.6	

The Higher Education Route

41% of the total cohort had participated in higher education (HE) by the end of 2013/14 and just over a third had achieved a qualification equivalent to NQF level 4 or above at an institution in the HE sector. As we have already detailed, HE participation is strongly associated with attainment at age 15 and using our highest qualification attainment categories, we can see that the vast majority of those who achieved 5 A*-A passes at GCSE, or who achieved level 2 (with English and maths) averaging a grade B or better, subsequently participated in higher education (Figure 4). This strong socio-economic gradient, which means that pupils born to disadvantage, subsequently achieve less at school and then this translates into lower HE participation, is one of the main findings of Chowdry et. al. (2013). This drives the authors to suggest that educational interventions in early years education are the most important (at age 11 and under) – as we are beginning to see, identification of the specific role played by Further Education for these disadvantaged children, forces us to revisit this blanket policy prescription.

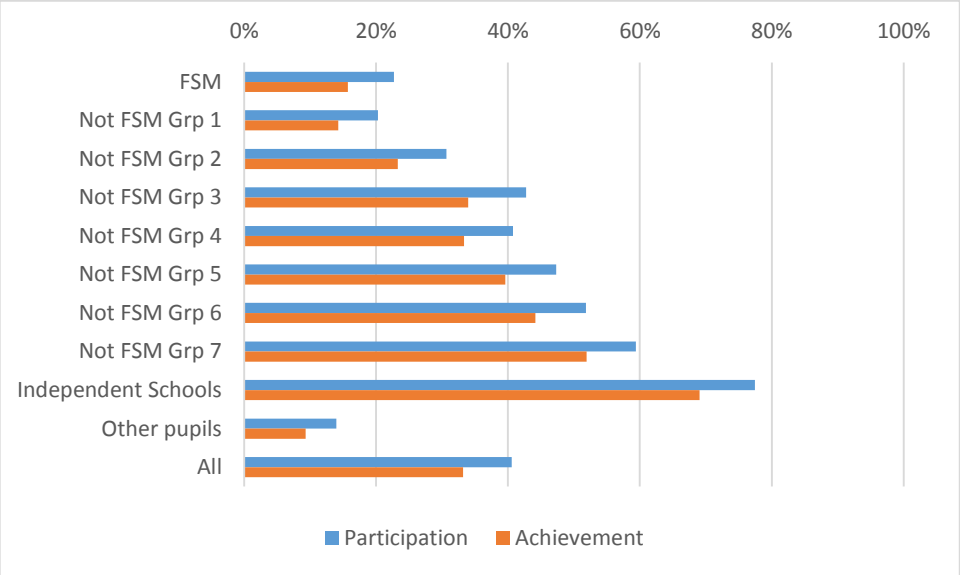
Figure 4: Percentage participating and achieving in higher education by attainment at 15



Thus the strong association between attainment at age 15 and subsequent HE participation and achievement in Figure 4 is reflected in the strong association between socio-economic group at age 15 and HE participation/achievement set out in Figure 5. Even among those who attended state-schools and were not eligible for free school meals at 15, there is a wide disparity in participation rates between those resident in the most and least advantaged areas according to OAC. Those resident in group 7 were almost 3 times as likely as those in group 1 to have participated in higher education. Participation (and achievement) among 'Not FSM group 3', the most ethnically diverse of

the Not FSM groups, exceeded that of 'Not FSM group 4', which was higher-attaining at age 15 (see Appendix Table 18 for more detail on this aspect).

Figure 5: Percentage participating in higher education by socio-economic group at 15



Charting the waters between compulsory schooling and higher education is quite a challenge, but Table 9 is an essential first step in this process, as we map a) staying-on rates at state-school and b) the attainment of level 3 by age 18 at any institution[24], identifying the specific role that FE plays. In total, Table 9 shows that 44% of young people achieved NQF Level 3 by the age of 18 according to 16-18 Performance Tables. As would be expected from the KS4 attainment profile of each socio-economic group previously considered, less advantaged pupils were less likely to stay on at a state-funded school and to subsequently achieve level 3 (the equivalent of 2 or more A levels, in academic qualifications). For instance, in Table 9 we see only 12% of the FSM group on-roll at a state-funded school at the age of 17 (compared to 43% of our most affluent group), and only 8% achieved NQF level 3 by the age of 18 in a state-funded school (compared to 41% of our most affluent group).

In contrast, the profile of those achieving level 3 in FE colleges is much more balanced across our socio-economic groups and this reflects the fact that FE is much more important for the most disadvantaged, as a stepping stone to Higher Education – for the FSM group we see 13% achieving NQF Level 3 by age 18 (compared to only 8% doing so in state schools); for the next most disadvantaged group (Not FSM Group 1) the figures are 14% in FE, compared to 9% in state schools; and for Group 2 we have 17% compared to 15%. For pupils born to the most acute levels of social

[24] Prior to 2006, the vast majority of those staying on at school would have been studying academic level 3 qualifications (A levels) although a small proportion would have been studying at level 2 and below, including those resitting GCSEs. Up until 2005, only A levels (including AS levels and vocational A levels) and Key Skills were reported in 16-18 Performance Tables, published by the Department for Education (and its predecessor ministries) since 1994. All other level 3 qualifications approved for pre-19 use under Section 97 of the Learning and Skills Act 2000 were subsequently included. The implication for this research is that we would have an incomplete picture of level 3 attainment by age 18 for young people who completed level 3 study prior to 2005 if we relied on Performance Tables data. For young people who attended FE colleges, additional qualification data can be incorporated from ILR. A small amount of data may then be missing for young people who entered level 3 qualifications other than A levels whilst attending schools (e.g. BTEC, City & Guilds). Based on data for 2006, the first year in which additional qualifications were included in Performance Tables, around 4 thousand additional young people achieved level 3 in schools as a result of such qualifications.

disadvantage, Further Education (including sixth form college) is the most important route to achievement of NQF Level 3 by age 18.

If anything Table 9 understates the importance of FE for these more disadvantaged groups, as accounting for level 3 qualifications undertaken in FE colleges and independent training providers that were historically out-of-scope for Performance Tables (such as NVQs), raises the estimates by 2 percentage points (compared to the figures based on Performance Tables alone), equivalent to around 46 thousand individuals.

