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Further Education
Cerqua, A. and Urwin, P.**

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**Returns to Maths and English Learning
(at level 2 and below) in Further Education**

MAY 2016

RESEARCH

Augusto Cerqua and Peter Urwin

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Business, Innovation and Skills.

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Executive Summary

Background

Previous work identifies good labour market returns for FE learners who gain qualifications at Full Level 2 and above - summarised in *Figure 1 below*. (Bibby, Buscha, Cerqua, Thomson and Urwin (2014) - from here referred to as BBCTU). For instance, a learner who achieves a full Level 2 (FL2)¹ qualification will earn 11% more than a similar person who has the same learning aim, but who did not achieve². Figure 1 also shows that FL2 achievers are 2 percentage points (ppt) more likely to be in employment and 2 ppt less likely to be observed on benefits, between three and five years after learning.

Fig. 1: Summary of three to five year averages for aggregated qualification categories

Learning Level	3-5 year average		
	Earnings Returns	Employment probability premiums	Benefit Probability gaps
Below Level 2 (including English and/or Maths)	2%	0 ppt	0 ppt
Thin Level 2 (including English and/or Maths)	1%	1 ppt	-1 ppt
Full Level 2 (FL2)	11%	2 ppt	-2 ppt
Thin Level 3	3%	1 ppt	-1 ppt
Full Level 3 (FL3)	9%	4 ppt	-2 ppt
Level 4+	8%	1 ppt	-1 ppt

All figures in bold are statistically significant

Estimates of the returns to learning at ‘Below Level 2’ and ‘Thin Level 2’ - which include English and Maths qualifications - were positive but not so strong – though it should be noted that many of these qualifications are of a very short duration. This report presents the findings from a project that investigates labour market returns to these English and Maths qualifications, in two different situations:

- Complementary Learning i.e. when combined with higher level qualifications³,
- Highest Learning Aim - when they are studied as a person’s highest FE qualification (i.e. not taken with a higher qualification)⁴.

¹ A Full Level 2 (FL2) qualifications is equivalent to 5 GCSE’s A*-C; Thin level 2 is equivalent to 1- 4 GCSEs; Full Level (FL3) is equivalent to 2 A-levels; Thin level 3 is equivalent to one A level or AS level; Level 4 is at foundation degree level (although usually shorter). Below L2 (often called Foundation Level) includes English/Maths at Entry Level and L1 plus many other qualifications.

² BBCTU test the robustness of this econometric approach and the findings suggest estimates are very reliable. For more details please refer to Section 2 of this report; and to Chapter 6 of BBCTU and to Bibby et. al. (2015) “The impact of skills and training interventions on the unemployed – phase 1 report”

³ Many individuals take Maths and/or English qualifications at L1 and L2 as forms of ‘complementary learning’. For instance, there will be many individuals taking a highest qualification aim at Full Level 3 as a route into HE, and alongside this they may be attempting to rectify poor performance at secondary level in GCSE English/Maths.

Maths and/or English as Complementary Learning

L1/L2 English and Maths qualifications when studied alongside higher level qualifications, produce significant earnings benefits for achievers (*Figure 2*)⁵

Figure 2: Three to five year earnings and employment returns for L1/L2 English and/or Maths achievers, within populations of FL2, L3, FL3 and L4+ achievers

Level	Earnings	Employment
L1/L2 English and/or Maths achievement (amongst Full Level 2 achievers)	4.2%	-0.1 ppt
L1/L2 English and/or Maths achievement (amongst Thin Level 3 achievers)	3.1%	0.0 ppt
L1/L2 English and/or Maths achievement (amongst Full Level 3 achievers)	1.2%	0.0 ppt
L1/L2 English and/or Maths achievement (amongst Level 4+ achievers)	5.1%	0.1 ppt

These Figures do not include ESOL learning; All figures in bold are statistically significant

Amongst the populations of Thin L3 and FL3 achievers, the estimated earnings returns (of 3.1% and 1.2%) in Figure 2 likely understate the true value added, because of the problems we have capturing progression to HE and part-time working. This may also be the reason why we do not observe an employment premium; although, achievement of the highest learning aim may be more important in determining whether an individual secures employment, and the additional *L1/L2 Maths and/or English* achievement allows the individual to secure a higher earnings return, when in employment. Returns to English and/or Maths qualifications when taken with FL2 or FL3 qualifications are higher for apprenticeship learners than for classroom-based learners (Figure 3)

Figure 3: Three to five year returns for L1/L2 English and/or Maths achievers, within populations of FL2 and FL3 achievers comparing classroom and apprenticeship learning.

3-5 year average returns						
Learning Level	Earnings Returns		Emp probability premiums		Benefit Probability gaps	
	Classroom-based learning	Apprenticeship Learning	Classroom-based learning	Apprenticeship Learning	Classroom-based learning	Apprenticeship Learning
Eng/Maths achievers within FL2 Achievers	2.2%	5.9%	0.0 ppts	-1.3 ppts	-1.0 ppt	-1.0 ppts
Eng/Maths achievers within FL3 Achievers	0.7%	3.0%	0.2 ppts	0.1 ppts	-0.4 ppt	-0.5 ppts

These Figures do not include ESOL learning; All figures in bold are statistically significant (see Appendix 5.4)

⁴ We separate out the returns to Maths and/or English qualifications as highest learning aims, within the categories of 'Below Level 2' and 'L2' in Figure 1; uncovering the heterogeneity of returns that underpin the 2% and 1% earnings returns for 'Below Level 2' and 'L2' in Figure 1.

⁵ Taking the example of Full Level 3, we select all those who, between 2002 and 2012, Achieve their highest learning aim of a Full Level 3. Amongst these Full Level 3 Achievers, we identify all learners with an overlapping *L1/L2 English and/or Maths* aim. The estimate of value added compares the outcomes for those who *Achieve* their *L1/L2 English and/or Maths* aims, with those who *Do not Achieve L1/L2 English and/or Maths*; amongst this population of FL3 achievers.

Labour market returns in the first year after learning are generally significant for most sector subjects, as can be seen from Figure 4. Even when we cannot present 3 to 5 year averages, we do identify statistical significance of impacts in the first years after learning. This analysis by sector pushes the data to its limits and for many sectors the numbers in our regression equations fall too low to produce robust estimates beyond the first year.

Figure 4: Estimated earnings premium and probability of being on Benefits, for L2 English and/or Maths Achievers, by Sector Subject [for the population of Full Level 2 Achievers]

L2 English and/or Maths Achievers combined with Full L2 in...	First Tax Year after learning (earnings)	First tax year after learning (benefits)	3-5 year average earnings premium	3-5 year active benefit ppt difference
Adult social care	5.6%	-2.3 ppt	N/A	N/A
Engineering and manufacturing	6.1%	-1.4 ppt	N/A	N/A
Information & Communication Technology	7.2%	-1.8 ppt[#]	N/A	N/A
Retailing and Wholesaling	5.2%	-1.8 ppt	N/A	N/A
Hospitality and Catering	6.7%	-1.5 ppt	5.3%	-1.1 ppt
Hair and beauty	7.9%	-2.0 ppt[#]	5.2%	-0.9 ppt
Admin/ secretarial	5.8%	-1.7 ppt	4.2%	-1.2 ppt
Customer service	5.5%	-1.4 ppt	6.8%	-0.7 ppt

These Figures do not include ESOL learning; All figures in bold are statistically significant

[#] 3 months after learning

Current policy is to make English and Maths learning compulsory for apprenticeships. We might expect English/Maths to be more helpful in more technical subjects, but we also flag why this may not be the case in our Conclusion. Unfortunately, the analysis of earnings and employment returns only produces 3-5 year average return estimates for the less technical subjects, presented in Figure 3. For these less technical subjects there are good returns to Maths and/or English achievement at L2, with earnings returns ranging between 4.2% for those achieving a FL2 in the area of *Admin/Secretarial*, to 6.8% for those in *Customer Service*.

Maths and English as a Highest Learning Aim

Figure 5 presents estimated returns for learners who have a highest learning aim of Entry-level/L1/L2 Maths and/or English. The results underline the widespread and persistent nature of statistically significant impacts for Maths and/or English learning at Entry, Level 1 and Level 2 when held as a highest learning aim; particularly for younger learners.

Figure 5: Three to five year earnings and employment premiums for those achieving Entry Level/L1/L2 English and/or Maths as a highest learning aim

Highest learning aim	Earnings		Employment	
	19 to 24	Aged 25+	19 to 24	Aged 25+
Entry Level/L1/L2 English and/or Maths	7.1%	4.6%	1.7 ppt	1.9 ppt
Entry Level Eng and/or Maths	5.0%	3.1%	1.0 ppt	1.5 ppt
L1 Eng and/or Maths	N/A	7.8%	1.7 ppt	1.5 ppt
L2 Eng and/or Maths	8.5%	3.8%	3.1 ppt	2.3 ppt

These Figures do not include ESOL learning. All figures in bold are statistically significant.

Figure 6 presents estimated earnings returns, employment premiums and differences in benefit outcomes, for disaggregations of the categories presented previously in Figure 4. Figure 6 underlines the fact that when we dig down into these categories of *Below Level 2* and *L2*, we identify good returns for those taking Maths and/or English at Entry level, L1 and L2 as a highest learning aim; together with good earnings returns to ESOL learning.

Figure 6: Three to five year earnings and employment premiums for those achieving Entry Level/L1/L2 English and/or Maths as a highest learning aim [disaggregated categories]

	Earnings	Employment	Benefits
All Below L2 of which	1.9%	0.3 ppt	-0.3
Entry Level Eng	5.0%	1.7 ppt	-0.5
Entry level Maths	3.4%	0.0 ppt	-0.5
L1 English	6.6%	1.7 ppt	-0.6
L1 Maths	6.0%	1.3 ppt	N/A
L1 Eng & Maths	12.3%[#]	1.6 ppt	N/A
ESOL	6.1%	0.2 ppt	-0.1
Other L1	0.7%	0.2 ppt	-0.3
All Thin L2	1.3%	0.9 ppt	-0.6
L2 English	7.4%	2.0 ppt	-1.3
L2 Maths	3.8%	2.6 ppt	-0.9
L2 Eng & Maths	4.9%	0.9 ppt	-1.1
Other L2	0.8%	0.8 ppt	-0.5

this finding should be considered with some caution as it is based on small numbers

The figures for English/Maths do not include ESOL learning, as it is analysed separately. All figures in bold are statistically significant

Alongside the statistically significant earnings and employment returns for Maths and English learning at Entry Level, L1 and L2; the *Other Level 1* and *Other Level 2* categories secure positive, but relatively low, returns. These ‘Other’ categories account for the vast majority of *Below L2* and *Thin L2* learning, often referred to as “foundation learning” or “employability learning”. Within these remaining categories, there is likely to be further substantial heterogeneity of returns.

L1/L2 Maths and/or English as routes to further FE learning

We tracked several cohorts to gauge the extent to which L1/L2 Maths and/or English learners progress to further learning within FE. Figure 7 looks at the progression of one such cohort (from 2007) who have a learning aim of **L1 English and/or Maths**⁶ and finds that achievers (of all ages) are more likely to be observed in subsequent (i) L1/L2 and (ii) FL2 or higher FE learning across all the years considered, when compared to non-achievers. However, considerable proportions of both achievers and non-achievers are engaged in further learning.

⁶ Which is their highest learning aim up to the date from which we track them.

Figure 7: Proportion of L1 English and/or Maths Achievers and Non-achievers progressing into continued FE learning

Cohort Year		Total % into any L1/L2 learning between 2007 and 2011 (19 to 24)	Total % into any FL2+ learning, 2007 to 2011 (19 to 24)	Total % into any L1/L2 learning between 2007 and 2011 (25+)	Total % into any FL2+ learning, 2007 to 2011 (25+)
2007	Achiever	26.09	15.46	29.60	13.62
	Non-achiever	21.72	12.28	21.10	9.91

The categories of *L1 English and/or Maths* Achievers and Non-achievers, do not include ESOL learning, but the destination state of *Any L1/L2 FE* does include ESOL⁷. Please note these are ‘raw’ figures and no attempt has been made to control for differences between achievers and non-achievers

Figure 8 considers the progression of a 2007 cohort of **L2 English and/or Maths** Achievers and Non-achievers, observed in subsequent FE learning at (i) L1/L2 or (ii) FL2 or higher. Here we observe an unusual result, as 19-24 Achievers are less likely to progress than non-achievers, but 25+ achievers are more likely to progress. This is likely driven by the high proportion of 19 to 24 year old achievers who progress to Higher Education and these findings should be considered alongside those of Smith et al. (2015)⁸. Again, considerable proportions of achievers and non-achievers go on to further learning.

Figure 8: Proportion of L2 English and/or Maths Achievers and Non-achievers progressing into continued FE learning

Cohort Year		Total % into any L1/L2 learning between 2007 and 2011 (19 to 24)	Total % into any FL2+ learning, 2007 to 2011 (19 to 24)	Total % into any L1/L2 learning between 2007 and 2011 (25+)	Total % into any FL2+ learning, 2007 to 2011 (25+)
2007	Achiever	16.53	21.45	21.52	18.46
	Non-achiever	18.20	21.53	18.85	15.38

The categories of *L1 English and/or Maths* Achievers and Non-achievers, do not include ESOL learning, but the destination state of *Any L1/L2 FE* does include ESOL. Please note these are ‘raw’ figures and no attempt has been made to control for differences between achievers and non-achievers

⁷ Though we would expect a negligible number of learners to move to ESOL from non-ESOL English.

⁸ <https://www.gov.uk/government/publications/progression-of-further-education-students-to-higher-education>
<https://www.gov.uk/government/publications/progression-of-apprentices-to-higher-education-second-cohort>

Conclusion

L1/L2 English and Maths qualifications **when studied alongside higher level qualifications**, produce significant earnings benefits for achievers. Even though analysis by sector pushes the data to its limits, there is still evidence of significant earnings returns, and a significantly lower probability of being on benefits, across many of the sectors analysed.

Statistically significant labour market returns are also widespread and persistent for Maths and/or English learning at Entry, Level 1 and L2 when **held as a highest learning aim**; particularly for younger learners.

ESOL learning also produces good earnings returns; whilst learning at *Other Level 1* and *Other Level 2* secures positive, but relatively low, returns.

Readers are encouraged to consider the detail of the tables within the report, as in many areas where we cannot present 3 to 5 year averages, we do identify statistical significance of impacts in the first years after learning.⁹ Similarly, first year impacts apply across a number of cohorts of learners, as we observe a first year of earnings, employment and benefits information for all cohorts.

There a number of issues that this study raises that need to be considered going forward (not least the need for data that allows us to observe moves to Higher Education and/or other forms of non-FE learning/training). Any future study would ideally introduce more data from HESA identifying (i) the specific destination of FE learners who move on to HE and (ii) the drop-out rate of these learners. In this report we are concentrating on earnings, employment and active benefit outcomes, but for many FE learners, HE is an important and valuable outcome.

However, even with these data limitations, we are able to present compelling evidence that Entry Level, Level 1 and Level 2 Maths and/or English learning in FE provides significant value added for those who achieve their learning aims.

⁹ The “gold standard” criteria for impact (i.e. that statistical significance must be observed over many years and also that in each year it must be relatively stable), is very rigorous and more than many studies are able to achieve.

1. Introduction

This report presents the results of an analysis of labour market returns for individuals achieving qualifications at ‘Below Level 2’ and ‘Level 2’ in English Further Education¹⁰; extending the analysis of Bibby, Buscha, Cerqua, Thomson and Urwin, (2014)¹¹ [from here referred to as BBCTU]. Using the 2002-2012 ILR-WPLS administrative dataset¹² we estimate separately the (i) earnings, (ii) employment probability and (iii) probability of being on active benefits, for those who achieve their learning aim whilst studying at an English Further Education Institution (FEI), relative to those who have the same learning aim, but do not achieve; with a particular focus on this estimate of value added for those achieving Entry-level, Level 1 (L1) and Level 2 (L2) Maths and/or English qualifications¹³.

We report estimated returns for the first, third, fourth and fifth tax year after learning. Returns in the first year are an important benchmark for comparison across studies, and we choose the 3 to 5 year average as our measure of value added, as it balances an implicit trade-off - 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 ago¹⁴. For each learner we have 7 academic years (2004/2005 to 2010/2011) 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. We then adopt two broad approaches to the estimation of labour market returns.

First, Section 3 presents estimates of the labour market returns to L1/L2 Maths and/or English qualifications, when these are not held as an individual’s highest learning aim. BBCTU presented estimates using a [L1/L2 Maths and/or English] achiever V non-achiever comparison, but only for a population of learners with a highest learning achievement of Full Level 2 (FL2) and Full Level 3 (FL3). More specifically, Maths and/or English qualifications taken at L1 and L2 are often forms of ‘complementary learning’. For instance, there will be many individuals taking a highest qualification aim at Full Level 3 as a route into HE, and alongside this they may be attempting to rectify poor performance at secondary level in GCSE English and/or Maths¹⁵. As a result, we investigate achiever V

¹⁰ A Full Level 2 (FL2) qualifications is equivalent to 5 GCSE’s A*-C; Thin level 2 is equivalent to 1- 4 GCSEs; Full Level 3 (FL3) is equivalent to 2 A-levels; Thin level 3 is equivalent to one A-level or AS level; Level 4 is at foundation degree level (although usually shorter). Below L2 (often called Foundation Level) includes English/Maths at Entry Level and Level 1 plus many other qualifications.

¹¹ 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.

¹² For more details see Bibby et. al. (2014) and the Data and Method Section of this Report.

¹³ Throughout the report we adopt the terminology of ‘English’ and ‘Maths’, rather than ‘Numeracy’ and ‘Literacy’.

¹⁴ We only observe labour market returns five years on from the end of learning for cohorts that finished their learning a number of years ago, during the 2006/2007 academic year or before.

¹⁵ See Smith et al (2015), for an indication of the numbers of FE learners progressing to HE.

<https://www.gov.uk/government/publications/progression-of-further-education-students-to-higher-education>
<https://www.gov.uk/government/publications/progression-of-apprentices-to-higher-education-second-cohort>

non-achiever comparisons for individuals undertaking L1/L2 Maths and/or English, who have achieved higher learning aims.