Table 9: Percentages a) staying on at school and b) achieving level 3 by 18, cohorts aged 15 in England 2002 to 2004

		On roll state-funded school			Achieving NQF L3 by 18 (Performance Tables)		
		Age 16	Age 17	Age 18	Anywhere	State School	GFE/SF College
On Roll state-funded schools at age 16	FSM	19%	12%	3%	21%	8%	13%
	Not FSM Grp 1	18%	12%	2%	23%	9%	14%
	Not FSM Grp 2	26%	19%	2%	33%	15%	17%
	Not FSM Grp 3	33%	26%	4%	43%	22%	21%
	Not FSM Grp 4	35%	28%	2%	47%	25%	22%
	Not FSM Grp 5	38%	31%	2%	54%	29%	24%
	Not FSM Grp 6	44%	37%	2%	59%	34%	24%
	Not FSM Grp 7	50%	43%	2%	66%	41%	24%
Independent Schools		6%	6%	1%	82%	5%	11%
Other pupils		7%	5%	1%	9%	3%	5%
All Pupils		30%	23%	2%	44%	20%	19%

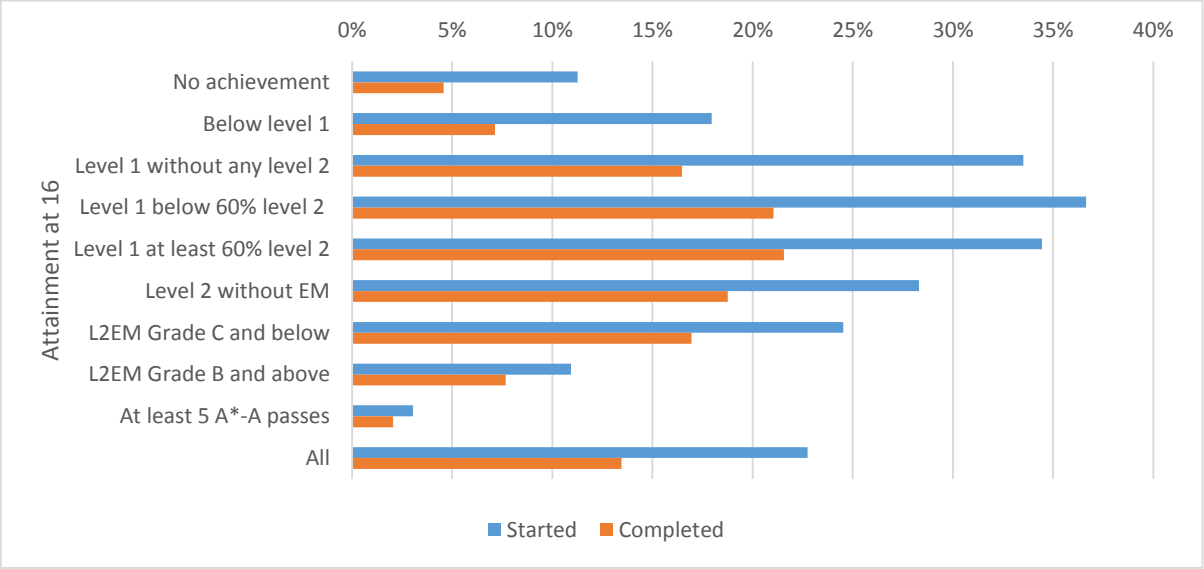
From Table 2 we have seen how the socio-economic gradient is completely reversed when considering FE participation, and in Table 9 we begin to see that FE learning is also the most important route for achievement of the Level 3 qualifications that allow entry to Higher Education, for these more disadvantaged learners. More generally, our analysis gives a clear indication of the wider importance of FE to the progression of young people into Higher Education, as we find that 308 thousand individuals (16% of the combined cohort) achieved level 3 qualifications within the FE sector *en route* to higher education. As we shall see in Section 4 of our report, the findings of Table 9 are further re-enforced when we isolate the specific value added of FE in helping these more disadvantaged young people make the transition to HE.

The Apprenticeship Route

Of the 1.9 million individuals in our cohort of school leavers, 431 thousand (23%) started at least one apprenticeship between 2002 and 2013, and 255 thousand (13%) achieved at least one. Figure 6 shows that those who left school having achieved level 1 (but not level 2) were the most likely to participate in apprenticeships. Once again, we see FE giving a second chance to some of the most challenging learners, who have achieved a much lower level of qualification than that expected of the average school leaver. Also, for many of these learners, some form of intermediate FE learning will act as a 'stepping stone' between this Level 1 achievement at 15 and subsequent Apprenticeship enrolment. It is perhaps not surprising that young people who leave state school with levels of qualification at Level 1, have higher rates of Apprenticeship participation, than they do rates of

achievement. However, this pattern of participation flags an important role for future research, as it is clear from the figures that FE currently plays an important role as a stepping stone, but more could be done for the most challenging learners.

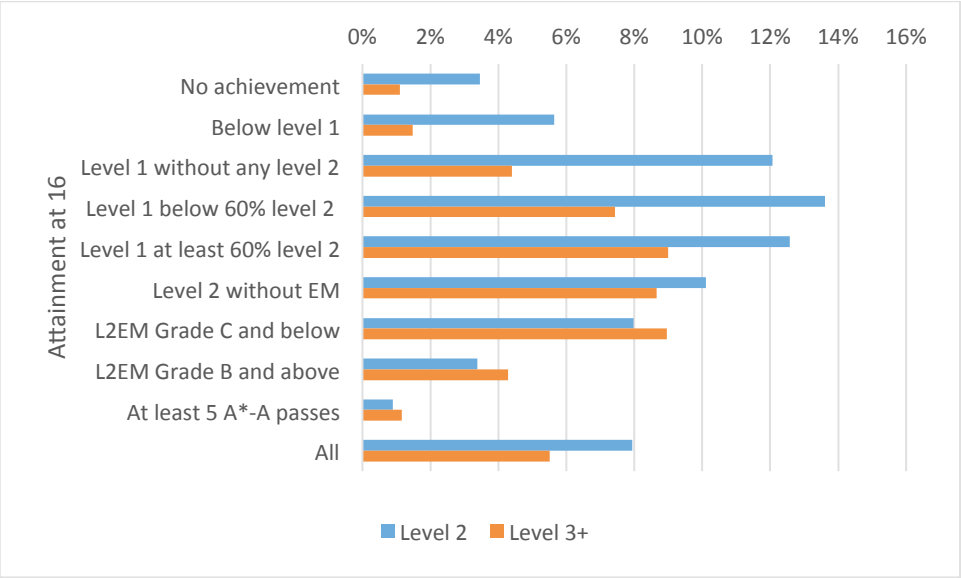
Figure 6: Percentage a) starting and b) completing at least one apprenticeship by 2012/13, cohorts of 15 year olds in England 2002-2004



However, because of the nature of FE learning that might take place between an individual's achievement within the state school system and FE learning towards an apprenticeship, it is hard to identify any intermediate FE learning that acts as a stepping stone[25]. Figure 6 gives some initial idea of the start (i.e. qualification at age 15) and end points (apprenticeship learning) of this process; and Figure 7 breaks this down, to give more detail by levels of apprenticeship learning. Of those who had completed at least one apprenticeship by the end of 2012/13, 40% had achieved a higher or advanced level apprenticeship (level 3+); 8% of the cohort held an apprenticeship at level 2 and 5% at level 3 or above by the end of 2012/13.

[25] It is a challenge in the ILR to clearly identify whether any prior learning plays a part in a learner's path to apprenticeship.

Figure 7: Achievement at 15 and Level of highest subsequent apprenticeship completed, up to 2012/13



63% of those who participated in a level 2 apprenticeship first did so between the ages of 16 and 18 compared to 44% of those who participated in a level 3 (or level 4) apprenticeship (Table 19 of the Appendix). Those with higher levels of attainment at age 16 were more likely to participate in apprenticeships at level 3 or above. Individuals with particularly low or particularly high levels of attainment at age 16 were more likely to first participate in apprenticeships at age 19 or older. In the case of the former, FE likely provided further training, as a stepping stone between state school and the apprenticeship.

More specifically, of the 431 thousand individuals who participated at least once in an apprenticeship after age 15, 217 thousand (50%) had at least one previous funded learning spell observed in the ILR prior to commencing their first apprenticeship (Table 10). In addition, a small proportion may have completed preliminary education and training within the same learning spell prior to commencing an apprenticeship. The rate of observed prior FE learning was slightly higher among those whose first apprenticeship was at level 3 or above. In the majority of cases, learners had previously studied at full level 2 or above. This is the closest that this study gets to the role played by lower-level learning in FE, as a stepping stone from poor performance at state school, to apprenticeship learning - much of the FE learning taking place at level 2 provides a pathway from poor achievement at state school, to apprenticeship achievement. Any expansion of apprenticeship learning needs to consider this carefully.

Table 10: Highest aim studied in ILR learning spells prior to first apprenticeship participation

	Level of first apprenticeship		
	L2	L3+	All
Aims at level 4 and above	<1%	1%	<1%
Academic level 3 aims	19%	24%	20%
Full level 3 aims	20%	26%	21%
Thin level 3 aims	5%	6%	5%
Level 3 aims (missing width)	1%	1%	1%
Full level 2 aims	24%	28%	25%
Thin level 2 aims	7%	5%	7%

Level 2 aims (missing width)	3%	2%	2%
SFL aims at level 1 and below	8%	2%	7%
Level 1 aims	7%	3%	6%
Entry level and unassigned level aims	6%	2%	5%
Total with prior ILR learning spells	166.8	50.1	216.8
No prior ILR learning spells	171.7	42.6	214.7
Total apprenticeship participants	338.5	92.7	431.5

Lifelong Learning

FE ensures that the route to a skills qualification remains open throughout an individuals working life. A quarter of those in our original cohort, who did not achieve an apprenticeship or HE qualification, achieved their latest highest qualification after the age of 21. This rate was even higher among those with lower levels of attainment at age 15, and further emphasises the role that FE plays in helping those who, perhaps for reasons of family background, do not take up opportunities for learning earlier on in life.

Table 11: Age at which latest skills qualification was achieved by attainment at age 15

	Age at which latest skills qualification was achieved					
	16	17	18	19-21	22+	Number (000s)
No achievement	4%	9%	9%	26%	47%	14.7
Below level 1	5%	12%	11%	25%	43%	22.6
Level 1 without any level 2	9%	17%	14%	22%	31%	74.3
Level 1 below 60% level 2	14%	16%	18%	19%	23%	79.8
Level 1 at least 60% level 2	9%	24%	17%	17%	20%	49.1
Level 2 without EM	4%	31%	15%	16%	18%	40.4
L2EM Grade C and below	2%	30%	15%	16%	18%	41.8
L2EM Grade B and above	1%	26%	14%	16%	17%	15.4
At least 5 A*-A passes	2%	19%	11%	17%	20%	3.0
All	8%	21%	15%	19%	25%	341.2

4. Variation in FE Value Added by Socio-economic Group

In section 2, the background to our study details evidence gathered from analysis of linked ILR-WPLS-ND-LMS[26] datasets, showing that those learning in FE secure good labour market returns, in contrast to previous evidence. Part of the reason that this previous evidence was hidden, was that FE engages with some of the most disadvantaged individuals in society. Section 3 of our study maps the extent of this reverse socio-economic gradient for the first time (using a matched NPD-ILR-HESA dataset), showing that FE is an essential route to qualification and higher learning, for those who do not make the most of their opportunities in the state school system. The question we ask in this section (using a matched ILR-WPLS-HESA dataset) is - are those from lower socio-economic groups securing these good returns within FE?

[26] Much of the work detailed here focuses on ILR-WPLS data, but recent studies have also linked these data to the Labour Market System (LMS) and New Deal (ND) evaluation datasets [held by DWP], as part of work commissioned jointly by BIS and the Department for Work and Pensions (DWP).

Our findings to date suggest that many FE learners are from disadvantaged backgrounds, and we have evidence that FE learners (in general) secure good returns; but it is possible that the good returns are driven by experiences of those from less disadvantaged backgrounds. As this section of the report suggests, if anything, the opposite seems true, as in many cases those from more disadvantaged backgrounds secure higher returns within FE, especially when we consider learning at Level 2 and below.

In this section of the report we are slightly more limited in the measures used to capture differences in the social background of FE learners, as there is slightly less detailed postcode information in the ILR. Therefore we utilise the Index of Multiple Deprivation (IMD), which is a similar geographic indicator based on postcode and reflects levels of deprivation in the locality, variously measured[27]. A higher score is associated with individuals who are likely experiencing higher levels of deprivation and it is completely in line with the measures used in Section 3, but not to quite such a detailed level of spatial disaggregation. To give an idea of the correspondence between the two groups, here is the mean IMD score for each of the OAC-based groups used in the previous section.

Groupings Section 3	Mean IMD Score
FSM	37.6
Not FSM Grp 1	37.0
Not FSM Grp 2	29.0
Not FSM Grp 3	29.5
Not FSM Grp 4	15.4
Not FSM Grp 5	14.2
Not FSM Grp 6	10.2
Not FSM Grp 7	8.5

The analysis in this section is carried out using an ILR-WPLS-HESA dataset that allows estimation of the impact of FE (for learners recorded in the ILR); in terms of their employment and earnings outcomes (using the WPLS) and their HE outcomes (from HESA data). For each learner we have 9 academic years (2004/2005 to 2012/2013) when they can possibly exit learning (as an achiever or non-achiever) and over these academic years, a learner can have multiple ILR learning spells. Across all of the learning spells for each individual we select the highest learning aim. The estimate of value added is obtained by comparing the returns of those who have a particular highest learning aim (for instance Full Level 2) and achieve; with the returns of those who have the same highest learning aim, but do not achieve[28]. We present returns in the first year after learning, as they are an important benchmark for comparison across studies, and the 3 to 5 year average is chosen because it balances an implicit trade-off; as we require estimated premiums that (i) persist sufficiently far into the future, but (ii) are not over-reliant on a small number of cohorts that completed learning many years ago.

[27] IMD summarizes seven distinct domains; Income Deprivation, Employment Deprivation, Health Deprivation and Disability, Education Skills and Training Deprivation, Barriers to Housing and Services, Living Environment Deprivation, and Crime.