Continuing the example of Full Level 3, we first select all those who, between 2002 and 2012, *achieve* their highest learning aim of a Full Level 3 Qualification. Within this group of Full Level 3 Achievers, we then identify all learners who also have a L1/L2 English and/or Maths aim (not held as their highest learning aim). We then create an estimate of value added by comparing the outcomes for those who *Achieve* their L1/L2 English and/or Maths aims, with those who *Do not Achieve* L1/L2 English and/or Maths aim; amongst this population of FL3 achievers. Section 3.1 extends the analysis of BBCTU to cover additional populations of highest aim achievers; creating estimates using a [L1/L2 Maths and/or English] achiever V non-achiever comparison, for the populations of learners with a highest achievement of Level 3 and also Level 4+¹⁶. Section 3.2 has the same approach to analysis, but disaggregates the results by sector subject area of the highest learning aim achieved, where numbers permit¹⁷.

Second, Section 4 extends the analysis in Bibby et. al. (2014) for those who achieve 'Below Level 2' or 'L2' qualifications, as their highest learning aim. We may reasonably expect many of those who take a qualification at, or below, Level 2 as their highest learning aim, to have particularly limited labour-market prospects. As a result, it is often hard to identify accurate estimated returns (especially in survey-based studies) - it is very difficult to find a robust control or comparison group that provides us with an accurate estimate of the outcomes that these [particularly disadvantaged] individuals would have secured, in the absence of learning. The ILR-WPLS data allow us to identify a group, who provide a more robust estimate of these 'counterfactual' outcomes; because non-achievers select into the same qualification¹⁸. The findings from BBCTU suggest that, even with this more appropriate approach to estimation, we still observe relatively low returns for those whose highest learning aim is 'L2' or 'Below Level 2'. However Sections 4.1 and 4.2 show that, when we separate out the returns to Maths and/or English qualifications at this level, we uncover much more favourable estimates of value added (Section 5.3 of the Appendix sets out the results of an analysis using the same approach, but with estimates presented separately for (i) those aged 19 to 24 and (ii) those aged 25+).

Finally, Section 4.3 gives some idea of the value that L1/L2 Maths and/or English qualifications have as a route to higher qualifications within FE. Taking a cohort approach, we select all individuals with a L1/L2 Maths and/or English spell aim that finishes during year X (focusing on those who have no prior FE learning aim, either at the same or lower level, and who have no accompanying aim that is at a level higher than L2). We do this for each year X and then create figures on the number/proportion of achievers that we see in various forms of FE learning in X+1, X+2, X+3 etc. years from the end of learning.

¹⁶ Also presenting the results for more disaggregated categories of Maths and English qualifications.

¹⁷ The derived Industry Sector classification we have used has the SSA variable in the ILR at its route, but also uses the title of the highest learning aim and the SSC footprint where SSA is missing or uninformative.

¹⁸ It is worth emphasizing that the majority of non-achievers are 'drop-outs', as opposed to 'failing' a qualification. See Chapter 6 of BBCTU for more detail on the strengths and weaknesses of the achiever V non-achiever (drop-out) approach, and the findings from tests of its robustness using difference-in-differences and Coarsened Exact Matching (CEM) approaches.

2. Data and Method

This report extends and deepens the analysis set out in Bibby et. al. (2014), and as such, it is based on the same underlying dataset and approach to method. Section 2.1 sets out a brief reminder of this underlying approach to data creation (pointing readers to BBCTU, and an accompanying Report, for more detail); and Section 2.2 describes the econometric method we use to uncover more detailed estimates of value added from Maths/English learning at Entry Level, Level 1 and Level 2 in English FE.

2.1 Creation of the ILR-WPLS dataset

We create the ILR-WPLS dataset linking FE learner information, benefit and PAYE employment histories for tens of millions of individuals. A pre-requisite for the construction of such a dataset is the creation of an over-arching Person-key to link records in the data sources (the Individualised learner Record (ILR) together with the Work and Pensions Longitudinal Study (WPLS)) reliably to the same individual. This Person-key identifies the same individual in the various data sources and is now used by BIS for in-house analysis. The creation of the ILR-WPLS dataset requires complex processes of imputation and merging. Details of the imputation processes and procedures to arbitrate between competing matching possibilities are described at length in Buscha and Urwin (2013) and Thomson et. al. (2010).

2.2 Econometric Analysis

As suggested in the introduction, the starting point for our analysis of this data is the use of non-achievers as a control group that provides an accurate representation of counterfactual outcomes for those achieving a certain qualification¹⁹. We estimate separately the (i) earnings, (ii) employment and (iii) benefit premiums secured by those who achieve a particular learning aim whilst studying at an English Further Education Institution (FEI), relative to those who have the same learning aim, but do not achieve.

In comparing the returns of those who select into a qualification and achieve, with the returns of those who select into the same qualification and do not achieve, we have the potential to overcome some of the problems of selection experienced elsewhere in the literature. Many studies that utilise data from the Labour Force Survey identify negligible returns to some level 1 and level 2 vocational qualifications. However, this may be partly driven by the possibility that control groups in these studies contain many individuals who are not a realistic comparison group for those who select into level 1 and 2 vocational qualifications, particularly when this is their highest learning aim.

¹⁹ The estimate of what an individual would have earned in the absence of a qualification or training, is called the 'counterfactual', because it is counter to the factual state of the world (we can't observe individuals taking the qualification, and not taking the qualification). To create credible estimates of counterfactual outcomes, we choose a comparison group that does not have the qualification, but provides a credible estimate of what the individuals with the qualification would have earned, if they had not taken the qualification.

If individuals who would gain a lower wage (independent of their level of learning) are more likely to select into certain vocational qualifications, then estimated returns may be falsely deflated if we compare them to a control group who do not select into this qualification (and do not manage to control for the implied differences within a multivariate framework). This study may arguably provide a better comparison group because it overcomes some of the biases arising from these selection effects. However, there are weaknesses in comparing those who achieve, with those who fail to achieve or drop out, if we do not effectively control for ability and other unobservable factors.

BBCTU test the validity of this approach to the estimation of Value Added, and their work has been subjected to a rigorous process of peer-review by four academic experts. The findings suggest that regression-based techniques, which compare achievers and non-achievers using ILR-WPLS data, produce robust estimates of value added. The more advanced techniques used to test this assertion, are Coarsened Exact Matching (CEM) and difference-in-differences methods (see BBCTU, Chapter 6 for more details). The results suggest that estimates obtained from the following standard regression approach (estimated using Ordinary Least Squares, OLS), provide robust estimates of value added:

$$y_i = \alpha + Qual_i' \beta + \mathbf{x}_i' \gamma_x + \varepsilon_i$$

where the dependant variable, y_i , takes one of the following forms:

- Log of deflated daily earnings (top and bottom 1% removed) in the whole financial tax year 1, 3, 4 and 5 years after the end of a learning spell.
- The probability of being employed (binary) exactly 1, 3, 4 and 5 years after the end of a learning spell²⁰.
- The probability of being on job-seeking ['Active'] benefits (binary) exactly 1, 3, 4 and 5 years after the end of a learning spell.

The qualification variables, $Qual_i$, are inserted as dummies where a value of 1 represents those who achieved their spell aim, whilst a value of 0 represents those who had the same spell aim, but failed to achieve any qualification within that spell. The coefficient β then represents an estimate of the return (or premium) to that qualification level. The nature of our setup (achievers vs. non-achievers) requires each qualification level to be estimated in its own regression model, for each year after the end of learning.

As suggested in the introduction, we adopt three variations on this approach to estimation, which allow us to uncover the value added of English and Maths qualifications.

²⁰ 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.

Section 4: BBCTU mostly take a ‘highest aim’ approach to evaluation of the returns to learning in FE. For each learner we have 8 academic years (2004/2005 to 2011/2012) 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 and achieve; with the returns of those who have the same highest learning aim, but do not achieve.

Considering the categories of learner with highest learning aims of either ‘L2’ or ‘Below Level 2’, individuals in these groups are unique, as they have very limited labour market prospects – we observe them attempting a highest level of learning in FE that is below what is expected from a school leaver. The suggestion in BBCTU is that for L2 we observe an average 1% earnings return and 2% for Below Level 2 (for individuals who have these as their highest learning aims). But there is pronounced heterogeneity of returns within these broad categories, and in this report when we break the groups down to identify returns to (i) Entry Level Maths, (ii) Entry Level English, (iii) L1 Maths, (iv) L1 English/Literacy, (v) L2 Maths, (vi) L2 English/Literacy (held as the highest learning aim) we uncover much higher returns; with a group of ‘other L1’ and ‘other L2’ responsible for the lower returns seen at the more aggregated level²¹.

Section 3: We want to get a better idea of the returns to L1/L2 Maths/English, but many individuals take these qualifications alongside higher aims. For instance, individuals engaged in Full Level 3 also trying to rectify poor performance in Maths/English GCSEs, and a range of other combinations. Taking a highest aim approach misses these returns. Section 3 presents the results of an analysis that captures separate returns for (i) Entry Level Maths, (ii) Entry Level English, (iii) L1 Maths, (iv) L1 English/Literacy, (v) L2 Maths, (vi) L2 English/Literacy; within wider populations of (a) *all those achieving FL2 as a highest learning aim*: (b) *those achieving L3 as a highest learning aim*: (c) *those achieving FL3 as a highest learning aim*: and (d) *those achieving L4+ as a highest learning aim*. More specifically, we select (for instance) the population of all FL2 achievers and, within this population, identify achievers and non-achievers who have L1/L2 Maths/English learning aims that overlap the achieved FL2 spell.

Finally in Section 4.3, we capture the value of L1/L2 Maths and English qualifications as a route to continued FE learning, using a cohort analysis, with descriptive statistics (rather than as part of an econometric analysis). For instance, of the cohort who **achieve** a L1 Maths/English aim in 2007/2008, we consider the proportion who are observed in FE learning at FL2 or above over the following 5 years; and compare this to the proportion of L1 Maths/English **non-achievers** from the same cohort, who are observed in FE learning at FL2+ over the next five years²².

²¹ Though this is not the end of the story for these qualifications, as a proposed extension to this analysis, differentiating returns by FE provider, has the potential to uncover further heterogeneity in these ‘other L1’ and ‘other L2’ categories – not least because these include ICT courses.

²² With some attempt to ensure that this is not overly impacted by issues of duration dependence (arising from the fact that we are recording the *end*, rather than the *start* of learning, for achievers and non-achievers).

In the econometric analysis we control 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.

3. Maths and/or English as Complementary Learning

BBCTU create estimates using a [L1/L2 Maths and/or English] achiever V non-achiever comparison, for populations of learners with highest learning achievement of FL2 or FL3. Tables 1 and 2 (in this section) present extensions to this analysis, with estimates also presented for populations of L3 and L4+ achievers. Tables 3 to 8 then break these findings down into more detailed categories of Maths and/or English learners, for the populations of FL2 and FL3 achievers. Section 3.2 disaggregates the findings for L1/L2 Maths and/or English learners amongst our populations of FL2 and FL3 achievers, by the sector subject area of the FL2 or FL3 aim being studied (where numbers allow).

3.1 L1/L2 Maths and/or English returns for FL2, FL3 and other Achiever Populations

Table 1 confirms the more favourable estimated earnings returns for an amalgamated group who achieve **L1/L2 Maths and/or English**, when taken as a complementary form of learning; uncovered by BBCTU²³. For instance, the first row of Table 1 estimates the value added of *L1/L2 Maths and/or English* qualifications; with the population of individuals included in the regression equations restricted to those who have achieved a highest aim of Full Level 2 [which overlaps the English/Maths learning]. The 3 to 5 year average earnings return of 4.2% is therefore the earnings premium secured by those who achieve a *L1/L2 Maths and/or English* qualification, relative to those who do not achieve their *L1/L2 Maths and/or English* qualification (with this estimate relevant for a population of FL2 achievers).

Table 1: Returns to daily earnings for L1/L2 English and/or Maths achievers²⁴ [within populations of (i) FL2 (ii) L3 (iii) FL3 and (iv) L4+ achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	0.060***	0.035***	0.048***	0.042***	0.042
s.e.	0.005	0.006	0.007	0.008	
N	180267	78721	55138	37285	
L3 Achievers	-0.003	0.026**	0.033**	0.035**	0.031
s.e.	0.010	0.011	0.011	0.012	

²³ A Full Level 2 (FL2) qualifications is equivalent to 5 GCSE's A*-C; Thin level 2 is equivalent to 1- 4 GCSEs; Full Level 3 (FL3) is equivalent to 2 A-levels; Thin level 3 is equivalent to one A-level or AS level; Level 4 is at foundation degree level (although usually shorter). Below L2 (often called Foundation Level) includes English/Maths at Entry Level and Level 1 plus many other qualifications.

²⁴ Tables 1 and 2 do not include ESOL English qualifications in the category of *L1/L2 English and/or Maths*, for which returns are estimated. The estimates for FL2 and FL3 populations are the same as those in BBCTU, as they also exclude ESOL learning.

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
N	41799	30499	25289	19967	
FL3 Achievers	-0.002	0.001	0.018***	0.017***	0.012
s.e.	0.003	0.004	0.004	0.005	
N	385245	226940	168144	113293	
L4+ Achievers	0.005	0.042*	0.045*	0.065*	0.051
s.e.	0.016	0.019	0.022	0.029	
N	16404	8714	5774	3239	

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

The 3 to 5 year averages are constructed from regression estimates of returns up to five years from the end of learning. For instance, the figure of 0.060 in the top left-hand corner of Table 1 is a coefficient obtained from a regression equation for individuals whose highest qualification achievement, across all their learning spells, is Full Level 2 and who have an accompanying/overlapping *L1/L2 Maths and/or English* aim. Amongst this 180,267 individuals, we estimate the return to achievement of *L1/L2 Maths and/or English*, relative to those who fail to achieve. The coefficient of 0.060 is therefore 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 equation²⁵. Those achieving a *L1/L2 Maths and/or English aim* earn, on average, 6% more than those who do not achieve this stated aim in the first year after the learning spell ends (with this estimate relevant for a population of FL2 achievers).

The figure of 6% is therefore our estimate of the difference between (i) the post-qualification earnings of individuals who obtain *L1/L2 Maths and/or English*, compared to (ii) the earnings of the same individuals if they had not taken this qualification (otherwise known as the 'counterfactual'²⁶), amongst a population of FL2 achievers. Moving along this first row of Table 1, the results of three more regression equations, suggest that this earnings premium stays relatively stable between the third and fifth year after the end of learning (between 3.5% and 4.8%); following a slight dip from 6% to 3.5% from the first to third years after learning. As with all the tables in this report, the final column of Table 1 presents the earnings return averaged over the period three to five years on from learning.

It is important to note that the return in the first year after learning will, necessarily, include all cohorts of learners (because we observe a first year of earnings for even those whose learning spell finishes in 2010-2011). However, by the fifth year after learning our estimate

²⁵ We control 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.

²⁶ Called the 'Counterfactual', because it is 'counter' to the 'factual' state of the world. We never observe the counterfactual, but use various econometric estimation techniques to get as close an estimate as possible.

is based on learners who complete prior to the 2007/2008 academic year (as these are the only learners for whom we observe five or more years of earnings). This is an issue to which we return, as we face limitations later in the report when numbers drop too low for analysis to be possible beyond the first year.

All the results in the first row of Table 1 are statistically significant at the 0.1% level (i.e. 99.9% level of confidence) and we are therefore confident of a strong correlation between achievement of a qualification aim and higher earnings (with the standard error or 's.e.' in the Tables providing an indication of the expected variability around this estimate, and used to create confidence intervals).

NB/ In all tables, the 3 to 5 year average is,

- Highlighted in **Bold** if we consider it to be a robust estimate, with both (i) statistically significant impacts across the three to five year period that are relatively stable²⁷ and (ii) a sufficient number of learners to provide a sizeable control group of non-achievers (exactly what constitutes a 'sufficient' number of learners varies for each set of analysis and we return to this later in the report, when it becomes more of an issue)
- Highlighted in **Bold Italics** if we consider the finding to be relatively robust, with (i) statistical significance across the majority of estimated impacts between three and five years and (ii) a control group that is on the margins of our considerations of size.
- Not highlighted in bold or italics, when there are concerns over the robustness of the findings, but between three and five years we have some evidence of at least one significant impact, with sufficient numbers. Where this is the case, we highlight in bold those earnings, employment or benefit returns from the individual regressions that are statistically significant, in the years after the end of learning.
- Not Available (N/A) when we have results that are not robust enough to produce a three to five year average. Where this is the case, we again highlight in bold those earnings, employment or benefit returns (usually in the first tax year after learning), that are statistically significant.
- When there is no suggestion of statistical significance, but numbers are sufficient, the 3 to 5 year average is set to zero.

Amongst the population of FL3 achievers (in the third row of Table 1), there is a recognition (flagged by BBCTU), that the estimated return (of 1.2%) likely understates the true value added, because of the problems we have capturing progression to HE and part-time working²⁸. Similarly, our new estimate in the second row of Table 1 suggests that

²⁷ One can have a set of return estimates between three and five years that are statistically significant, but vary from negative to positive: these are not findings we would consider particularly robust (though in the case of L3 and FL3 populations we do seem to have a clear explanation of why this may occur).

²⁸ In BBCTU we were able to identify progression to HE for a small subset of learners. However, when estimating across the entire population, our results are impacted by unobserved moves to HE or some other form of (non-FE) learning. If we do not identify those who go on to HE learning from FE learning at Full Level 3 (and to a lesser extent from FL2 to other forms of non-FE learning or training), we have a significant number in the treatment (achievers) who will be (i) less likely to be employed following

amongst the population whose highest achievement is Level 3, those achieving a *L1/L2 Maths and/or English* qualification secure a 3.1%, 3 to 5 year, average earnings return. These estimated returns for populations of L3 and FL3 achievers seem to be artificially depressed in the first two to three years after learning, and then recover thereafter – a pattern that is consistent with the issue of HE students working part-time. This is an issue to which we return, when digging further down into these findings. For the population of Level 4+ achievers, the return to L1/L2 Maths and English is estimated to average 5.1% between 3 and 5 years after learning.

Table 2 suggests that there is little, if any systematic percentage point employment probability premium for L1/L2 Maths and English achievers over non-achievers, amongst our populations with higher learning aims achieved. There are many reasons why we might observe this lack of employment premium, alongside a more systematic earnings premium. One possible explanation, that we return to, is the HE/PT issue flagged in the discussions around Table 1 above. In addition, it is also possible that achievement of the highest learning aim may be more important in determining whether an individual secures employment; and the additional L1/L2 Maths and/or English achievement allows the individual to secure a higher earnings return, when in employment. Whilst there are some patches of significance here and there in Table 2, they are conflicting, and the size of any implied impact is small.

Table 2: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of (i) FL2 (ii) L3 (iii) FL3 and (iv) L4+ achievers]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	0.006***	0.005**	-0.011***	-0.010***	-0.009**	-0.010
se	0.002	0.002	0.002	0.003	0.003	
N	433352	358563	176789	124100	84735	
L3 Achievers	0.007*	-0.002	-0.004	0.001	0.006	0.000
se	0.003	0.004	0.004	0.004	0.004	
N	89840	88724	67319	55165	42642	
FL3 Achievers	0.006***	0.002	-0.001	0.002	0.003	0.000
se	0.001	0.001	0.001	0.002	0.002	
N	795028	750123	452853	338260	239203	
L4+ Achievers	0.009	0.009	0.010	0.008	0.020*	0.013
se	0.007	0.006	0.007	0.007	0.009	

achievement and (ii) those who are employed will more likely be working in (relatively poorly paid) PT jobs (whilst they are HE students or engaged in other forms of training).

27 contd This has the potential to understate (i) employment returns and (ii) earnings returns, relative to a control who may be more likely to exit to FT jobs. In BBCTU we observe negative and significant earnings returns (for FL3 and L3) in the initial years following the end of learning, with returns tending to pick up 3 to 4 years from the end of learning (when the treatment will have finished HE or other forms of non-FE training), and this supports this explanation. The employment returns did not seem to be so negatively impacted, possibly because the control (of FL3 non-achievers) were similarly less likely to secure employment.

	Percentage Point Employment probability Premium in Time Period after Spell End					
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
N	28726	27875	16332	11619	7581	

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

Tables 3 through to 8 present a more detailed breakdown of the estimated returns for subgroups of learners within this wider 'L1/L2 Maths and/or English' category of learning aim – focusing on the populations of FL2 and FL3 achievers. For instance, in Table 3, amongst the population of FL2 achievers, we identify a 4.6% average [3 to 5 year] earnings return for those achieving a L2 English qualification and for those taking both English and Maths at L2, the figure is 7.3%. For other subcategories in Table 3 the suggestion is that returns are of a similar magnitude, but as we move on to the second and third year after learning, we lose statistical significance, as a result of the drop in numbers.

Table 3: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL2 achievers]^{29 30}

	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.054***	0.015	0.033	0.072	N/A
se	0.017	0.028	0.049	0.188	
N	9645	3153	1291	190	
Maths L1	0.071**	0.058	0.118	0.083	N/A
se	0.022	0.039	0.072	0.176	
N	6812	1864	851	178	
English & Maths L1³¹	0.061***	0.044**	0.016	0.018	0.026
se	0.008	0.016	0.023	0.035	
N	52097	12602	6375	2501	
English L2	0.064***	0.043***	0.050***	0.045***	0.046
se	0.007	0.009	0.010	0.011	
N	56471	31902	24930	19338	
Maths L2	0.056***	0.030	0.036	0.032	N/A
se	0.014	0.018	0.022	0.026	
N	14621	6409	4345	2831	

²⁹ Tables 3 to 8 do not include ESOL qualifications in the categories of L1/L2 English for which returns are estimated.

³⁰ Our category of **English L1** in Tables 3 to 8 contains all learners who have a English L1 aim overlapping a FL2 spell (but no overlapping Maths aim); whilst the **English & Maths L1** category includes all those who have English L1 and Maths L1 aims overlapping a FL2 spell (the same applies to the **English & Maths L2** category). As a result, each category of learner is mutually exclusive and no learner can appear in more than one category.

³¹ For categories such as **L1 English**, achievement and non-achievement is straightforward. However, for the category of **L1 Maths and English** we can obviously have a combination of achieve/non-achieve groups. The majority of non-achievers taking both, fail both, and majority of achievers taking both, pass both. Non-achievers are therefore those with both Maths and English aim, who fail to achieve either English or Maths, or both. Variations on this approach do not alter our findings.

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English & Maths L2	0.063***	0.067***	0.079***	0.073***	0.073
se	0.008	0.010	0.011	0.013	
N	40621	22791	17346	12247	

For the population of FL2 achievers, Table 4 suggests a mostly insignificant employment effect from achievement of various L1 English and/or Maths combinations. However, for L2 English and/or Maths combinations, we observe achievers with significantly lower levels of employment three to five years on from the end of learning. In contrast, when we consider employment returns to these qualifications for the population of FL3 achievers in Table 6, the main message is one of insignificant employment effects.

Table 4: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL2 achievers]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.0010	-0.001	-0.0179*	0.0050	-0.0203	0.0111
se	0.0054	0.0059	0.0090	0.0126	0.0237	
N	21907	19141	7780	3880	1317	
Maths L1	0.0084	0.0025	-0.0057	-0.0272	-0.0232	N/A
se	0.0071	0.0078	0.0134	0.0188	0.0384	
N	15434	13086	4277	2140	747	
English & Maths L1	0.0018	0.0060*	0.0091	0.0097	-0.0072	0.000
se	0.0023	0.0029	0.0052	0.0075	0.0110	
N	141212	92610	26123	14071	6544	
English L2	0.0072**	0.0033	-0.0103**	-0.0110**	-0.0080*	-0.0098
se	0.0026	0.0027	0.0033	0.0036	0.0040	
N	125606	114782	70032	53536	40211	
Maths L2	0.0073	0.0046	-0.0163*	-0.0275***	-0.0088	-0.0175
se	0.0045	0.0048	0.0066	0.0078	0.0096	
N	37330	34266	17014	11414	7519	
English & Maths L2	0.0067*	0.0003	-0.0203***	-0.0205***	-0.0132**	-0.0180
se	0.0031	0.0032	0.0038	0.0042	0.0048	
N	91863	84678	51563	39059	28397	

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

We have already flagged the possibility that Maths and English qualifications secure less of an employment impact, as achievement of the higher learning aim (FL2 or FL3 in Tables 4 and 6 respectively) may be the main factor determining whether an individual gets a job. However, in Table 4 we have negative and significant employment impacts and these are more likely driven by the large numbers who move from FE to HE (see footnote 15 of this

report). In much of our analysis to date this has mainly been flagged as an issue when we consider returns to FL3 and L3, as they are the main point of transition to HE (see Smith et al (2015))³². However, as Buscha and Urwin (2013: Section 3.5) emphasise in their study of unobserved HE impacts for a subset of learners, this also has potential to impact those: “who have an ‘FE highest-aim’ of ... Full Level 2, but who have achieved a higher level of learning elsewhere (for instance as part of their Secondary education) which then allows them to move to Higher Education”.

In Table 4, our negative and significant employment effects (amongst a population of FL2 achievers) occur three to five years on from achievement, which is consistent with this suggestion that many more L2 English and/or Maths achievers continue some form of activity outside of FE; which eventually leads to lower employment levels 3 to 5 years on, when they move to HE³³. In Table 6, it is likely that individuals achieving their L2 English and/or Maths qualifications amongst the population FL3 achievers, are more likely to make the move to (unobserved) HE learning and this reduces the proportion of achievers we observe in employment; to the point where we have insignificant employment impacts.

Table 5: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL3 achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.035	-0.062	-0.114	N/A	N/A
se	0.032	0.058	0.135		
N	2986	797	242	30	
Maths L1	-0.004	-0.078	-0.178	N/A	N/A
se	0.037	0.066	0.136		
N	2438	736	295	39	
English & Maths L1	0.083**	0.052	-0.204	N/A	N/A
se	0.032	0.075	0.217		
N	2733	550	152	18	
English L2	-0.007	0.004	0.006	0.011	0.000
se	0.006	0.007	0.008	0.009	
N	99044	60251	44230	30374	
Maths L2	-0.023**	-0.009	0.027**	0.026**	0.015
se	0.008	0.008	0.009	0.009	
N	67838	45742	36497	27035	
English & Maths L2	0.020***	0.011*	0.030***	0.029***	0.023

³² <https://www.gov.uk/government/publications/progression-of-further-education-students-to-higher-education>
<https://www.gov.uk/government/publications/progression-of-apprentices-to-higher-education-second-cohort>

³³ The population of FL2 achievers cannot, by definition, be engaged in higher level FE learning before we observe their earnings returns, as FL2 is the highest FE learning aim we observe for them between 2002 and 2012. The implication is that those achieving FL2 and their L2 Maths/English aim, engage in subsequent learning at L3/FL3 outside of FE, and this gains them access to HE approximately three years on from their FE achievement.

	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
se	0.004	0.005	0.005	0.006	
N	210206	118864	86728	55797	

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

In Table 5 we do not observe enough individuals studying L1 English and/or Maths aims within our population of FL3 achievers, to make estimation of returns possible. However, for the category of *English & Maths L2* (and to a lesser extent *Maths L2*) we capture some of the positive earnings impact (2.3% in the case of *English & Maths L2* achievement), but this is likely an underestimate. Individuals who achieve FL3, but do not achieve complementary *English & Maths L2* are probably less likely to progress to HE and would therefore seem more likely to search for, and subsequently secure, employment that pays relatively well. In contrast, those achieving their FL3 and the accompanying *English & Maths L2* are probably more likely to progress to HE and we will only observe earnings for those working PT – falsely depressing our estimated earnings returns before the fourth year after learning.

Table 6: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL3 achievers]

	Percentage Point Employment probability Premium in Time Period after Spell End					
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.0180	0.0112	0.0008	0.0334	-0.0061	N/A
se	0.0107	0.0110	0.0176	0.0259	0.0662	
N	6645	6359	2411	1134	299	
Maths L1	0.0046	0.0115	0.0164	0.0343	0.0688	N/A
se	0.0118	0.0120	0.0202	0.0288	0.0538	
N	5722	5444	1995	1058	393	
English & Maths L1	-0.0037	0.0001	-0.0099	0.0304	N/A	N/A
se	0.0107	0.0111	0.0198	0.0357		
N	6166	5693	1808	626	155	
English L2	0.0020	-0.0025	-0.0027	0.0018	0.0060*	0.0017
se	0.0023	0.0022	0.0025	0.0027	0.0030	
N	217438	213817	130705	97216	68423	
Maths L2	0.0110***	0.0025	0.0007	0.0021	0.0025	0.000
se	0.0029	0.0028	0.0030	0.0031	0.0033	
N	142534	138299	89642	70550	53103	
English & Maths L2	0.0079***	0.0031*	-0.0014	-0.0003	-0.0017	0.000
se	0.0016	0.0015	0.0017	0.0019	0.0021	
N	416523	380511	226292	167676	116830	

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

In contrast to the lack of systematic, statistically significant findings w.r.t. employment probability premiums [or findings of negative impacts driven by our lack of a universal HE

flag], Tables 7 and 8 suggest that, for both the population of FL2 and FL3 achievers; achievement of L2 Maths and English aims results in significantly lower probabilities that individuals will be observed on 'Active'³⁴ unemployment benefits in the years after learning. Unfortunately, when considering Maths and/or English learning at L1 amongst our populations of FL2 and FL3 achievers, we have insufficient numbers to identify impacts that persist in the third, fourth and fifth years after learning.

In contrast, for our categories of learner engaged in (i) L2 English, (ii) L2 Maths and (iii) English & Maths L2, there are statistically significant and persistent impacts. Amongst the population of FL2 learners (Table 7), we estimate a 3 to 5 year benefit impact of -1.2 ppt for *L2 English*; a figure of -1.1 ppt for *L2 Maths*; and -0.8 ppt for *English & Maths L2*. Considering these findings alongside the raw figures in Table 33 of the Appendix, these translate into [approximate] figures of -16%, -14.5% and -10.5% respectively (as the absolute proportions of non-achievers on benefits is below ten per cent in most cases³⁵). Amongst the population of FL3 learners (Table 8), 3 to 5 year benefit impacts are -0.3 ppt for *L2 English*; -0.4 ppt for *L2 Maths*; and -0.6 ppt for *English & Maths L2*. These translate into [approximate] figures of -4%, -5.5% and -8% respectively

Table 7: Estimated probability of LI/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL2 achievers]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.009*	-0.008	-0.001	-0.002	-0.029	N/A
se	0.004	0.005	0.006	0.009	0.017	
N	18720	17459	7011	3448	1141	
Maths L1	-0.008	-0.005	-0.004	-0.023	-0.051	N/A
se	0.007	0.007	0.010	0.015	0.030	
N	13527	12085	3906	1945	677	
English & Maths L1	-0.021***	-0.016***	-0.007	0.006	0.001	0.000
se	0.002	0.002	0.004	0.005	0.007	
N	116692	85837	23957	12703	5909	
English L2	-0.020***	-0.016***	-0.012***	-0.011***	-0.013***	-0.012
se	0.002	0.002	0.002	0.003	0.003	
N	98923	91831	57553	44037	34867	
Maths L2	-0.016***	-0.019***	-0.016**	-0.008	-0.010	-0.011
se	0.004	0.004	0.005	0.005	0.006	
N	27725	25886	13164	8741	6163	
English & Maths L2	-0.018***	-0.014***	-0.010***	-0.009**	-0.005	-0.008
se	0.003	0.003	0.003	0.003	0.003	
N	71890	67156	41198	31397	23992	

³⁴ Job Seekers Allowance (JSA), Job Training Allowance (JTA) and Employment and Support Allowance (ESA).

³⁵ Taking a 7.5% Active Benefit rate for non-achievers.

Table 8: Estimated probability of L1/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL3 achievers]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.013	-0.005	0.004	0.004	N/A	N/A
se	0.008	0.007	0.011	0.014		
N	6208	5941	2227	1032	261	
Maths L1	-0.011	-0.004	-0.045***	-0.005	N/A	N/A
se	0.009	0.008	0.013	0.017		
N	5376	5119	1863	977	362	
English & Maths L1	-0.009	-0.018*	-0.011	0.025	N/A	N/A
se	0.007	0.008	0.013	0.025		
N	5745	5329	1674	570	134	
English L2	-0.011***	-0.010***	-0.004***	-0.002	-0.003	-0.003
se	0.001	0.001	0.001	0.002	0.002	
N	183790	180691	115690	87421	62140	
Maths L2	-0.016***	-0.013***	-0.005**	-0.005**	-0.003	-0.004
se	0.002	0.002	0.002	0.002	0.002	
N	122146	118605	79941	63766	48403	
English & Maths L2	-0.014***	-0.011***	-0.006***	-0.005***	-0.006***	-0.006
se	0.001	0.001	0.001	0.001	0.001	
N	372790	343661	207227	154167	107939	

In Tables 3 to 8 we have adopted a particular approach to disaggregation of English and Maths returns, but it is also possible to differentiate our findings according to whether individuals are engaged in L1/L2 Numeracy and/or Literacy ‘Key Skill’ or ‘Certificate’ qualifications. Section 5.1 of the Appendix to this report presents the findings from analysis of returns, using this alternative disaggregation.

3.2 Disaggregation of Maths and English returns by Sector

Here we consider how the returns presented in Section 3.1 vary according to the sector subject area of either the Full Level 2 or Full Level 3 qualification achieved by learners. This issue is important to investigate as there is some disagreement over whether Maths/English is necessary as a compliment in some subject areas. However, this is pushing the data to its limits and for many sectors the numbers in our regression equations fall too low to produce robust estimates. For instance, in Table 9 we select the population of individuals who, between 2002 and 2012, achieve a FL2 qualification as their highest learning aim; and split this population according to the sector subject area of the FL2 qualification achieved. Amongst this population of achievers across different sectors, we have approximately 300,000 individuals who also have a *L2 English and/or Maths* aim. In

each of these FL2 sector subject areas, we are able to compare the earnings of those who achieve their *L2 English and/or Maths* aim, with those who do not achieve³⁶.

Table 9: Estimated earnings premium for L2 English and/or Maths Achievers³⁷, by Sector Subject [for the population of Full Level 2 Achievers]

Sector Subject of FL2	Year 1	Year 3	Year 4	Year 5	3-5 year average
Adult social care	0.0559**	0.0023	-0.0125	N/A	N/A
Standard Error	0.0174	0.0291	0.0386		
Number of learners	10121	3252	1869	928	
Engineering and manufacturing	0.0606**	0.0181	0.0429	N/A	N/A
Standard Error	0.0206	0.0279	0.0347		
Number of learners	5721	2669	1814	1133	
ICT	0.0721**	-0.0219	0.0277	N/A	N/A
Standard Error	0.0251	0.0309	0.0409		
Number of learners	6843	2648	1888	1420	
Retailing and Wholesaling	0.0517**	-0.0772*	N/A	N/A	N/A
Standard Error	0.0164	0.0359			
Number of learners	7761	1669	1018	528	
Hospitality and Catering	0.0667***	0.0551**	0.0479**	0.0559**	0.0530
Standard Error	0.0146	0.0185	0.0189	0.0198	
Number of learners	15030	7550	6484	5601	
Hair and beauty	0.0789***	0.045	0.0243	0.0873*	0.0522
Standard Error	0.021	0.0266	0.032	0.0412	
Number of learners	6232	3439	2364	1501	
Admin/ secretarial	0.0578***	0.0485*	0.0336	0.0442	0.0421
Standard Error	0.0153	0.0198	0.0221	0.0247	
Number of learners	12568	7034	5657	4344	
Customer service	0.0545***	0.0734**	0.0852**	0.0464	0.0683
Standard Error	0.0153	0.0248	0.0316	0.0365	
Number of learners	14486	4299	2585	1777	

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

³⁶ In contrast to majority of analysis in BBCTU, these control groups can less easily be argued to include 'drop-outs', as they must contain those who achieve the higher FL2 aim. This does not change the implications of our findings but it is worthy of note, as it does differentiate the nature of our control group, compared to the control we use in Section 4; and we return to this in our Conclusion.

³⁷ In Tables 9 to 12, our category of *English and/or Maths* learners does not include ESOL qualifications.