[28] Controlling for sex; age; interaction sex-age; ethnicity; disability; region; type of funding (none, LCS, ESF, both); mode of attending (FT/PT); offender; spell duration; number of previous FE learning spells; prior education level; year dummies; Index of Multiple Deprivation (IMD); Indicators derived from Sector Subject Area (SSA); the number of days an individual was on active benefits in the year before learning; whether an individual has an inactive benefit spell in the year before learning; and how many days an individual has spent in sustained (6 months) employment just before learning.

The approach to estimation of value added in this section is relatively new, and readers should consider the narrative in Section 2 that details the various studies that have investigated its robustness - with the evidence suggesting that these estimates are robust to the highest standards of econometric investigation. This is further re-enforced by the fact that, as we have undertaken this work, other researchers have begun to use drop-outs as a control group in studies of returns to learning in (for instance) US Community Colleges, publishing in prestigious of economic journals (Jepsen et. al. 2014).

In the first row of Table 12 we have all individuals amongst the ILR population whose highest qualification aim between 2004/2005 and 2012/2013, was undertaken between the ages of 16 and 18, at *Below Level 2*[29]. This first row of Table 12 therefore asks, for the sort of school leavers we see in the previous section of the report, what is the value added to learning in FE at *Below Level 2* when taken soon after leaving school? The answer, for the group as a whole, is 1.6% - that is, we can expect those achieving a qualification at *Below level 2* to experience, on average, a 1.6% earnings gain. This is statistically significant but, even considering the relatively low cost associated with these courses, it is not particularly large.

However, when we start to look beneath this overall average return, Table 12 suggests that the return to this level of learning for young people from more disadvantaged backgrounds, is much higher. For instance, Table 12 shows that when we estimate the returns [value added] to this level of learning separately for the most disadvantaged third of FE learners (according to their IMD score), we find they are securing the highest return to learning at this level (3.5%) – this group are securing a return which is more than double the average for this category of highest qualification aim[30], and those students from more affluent backgrounds are securing no estimated return (an issue we return to in the conclusion to this study).

As we move further down Table 12 this greater earnings premium for the most disadvantaged third of FE learners is even more pronounced, with those who have a highest learning aim of *Level 2* securing a 6.2% earnings return, compared to an average of 3.4%. As we move further up the qualification ladder, it is interesting to note that the qualification return to Full level 2 qualifications tends to be slightly lower for the most disadvantaged learners[31] [12.9% as opposed to and average of 14.3% for FL2 learners] and this seems to be even more pronounced when it comes to apprenticeships. For instance, those from more advantaged backgrounds who engage in a Level 2 apprenticeship secure an estimated 17.1% earnings return, whilst this is 11.5% for the most socially disadvantaged.

[29] In the *Full Level 2* category we include all highest aims that are equivalent to 5 GCSEs at grade A* to C (including apprenticeship qualifications): in the *Full Level 3* category we include all highest aims that are equivalent to two A levels (including apprenticeship qualifications); and *Level 2* and *Level 3* includes learners with highest aims at these levels of study, but which fall below the equivalence required to be considered 'Full'.

[30] These 3 to 5 year averages are constructed from regression estimates of returns across five years from the end of learning. For instance, the figure of 0.036 in the top left-hand corner of Table 12 is a coefficient obtained from a regression equation for individuals whose highest qualification aim, across all their learning spells, is *Below Level 2*. The coefficient of 0.036 is an estimate of the additional earnings that achievers receive in the first tax year after the learning spell ends, compared to the earnings of those who fail to achieve the aim, controlling for a variety of additional factors in our regression equation. Those achieving a qualification *Below Level 2* earn, on average, 3.6% more than those who do not achieve this stated highest aim in the first year after the learning spell ends and across the period 3 to 5 years from the end of learning, the average return is 1.6%.

[31] Perhaps reflecting the findings from areas of the country where study at Sixth Form college is one of the few options, as state school Sixth Forms are rare.

This lower return to apprenticeship learners from disadvantaged backgrounds is consistent with our findings from analysis of the productivity impacts of apprenticeships[32]. This notes that any historical expansion of apprenticeships that were seen as being of lesser 'quality', is closely associated with larger numbers of individuals from socially disadvantaged backgrounds. It is likely that the sort of apprenticeships taken up by more and less socially disadvantaged students in Table 12 explains much of the difference in earnings returns – Level 3 apprenticeships do not exhibit such variation in quality and we see many fewer disadvantaged learners.

In Table 12, we can also see that learning at Level 3 and Full Level 3 is more likely to result in higher returns to the more disadvantaged students and it is important to explain the patterns of return that we seem to be observing. In this work we are able to take account of transitions to Higher Education, so all those transitioning to HE in the three years following learning are dropped from our analysis[33]. In doing so, we seem to observe a very specific pattern of returns for those remaining 16 to 18 year olds, who have some form of earnings following achievement of Level 3 and Full Level 3 qualifications - there is a clear pattern of lower wages (probably as they complete professional work-based qualifications), up to the third year from the end of learning and then from the fourth year we start to observe significantly higher earnings returns. As a result, the three to five year earnings returns are somewhat artificially depressed. However, as we shall see, qualification in FE at this level is strongly linked to HE transitions [where once again we see the most disadvantaged doing best out of this route to social progression] and when we consider the 19 to 24 year olds in Table 13, this pattern is no longer evident.

Table 12: Variation in the earnings returns to achievement for 16 to 18 year old Learners in English FE according to ILR highest learning aims; separate analysis for the three IMD score 'tertiles'[34]

Acheivement	1st Year	3rd Year	4th Year	5th Year	3 to 5 year average
Below Level 2	0.036 ***	0.003	0.014	0.030 **	**0.016**
IMD low -advantaged	0.025	-0.031	-0.012	0.026	**0.000**
IMD middle	0.032	0.027	0.016	-0.004	**0.000**
IMD high -disadvantage	0.056 ***	0.017	0.032 *	0.054 ***	**0.035**
Level 2	0.011	0.001	0.030 *	0.070 ***	**0.034**
IMD low -advantaged	-0.062 **	-0.048 *	0.021	0.038	**0.000**
IMD middle	0.045 *	0.002	0.045 *	0.075 ***	**0.041**
IMD high -disadvantage	0.050 **	0.053 **	0.035	0.098 ***	**0.062**
Full Level 2 (excl app)	0.176 ***	0.141 ***	0.155 ***	0.134 ***	0.143
IMD low -advantaged	0.230 ***	0.172 ***	0.155 ***	0.147 ***	0.158
IMD middle	0.133 ***	0.137 ***	0.148 ***	0.127 ***	0.137

[32] Cerqua, A. and Urwin, P. (2015), *The Expansion of Apprenticeships in 2010/2011 and Implications for Forthcoming Expansion*, 13th July.

[33] See Bibby et. al. (2014) for a more extended discussion.

[34] Percentage Log Daily Earnings Premium in Tax Year after Spell End. Standard errors are not presented, as virtually all are 0.000.