We have only attempted to estimate returns when we have 20,000 or more L2 Maths and/or English learners within a particular population of FL2 or FL3 sector subject area achievers (see Appendix Tables 31 and 32 for the number of learners in each sector subject area). This would seem rather a high benchmark to set if we were carrying out an analysis based on survey data, but we need to consider that:

- Our control group of non-achievers typically makes up only 20% of the total number of learners with a particular learning aim.
- It may still seem excessive to insist on a control group of approximately 4,000 individuals (20% of 20,000), but in each case we likely lose at least one quarter of this, due to missing values and even more when we are estimating earnings returns (as we only observe a proportion of the total learners with earnings in the years following learning).
- However, even in the case where we are estimating percentage point employment probability returns or benefit outcomes (which do not suffer from the same selection effects, as the estimation of earnings returns) we will still see numbers drop off dramatically after the first year after learning, because we only observe one or two years of earnings for the most recent cohorts of learners.

As an example of these points, in Table 9 the suggestion is that, amongst the population of FL2 achievers in Adult Social Care, those achieving a *L2 Maths and/or English* qualification secure an additional 5.6% earnings premium³⁸ in the first tax year after learning. This estimate is based on a sample of 10,121 learners for whom we observe earnings in the tax years after learning, highlighting clear selection effects, as we have chosen this group because they originally contain over 20,000 learners in total³⁹. This estimate obtained from data on the first tax year after learning will, necessarily, include all cohorts of learners (because we observe a first year of earnings for even those whose learning spell finishes in 2010-2011). However, by the fifth year after learning our estimate is based on learners who complete prior to the 2007/2008 academic year (as these are the only individuals for whom we observe five or more years of earnings). As a result, whilst the first year contains around 10,000 learners (and approximately 2,000 non-achievers in our control group), by the second year this has dropped to just over 3,000, and the resultant drop in our control group to around 600 likely explains our subsequent lack of statistical significance.

A similar story is apparent for *Engineering & Manufacturing*, *ICT* and *Retailing & Wholesaling*. Clearly we must be careful in interpretation of findings in these sectors, but it is worth flagging that the [statistically significant] estimated earnings return in the first year is 5.6% for *Adult Social Care*; 6% for *Engineering & Manufacturing*; 7.2% for *ICT* and 5.2%

³⁸ With this 5.6% estimate of value added based on a comparison of the returns for this group, compared to those in the same population of FL2 Adult Social Care achievers, who do not achieve *L2 Maths and/or English*.

³⁹ We provide an indication of the extent and nature of the selection into employment (and therefore earnings) by providing estimates of the impact of achievement on employment probability premiums. However, we do not implement a selection model (as might be suggested by the work of Heckman, 1979) because any gains in accuracy are likely to be small; compared to the significant increase in computational intensity. This conclusion is based on findings from our work, which extends BBCTU.

for *Retailing & Wholesaling*. It is only when we get to *Hospitality & Catering* that we have large enough numbers across all cohorts of learners, for a persistent, statistically significant, earnings return to have a chance of being uncovered. For those achieving a FL2 qualification in this sector, we estimate that *L2 Maths and/or English* achievers secure an additional [3 to 5 year average] earnings premium of 5.3%.

Unfortunately, the number of learners in *Hair & Beauty* does not seem quite enough to uncover a robust set of statistically significant findings beyond the first year, though we have reported the (5.2%) three to five year average in the final column as we do observe some significance of the earnings premium (at the 5% level) five years on from the end of learning. Just to remind readers, results such as these, where we are much less confident of the persistence of any return, are reported, but only those that are statistically significant are reported in bold (and we require persistent, statistically significant, estimates across the three to five year period for the 3-5 year average to be highlighted in bold). Hence our reporting of a 4.2% 3-5 year average return for those achieving *L2 Maths and/or English* amongst FL2 achievers in the area *Administration & Secretarial*. In contrast, we present in bold italics the figure of 6.8% for *Customer Service*, as it persists for four years from the end of learning and only becomes insignificant in the fifth tax year when numbers drop below 2,000.

This problem with numbers is particularly acute when we consider the returns to *L1 Maths and/or English* amongst the population of FL2 achievers across different sector subject areas. Even for those sectors where we observe more than 20,000 learners, very few of our findings are significant beyond the first year, because numbers drop off dramatically (as we observe fewer learners in earlier cohorts). Whilst we do not present these findings (they are available on request), it is worth noting that amongst those achieving a FL2 *Customer Service* qualification, *L1 Maths and/or English* achievers secure an estimated 5.7% and 10.4% earnings return over non-achievers, in the first and second tax years after learning, respectively. Similarly, when we consider FL2 achievers in the areas of (i) *Adult Social Care* and (ii) *Retailing & Wholesaling*, those achieving a *L1 English and/or Maths* qualification are observed securing statistically significant (i) 4.3% and (ii) 4.2% earnings premiums in the first tax year after learning. Unfortunately, we then do not have large enough samples to uncover returns in subsequent years (and it is worth noting that these results are only significant at the 5% level).

This problem with numbers is even more acute when we attempt to capture the returns to *L2 Maths and/or English* achievement amongst our population of FL3 achievers – there are only two sectors where we obtain significance and this is only in the first year after learning. However, the earnings returns discussed here and in the previous section, for L1 and L2 Maths and/or English achievers, amongst both the population of FL2 and FL3 achievers, seem encouraging. Whilst the data place limitations on our findings, we have results that add to our understanding of the earnings impacts of these qualifications when taken as complementary forms of learning, alongside higher learning aims.

However, when we estimate the impact of these qualifications on employment outcomes, we encounter the same problems as in the previous section – we seem to be either (i) more severely hobbled by existing data limitations in identifying progression to HE or (ii) we simply uncover less of a role for L1/L2 Maths and/or English, when taken as a complementary form of learning, in securing employment.

Under (i) we have already detailed limitations of the existing data in BBCTU when it comes to identifying movements of individuals into Higher Education, and this could be confounding our estimates of employment returns. Those amongst the population who achieve FL3, but fail L2 Maths and/or English may be less likely to move on to HE (if they need to achieve the Maths/English as a condition of entry), but (if this is correct) it does not seem to be happening on a large enough scale to impact earnings estimates. Our lack of significance for employment impacts may be driven by L1/L2 Maths and/or English achievers amongst FL2 achievers, being more likely to continue with their studies outside of FE (thus depressing employment outcomes for the achievers). These phenomena could be happening amongst both the FL2 and FL3 populations, but in both cases this will not necessarily show up as depressed earnings returns⁴⁰.

The fact that we see negative and significant employment premiums in some instances suggests that the above data limitations are impacting. However, even in the absence of these data issues, we might not see particularly significant employment returns, because it is perhaps the achievement of a FL2 or FL3 qualification that dominates in determining whether an individual secures employment. FL2 achievers may have a similar chance of securing a job (whether or not they achieve a complementary L2 Maths and/or English aim), but having secured employment, we observe those achieving a L2 Maths and/or English qualification securing a higher earnings return.

In coming months it should be possible to get a better handle on this (depending on the passage of legislation to facilitate further data matching) but for now, we finish this section with three tables that set out the impact on benefit rates, of L2 Maths and/or English achievement for populations of FL2 and FL3 achievers. As we can see, Tables 10, 11 and 12 suggest that achievement of these Maths and English qualifications as supplementary forms of learning, is significant in reducing the probability that an individual will be on benefits in the tax years after learning across a number of sectors (although once again, we are limited by numbers beyond the first year after learning).

We present findings in Table 10 for *L1 English and/or Maths*, because although there are insufficient numbers to estimate more than one 3 to 5 year average, we are able to identify significant impacts in the first years after learning in many instances.

⁴⁰ BBCTU didn't capture such negative employment impacts, but unobserved moves to HE and PT working seemed to result in some negative earnings impacts (at L3 and FL3). This seems consistent, as in BBCTU we were comparing FL3 achievers with non-achievers and the latter likely had less favourable employment outcomes; mitigating against any problems of lower employ rates amongst achievers moving to HE. In contrast, this Section has a control group made up of all FL3 and FL2 achievers, who do not achieve Maths and/or English – it seems reasonable to suggest that FL2/FL3 achievers who do not secure the English and/or Maths needed for them to progress to education, have relatively high rates of employment (when compared to those who have FL2/FL3, alongside English and/or Maths achievement which allows them to better progress to the next stage of learning – which we are often unable to observe).

Table 10: Estimated probability of L1 English and/or Maths Achievers being on Active Benefits, compared to non-achievers, by Sector Subject [for the population of Full Level 2 Achievers]

Sector Subject of FL2	Month 3	Year 1	Year 3	Year 4	Year 5	Average impact
Adult social care	-0.0091**	-0.0150**	-0.0152*	-0.0200*	N/A	-0.0176
Standard Error	0.0037	0.0046	0.0071	0.0096		
Number of learners	16568	13322	4325	2226	791	
Retailing and Wholesaling	-0.0083**	-0.0126**	0.0160	N/A	N/A	N/A
Standard Error	0.0027	0.0044	0.0104			
Number of learners	20908	12468	2129	1247	611	
Hospitality and Catering	-0.0275***	-0.0162*	-0.0024	N/A	N/A	N/A
Standard Error	0.0065	0.0071	0.0116			
Number of learners	16008	12586	2361	1210	450	
Customer service	-0.0155**	-0.0121*	-0.0076	-0.006	N/A	N/A
Standard Error	0.0048	0.0054	0.008	0.0102		
Number of learners	22326	17419	4768	2230	866	

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

In Table 11, amongst the population of FL2 learners, we estimate 3 to 5 year benefit impacts for *L2 English and/or Maths achievers* of -1.2 ppt (or -17%) for *Hospitality and Catering*; -0.9 ppt (or -9%) for *Hair and Beauty*; -1.2 ppt (or -12%) for *Admin/secretarial* and -0.7 ppt (or -10%) for *Customer Service*.

Table 11: Estimated probability of L2 English and/or Maths Achievers being on Active Benefits, compared to non-achievers, by Sector Subject [for the population of Full Level 2 Achievers]

Sector Subject of FL2	Month 3	Year 1	Year 3	Year 4	Year 5	3-5 year average
Adult social care	-0.0191***	-0.0234***	-0.0072	-0.0057	-0.0137	N/A
Standard Error	0.0040	0.0046	0.0058	0.0069	0.0091	
Number of learners	19046	15771	6403	3865	2258	
Engineering and manufacturing	-0.0243***	-0.0142*	-0.0028	0.0026	0.0054	N/A
Standard Error	0.0063	0.0071	0.0086	0.0101	0.0118	
Number of learners	12085	9090	4361	3053	2077	
ICT	-0.0179*	-0.0140	-0.0078	-0.0196	-0.0058	N/A
Standard Error	0.0080	0.0081	0.0102	0.0117	0.0143	
Number of learners	14921	13036	5150	3595	2594	
Retailing and Wholesaling	-0.0135***	-0.0175***	0.0002	-0.0004	N/A	N/A
Standard Error	0.0027	0.0043	0.0096	0.011		
Number of learners	21697	13237	2752	1653	918	

Sector Subject of FL2	Month 3	Year 1	Year 3	Year 4	Year 5	3-5 year average
Hospitality and Catering	-0.0242***	-0.0153***	-0.0118**	-0.0086	-0.0163**	-0.0122
Standard Error	0.0037	0.0039	0.0044	0.0049	0.0051	
Number of learners	26971	23547	12737	10717	9296	
Hair and beauty	-0.0202**	-0.0093	-0.0055	-0.0159**	-0.0053	-0.0089
Standard Error	0.0062	0.0057	0.0051	0.0057	0.0064	
Number of learners	13184	12433	7636	5624	3924	
Admin/ secretarial	-0.0207***	-0.0165**	-0.0130*	-0.0092	-0.0149*	-0.0124
Standard Error	0.0053	0.0052	0.0054	0.0057	0.0062	
Number of learners	21538	19036	11401	8857	6961	
Customer service	-0.0188***	-0.0141**	-0.0127*	-0.0070	-0.0023	-0.0073
Standard Error	0.0040	0.0044	0.0059	0.0072	0.0079	
Number of learners	26115	21088	7628	4470	2884	

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

In Table 12, amongst the population of FL3 learners, we are only able to estimate one 3 to 5 year benefit impact for *L2 English and/or Maths achievers* of -0.7 ppt (or -11.5%) for *Leisure, Travel and Tourism*. However, as with Table 10, we have included the findings because once again there are statistically significant findings for the first years after learning, but subsequent numbers are not sufficient to uncover persistence of these returns into later years.

Table 12: Estimated probability of L2 English and/or Maths Achievers being on Active Benefits, compared to non-achievers, by Sector Subject [for the population of Full Level 3 Achievers]

Sector Subject of FL3	Month 3	Year 1	Year 3	Year 4	Year 5	3-5 year average
Child development & wellbeing	-0.0085*	-0.0044	-0.0016	0.0032	0.0024	0.000
Standard Error	0.0038	0.0028	0.0024	0.0025	0.0029	
Number of learners	24345	23623	15749	12182	8822	
Adult social care	-0.0056	-0.0074*	-0.0049	0.0012	-0.0034	N/A
Standard Error	0.0038	0.0033	0.0041	0.0045	0.0053	
Number of learners	19062	18602	10368	6991	5192	
ICT	-0.0131*	-0.0178***	-0.0023	0.0008	-0.0021	0.000
Standard Error	0.0053	0.0050	0.0049	0.0053	0.0058	
Number of learners	18189	17849	12545	10376	8266	
Hair and beauty	-0.0185***	-0.0177***	-0.0001	0.0025	0.0004	N/A
Standard Error	0.0046	0.0040	0.0034	0.0034	0.0034	
Number of learners	20785	20359	13065	9926	7129	

Sector Subject of FL3	Month 3	Year 1	Year 3	Year 4	Year 5	3-5 year average
Leisure, Travel and Tourism	-0.0177***	-0.0199***	-0.0035	-0.0091*	-0.0076	-0.0067
Standard Error	0.0040	0.0036	0.0033	0.0039	0.0044	
Number of learners	22434	22125	14209	10749	7876	
Performing Arts	-0.0171***	-0.0139***	-0.0038	-0.0086	-0.0075	N/A
Standard Error	0.0042	0.0039	0.0041	0.0046	0.0053	
Number of learners	21229	21023	14023	10844	7660	
Crafts, Creative Arts and Design	-0.0088*	-0.0184***	-0.0067	-0.0042	-0.0051	0.000
Standard Error	0.0035	0.0033	0.0036	0.0043	0.0050	
Number of learners	28205	27923	17890	12995	9297	
Creative Media	-0.0094*	-0.0033	-0.0075	-0.0062	-0.0056	N/A
Standard Error	0.0046	0.0043	0.0045	0.0054	0.0056	
Number of learners	16540	16442	12058	9743	7155	
Business studies	-0.0200***	-0.0031	-0.0063	-0.0036	0.0023	N/A
Standard Error	0.0048	0.0039	0.0047	0.0058	0.006	
Number of learners	16529	16371	10646	8341	6233	

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

The fact that we see some systematic and persistent, statistically significant benefit impacts for FL2 and less for FL3 does not allow us to identify which of our explanations for a lack of employment impact are correct – this will only come with advances in the data. However, it does serve to re-enforce the suggestion that these L1/L2 Maths and/or English qualifications provide real value added when taken alongside higher learning aims, across a number of sectors.

Also, it is worth noting that the statistical significance of impacts in the first year after learning (and in many cases the second year) provides a stronger case than is perhaps reflected in discussions around the tables. We are tying ourselves to a very rigorous criteria for what constitutes evidence of ‘impact’ – in terms of our criteria for statistical significance, the suggestion that this must be observed over many years and also that in each year it must be relatively stable, is setting the ‘bar’ high. This is more than most studies can achieve. Similarly, we are sometimes dismissive of statistically significant impacts identified in the first or second years after learning; but first year impacts apply across a number of cohorts of learners, as we observe a first year of earnings, employment and benefits information for all cohorts.

4. Maths and English as a Highest Learning Aim

Tables 3 to 12 provided insight into the potential returns to L1/L2 Maths and/or English achievement amongst populations of individuals who are taking these qualifications alongside higher learning aims. We now consider populations of learners who have a highest learning aim of either (i) Below Level 2 or (ii) L2, and identify the returns to more specific sub-groups within these wider highest learning aims; focusing particularly on Entry-level/L1/L2 Maths and/or English. Table 13 details the split of Maths and English categories used in Tables 14 through to 19 (Section 4.1) and 20 through to 22 (Section 4.2).

In Tables 3 to 12 we have not separately identified the returns to ESOL qualifications (these were not included in the findings from previous tables). Tables 14 through to 19 present estimated returns for an amalgamated category of *Entry Level/L1/L2 English and/or Maths* which similarly does not contain ESOL qualifications (and therefore neither do the Entry Level, L1 or L2 subdivisions in these same tables). However, Tables 20 through to 22 estimate separately the returns for ESOL qualifications, which are therefore not included in the Entry Level/L1/L2 Maths and/or English categories of learning for which results are also presented. Section 5.3 of the Appendix sets out the results of an analysis using the same approach, but with estimates presented separately for (i) those aged 19 to 24 and (ii) those aged 25+.

Table 13: Sub-categories of highest learning aim, within ‘Below Level 2’ and ‘L2’

	Achievers	Non-Achievers
Below Level 2¹	3,515,661	1,509,366
English L1	103,974	52,957
Maths L1	91,511	36,931
English & Maths 1	55,576	43,415
Entry Level English	240,373	117,003
Entry Level Maths	149,259	73,314
Other Level 1	2,329,534	957,473
ESOL	568,949	268,460
Level 2²	1,424,325	594,310
English L2	171,629	57,788
Maths L2	161,156	55,170
English & Maths 2	82,022	39,087
Other Level L2	1,469,929	609,019

¹ **Below Level 2** includes i) “Other Level 1”; ii) “English 1”; iii) “Maths 1”; iv) “English and Maths 1”; v) “Entry Level English”; vi) “Entry Level Maths”; vii) part of “ESOL”.

² **Level 2** includes i) Other Level 2; ii) “English 2”; iii) “Maths 2”; iv) “English and Maths 2”; v) part of “ESOL”.

More specifically we construct categories in the following way:

- **English L1:** all individuals who have a highest learning aim between 2004 and 2012, identified as *English L1* (with no accompanying Maths aim).
- **Maths L1:** all individuals with a highest learning aim between 2004 and 2012, identified as *Maths L1* (with no accompanying English aim).
- **English & Maths L1⁴¹:** all individuals with a highest learning aim between 2004 and 2012, identified as both *Maths L1* and *English L1*.