IMD high -disadvantage	0.146	***	0.112	***	0.151	***	0.123	***	0.129
Level 2 apprenticeship	0.175	***	0.135	***	0.135	***	0.135	***	0.135
IMD low -advantaged	0.206	***	0.165	***	0.188	***	0.159	***	0.171
IMD middle	0.157	***	0.110	***	0.109	***	0.102	***	0.107
IMD high -disadvantage	0.151	***	0.115	***	0.101	***	0.131	***	0.115
Level 3	-0.063	***	-0.052	***	0.034	***	0.111	***	0.031
IMD low -advantaged	-0.107	***	-0.085	***	-0.004		0.082	***	-0.003
IMD middle	-0.035	*	-0.03		0.059	***	0.117	***	0.049
IMD high -disadvantage	-0.034	*	-0.032	*	0.055	***	0.138	***	0.054
Full Level 3 (excl app)	-0.013		-0.044	***	0.039	***	0.107	***	0.034
IMD low -advantaged	-0.081	***	-0.067	***	0.019		0.111	***	0.021
IMD middle	0.008		-0.033	*	0.047	***	0.110	***	0.041
IMD high -disadvantage	0.071	***	-0.012		0.058	***	0.100	***	0.049
Level 3 apprenticeship	0.274	***	0.228	***	0.192	***	0.196	***	0.206
IMD low -advantaged	0.254	***	0.198	***	0.157	***	0.185	***	0.180
IMD middle	0.303	***	0.253	***	0.225	***	0.226	***	0.235
IMD high -disadvantage	0.276	***	0.252	***	0.215	***	0.189	***	0.218

*** significant at the 0.1% level; ** 1% and * 5%

Table 13 repeats the analysis of Table 12, but this time focusing on those learners who were aged 19 to 24 at the time of their highest FE learning aim. Here we have a more varied picture of returns, but when compared to the previous survey-based evidence on the value of FE learning, it is still clear that this age group are securing good returns to FE learning, and this is also true of those amongst this group who are born to disadvantage. For instance, at levels of learning *Below Level 2*, the most disadvantaged group achieves close to the average return (5.1%, as opposed to an average for all learners of 5.4%); they secure a higher estimated return of 7.6%, when compared to the average of 5.4% for all those whose highest learning aim is 'Thin' Level 2; and at Level 3, Full Level 3 or Level 3 apprenticeship learning, the most disadvantaged group of learners aged 19 to 24 are securing returns at, or above, the average level seen for the learning aim as a whole. Once again, when considering Level 2 apprenticeships, we see the most advantaged securing higher returns, possibly because of their higher likelihood of accessing 'better quality' apprenticeships at this level.

Table 13: Variation in earnings returns to achievement for 19 to 24 year old Learners in English FE according to ILR highest learning aims; separate analysis for the three IMD score 'tertiles'[35]

Acheivement	1st Year	3rd Year	4th Year	5th Year	3 to 5 year average
Below Level 2	0.045 ***	0.056 ***	0.048 ***	0.057 ***	0.054
IMD low (richer)	0.030 *	0.054 ***	0.065 ***	0.063 ***	0.061
IMD middle	0.050 ***	0.055 ***	0.040 ***	0.048 ***	0.048
IMD high (poorer)	0.050 ***	0.057 ***	0.041 ***	0.055 ***	0.051
Level 2	0.031 ***	0.047 ***	0.052 ***	0.063 ***	0.054
IMD low (richer)	0.003	0.023 *	0.031 **	0.057 ***	0.037
IMD middle	0.017	0.029 **	0.048 ***	0.052 ***	0.043
IMD high (poorer)	0.062 ***	0.081 ***	0.072 ***	0.077 ***	0.076
Full Level 2 (excl app)	0.171 ***	0.137 ***	0.108 ***	0.103 ***	0.116
IMD low (richer)	0.194 ***	0.151 ***	0.126 ***	0.099 ***	0.126
IMD middle	0.166 ***	0.139 ***	0.107 ***	0.117 ***	0.121
IMD high (poorer)	0.158 ***	0.127 ***	0.099 ***	0.094 ***	0.107
Level 2 apprentice	0.134 ***	0.115 ***	0.088 ***	0.071 ***	0.091
IMD low (richer)	0.153 ***	0.146 ***	0.106 ***	0.069 ***	0.107
IMD middle	0.109 ***	0.083 ***	0.061 ***	0.076 ***	0.073
IMD high (poorer)	0.131 ***	0.101 ***	0.091 ***	0.062 ***	0.085
Level 3	-0.027 ***	0.016 *	0.072 ***	0.100 ***	0.063
IMD low (richer)	-0.051 ***	0.01	0.055 ***	0.111 ***	0.059
IMD middle	-0.026 *	0.034 **	0.096 ***	0.104 ***	0.078
IMD high (poorer)	-0.002	0.011	0.071 ***	0.092 ***	0.058
Full Level 3 (excl app)	0.073 ***	0.069 ***	0.095 ***	0.117 ***	0.094
IMD low (richer)	0.066 ***	0.078 ***	0.088 ***	0.092 ***	0.086
IMD middle	0.082 ***	0.066 ***	0.098 ***	0.121 ***	0.095
IMD high (poorer)	0.066 ***	0.067 ***	0.101 ***	0.130 ***	0.099
Level 3 apprentice	0.157 ***	0.145 ***	0.121 ***	0.125 ***	0.13
IMD low (richer)	0.154 ***	0.153 ***	0.123 ***	0.122 ***	0.133
IMD middle	0.163 ***	0.128 ***	0.124 ***	0.125 ***	0.126
IMD high (poorer)	0.150 ***	0.155 ***	0.118 ***	0.129 ***	0.134
Level 4+	0.122 ***	0.118 ***	0.128 ***	0.107 ***	0.118
IMD low (richer)	0.124 ***	0.113 ***	0.122 ***	0.119 ***	0.118
IMD middle	0.113 ***	0.122 ***	0.137 ***	0.120 ***	0.126
IMD high (poorer)	0.133 ***	0.118 ***	0.133 ***	0.079 ***	0.11

*** significant at the 0.1% level; ** 1% and * 5%

[35] Percentage Log Daily Earnings Premium in Tax Year after Spell End

The earnings returns presented in Tables 12 and 13 lead in this section, as they reflect the estimates of value added in terms of productivity enhancements, secured by learners in FE. As we can see, in contrast to previous evidence, FE enhances the productivity of FE learners in general; and this seems to be particularly apparent for those born to disadvantage, in stark contrast to other parts of the education system. Table 14 now presents estimated employment probability premiums[36], which allow us to capture the value of FE learning in helping individuals obtain employment (whereas Tables 12 and 13 focus solely on the benefits secured by those who make it into a job). Table 14 begins by considering those who engage in FE between the ages of 19 and 24, as generally we find few significant employment impacts for those aged 16 to 18; because we are either considering levels of learning that lead to Higher Education or there are so few 16 to 18 year olds, that we do not observe significant numbers more than three years on from the end of FE learning.