- **English L2:** all individuals who have a highest learning aim between 2004 and 2012, identified as *English L2* (with no accompanying Maths aim).
- **Maths L2:** all individuals with a highest learning aim between 2004 and 2012, identified as *Maths L2* (with no accompanying English aim).
- **English & Maths L2:** all individuals with a highest learning aim between 2004 and 2012, identified as both *Maths L2* and *English L2*.

- **Entry Level English:** all individuals with a highest learning aim between 2004 and 2012, which has English/Literacy in the aim title, but which is not recognized as L1 (or higher). Some, but not all, of these courses have 'entry level' in the title.
- **Entry Level Maths:** all individuals with a highest learning aim between 2004 and 2012, which has Maths/Numeracy in the aim title, but which is not recognized as L1 (or higher). Some, but not all, of these courses have 'entry level' in the title.

- **ESOL:** all individuals with a highest learning aim between 2004 and 2012, identified as either ESOL L1, L2 or Entry Level (with Entry Level making up over 80% of all ESOL spells).

- **Other Level 1** all individuals with a highest learning aim between 2004 and 2012, identified as L1, but not tackling issues of Maths/Numeracy or English/Literacy.
- **Other Level 2** individuals with a highest learning aim between 2004 and 2012, identified as L2, but not tackling issues of Maths/Numeracy or English/Literacy (a small percentage attend L2 courses which may have some relation to Maths or English aims, but the number is small).

4.1 Findings for Amalgamated Groups of Entry Level/L1/L2 English and/or Maths learning

In Section 4.2 we will disaggregate the categories of Maths and/or English learning to the point where we start to lose statistical significance in some areas, because of lower numbers. The following Tables 14 to 19 adopt more aggregated categorisations and underline the widespread and persistent nature of the statistically significant impacts for Maths and/or English learning at Entry, Level 1 and L2 when held as a highest learning aim.

⁴¹ We are looking at highest, 'latest' aim (within the wider highest aim categories of *L2* and *Below Level 2*). In this case, if an individual has a L1 English aim in 2004 and a L1 Maths aim in 2008, then they will feature as *L1 Maths* (not *L1 Maths and English*). Somebody would have to be doing L1 Maths and L2 English within the same academic year to be counted in the *L1 Maths and English* category, and this would have to be their highest/latest learning aim.

Table 14: Daily earnings premium for English and/or Maths achievers⁴², relative to non-achievers: within the *Below Level 2* and *L2* highest aim populations

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Entry Level/L1/L2 English and/or Maths	0.0498***	0.0534***	0.0539***	0.0537***	0.0537
se	0.0034	0.0040	0.0046	0.0052	
N	345432	226740	174704	134108	
EL Eng and/or Maths	0.0658***	0.0529***	0.0415***	0.0411***	0.0452
se	0.0062	0.0064	0.0068	0.0073	
N	107244	92296	80239	71756	
L1 Eng and/or Maths	0.0457***	0.0769***	0.0754***	0.0740**	0.0754
se	0.0071	0.0111	0.0151	0.0276	
N	68536	26958	13808	3930	
L2 Eng and/or Maths	0.0196***	0.0293***	0.0527***	0.0600***	0.0473
se	0.0049	0.0059	0.0068	0.0079	
N	169652	107486	80657	58422	

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

Table 15: Employment Probability premiums for English and/or Maths achievers, relative to non-achievers: within *Below Level 2* and *L2* highest aim populations

Percentage Point Employment probability Premium in Time Period after Spell End						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Entry Level/L1/L2 English and/or Maths	0.0051***	0.0120***	0.0143***	0.0125***	0.0151***	0.0140
se	0.0005	0.0007	0.0009	0.0010	0.0012	
N	1369907	1245367	858668	673821	508628	
EL Eng and/or Maths	0.0072***	0.0100***	0.0098***	0.0096***	0.0139***	0.0111
se	0.0008	0.0010	0.0013	0.0014	0.0015	
N	529261	499046	423061	366474	310205	
L1 Eng and/or Maths	-0.0011	0.0091***	0.0139***	0.0153***	0.0163***	0.0152
se	0.0010	0.0013	0.0020	0.0026	0.0038	
N	329635	284502	134872	81586	36222	
L2 Eng and/or Maths	0.0060***	0.0129***	0.0163***	0.0145***	0.0179***	0.0162
se	0.0009	0.0012	0.0016	0.0019	0.0023	
N	511011	461819	300735	225761	162201	

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

Tables 14, 16 and 17 provide robust evidence that, when taken as a highest learning aim, achievement of:

⁴² Tables 14 through to 19 present estimated returns for an amalgamated category of Entry Level/L1/L2 English and/or Maths that does not contain ESOL qualifications (and therefore neither do the Entry Level, L1 or L2 subdivisions in the same tables).

- (i) *Entry Level English and/or Maths*, provides a three to five year average earnings return of 4.5%, that is slightly higher (5%) for those aged 19 to 24 and slightly lower (3.1%) for those aged 25+.
- (ii) *Level 1 English and/or Maths*, provides a three to five year average earnings return of 7.5%, that is slightly higher (7.8%) for those aged 25+ and unclear for those aged 19 to 24, because of low numbers beyond the third year after learning.
- (iii) *Level 2 English and/or Maths*, provides a three to five year earnings return of 4.7%, that is higher (8.5%) for those aged 19 to 24 and lower (3.8%) for those aged 25+.

Table 16: Daily earnings premium for English and/or Maths achievers (aged 19-24), relative to non-achievers: within *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Entry Level/L1/L2 English and/or Maths	0.0496***	0.0760***	0.0586***	0.0796***	0.0714
se	0.0091	0.0111	0.0126	0.0143	
N	45791	29463	22629	17287	
EL Eng and/or Maths	0.0726***	0.0692***	0.0348	0.0449*	0.0496
se	0.0170	0.0183	0.0198	0.0208	
N	13774	11195	9464	8392	
L1 Eng and/or Maths	0.0462**	0.0799**	0.0291	0.0352	0.0481
se	0.0182	0.0295	0.0401	0.0682	
N	10587	4238	2272	678	
L2 Eng and/or Maths	0.0220	0.0614***	0.0828***	0.1120***	0.0854
se	0.0137	0.0163	0.0184	0.0212	
N	21430	14030	10893	8217	

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

Table 17: Daily earnings premium for English and/or Maths achievers (aged 25+), relative to non-achievers: within the *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Entry Level/L1/L2 English and/or Maths	0.0400***	0.0479***	0.0480***	0.0424***	0.0461
se	0.0038	0.0046	0.0053	0.0062	
N	265194	170997	129873	98994	
EL Eng and/or Maths	0.0350***	0.0381***	0.0284***	0.0260**	0.0309
se	0.0074	0.0076	0.0081	0.0085	
N	71599	64657	57120	52673	
L1 Eng and/or Maths	0.0462***	0.0748***	0.0834***	0.0742*	0.0775
se	0.0078	0.0120	0.0163	0.0308	
N	57723	22625	11499	3248	
L2 Eng and/or Maths	0.0178**	0.0276***	0.0430***	0.0444***	0.0383
se	0.0056	0.0068	0.0080	0.0094	
N	135872	83715	61254	43073	

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

Tables 15, 18 and 19 provide robust evidence that, when taken as a highest learning aim, achievement of:

- (i) *Entry Level English and/or Maths*, provides a three to five year average employment probability premium of 1.1 percentage points (ppt), that is slightly lower (1 ppt) for those aged 19 to 24 and slightly higher (1.5 ppt) for those aged 25+. If we take into account the absolute proportions in employment, these percentage point (ppt) differences translate into approximate percentage differences of 3.5%; 3.6% and 4.4% respectively.
- (ii) *Level 1 English and/or Maths*, provides a three to five year average employment probability premium of 1.52 percentage points, that is slightly higher (1.67 ppt) for those aged 19 to 24 and slightly lower (1.49 ppt) for those aged 25+. If we take into account the absolute proportions in employment, these percentage point differences translate into approximate percentage differences of 5.4%; 6.7% and 4.8% respectively.
- (iii) *Level 2 English and/or Maths*, provides a three to five year average employment probability premium of 1.62 ppt, that is higher (3.05 ppt) for those aged 19 to 24 and lower (2.31 ppt) for those aged 25+. If we take into account the absolute proportions in employment, these percentage point differences translate into approximate percentage differences of 4%; 8.5% and 5% respectively⁴³.

Table 18: Employment Probability premiums for English and/or Maths achievers (aged 19-24), relative to non-achievers: within the *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					3-5 year average
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	
Entry Level/L1/L2 English and/or Maths	0.0104***	0.0177***	0.0199***	0.0156***	0.0159***	0.0171
se	0.0014	0.0017	0.0022	0.0025	0.0030	
N	214054	192635	133270	104601	78535	
EL Eng and/or Maths	0.0089***	0.0123***	0.0111***	0.0079*	0.0110**	0.0100
se	0.0024	0.0029	0.0033	0.0036	0.0040	
N	71836	68209	60200	52519	45086	
L1 Eng and/or Maths	0.0060**	0.0165***	0.0210***	0.0177**	0.0113	0.0167
se	0.0023	0.0030	0.0045	0.0058	0.0087	
N	63178	54438	27404	17165	7686	
L2 Eng and/or Maths	0.0145***	0.0223***	0.0320***	0.0289***	0.0307***	0.0305
se	0.0024	0.0030	0.0039	0.0046	0.0055	
N	79040	69988	45666	34917	25763	

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

⁴³ Table 15 refers to the whole population; Table 17 to the 19-24 years olds and Table 19 to those aged 25+. There are many thousands of individuals who were younger than 19 when they started attending such qualifications (11% of the total population) and they have nil or negative results. This is why the returns to the total population are lower than the 19-24 and the 25+ age groups.

Table 19: Employment Probability premiums for English and/or Maths achievers (aged 25+), relative to non-achievers: within the *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					3-5 year average
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	
Entry Level/L1/L2 English and/or Maths	0.0037***	0.0128***	0.0185***	0.0188***	0.0204***	0.0192
se	0.0006	0.0008	0.0010	0.0012	0.0013	
N	935798	843123	580909	455543	351378	
EL Eng and/or Maths	0.0049***	0.0085***	0.0134***	0.0142***	0.0167***	0.0148
se	0.0010	0.0013	0.0015	0.0016	0.0017	
N	299170	281051	261228	234576	211251	
L1 Eng and/or Maths	-0.0028**	0.0074***	0.0118***	0.0146***	0.0183***	0.0149
se	0.0011	0.0014	0.0022	0.0029	0.0043	
N	264953	228634	106785	63994	28390	
L2 Eng and/or Maths	0.0058***	0.0155***	0.0223***	0.0228***	0.0241***	0.0231
se	0.0011	0.0013	0.0018	0.0022	0.0026	
N	371675	333438	212896	156973	111737	

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

4.2 Disaggregated Entry Level/L1/L2 Maths and/or English returns

The following Tables 20 to 22 present the estimated earnings returns, employment premiums and differences in benefit outcomes, for disaggregations of the categories presented previously in Tables 14 to 19. As suggested previously, Tables 14 to 19 did not include ESOL learning, but in the following tables we separately estimate the returns for achievers in this form of learning. In Section 5.1 of the Appendix we adopt the same approach to estimation, but with some differentiation made between English and Maths learning as 'Key Skills' or 'Certificates'.

The first row of Table 20 presents the estimated return to achievement of qualifications *Below level 2*, for the population of learners for whom this is a highest learning aim. From the second to eighth row, Table 20 presents the estimated returns for subcategories of this *Below Level 2* group, as detailed in Table 13. From this, it is clear that the category *Other Level 1* dominates *Below Level 2*, accounting for just under a million of the 1.27m learners in this category. At just under 1%, the earnings return to *Other Level 1* is clearly an important factor dragging down the estimated return across all *Below Level 2* achievement, which is only 1.9% - though it should be remembered that these are mainly short courses.

However, across almost all the other subcategories of learner who are attempting some form of English and/or Maths qualification (approximately 300,000 learners), estimated returns are much higher (and in many cases statistically significant). Those achieving *English L1* secure a [3 to 5 year average] return of 6.6% over non-achievers, which is persistent and statistically significant across all five years. The return to *Maths L1* averages 6%, but we have much less evidence of statistical significance across all five

years. Those taking *L1 English & Maths* seem to secure a significant and substantial 12.3% 3 to 5 year average return, but this estimate should be considered with care as there is some concern over the variability in estimates over the five years after the end of learning, driven by low numbers from the third year onwards. In contrast, achievers of *Entry Level Maths* and *Entry Level English* exhibit returns of 3.4% and 5% respectively, that exhibit persistence and a level of statistical significance over the five years from the end of learning.

When considering the disaggregation of our *Level 2* category (in the second half of Table 20), we see a very similar picture. Considering all those with *L2* as their highest learning aim, we observe a [3 to 5 year] average earnings return of only 1.3%, with this low figure a result of the less-than-one-per cent return secured by 0.83 million *Other Level 2* achievers (who are taking short courses) make up over 80% of individuals in the *L2* category. In contrast, *English L2* achievers secure a 7.4% return that is persistent and statistically significant; *Maths L2* secure a 3.8% return (even though we seem to suffer from the possible unobserved impact of progression to HE and associated PT working); and those achieving overlapping spells of *Maths & English L2*, achieve a 4.9% earnings return.

Table 20: Daily earnings premiums for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations⁴⁴

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2¹	0.021***	0.020***	0.016***	0.020***	0.019
se	0.002	0.002	0.002	0.002	
N	1267057	1082101	971705	867255	
English L1	0.063***	0.047**	0.076***	0.075*	0.066
se	0.010	0.015	0.020	0.038	
N	31288	13983	7580	2220	
Maths L1	0.019	0.054*	0.083**	0.043	0.060
se	0.013	0.022	0.030	0.051	
N	21941	8128	4060	1165	
English & Maths L1	0.062***	0.169***	0.074*	0.127	0.123
se	0.015	0.026	0.037	0.079	
N	15307	4847	2168	545	
Entry Level English	0.065***	0.060***	0.043***	0.047***	0.050
se	0.008	0.008	0.009	0.009	
N	69160	60114	52960	48101	
Entry Level Maths	0.065***	0.040***	0.037**	0.025*	0.034
se	0.011	0.011	0.012	0.013	
N	38085	32182	27279	23655	
Other Level 1	0.002	0.006**	0.006**	0.010***	0.007
se	0.002	0.002	0.002	0.002	
N	970310	891108	823149	752721	
ESOL	0.047***	0.052***	0.054***	0.078***	0.061

⁴⁴ Tables 20 through to 22 estimate separately the returns for ESOL qualifications, which are not included in the Entry Level/L1/L2 Maths and/or English categories of learning for which results are also presented.

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
se	0.005	0.007	0.008	0.009	
N	134414	80528	61671	44407	
Level L2²	0.004*	0.007**	0.013***	0.020***	0.013
se	0.002	0.002	0.002	0.002	
N	1014232	834832	728768	624172	
English L2	0.050***	0.052***	0.076***	0.094***	0.074
se	0.008	0.010	0.012	0.015	
N	64562	39580	28940	20074	
Maths L2	-0.014	0.009	0.044***	0.061***	0.038
se	0.008	0.009	0.011	0.012	
N	69398	45801	35353	26632	
English & Maths L2	0.033***	0.049***	0.061***	0.038*	0.049
se	0.010	0.012	0.014	0.016	
N	35692	22105	16364	11716	
Other Level 2	0.002	0.003	0.007***	0.014***	0.008
se	0.002	0.002	0.002	0.003	
N	831133	718557	640949	560191	

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

¹ **Below Level 2** includes i) "Other Level 1"; ii) "English L1"; iii) "Maths L1"; iv) "English and Maths L1"; v) "Entry Level English"; vi) "Entry Level Maths"; vii) part of "ESOL".

² **Level 2** includes i) Other Level 2; ii) "English L2"; iii) "Maths L2"; iv) "English and Maths L2"; v) part of "ESOL".

This analysis identifies the heterogeneity of returns underpinning the less favourable average return estimated for those with a highest learning aim of 'Below Level 2' and 'L2' in BBCTU. Table 21 tells a similar story with respect to employment probability premiums. The negligible employment premium secured by *Below Level 2* achievers (0.3 of a percentage point) is driven by the 0.2 of a percentage point premium secured by *Other Level 1* achievers, whilst for Entry Level English, Level 1 English and those taking both L1 Maths and English, the estimated percentage point employment probability premium is closer to 2 percentage points (or approximately 5.5 to 6%). For Entry Level Maths, the estimates of an employment impact are less apparent, and for L1 Maths there is a suggestion that returns are in the region of 1 percentage point (or approximately 3.6%)

In the second part of Table 21 we can see a similar story, with the employment premium secured by achievers whose highest learning aim is L2 (0.9 of a percentage point) mainly driven by the 0.8 of a percentage point premium secured by *Other Level 2* achievers. In contrast, English Level 2 achievers secure a 2 percentage point [3 to 5 year average] premium; and for Maths Level 2 this is approximately 3 percentage points (translating into approximate 4.9% and 7.3% premiums, respectively). The almost negligible percentage point employment probability premium for ESOL suggests that this qualification is less valuable as a route to employment; though Table 20 suggested a 6.1% earnings return.

Table 21: Employment probability premiums for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					3-5 year average
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	
Below Level 2¹	0.001*	0.003***	0.003***	0.003***	0.002***	0.003
se	0.000	0.000	0.000	0.001	0.001	
N	4552576	4267432	3557423	3206386	2830580	
English L1	0.003	0.011***	0.014***	0.018***	0.019***	0.017
se	0.002	0.002	0.003	0.004	0.005	
N	136505	121395	66571	43667	20247	
Maths L1	-0.007	0.005**	0.013**	0.010*	0.017*	0.013
se	0.002	0.002	0.004	0.005	0.008	
N	109533	90625	38234	21831	9504	
English & Maths L1	-0.001	0.010***	0.015***	0.018**	0.014	0.016
se	0.002	0.003	0.004	0.006	0.009	
N	83597	72482	30067	16088	6471	
Entry Level English	0.009***	0.013***	0.015***	0.016***	0.019***	0.017
se	0.001	0.001	0.002	0.002	0.002	
N	333828	318959	280633	247793	214943	
Entry Level Maths	0.003**	0.004*	-0.002	-0.004	0.003	0.000
se	0.001	0.002	0.002	0.003	0.003	
N	195486	180139	142480	118719	95294	
Other Level 1	0.001***	0.003***	0.003**	0.002*	0.002*	0.002
se	0.000	0.000	0.001	0.001	0.001	
N	3011248	2835513	2488439	2317470	2116016	
ESOL	0.000	0.000	0.001	0.002*	0.002*	0.002
se	0.001	0.001	0.001	0.001	0.001	
N	739288	703361	555786	480856	403334	
Level 2²	0.006***	0.009***	0.010***	0.009***	0.009***	0.009
se	0.000	0.001	0.001	0.001	0.001	
N	2551545	2447313	2062837	1827613	1585151	
English L2	0.008***	0.016***	0.019***	0.019***	0.021***	0.020
se	0.002	0.002	0.003	0.003	0.004	
N	208179	188043	123065	92601	64676	
Maths L2	0.009***	0.017***	0.025***	0.024***	0.028***	0.026
se	0.002	0.002	0.003	0.003	0.004	
N	194594	176466	115746	87942	65761	
English & Maths L2	0.002	0.009**	0.010***	0.007	0.010*	0.009
se	0.002	0.003	0.003	0.004	0.005	
N	108238	97310	61924	45218	31764	
Other Level 2	0.006***	0.008***	0.008***	0.008***	0.007***	0.008
se	0.001	0.001	0.001	0.001	0.001	
N	1983678	1930504	1717367	1561852	1387753	

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

Table 22 details the percentage point difference in the probability of observing achievers on active benefits, relative to the probability for non-achievers, in the tax years after learning. The analysis confirms the less favourable average return estimated for those with a highest learning aim of 'Below Level 2' and 'L2' in BBCTU; where achievers are, on average, only 0.3 and 0.6 of a percentage point less likely to be on benefits between 3 and 5 years after the end of learning. In the *Below Level 2* category, there is little evidence that estimates differ substantially from this 0.3 of a percentage point estimate, with *Entry Level English* and *Entry Level Maths* achievers securing a slightly higher premium, of 0.5 of a percentage point each. However, when we consider this as a percentage difference, it suggests that achievers are, on average, approximately 3.6% less likely to be observed on benefits in the three to five years after learning.

In the second half of Table 22, we have more evidence that estimates differ substantially from this 0.6 of a percentage point estimate (for L2), with *English Level 2*, *Maths Level 2* and *English & Maths L2* achievers securing slightly higher percentage point premiums, of -1.3, -0.9 and -1.1 respectively. When we translate these into percentage differences, they suggest that achievers in these three areas are, on average, approximately 3.2%, 2.2% and 2.7% less likely to be observed on benefits in the three to five years after learning, respectively.

Table 22: Estimated probability of Achievers being on Active Benefits, compared to non-achievers, for sub-divisions of the Below Level 2 and L2 highest aim populations

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2¹	0.009***	0.000	-0.003***	-0.002***	-0.003***	-0.003
se	0.000	0.000	0.000	0.000	0.000	
N	2812179	2752281	2348343	2129937	1910728	
English L1	0.017***	-0.002	-0.003	-0.008*	-0.008	-0.006
se	0.002	0.002	0.003	0.004	0.005	
N	82295	78010	41161	26626	12207	
Maths L1	0.055***	0.013***	-0.001	0.005	0.003	N/A
se	0.003	0.003	0.005	0.006	0.009	
N	65466	61325	24616	13622	5581	
English & Maths L1	0.016***	-0.005	0.000	-0.008	-0.003	N/A
se	0.004	0.004	0.005	0.007	0.010	
N	56045	52724	19208	9746	3660	
Entry Level English	0.010***	0.004*	-0.006***	-0.004***	-0.005***	-0.005
se	0.002	0.002	0.001	0.001	0.001	
N	194131	190391	171243	151253	135771	
Entry Level Maths	0.017***	0.004	-0.007*	-0.003	-0.006*	-0.005
se	0.002	0.003	0.003	0.003	0.003	
N	99033	95888	83470	69025	59441	
Other Level 1	0.003***	-0.002***	-0.004***	-0.003***	-0.003***	-0.003
se	0.000	0.000	0.000	0.000	0.000	
N	1985589	1954828	1771372	1659921	1534056	
ESOL	0.008***	0.002*	-0.001	-0.002*	-0.001	-0.001
se	0.001	0.001	0.001	0.001	0.001	

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
N	360731	349484	261271	220916	178250	
Level 2²	0.005***	-0.003***	-0.005***	-0.006***	-0.006***	-0.006
se	0.000	0.000	0.000	0.000	0.000	
N	1818030	1790282	1524264	1352928	1180996	
English L2	0.012***	-0.005**	-0.013***	-0.013***	-0.014***	-0.013
se	0.002	0.002	0.002	0.003	0.003	
N	134901	128946	85438	63769	45367	
Maths L2	0.015***	-0.002	-0.007***	-0.010***	-0.010***	-0.009
se	0.002	0.002	0.002	0.002	0.002	
N	129742	124463	83216	63127	47925	
English & Num. L2	0.007*	-0.006*	-0.012***	-0.012***	-0.008*	-0.011
se	0.003	0.003	0.003	0.003	0.004	
N	72840	69074	44018	32070	23411	
Other Level 2	0.003***	-0.003***	-0.005***	-0.005***	-0.005***	-0.005
se	0.000	0.000	0.000	0.000	0.000	
N	1449451	1437444	1287608	1172799	1046059	

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

4.3 L1/L2 Maths and/or English as routes to further FE learning

The following Tables 23 to 26 present the results of our cohort analysis, providing insight into the value of FE learning as a route to continued learning in FE. As discussed elsewhere, one should consider these results alongside the work of Smith et al (2015)⁴⁵ who map moves from FE to HE learning. As with the work of Smith et. al. (2015), this is a descriptive analysis and when comparing the proportions of achievers and non-achievers engaged in FE learning, following achievement or non-achievement, there is no attempt to control for systematic differences between the two groups (in contrast to the previous sections of this report, where regression analysis attempts to do just that).

⁴⁵ <https://www.gov.uk/government/publications/progression-of-further-education-students-to-higher-education>
<https://www.gov.uk/government/publications/progression-of-apprentices-to-higher-education-second-cohort>

Table 23: Proportion of L1 English and/or Maths Achievers and Non-achievers⁴⁶ (aged 19 to 24) progressing into continued FE learning

Cohort Year		Population	% into any L1/L2 FE learn 2007	% into any L1/L2 FE learn 2008	% into any L1/L2 FE learn 2009	% into any L1/L2 FE learn 2010	% into any L1/L2 FE learn 2011	Total Number into any L1/L2	Total % into any L1/L2
2006	Achievers	3041	23.4	10.2	7.2	5.9	2.9	1022	33.6
	Non-Achievers	1602	14.0	11.9	9.8	8.0	5.2	452	28.2
2007	Achievers	11142		17.0	10.8	8.0	4.7	2907	26.1
	Non-Achievers	4894		11.9	9.0	7.8	4.9	1063	21.7
2008	Achievers	13263			16.4	10.0	5.9	3010	22.7
	Non-Achievers	4934			13.0	9.3	5.9	951	19.3
2009	Achievers	15112				16.1	8.2	2858	18.9
	Non-Achievers	6631				11.2	7.3	965	14.6
2010	Achievers	15449					16.1	2488	16.1
	Non-Achievers	7959					10.0	798	10.0

Cohort Year		Population	% into any FL2+ FE learn 2007	% into any FL2+ FE learn 2008	% into any FL2+ FE learn 2009	% into any FL2+ FE learn 2010	% into any FL2+ FE learn 2011	Total Number into any FL2+ FE learn	Total % into any FL2+ FE learn
2006	Achievers	3041	5.8	7.5	8.2	7.6	4.6	506	16.6
	Non-Achievers	1602	4.1	6.4	6.7	6.9	4.8	221	13.8
2007	Achievers	11142		7.5	8.7	8.0	5.5	1723	15.5
	Non-Achievers	4894		5.5	6.2	6.5	4.6	601	12.3
2008	Achievers	13263			9.4	10.0	6.5	2018	15.2
	Non-Achievers	4934			5.0	6.1	4.2	440	8.9
2009	Achievers	15112				11.3	8.5	2032	13.4
	Non-Achievers	6631				6.1	5.4	531	8.0
2010	Achievers	15449					6.9	1071	6.9
	Non-Achievers	7959					4.7	370	4.6

The first row of Table 23 follows the cohort of learners (aged 19 to 24) who, in the 2006 academic year, have a learning aim of *L1 English and/or Maths*, which is their highest learning aim up to that date. In 2006 the suggestion is that there were 3,041 learners who achieved *L1 English and/or Maths*, which was their highest FE learning aim to that date; and 1,602 who did not. In 2007, we observe 23.4% of these Achievers in some form of *Level 1 and/or Level 2 FE learning*, compared to 14.0% of the 1,602 non-achievers. In 2008 the figures are 10.2% and 11.9% respectively; and the final columns tell us that out of the original 3,041 achievers, we observe 1,022 in some form of FE learning between 2008 and 2011 (translating into 33.6% of the original cohort of achievers) and 452 non-achievers (28.2%).

The remainder of the first half of Table 23 shows the results of the same analysis for cohorts of (19 to 24 year old) *L1 English and/or Maths* Achievers and Non-achievers between 2007 and 2010. Considering only the final column, the suggestion is that in each cohort, achievers are more likely to be observed in subsequent L1/L2 FE learning across all the years considered. The second half of Table 23 carries out a similar analysis of *L1 English and/or Maths* Achievers and Non-achievers, but this time tracking the proportions observed in subsequent learning at Full Level 2 or above (FL2+). Here we see a similar picture, with achievers being much more likely to be observed in subsequent FL2+ learning than non-achievers, across all of our cohorts.

⁴⁶ Tables 23 to 26 do not include ESOL qualifications in the relevant English and/or Maths categories of learner. ESOL learning is included as an outcome “any L1/L2 FE learning”. However, we should have very few ESOL learners in this outcome category, as we are considering the subset of individuals who previously studied the version of Maths and/or English for native speakers.

Table 24: Proportion of L1 English and/or Maths Achievers and Non-achievers (aged 25+) progressing into continued FE learning

Cohort Year		Population	% into any L1/L2 FE learn 2007	% into any L1/L2 FE learn 2008	% into any L1/L2 FE learn 2009	% into any L1/L2 FE learn 2010	% into any L1/L2 FE learn 2011	Total Number into any L1/L2	Total % into any L1/L2
2006	Achievers	9606	32.9	13.5	9.2	6.3	3.6	3997	41.6
	Non-Achievers	4353	15.8	11.5	9.0	7.1	4.4	1184	27.2
2007	Achievers	42447		21.4	12.7	8.8	5.5	12566	29.6
	Non-Achievers	15589		12.7	9.9	7.2	4.5	3289	21.1
2008	Achievers	51085			21.4	11.9	6.9	13829	27.1
	Non-Achievers	17074			12.5	8.8	5.6	3109	18.2
2009	Achievers	62899				18.4	9.2	13290	21.1
	Non-Achievers	22148				10.6	6.5	2923	13.2
2010	Achievers	66819					17.3	11586	17.3
	Non-Achievers	25679					8.9	2289	8.9

Cohort Year		Population	% into any FL2+ FE learn 2007	% into any FL2+ FE learn 2008	% into any FL2+ FE learn 2009	% into any FL2+ FE learn 2010	% into any FL2+ FE learn 2011	Total Number into any FL2+ FE learn	Total % into any FL2+ FE learn
2006	Achievers	9606	4.6	7.1	7.4	6.1	3.7	1438	15.0
	Non-Achievers	4353	3.0	5.4	5.6	5.6	3.6	505	11.6
2007	Achievers	42447		6.3	7.8	6.9	4.3	5780	13.6
	Non-Achievers	15589		4.6	5.5	4.8	3.1	1545	9.9
2008	Achievers	51085			7.6	7.7	5.1	6324	12.4
	Non-Achievers	17074			4.9	5.2	3.3	1408	8.2
2009	Achievers	62899				7.9	5.6	6093	9.7
	Non-Achievers	22148				4.8	3.6	1301	5.9
2010	Achievers	66819					5.3	3507	5.2
	Non-Achievers	25679					3.2	823	3.2

Table 24 carries out the same analysis as Table 23, but this time for cohorts of learners aged 25+ who have a learning aim of *L1 English and/or Maths*, which is their highest learning aim up to the date from which we track them. Again, considering only the final column, the suggestion is that in each cohort, achievers are more likely to be observed in subsequent (i) L1/L2 and (ii) FL2+ FE learning across all the years considered, when compared to non-achievers. This is very similar to the pattern seen amongst 19 to 24 year olds, but the differentials are (almost everywhere) more pronounced. For instance, in Table 23 those aged 19-24 who achieve *L1 English and/or Maths* in 2006 are 5.4 percentage points more likely to be observed in subsequent L1/L2 FE learning between 2008 and 2011 – for the equivalent cohort aged 25+ in Table 24, the percentage point difference is 14.4.

Table 25 describes the proportions of *L2 English and/or Maths* Achievers and Non-achievers (aged 19 to 24) who are observed in subsequent FE learning at (i) L1/L2 or (ii) FL2+ in the years after learning. Here we have a change in the pattern of findings, compared to those for achievers and non-achievers at *L1 English and/or Maths*. For all but the most recent cohorts, achievers are less likely to be observed in continued FE learning than non-achievers. Without information on subsequent Secondary School Sixth Form, and/or HE, learning, it is hard to determine whether this is due to a high proportion of (i) non-achievers re-taking qualifications in subsequent years and/or (ii) achievers being more likely to continue their learning elsewhere in the education system.

Table 25: Proportion of L2 English and/or Maths Achievers and Non-achievers (aged 19 to 24) progressing into continued FE learning

Cohort Year		Population	% into any L1/L2 FE learn 2004	% into any L1/L2 FE learn 2005	% into any L1/L2 FE learn 2006	% into any L1/L2 FE learn 2007	% into any L1/L2 FE learn 2008	% into any L1/L2 FE learn 2009	% into any L1/L2 FE learn 2010	% into any L1/L2 FE learn 2011	Total Number into any L1/L2	Total % into any L1/L2
2003	Achieve	3302	8.6	8.8	6.7	5.0	4.1	3.7	2.7	1.3	761	23.0
	Non-Achieve	3802	8.9	8.4	7.1	6.0	5.4	5.1	4.3	2.6	1018	26.8
2004	Achieve	4881		10.0	8.1	6.0	4.9	4.5	3.7	2.1	1130	23.2
	Non-Achieve	3236		9.9	7.9	7.2	5.9	5.5	3.9	2.4	782	24.2
2005	Achieve	7653			9.9	6.5	5.4	4.7	3.9	2.3	1534	20.0
	Non-Achieve	3273			9.0	7.7	6.4	6.6	5.2	3.0	765	23.4
2006	Achieve	10406				9.7	6.4	5.0	3.9	2.3	1875	18.0
	Non-Achieve	3955				9.0	8.4	7.0	5.7	3.6	824	20.8
2007	Achieve	12796					10.4	6.6	4.3	2.5	2115	16.5
	Non-Achieve	5248					9.3	8.0	6.1	3.4	955	18.2
2008	Achieve	13756						10.7	5.8	3.1	2033	14.8
	Non-Achieve	4960						10.1	7.1	4.0	755	15.2
2009	Achieve	16334							8.6	3.9	1673	10.2
	Non-Achieve	5370							8.4	5.1	579	10.8
2010	Achieve	17067								8.5	1456	8.5
	Non-Achieve	5192								7.2	374	7.2

Cohort Year		Population	% into any FL2+ FE learn 2004	% into any FL2+ FE learn 2005	% into any FL2+ FE learn 2006	% into any FL2+ FE learn 2007	% into any FL2+ FE learn 2008	% into any FL2+ FE learn 2009	% into any FL2+ FE learn 2010	% into any FL2+ FE learn 2011	Total Number into any FL2+ FE learn	Total % into any FL2+ FE learn
2003	Achieve	3302	10.0	12.8	11.5	10.2	10.5	9.7	7.4	5.1	994	30.1
	Non-Achieve	3802	12.4	13.3	12.2	11.1	11.8	11.5	10.3	6.7	1332	35.0
2004	Achieve	4881		8.8	11.7	11.3	10.6	10.4	8.9	6.1	1327	27.2
	Non-Achieve	3236		10.7	11.8	12.2	12.3	12.2	10.9	7.1	1034	32.0
2005	Achieve	7653			9.2	11.2	11.0	11.3	9.9	6.7	1988	26.0
	Non-Achieve	3273			9.8	12.7	13.4	13.5	11.7	7.9	993	30.3
2006	Achieve	10406				9.9	11.9	11.6	10.2	6.8	2461	23.6
	Non-Achieve	3955				9.2	11.7	12.6	11.7	7.8	996	25.2
2007	Achieve	12796					10.9	12.6	11.5	7.3	2745	21.5
	Non-Achieve	5248					9.5	12.7	12.4	8.0	1130	21.5
2008	Achieve	13756						13.5	14.9	9.9	2941	21.4
	Non-Achieve	4960						11.4	13.2	8.9	933	18.8
2009	Achieve	16334							16.9	13.0	3211	19.7
	Non-Achieve	5370							11.6	9.3	769	14.3
2010	Achieve	17067								12.5	2127	12.5
	Non-Achieve	5192								8.4	438	8.4

Considering the findings from Table 26, the opposite seems to be true for *L2 English and/or Maths* Achievers and Non-achievers aged 25+. Apart from the very earliest cohorts, achievers are more likely to be observed in continued FE learning than non-achievers. Once again it is not clear exactly why this is happening. We may perhaps expect that those aged 25+ achieving *L2 English and/or Maths* are less likely to move on to learning elsewhere in the education system than those aged 19 to 24, and this might explain the difference. However, it is also possible that non-achievers aged 25+ are less likely to be observed re-taking in subsequent years.