Table 14 confirms the findings in recent work (Bibby et. al., 2014) that, even when we consider the returns to FE learning using admin data, there is a less significant impact on employment probabilities to learning at *Below level 2* (though see Cerqua and Urwin, forthcoming 2015a for the identification of higher returns when we concentrate on Entry level and Level 1 English and Maths qualifications). However, when we consider returns to learning for those aged 19 to 24 whose highest achievement in FE is 'thin' Level 2, we once again find that (as with earnings returns) there is evidence that the most disadvantaged learners secure a higher return. More specifically, Table 14 suggests that those with a highest level of achievement in this area are 1.8 percentage points more likely [than non-achievers] to secure employment three to five years after learning – but this figure rises to 2.4 ppts when we consider the most disadvantaged learners (and this translates into about 5% when considering this ppt premium next to the absolute levels of employment seen amongst this group).

For learners whose highest FE aim is Full Level 2, we find little overall employment impact, but for the most disadvantaged the employment premium is close to 2 ppts. Interestingly, in the work we have undertaken to this point, there is rarely an employment premium associated with apprenticeship learning – as one would expect, because learners are expected to be in employment when starting their studies. However, we can see that those who are from more disadvantaged groups do secure a significant employment premium, compared to non-achievers of 1.8 ppts for L2 apprenticeships (the 0.8 ppt premium for L3 apprenticeships is not statistically significance). More generally, for those with Level 3 and Full Level 3 highest learning aims, there is once again a suggestion that the most disadvantaged secure the highest returns to FE learning – in both cases, the employment premium is 2.7 ppts for the most disadvantaged third of FE learners.

[36] Some regressions have binary variables on the left-hand side. These models are also estimated using OLS resulting in a linear probability model (LPM). Such models have the disadvantage that out-of-bound predictions can occur (probabilities greater than 1 or less than 0) and also suffer from heteroskedasticity. However, the sheer size of these data make logit/probit modelling with marginal effects highly computationally intensive; particularly as our identification strategy requires each qualification level to be estimated in its own regression equation. LPM models generally performed well and we report robust standard errors.

Table 14: Variation in Employment returns to achievement for 19 to 24 year old Learners in English FE according to ILR highest learning aims; separate analysis for the three IMD score 'tertiles'[37]

Acheivement	One year	Three years	Four Years	Five years	3-5 Year Average
Below Level 2	0.003 ***	0.004 ***	0.004 ***	0.004 **	0.004
IMD low (richer)	-0.005 *	-0.004 ***	-0.003	-0.004	-0.004
IMD middle	0.005 *	0.008 ***	0.008 **	0.007 *	0.007
IMD high (poorer)	0.006 ***	0.005 ***	0.005 **	0.006 **	0.005
Level 2	0.016 ***	0.019 ***	0.017 ***	0.018 ***	0.018
IMD low (richer)	0.014 ***	0.012 ***	0.011 **	0.014 ***	0.012
IMD middle	0.012 ***	0.016 ***	0.015 ***	0.013 ***	0.015
IMD high (poorer)	0.019 ***	0.025 ***	0.023 ***	0.023 ***	0.024
Full Level 2 (excl app)	0.006 ***	0.002 ***	0.007 **	0.010 ***	0.006
IMD low (richer)	-0.013 ***	-0.017 ***	-0.012 **	-0.005	-0.011
IMD middle	0.006 *	0.001 ***	0.003	0.006	0.003
IMD high (poorer)	0.017 ***	0.013 ***	0.019 ***	0.021 ***	0.018
Level 2 apprentice	0.011 ***	-0.001 ***	-0.002	0.000	-0.001
IMD low (richer)	-0.006	-0.017 ***	-0.019 ***	-0.015 **	-0.017
IMD middle	0.008 *	-0.004 ***	-0.008	-0.006	-0.006
IMD high (poorer)	0.028 ***	0.017 ***	0.018 ***	0.020 ***	0.018
Level 3	0.006 **	0.015 ***	0.021 ***	0.025 ***	0.02
IMD low (richer)	0.001	0.009 ***	0.013 ***	0.016 ***	0.013
IMD middle	0.006	0.013 ***	0.017 ***	0.021 ***	0.017
IMD high (poorer)	0.007 *	0.019 ***	0.028 ***	0.032 ***	0.027
Full Level 3 (excl app)	0.011 ***	0.013 ***	0.020 ***	0.026 ***	0.019
IMD low (richer)	0.005	0.005 ***	0.007	0.017 **	0.01
IMD middle	0.007 *	0.012 ***	0.015 **	0.021 ***	0.016
IMD high (poorer)	0.017 ***	0.018 ***	0.030 ***	0.035 ***	0.027
Level 3 apprentice	0.009 **	0.002 ***	-0.001	-0.002	0.000
IMD low (richer)	0.004	-0.007 ***	-0.009	-0.011	-0.009
IMD middle	0.008	0.001 ***	-0.001	-0.000	0.000
IMD high (poorer)	0.016 **	0.011 ***	0.006	0.007	0.008

Finally, Table 15 presents estimated HE probability premiums, which allow us to capture the value added of FE learning in helping individuals progress to HE in the three years after FE learning. As one might expect, there is little value in attempting to capture the value of FE learning at Level 2 or below as a route to HE within three years from the end of learning – we may see a few learners squeezing in

[37] Percentage Log Daily Earnings Premium in Tax Year after Spell End

Full Level 3 learning in two years and then immediately moving on to HE, but this does not fully capture value added. Therefore Table 15 focuses on transitions from FE learning at Level 3 and above.

Across all categories of highest learning aim, the value added of FE learning, as measured by it's efficacy in ensuring that learners at Level 3 and above make the transition to HE, is much higher for the most disadvantaged. For instance, the most socially disadvantaged group with a highest learning aim of Full Level 3 are 11.4 ppts more likely than non-achievers to progress to HE, and this compares to a premium of 9.5 ppts for the affluent group. FE is an essential route to HE for many individuals (whether disadvantaged or not), but this section shows that this is particularly true for the most disadvantaged. This report brings new evidence to the table, for the first time showing that FE is an important (and effective) route to HE for many of the most disadvantaged learners, and as a result we need to re-open discussion of whether the correct balance has been achieved across the educational landscape.

Table 15: **Variation in the probability that FE learners will progress to HE in the three years following the end of learning; separate analysis for the three IMD score 'tertiles'**[38]

Highest level of achievement	HE in any of three years after FE learning	
Level 3	0.021	***
IMD low (richer)	0.019	***
IMD middle	0.020	***
IMD high (poorer)	0.024	***
Full Level 3 (excl app)	0.105	***
IMD low (richer)	0.095	***
IMD middle	0.102	***
IMD high (poorer)	0.114	***
Level 3 apprentice	0.027	***
IMD low (richer)	0.022	***
IMD middle	0.030	***
IMD high (poorer)	0.029	***
Level 4+	0.028	***
IMD low (richer)	0.023	***
IMD middle	0.026	***
IMD high (poorer)	0.036	***

[38] Percentage Log Daily Earnings Premium in Tax Year after Spell End

5. Conclusions

This report sets out a summary of important new research by staff at the Centre for Employment Research [University of Westminster] and Education Datalab. It takes advantage of new matched administrative datasets that provide more accurate estimates of the value of FE qualifications; showing that gaining FE qualifications at level 2 and below has a much greater benefit than previously thought, and challenges suggestions that only apprenticeships are worthwhile.

The research has been made possible by BIS investment in development of matched data, combining information on FE participation (ILR), with individual data on earnings, employment and benefit impacts from HMRC and DWP (WPLS). This has enabled researchers to update value added estimates dating from between 2004 and 2009, which were based on survey data. Section 3 of the report presents new evidence on the role of FE as a pathway to progress for many of the most disadvantaged individuals in society. More specifically,

- We show that, in stark contrast to other parts of the education system, the raw socio-economic gradient in FE participation runs in the opposite direction. For instance, 71% of the most disadvantaged group attended FE between the ages of 16 and 18; whilst this is true of only 57% of the more advantaged group – for those aged 19+ the socio-economic gradient is even more pronounced. Thus, in direct contrast to participation in other areas of the post-compulsory education system, Further Education caters to higher proportions of individuals from disadvantaged backgrounds, and lower proportions from more advantaged backgrounds.
- We identify a large group of young people who take up FE learning as a second chance, attempting to rectify their poor performance in state schools (having only achieved at Level 1). Even amongst those who leave school with no qualifications or qualification at below level 1, nearly 50% engage in FE between the ages of 16 and 18. Without FE those leaving school with either no qualifications, or close to no qualifications, have little chance of securing productive activity in the labour market.
- FE is particularly important for the most disadvantaged, as a stepping stone to Higher Education. Amongst those who we see registered for Free School Meals (FSM) whilst at State school, 13% subsequently achieve NQF Level 3 by age 18 in FE (compared to only 8% doing so in state schools); for the next most disadvantaged group (Not FSM Group 1) the figures are 14% in FE, compared to 9% in state schools; and for Group 2 we have 17% compared to 15%. For pupils born to the most acute levels of social disadvantage, Further Education (including Sixth Form college) is the most important route to achievement of NQF Level 3 by age 18. More generally, our analysis gives a clear indication of the wider importance of FE to the progression of young people into Higher Education, as we find that 308 thousand individuals (16% of the combined cohort) achieved level 3 qualifications within the FE sector *en route* to higher education.
- Of the 431 thousand individuals who participated at least once in an apprenticeship after age 16, 217 thousand (50%) had at least one previous funded learning spell observed in the ILR prior to commencing their first apprenticeship. This is the closest that we can get in this study to the role that lower-level learning in FE plays as a stepping stone to apprenticeship learning. However, it is clear that much of the FE learning taking place at level 2 provides a pathway from poor achievement at state school, to apprenticeship learning and achievement. Any expansion of apprenticeship learning needs to consider this carefully.

Section 3 confirms that FE focuses support on those born to the highest levels of social disadvantage and Section 4 confirms that for these groups it is an essential pathway for social progression. Unfortunately, this is one of the key reasons why there have been problems capturing returns in the

past. In Section 3 we are extrapolating from the experiences of previous cohorts of learners and we must bear in mind that fewer school leavers (around 1-in-4) now leave school without level 2 (this contrasts to around 1-in-2 of the cohort considered in Section 3). In contrast, the returns captured in Section 4 apply to more recent cohorts of learners and our evidence suggests that the reverse socio-economic gradient observed in FE still applies to more recent cohorts. Taken together, the findings of this report and those of the previous studies flagged in Section 2, suggest a re-opening of the discussion, over whether the correct balance has been achieved across the educational landscape.

References

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", *Department for Business, Innovation and Skills*, Research Paper No. 195.

Bibby, D., Cerqua, A., Thomson, D. and Urwin, P. (2015), "Does Achievement of Vocationally-Oriented Learning Help the Unemployed Find a Job? Evidence from England using ILR-WPLS Administrative Data", presentation to the SOLE-EALE Conference, 26th June.

Bibby, D., Cerqua, A., Thomson, D. and Urwin, P. (forthcoming 2015a), "The Impact Of Skills And Training Interventions On The Unemployed: Phase I", *Department for Business, Innovation and Skills.*

Bibby, D., Cerqua, A., Thomson, D. and Urwin, P. (forthcoming 2015b), "The Impact Of Skills And Training Interventions On The Unemployed: Phase II", *Department for Business, Innovation and Skills* and *Department for Work and Pensions*

Buscha, F. and Urwin, P. (2013), "Estimating the labour market returns to qualifications gained in English Further Education using the Individualised learner Record (ILR)", *Department for Business, Innovation and Skills*.

Cerqua, A. and Urwin, P. (forthcoming 2015a), "Returns to Entry Level, Level 1 and Level 2 Maths/English Learning in English Further Education", *Department for Business, Innovation and Skills.*

Cerqua, A. and Urwin, P. (forthcoming 2015b), "Identifying Variation in Learner Outcomes by Further Education Provider", *Department for Business, Innovation and Skills.*

Chowdry, H., Crawford, C., Dearden, L., Goodman, A. and Vignoles, A. (2013), "Widening participation in higher education: analysis using linked administrative data", *Journal of the Royal Statistical Society*, Series A, 176, Part 2; pp. 431–457.

Dearden, L., McGranahan, L. and Sianesi, B. (2004), "An in-depth analysis of the returns to national Vocational Qualifications obtained at level 2", Centre for the Economics of Education, *Discussion Paper* No. 46.

Dickerson, A. and Vignoles, A. (2007*), The Distribution and Returns to Qualifications in the Sector Skills Councils*, SSDA Research Report No. 21.

Gloster, R., Buzzeo, J., Marvell, R., Tassinari, A., Williams, J., Williams, M., Swift, S. and Newton, B. (2015), "The contribution of Further Education and skills to social mobility", Department for Business Innovation and Skills.

Greenwood, C., Jenkins, A. and Vignoles, A. (2007), "The returns to qualifications in England: Updating the evidence base on level 2 and level 3 vocational qualifications", Centre for the Economics of Education, *Discussion Paper* No. 89.

Iacus, S. M., King, G. and Porro, G. (2011), "Multivariate matching methods that are monotonic imbalance bounding", *Journal of the American Statistical Association*, 106 (493): pp. 345-361.

Jepsen, C., Troske, K. and Coomes, P. (2014), "The Labor-Market Returns to Community College Degrees, Diplomas, and Certificates", *Journal of Labor Economics*, 32 (1): pp. 95-121.

McIntosh, S., and Garrett, R. (2009), "The economic value of intermediate vocational education and qualifications", UK Commission for Employment and Skills, *Evidence Report 11*.