Table 26: Proportion of L2 English and/or Maths Achievers and Non-achievers (aged 25+) progressing into continued FE learning

Cohort Year		Population	% into any L1/L2 FE learn 2004	% into any L1/L2 FE learn 2005	% into any L1/L2 FE learn 2006	% into any L1/L2 FE learn 2007	% into any L1/L2 FE learn 2008	% into any L1/L2 FE learn 2009	% into any L1/L2 FE learn 2010	% into any L1/L2 FE learn 2011	Total Number into any L1/L2	Total % into any L1/L2
2003	Achieve	8076	16.3	13.5	9.2	7.0	5.7	4.6	3.4	2.1	2613	32.4
	Non-Achieve	5280	14.1	13.8	10.0	7.9	7.2	6.5	5.0	3.3	1787	33.8
2004	Achieve	20379		17.1	10.9	7.9	6.5	5.4	3.8	2.3	6133	30.1
	Non-Achieve	6287		13.3	11.1	8.4	7.4	6.3	5.1	3.0	1827	29.1
2005	Achieve	39821			15.1	9.2	6.9	5.3	3.7	2.2	10203	25.6
	Non-Achieve	7672			11.7	9.2	7.3	6.2	4.9	3.0	1887	24.6
2006	Achieve	49241				14.3	8.8	6.3	4.3	2.5	11339	23.0
	Non-Achieve	9681				11.8	9.1	7.3	5.4	3.4	2139	22.1
2007	Achieve	55456					15.0	8.5	5.2	2.9	11936	21.5
	Non-Achieve	13611					11.1	8.4	5.6	3.2	2566	18.9
2008	Achieve	58941						14.3	6.6	3.5	10835	18.4
	Non-Achieve	12986						10.6	7.3	3.9	2018	15.5
2009	Achieve	69657							10.4	4.4	8539	12.3
	Non-Achieve	13581							7.8	4.5	1353	10.0
2010	Achieve	68041								9.3	6357	9.3
	Non-Achieve	12332								6.5	805	6.5

Cohort Year		Population	% into any FL2+ FE learn 2004	% into any FL2+ FE learn 2005	% into any FL2+ FE learn 2006	% into any FL2+ FE learn 2007	% into any FL2+ FE learn 2008	% into any FL2+ FE learn 2009	% into any FL2+ FE learn 2010	% into any FL2+ FE learn 2011	Total Number into any FL2+ FE learn	Total % into any FL2+ FE learn
2003	Achieve	8076	7.5	8.6	7.6	7.2	7.4	7.1	6.2	4.1	1873	23.2
	Non-Achieve	5280	6.6	8.2	7.5	7.9	8.3	8.9	7.8	4.6	1314	24.9
2004	Achieve	20379		7.2	8.2	7.9	8.0	7.8	6.8	4.8	4577	22.5
	Non-Achieve	6287		5.7	7.0	7.2	8.1	8.6	7.3	4.9	1377	21.9
2005	Achieve	39821			6.6	8.0	8.4	8.2	7.3	4.8	8169	20.5
	Non-Achieve	7672			5.1	7.2	8.2	8.7	7.4	5.1	1476	19.2
2006	Achieve	49241				7.7	9.5	9.6	8.2	5.3	9851	20.0
	Non-Achieve	9681				5.7	8.1	9.0	8.0	4.8	1675	17.3
2007	Achieve	55456					8.9	10.3	9.3	5.8	10235	18.5
	Non-Achieve	13611					7.2	8.7	8.1	4.9	2094	15.4
2008	Achieve	58941						10.8	11.1	6.9	10171	17.3
	Non-Achieve	12986						7.6	8.4	5.6	1697	13.1
2009	Achieve	69657							11.9	8.3	10048	14.4
	Non-Achieve	13581							7.7	5.9	1302	9.6
2010	Achieve	68041								9.6	6501	9.6
	Non-Achieve	12332								5.5	673	5.5

5. Conclusion

In this report we have presented results from an analysis of labour market returns for individuals achieving qualifications at 'Below Level 2' and 'Level 2' in English Further Education. Using the 2002-2012 ILR-WPLS administrative dataset we estimate separately the (i) earnings, (ii) employment probability and (iii) probability of being on active benefits, for those who achieve their learning aim whilst studying at an English Further Education Institution (FEI), relative to those who have the same learning aim, but do not achieve; with a focus on this estimate of value added for those achieving Entry-level; Level 1 and/or Level 2 Maths and/or English qualifications.

Maths and/or English as Complementary Learning

First, we have considered the value of learning at Level 2 and below, which takes place alongside higher learning aims. Many individuals take Maths and/or English qualifications at L1 and L2 as forms of 'complementary learning'. We investigate *L1/L2 Maths and/or English* achiever V non-achiever comparisons, for populations of individuals achieving higher learning aims.

- We find that achievement of *L1/L2 English and/or Maths* learning produces statistically significant earnings returns of 4.2% amongst a population of FL2 achievers and 5.1% amongst a population of Level 4+ achievers. Amongst populations of L3 and FL3 achievers the estimated returns (of 3.1% and 1.2% respectively) likely understate the true value added, because of the problems we have capturing progression to HE and part-time working.
- Similarly, our findings of mostly insignificant, or even negative, employment returns may result from limitations of the data in identifying moves to Higher Education and/or part-time working. Although, it is also possible that achievement of the higher learning aim may be more important in determining whether an individual secures employment; and the additional *L1/L2 Maths and/or English* achievement allows the individual to secure a higher earnings return, when in employment
- Our analysis by Sector pushes the data to its limits and in many areas we do not have sufficient numbers to identify significant impacts. However, we do identify statistically significant 3 to 5 year average earnings returns for *Level 2 English and/or Maths Achievers*, who achieve FL2 qualifications in the areas of *Hospitality and Catering* (5.3%); *Hair and beauty* (5.2%); *Admin and secretarial* (4.2%); and *Customer Service* (6.8%).

Maths and English as a Highest Learning Aim

Our analysis of returns for individuals who have a highest learning aim of either (i) Below Level 2 or (ii) L2, identifies statistically significant 3 to 5 year average earnings and employment returns for those achieving *Entry-level/L1/L2 Maths and/or English*.

- Achievers of *Entry Level English and/or Maths* as a highest FE learning aim, secure earnings returns that vary from 5% [for 19 to 24 year olds], to 3.1% [for those aged 25+]. Employment probability returns are 1 ppt and 1.5 ppt respectively for these two age groups.

- Achievers of *Level 1 English* secure a 6.6% earnings return, whilst the figure for *Level 1 Maths* achievers is 6% [and for those aged 25+ achieving *L1 English and/or Maths* it is 7.8%]. Employment returns for achievers of *L1 English and/or Maths* are 1.7 ppt for those aged 19 to 24, and 1.5 ppt for those aged 25+.
- Those achieving *L2 English and/or Maths* as a highest FE learning aim, secure earnings returns that vary from 8.5% [for 19 to 24 year olds] to 3.8% [for those aged 25+]; whilst employment returns are 3.1 ppt and 2.3 ppt respectively.

Alongside the statistically significant earnings and employment returns for Maths and English learning at Entry Level, L1 and L2; the *Other Level 1* and *Other Level 2* categories secure less positive returns. These ‘Other’ categories account for the vast majority of *Below L2* and *Thin L2* learning, often referred to as “foundation learning” or “employability learning”. Though within these remaining categories, there is likely to be further substantial heterogeneity of returns.

L1/L2 Maths and/or English as routes to further FE learning

We give some idea of the value that L1/L2 Maths and/or English qualifications have as a route to higher qualifications within FE, identifying cohorts of learners and then tracking the subsequent proportions in (i) L1/L2 and (ii) FL2+ FE learning.

- For our cohorts of learners who have a learning aim of *L1 English and/or Maths* [which is their highest learning aim up to the date from which we track them], we find that achievers (of all ages) are more likely to be observed in subsequent (i) L1/L2 and (ii) FL2+ FE learning across all the years considered, when compared to non-achievers.
- Considering the proportions of *L2 English and/or Maths* Achievers and Non-achievers who are observed in subsequent FE learning at (i) L1/L2 or (ii) FL2+ in the years after learning, we have a change in the pattern of findings for 19 to 24 year olds. For all but the most recent cohorts, achievers aged 19 to 24 are less likely to be observed in continued FE learning than non-achievers.
- The opposite seems to be true for *L2 English and/or Maths* Achievers and Non-achievers aged 25+. Apart from the very earliest cohorts, achievers are more likely to be observed in continued FE learning than non-achievers.

Recommendations

Readers are encouraged to consider the tables within the report, as in many areas where we cannot present 3 to 5 year averages, we do identify statistical significance of impacts in the first years after learning. We are tying ourselves to a very rigorous criteria for what constitutes evidence of ‘impact’. The suggestion that statistical significance must be observed over many years and also that in each year it must be relatively stable, is more than most studies can achieve. Similarly, first year impacts apply across a number of cohorts of learners, as we observe a first year of earnings, employment and benefits information for all cohorts.

However, even without this more detailed review of the evidence in this report, we have robust evidence that Entry Level/Level 1/Level 2 Maths and/or English achievement in FE provides significant value added, in terms of earnings returns and reductions in the probability that individuals will be observed on active benefits, in the years after learning.

In addition, when considering the returns for individuals who hold these Entry Level/Level 1/Level 2 Maths and/or English qualifications as a highest learning aim, we identify significant employment probability premiums.

There are a number of issues that this study raises that need to be considered going forward:

- Across much of our study, unobservable moves to Higher Education and/or other forms of non-FE learning/training are likely placing limits on our analysis. Without information on Secondary School Sixth Form attendances, and/or HE, learning, it is hard to determine whether some of our findings are correct or a result of these limitations. In coming months it should be possible to clarify some of these issues.
- When we consider the estimation of labour market returns to L1/L2 Maths and/or English achievement, within wider populations of higher level achievers (for instance FL2 and FL3) it is possible that,
 - We may identify stronger returns to these forms of complementary learning in areas where the achievement of FL2/FL3 provides less of a return. One can imagine that achievement of a FL3 in some sectors provides such a strong boost to employment and earnings prospects, that any accompanying L1/L2 Maths and/or English achievement becomes less significant. The opposite may also apply and this may be something that offsets the argument that we may see stronger Maths and/or English returns in areas where FL2/FL3 are more 'technical' in nature. Unfortunately we do not have the numbers to provide 3 to 5 year averages in more technical sector subject areas to answer this question.
 - There is some minor change in the nature of our approach, because non-achievers in this context are less easily labelled as 'drop-outs'. However, comparing those who achieve with those who do not achieve, in a context where FL2 or FL3 has been achieved, draws on the same argument (that Maths and/or English non-achievement is essentially random, driven by variations in quality of teaching across institutions).

Any future study would ideally introduce more data from HESA identifying (i) the specific destination of FE learners who move on to HE and (ii) the drop-out rate of these learners. In this report we are concentrating on earnings, employment and active benefit outcomes, but for many FE learners, HE is an important and valuable outcome. However, even with the data limitations, we are able to present compelling evidence that Entry Level, Level 1 and Level 2 Maths and/or English learning in FE provides significant value added for those who achieve their learning aims.

5. Appendix

5.1 L1/L2 Numeracy and/or Literacy Certificates and Key Skills

The following tables present returns for Literacy and Numeracy qualifications, when differentiated according to whether they are 'Key Skills' or 'Certificates'. They are essentially 'alternative' categorisations of the Maths and English results presented in Tables 3 to 8, Section 3.1; i.e. when taken alongside higher learning aims.

Table 27: Returns to daily earnings for L1/L2 Literacy and/or Numeracy⁴⁷ achievers [for a population of FL2 achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Only Literacy Key Skills	0.029***	0.027**	0.040***	0.039***	0.035
se	0.007	0.008	0.009	0.010	
N	50977	33750	27828	22284	
Only Numeracy Key Skills	0.018	0.016	0.016	0.018	0.000
se	0.010	0.014	0.016	0.019	
N	22779	12024	8926	6289	
Lit. and Num. Key Skills⁴⁸	0.060***	0.047***	0.066***	0.066***	0.060
se	0.008	0.011	0.013	0.015	
N	77255	28273	18990	11541	
Only Literacy Certificate	0.035***	0.021	0.039	0.001	N/A
se	0.010	0.016	0.025	0.037	
N	24389	8853	4175	1611	
Only Numeracy Cert.	0.030*	0.024	0.027	0.004	N/A
se	0.013	0.022	0.033	0.048	
N	15577	4629	2189	875	
Lit. and Num. Cert.	0.023	0.068*	0.094*	0.090	0.084
se	0.017	0.032	0.047	0.070	
N	16869	3924	1537	524	

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

⁴⁷ Tables 27 through to 34 do not include ESOL learning in the categories of English and/or Maths learning.

⁴⁸ Our category of **Only Literacy Key Skills** in Tables 27 to 30 contains all those learners who have a English Key Skills aim overlapping a FL2 spell (but no overlapping Maths aim); whilst the **Lit. and Num. Key Skills** category includes all those who have English L1 and Maths L1 Key Skill aims overlapping a FL2 spell (the same applies to the **Lit. and Num. Cert.** category). As a result, each category of learner is mutually exclusive and no learner can appear in more than one category.

Whilst we must be careful in interpretation, across Tables 27 to 30 we only observe 3 to 5 year average earnings returns for individuals taking 'Only Literacy Key Skills' amongst the FL2 achiever population (3.5%) and to a lesser extent the FL3 achiever population (1.5%). Some of the lack of statistical significance in other populations could be due to lower numbers, especially in later years. In contrast, we observe statistically significant, systematic and substantial earnings returns to those achieving *Literacy and Numeracy Key Skills* across the board – with the one exception at L4+ being solely due to low numbers.

Amongst the population of FL2 achievers, those achieving a Literacy/Numeracy Key skill qualification secure a 6 per cent 3 to 5 year average return; amongst the population of L3 achievers the figure is 8.4% and at FL3 3.7%. The extension of BBCTU's original analysis tends to confirm the original findings, that there is evidence of an earnings return to those achieving Literacy and Numeracy Key Skills at L1/L2 amongst populations of learners achieving higher learning aims; but little else is statistically significant, other than some evidence of impact for those taking *Only the Numeracy Certificate* amongst the population of FL3 achievers.

Table 28: Returns to daily earnings for subgroups of L1/L2 Literacy and/or Numeracy achievers [for population of L3 achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Only Literacy Key Skills	0.007	0.021	0.010	0.002	0.000
se	0.015	0.016	0.017	0.019	
N	13699	10200	8352	6440	
Only Numeracy Key Skills	0.028	0.042	0.037	0.085**	0.055
se	0.021	0.024	0.025	0.027	
N	6646	5323	4720	3932	
Lit. and Num. Key Skills	0.046*	0.086***	0.065**	0.101***	0.084
se	0.023	0.023	0.024	0.027	
N	6472	4835	4023	3267	
Only Literacy Certificate	-0.027	0.041	0.028	0.075	0.000
se	0.026	0.033	0.037	0.043	
N	5803	3622	2561	1733	
Only Numeracy Cert.	-0.042	0.069*	-0.009	0.034	0.031
se	0.027	0.033	0.036	0.044	
N	4767	2979	2266	1568	
Lit. and Num. Cert.	0.009	0.051	0.060	0.149*	0.087
se	0.049	0.063	0.069	0.071	
N	3641	1986	1348	883	

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

Table 29: Returns to daily earnings for subgroups of L1/L2 Literacy and/or Numeracy achievers [for population of FL3 achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Only Literacy Key Skills	-0.010*	0.012*	0.020**	0.014*	0.015
se	0.005	0.005	0.006	0.007	
N	130984	85566	65618	46924	
Only Numeracy Key Skills	-0.006	0.009	0.026***	0.011	0.015
se	0.006	0.007	0.007	0.008	
N	78032	54314	44061	33324	
Lit. and Num. Key Skills	0.037***	0.033***	0.044***	0.033***	0.037
se	0.005	0.006	0.007	0.008	
N	157318	85878	61821	39127	
Only Literacy Certificate	-0.011	-0.007	0.015	0.022	N/A
se	0.012	0.018	0.023	0.029	
N	20607	8956	5455	3014	
Only Numeracy Cert.	-0.049***	0.007	0.055**	0.073**	0.045
se	0.013	0.017	0.021	0.027	
N	20411	9204	5882	3174	
Lit. and Num. Cert.	-0.051*	-0.004	-0.005	0.035	N/A
se	0.022	0.033	0.043	0.057	
N	13163	4374	2431	1215	

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

Table 30: Returns to daily earnings for subgroups of L1/L2 Literacy and/or Numeracy achievers [for population of L4+ achievers]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Only Literacy Key Skills	0.002	0.018	0.006	0.063	N/A
se	0.024	0.031	0.039	0.053	
N	4040	2236	1423	802	
Only Numeracy Key Skills	0.036	0.067	0.024	-0.036	N/A
se	0.035	0.041	0.046	0.073	
N	1962	1304	947	552	
Lit. and Num. Key Skills	0.010	0.061	0.073	-0.024	N/A
se	0.033	0.040	0.047	0.068	
N	2452	1417	950	524	

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Only Literacy Certificate	-0.005	0.023	-0.047	0.050	N/A
se	0.039	0.051	0.067	0.089	
N	2736	1431	935	525	
Only Numeracy Cert.	0.005	-0.023	0.040	-0.043	N/A
se	0.035	0.047	0.059	0.086	
N	2904	1356	844	437	
Lit. and Num. Cert.	-0.062	-0.016	0.098	0.176	N/A
se	0.065	0.081	0.137	0.301	
N	2665	1151	723	342	

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

5.2 L1/L2 English and/or Maths learners in Populations of FL2 or FL3 achievers

Table 31: Numbers with learning aims in L1/L2 English and/or Maths⁴⁹ amongst the population of FL2 achievers, by sector subject category

	<i>English and Maths L1</i>	<i>English and Maths L2</i>	<i>English L1</i>	<i>Maths L1</i>	<i>English L2</i>	<i>Maths L2</i>	<i>Total</i>
Health care + Nursing and medicine	2,031	1,442	576	291	2,698	1,038	8,076
Public services, law, justice	2,077	2,081	421	267	3,305	1,201	9,352
Child development and wellbeing + Adult social care	22,433	8,317	4,836	2,404	15,227	4,173	57,390
Science and mathematics (non-SFL)	89	2,727	30	44	614	1,037	4,541
Agriculture, Horticulture and Animal Care	3,028	1,536	690	450	2,367	835	8,906
Engineering and manufacturing	11,697	10,747	1,366	963	4,284	5,153	34,210
Transportation	6,415	5,975	1,842	1,044	3,613	2,803	21,692
Construction	9,809	17,821	1,412	2,004	6,119	7,661	44,826
Information & Communication Technology	5,611	16,931	2,034	1,969	12,389	8,309	47,243
Retailing and Wholesaling	27,563	2,019	1,548	921	1,689	699	34,439
Warehousing and Distribution	8,301	2,469	636	480	1,557	811	14,254
Hospitality and Catering + Hair and beauty	27,664	9,462	5,365	2,904	29,000	5,280	79,675
Leisure, Travel and Tourism	5,799	3,310	586	469	5,834	1,742	17,740
Performing Arts	237	789	237	64	2,544	444	4,315
Crafts, Creative Arts and Design	276	977	264	62	2,273	657	4,509
Creative Media	95	1,082	139	27	2,223	563	4,129
Supporting Teaching & Learning in Schools	533	2,803	471	637	2,883	1,764	9,091
Foundations for Learning and Life	877	1,410	274	236	1,285	528	4,610
Preparation for Work	48	172	89	37	238	124	708
Accounting and Finance	130	1,253	103	79	1,270	354	3,189
Admin/ secretarial	2,220	5,079	658	868	24,922	1,527	35,274
Business studies + Management, recruitment, personnel	5,897	4,976	1,353	813	14,672	2,392	30,103
Customer service	29,709	3,658	3,097	1,587	6,179	1,589	45,819
Fashion & Textiles	55	14	85	32	29	5	220

⁴⁹ L1/L2 English and Maths categories include all those who have English *and* Maths aim overlapping a FL2/FL3 spell. As a result, each category of learner is mutually exclusive and no learner can appear in more than one category. ESOL are not included in Tables 31 and 32.