Patrignani, P. and Conlon, G. (2011), "The long-term effect of vocational qualifications on labour market outcomes", *Department for Business, Innovation and Skills*, Research Paper No. 47

Thomson, D., Knight, T., Buscha, F., Urwin, P. and Sturgis, P. (2010), "Research into Measuring Adult Attainment Using the Labour Force Survey: Final Report" Commissioned by the *Department for Business, Innovation and Skills*.

Appendix

Table 16: Level of attainment 2013/14 by socio-economic group at 15

	No quals	Below level 2	Partial Level 2	Full Level 2	Partial Level 3	Full Level 3	App Level 2	App Level 3	NQF 4-5	NQF 6	NQF 7+	Number (000s)
FSM	4%	22%	14%	17%	4%	13%	7%	3%	3%	11%	2%	239.7
Not FSM Grp 1	2%	18%	13%	18%	4%	13%	11%	6%	3%	10%	2%	191.2
Not FSM Grp 2	2%	13%	11%	16%	4%	16%	9%	5%	4%	16%	4%	240.3
Not FSM Grp 3	1%	10%	9%	13%	5%	16%	7%	4%	4%	24%	6%	185.3
Not FSM Grp 4	1%	7%	8%	12%	4%	18%	9%	7%	4%	23%	7%	256.0
Not FSM Grp 5	1%	5%	6%	11%	4%	18%	8%	7%	5%	27%	8%	196.2
Not FSM Grp 6	1%	5%	6%	10%	4%	18%	7%	5%	4%	31%	9%	201.7
Not FSM Grp 7	0%	3%	4%	8%	4%	17%	6%	5%	4%	36%	12%	188.0
Independent Schools	2%	1%	3%	4%	3%	16%	1%	1%	3%	49%	17%	129.3
Other pupils	32%	22%	12%	11%	2%	6%	4%	2%	1%	6%	2%	69.6
All	3%	10%	9%	13%	4%	16%	7%	5%	4%	23%	7%	1897.3

Table 17: Level of attainment 2013/14 by attainment at age 15

	No quals	Below level 2	Partial Level 2	Full Level 2	Partial Level 3	Full Level 3	App Level 2	App Level 3	NQF 4-5	NQF 6	NQF 7+	Number (000s)
No achievement	41%	24%	8%	10%	2%	4%	3%	1%	1%	5%	1%	118.2
Below level 1	0%	51%	15%	15%	2%	5%	6%	1%	1%	3%	1%	122.2
Level 1 without any level 2	0%	42%	8%	21%	2%	7%	12%	4%	1%	2%	0%	257.5
Level 1 below 60% level 2	0%	0%	32%	21%	5%	14%	13%	7%	3%	5%	1%	242.9
Level 1 at least 60% level 2	0%	0%	23%	12%	7%	21%	12%	8%	5%	10%	1%	175.0
Level 2 without EM	0%	0%	0%	19%	8%	26%	9%	8%	6%	21%	3%	194.6
Level 2 with EM (C or below)	0%	0%	0%	12%	7%	26%	7%	8%	7%	28%	5%	283.4
Level 2 with EM (B or above)	0%	0%	0%	3%	2%	20%	3%	3%	5%	50%	14%	263.7
At least 5 A*-A passes	0%	0%	0%	1%	0%	9%	0%	1%	2%	59%	27%	239.8
All	3%	10%	9%	13%	4%	16%	7%	5%	4%	23%	7%	1897.3

There are some important variations between the socio-economic groups in terms of their background characteristics. As Table 18 suggests, both the FSM group and Not FSM group 3 have much higher proportions of individuals from minority ethnic backgrounds, when compared to the other socio-economic groups; and the prevalence of special educational needs (SEN) is inversely correlated with socio-economic group.

Table 18: Background characteristics by socio-economic group, pupils on roll at state-funded schools at age 15

	% White British/ Irish	% SEN	% EAL
FSM	69%	31%	21%
Not FSM Grp 1	95%	22%	2%
Not FSM Grp 2	83%	19%	8%
Not FSM Grp 3	61%	17%	26%
Not FSM Grp 4	95%	13%	2%
Not FSM Grp 5	93%	11%	3%
Not FSM Grp 6	93%	10%	3%
Not FSM Grp 7	92%	9%	4%
All pupils on roll at state-funded schools at age 15	85%	17%	9%

Table 19: Age of first participation in an apprenticeship by level and attainment at age 15

	Attainment at age 15	16	17	18	19-21	22-24	25+	Number
First (Any level)	No achievement	26%	18%	12%	19%	20%	5%	13.3
	Below level 1	33%	19%	11%	17%	16%	4%	21.9
	Level 1 without any level 2	37%	19%	11%	16%	13%	4%	86.3
	Level 1 below 60% level 2	36%	20%	12%	16%	13%	4%	89.0
	Level 1 at least 60% level 2	33%	19%	13%	18%	13%	3%	60.3
	Level 2 without EM	28%	17%	15%	21%	15%	3%	55.1
	L2EM Grade C and below	24%	17%	17%	22%	15%	4%	69.5
	L2EM Grade B and above	16%	12%	22%	26%	19%	5%	28.8
	At least 5 A*-A passes	11%	9%	24%	28%	23%	5%	7.3
	All	31%	18%	14%	19%	15%	4%	431.5
First Level 2	No achievement	27%	19%	12%	19%	19%	4%	12.1
	Below level 1	33%	19%	11%	17%	16%	4%	20.2
	Level 1 without any level 2	37%	20%	11%	16%	13%	3%	76.6
	Level 1 below 60% level 2	36%	20%	11%	17%	12%	3%	75.3
	Level 1 at least 60% level 2	33%	19%	13%	19%	13%	3%	48.8
	Level 2 without EM	28%	17%	15%	22%	15%	3%	42.9
	L2EM Grade C and below	23%	17%	17%	24%	15%	3%	49.7
	L2EM Grade B and above	15%	13%	22%	28%	19%	3%	19.6
	At least 5 A*-A passes	11%	9%	23%	30%	24%	4%	4.7
	All	31%	19%	14%	19%	14%	3%	350.0
First level 3+	No achievement	9%	8%	12%	27%	32%	12%	3.0
	Below level 1	14%	9%	13%	26%	27%	10%	4.6
	Level 1 without any level 2	16%	10%	17%	27%	21%	8%	24.7
	Level 1 below 60% level 2	15%	12%	18%	28%	20%	8%	33.7
	Level 1 at least 60% level 2	15%	12%	18%	27%	20%	7%	26.6
	Level 2 without EM	14%	12%	18%	29%	21%	6%	26.4
	L2EM Grade C and below	14%	13%	18%	29%	19%	6%	38.0
	L2EM Grade B and above	10%	10%	19%	31%	23%	7%	16.5
	At least 5 A*-A passes	8%	7%	21%	31%	26%	7%	4.1
	All	14%	12%	18%	28%	21%	7%	177.7