Table 32: Numbers with learning aims in L1/L2 English and/or Maths amongst the population of FL3 achievers, by sector subject category

	<i>English and Maths L1</i>	<i>English and Maths L2</i>	<i>English L1</i>	<i>Maths L1</i>	<i>English L2</i>	<i>Maths L2</i>	<i>Total</i>
Health care + Nursing and medicine	586	15,462	559	740	7,813	9,679	34,839
Public services, law, justice	67	9,201	118	91	11,095	5,912	26,484
Child development and wellbeing + Adult social care	2,520	76,810	2,555	1,770	28,204	23,714	135,573
Science and mathematics (non-SFL)	107	9,465	112	112	10,965	7,741	28,502
Agriculture, Horticulture and Animal Care	120	13,591	181	161	7,676	4,164	25,893
Engineering and manufacturing	306	44,795	106	105	6,780	5,401	57,493
Transportation	280	21,350	159	181	1,945	1,596	25,511
Construction	510	32,119	195	246	4,954	4,358	42,382
Information & Communication Technology	290	42,060	327	324	17,227	10,198	70,426
Retailing and Wholesaling	44	5,275	21	20	307	471	6,138
Warehousing and Distribution	27	1,801	26	12	158	203	2,227
Hospitality and Catering + Hair and beauty	1,282	41,754	1,818	1,157	29,751	11,680	87,442
Leisure, Travel and Tourism	125	25,201	215	128	17,380	10,343	53,392
Performing Arts	178	12,016	397	189	23,507	6,296	42,583
Crafts, Creative Arts and Design	225	14,738	604	225	31,652	9,322	56,766
Creative Media	73	10,701	170	121	14,413	8,581	34,059
Supporting Teaching & Learning in Schools	164	5,121	177	373	1,908	2,390	10,133
Foundations for Learning and Life	123	1,577	28	115	1,973	2,969	6,785
Preparation for Work	23	2,410	49	166	1,427	2,097	6,172
Accounting and Finance	103	4,565	115	83	1,971	1,284	8,121
Admin/ secretarial	103	15,871	125	134	2,523	6,123	24,879
Business studies + Management, recruitment, personnel	253	34,225	310	303	15,509	10,952	61,552
Customer service	145	17,169	71	72	780	2,711	20,948
Fashion & Textiles	4	1,305	18	6	1,666	435	3,434

Table 33: Raw employment and benefit proportions for Entry-level/L1/L2 achievers and non-achievers within populations of FL2 and FL3 achievers

Numeracy and Literacy held together with a FL2/FL3 qualification by Sector	Proportion with at least 1 day in employment in the 12 months after the end of a learning spell	Proportion on active benefits on the date 12 months after the end of a learning spell
Numeracy/Literacy Level 1 - Adult Social Care FL2 Achievers population (<i>Achievers</i>)	84%	4%
Numeracy/Literacy Level 1 - Adult Social Care FL2 Achievers population (<i>Non-Achievers</i>)	81%	5%
Numeracy/Literacy Level 1 - Retailing and Wholesaling FL2 Achievers population (<i>Achievers</i>)	87%	4%
Numeracy/Literacy Level 1 - Retailing and Wholesaling FL2 Achievers population (<i>Non-Achievers</i>)	86%	4%
Numeracy/Literacy Level 1 - Hospitality and Catering FL2 Achievers population (<i>Achievers</i>)	81%	4%
Numeracy/Literacy Level 1 - Hospitality and Catering FL2 Achievers population (<i>Non-Achievers</i>)	75%	8%
Numeracy/Literacy Level 1 - Customer service FL2 Achievers population (<i>Achievers</i>)	84%	4%
Numeracy/Literacy Level 1 - Customer service FL2 Achievers population (<i>Non-Achievers</i>)	80%	7%
Numeracy/Literacy Level 2 - Adult Social Care FL2 Achievers population (<i>Achievers</i>)	77%	4%
Numeracy/Literacy Level 2 - Adult Social Care FL2 Achievers population (<i>Non-Achievers</i>)	71%	7%
Numeracy/Literacy Level 2 - Engineering and manufacturing FL2 Achievers population (<i>Achievers</i>)	68%	7%
Numeracy/Literacy Level 2 - Engineering and manufacturing FL2 Achievers population (<i>Non-Achievers</i>)	65%	11%
Numeracy/Literacy Level 2 - ICT Achievers FL2 population (<i>Achievers</i>)	54%	12%
Numeracy/Literacy Level 2 - ICT Achievers FL2 population (<i>Non-Achievers</i>)	49%	17%
Numeracy/Literacy Level 2 - Retailing and Wholesaling FL2 Achievers population (<i>Achievers</i>)	86%	4%
Numeracy/Literacy Level 2 - Retailing and Wholesaling FL2 Achievers population (<i>Non-Achievers</i>)	85%	5%
Numeracy/Literacy Level 2 - Hospitality and Catering FL2 Achievers population (<i>Achievers</i>)	77%	5%
Numeracy/Literacy Level 2 - Hospitality and Catering FL2 Achievers population (<i>Non-Achievers</i>)	73%	7%
Numeracy/Literacy Level 2 - Hair and Beauty FL2 Achievers population (<i>Achievers</i>)	58%	8%
Numeracy/Literacy Level 2 - Hair and Beauty FL2 Achievers population (<i>Non-Achievers</i>)	54%	10%
Numeracy/Literacy Level 2 - Admin/secretarial FL2 Achievers population (<i>Achievers</i>)	75%	7%
Numeracy/Literacy Level 2 - Admin/secretarial FL2 Achievers population (<i>Non-Achievers</i>)	67%	10%
Numeracy/Literacy Level 2 - Customer service FL2 Achievers population (<i>Achievers</i>)	83%	4%
Numeracy/Literacy Level 2 - Customer service FL2 Achievers population (<i>Non-Achievers</i>)	79%	7%
Numeracy/Literacy Level 2 - Child development & wellbeing FL3 Achievers population (<i>Achievers</i>)	75%	3%
Numeracy/Literacy Level 2 - Child development & wellbeing FL3 Achievers population (<i>Non-Achievers</i>)	76%	4%
Numeracy/Literacy Level 2 - Adult Social Care FL3 Achievers population (<i>Achievers</i>)	71%	3%
Numeracy/Literacy Level 2 - Adult Social Care FL3 Achievers population (<i>Non-Achievers</i>)	74%	4%
Numeracy/Literacy Level 2 - ICT FL3 Achievers population (<i>Achievers</i>)	56%	8%
Numeracy/Literacy Level 2 - ICT FL3 Achievers population (<i>Non-Achievers</i>)	59%	9%
Numeracy/Literacy Level 2 - Hair and Beauty FL3 Achievers population (<i>Achievers</i>)	71%	5%
Numeracy/Literacy Level 2 - Hair and Beauty FL3 Achievers population (<i>Non-Achievers</i>)	70%	7%
Numeracy/Literacy Level 2 - Leisure, Travel and Tourism FL3 Achievers population (<i>Achievers</i>)	70%	4%
Numeracy/Literacy Level 2 - Leisure, Travel and Tourism FL3 Achievers population (<i>Non-Achievers</i>)	71%	6%
Numeracy/Literacy Level 2 - Performing Arts FL3 Achievers population (<i>Achievers</i>)	63%	7%
Numeracy/Literacy Level 2 - Performing Arts FL3 Achievers population (<i>Non-Achievers</i>)	65%	8%
Numeracy/Literacy Level 2 - Crafts, Creative Arts and Design FL3 Achievers population (<i>Achievers</i>)	59%	5%
Numeracy/Literacy Level 2 - Crafts, Creative Arts and Design FL3 Achievers population (<i>Non-Achievers</i>)	60%	7%
Numeracy/Literacy Level 2 - Creative Media FL3 Achievers population (<i>Achievers</i>)	60%	7%
Numeracy/Literacy Level 2 - Creative Media FL3 Achievers population (<i>Non-Achievers</i>)	63%	6%
Numeracy/Literacy Level 2 - Business studies FL3 Achievers population (<i>Achievers</i>)	60%	5%
Numeracy/Literacy Level 2 - Business studies FL3 Achievers population (<i>Non-Achievers</i>)	62%	5%

5.3 Entry Level/L1/L2 Maths and/or English returns, within Below Level 2 and L2 highest aim populations, by age

Table 34: Raw employment and benefit proportions for Entry-level/L1/L2 achievers and non-achievers with highest learning aims in English and/or Maths

Numeracy and Literacy held as highest learning aims (i.e. within <i>Below Level 2</i> and <i>L2</i> categories)	Proportion with at least 1 day in employment in the 12 months after the end of a learning spell	Proportion on active benefits on the date 12 months after the end of a learning spell
Entry Level Numeracy/Literacy 19-24 (<i>Achievers</i>)	29%	15%
Entry Level Numeracy/Literacy 19-24 (<i>Non-Achievers</i>)	28%	19%
Entry Level Numeracy/Literacy 25+ (<i>Achievers</i>)	35%	6%
Entry Level Numeracy/Literacy 25+ (<i>Non-Achievers</i>)	34%	9%
Numeracy/Literacy Level 1 19-24 (<i>Achievers</i>)	31%	19%
Numeracy/Literacy Level 1 19-24 (<i>Non-Achievers</i>)	25%	24%
Numeracy/Literacy Level 1 25+ (<i>Achievers</i>)	37%	15%
Numeracy/Literacy Level 1 25+ (<i>Non-Achievers</i>)	31%	19%
Numeracy/Literacy Level 2 19-24 (<i>Achievers</i>)	44%	12%
Numeracy/Literacy Level 2 19-24 (<i>Non-Achievers</i>)	36%	15%
Numeracy/Literacy Level 2 25+ (<i>Achievers</i>)	54%	7%
Numeracy/Literacy Level 2 25+ (<i>Non-Achievers</i>)	46%	10%

Table 35: Daily earnings premiums for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations⁵⁰ (aged 19-24)

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2	0.0419***	0.0534***	0.0465***	0.0557***	0.0519
se	0.0054	0.0059	0.0061	0.0065	
N	137421	108143	95021	82940	
English L1	0.038	0.0608	-0.0271	0.1239	N/A
se	0.0288	0.0437	0.0571	0.1116	
N	4379	1972	1071	337	
Maths L1	0.0619	0.0441	0.0994	N/A	N/A
se	0.0347	0.0551	0.0815	N/A	
N	3367	1339	730	219	
English & Maths L1	0.0565	0.1857**	0.0855	N/A	N/A
se	0.0345	0.0662	0.089	N/A	
N	2841	927	471	122	
Entry Level English	0.0716***	0.0692**	0.0159	0.0317	0.0389
se	0.0217	0.0234	0.0257	0.0265	
N	8358	6798	5800	5220	
Entry Level Maths	0.0685*	0.0640*	0.0637*	0.0553	0.0610
se	0.0278	0.0297	0.0319	0.0338	
N	5416	4397	3664	3172	
Other Level 1	0.0349***	0.0453***	0.0461***	0.0520***	0.0478
se	0.0071	0.0072	0.0071	0.0075	
N	87049	77480	71762	65723	
ESOL	0.0459***	0.0464**	0.0462**	0.0608**	0.0511
se	0.0113	0.0142	0.016	0.0187	
N	28904	17125	13016	9275	
Level L2	0.0258***	0.0428***	0.0492***	0.0638***	0.0519
se	0.0059	0.006	0.0062	0.0064	
N	113783	95153	84738	73774	
English L2	0.0576*	0.1225***	0.1184***	0.1412***	0.1274
Se	0.0233	0.0294	0.0348	0.0404	
N	8150	4948	3689	2627	
Maths L2	-0.043	0.0241	0.0907**	0.1371***	0.0840
Se	0.022	0.0249	0.0279	0.032	
N	9274	6617	5292	4179	
English & Maths L2	0.0564	0.0318	0.0381	0.0480	N/A
se	0.0296	0.0363	0.0393	0.0445	
N	4006	2465	1912	1411	
Other Level L2	0.0301***	0.0396***	0.0433***	0.0563***	0.0464
se	0.0066	0.0065	0.0066	0.0068	
N	89460	79228	72352	64429	

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

⁵⁰ Tables 35 through to 40 estimate separately returns for ESOL qualifications, which are not included in the Entry Level/L1/L2 Maths and/or English categories of learning for which results are also presented.

Table 36: Estimated employment probability premium for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations (aged 19-24)

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					3-5 year average
	3 rd Month	1 st Year	3 rd Year	4 th Year	5 th Year	
Below Level 2	0.0002	0.0026*	0.0029*	0.0032*	0.0025	0.0029
se	0.0009	0.001	0.0012	0.0013	0.0014	
N	606925	560326	456830	404271	348930	
English 1	0.0053	0.0133**	0.0179**	0.0173*	0.0110	0.0154
se	0.0037	0.0047	0.0065	0.0082	0.0123	
N	24332	21686	12760	8495	3962	
Maths 1	0.0016	0.0127*	0.0322***	0.0265*	0.0304	0.0297
se	0.0039	0.0055	0.0087	0.0118	0.018	
N	20348	16694	7659	4644	2009	
English & Maths 1	0.0081	0.0185***	0.0110	0.0051	-0.0108	N/A
se	0.0044	0.0059	0.0090	0.0117	0.0178	
N	18498	16058	6985	4026	1715	
Entry Level English	0.0087**	0.0109**	0.0116**	0.0121**	0.0166***	0.0134
se	0.0031	0.0037	0.0042	0.0045	0.0049	
N	46150	44144	39465	34887	30295	
Entry Level Maths	0.0089*	0.0151**	0.0103	0.0003	0.0003	0.000
se	0.0041	0.005	0.0056	0.0062	0.0069	
N	25687	24066	20736	17633	14792	
Other Level 1	0.001	0.0048**	0.0067***	0.0078***	0.0073***	0.0073
se	0.0012	0.0015	0.0017	0.0018	0.0019	
N	325859	296862	252506	231792	209033	
ESOL	-0.0036*	-0.0079***	-0.0076**	-0.0047	-0.0039	-0.0054
se	0.0018	0.002	0.0024	0.0026	0.0028	
N	160932	155306	128965	113902	97061	
Level 2	0.0116***	0.0145***	0.0172***	0.0156***	0.0160***	0.0163
se	0.0013	0.0014	0.0016	0.0018	0.0019	
N	336756	316557	263714	234948	205839	
English 2	0.0143***	0.0237***	0.0325***	0.0316***	0.0303***	0.0315
se	0.0039	0.0047	0.0062	0.0074	0.0091	
N	32707	29176	19131	14563	10381	
Maths 2	0.014***	0.0206***	0.0342***	0.0301***	0.0365***	0.0336
se	0.0039	0.0047	0.0064	0.0076	0.0089	
N	30821	27383	18149	14148	10839	
English & Maths 2	0.0161**	0.0258***	0.0333***	0.0291**	0.0322**	0.0315
se	0.0054	0.0067	0.0089	0.0105	0.0125	
N	15512	13429	8386	6206	4543	
Other Level 2	0.0119***	0.0137***	0.0154***	0.0140***	0.0139***	0.0144
se	0.0015	0.0017	0.0018	0.002	0.002	
N	242836	232080	205803	188924	170140	

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

Table 37: Estimated probability of Achievers being on Active Benefits, compared to non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations (aged 19-24)

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 rd Month	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2	0.0077***	-0.0033**	-0.0019	-0.0005	0.0001	0.000
se	0.0013	0.0012	0.0011	0.0011	0.0012	
N	316346	306706	247464	220012	191138	
English 1	0.007	-0.0112	-0.0038	-0.0029	0.0227	N/A
se	0.0073	0.0071	0.0089	0.0108	0.0139	
N	12105	11469	6379	4215	1938	
Maths 1	0.0287**	-0.0017	-0.0106	-0.0019	0.0219	N/A
se	0.0092	0.0093	0.014	0.0184	0.0259	
N	10229	9444	4050	2409	987	
English & Maths 1	0.004	-0.0084	0.0037	-0.0058	-0.0204	N/A
se	0.0085	0.0085	0.0124	0.0164	0.0241	
N	11159	10413	3892	2164	852	
Entry Level English	0.0104*	0.0005	-0.0075	-0.0020	-0.0026	0.000
se	0.0051	0.005	0.0048	0.0049	0.0051	
N	24669	24240	21184	18486	16108	
Entry Level Maths	0.0046	-0.0076	-0.0014	-0.0079	0.0013	0.000
se	0.0074	0.0072	0.007	0.0074	0.0078	
N	14207	13764	11678	9752	8248	
Other Level 1	0.003	-0.006***	-0.0038*	-0.0023	-0.0020	-0.0014
se	0.0017	0.0016	0.0015	0.0015	0.0015	
N	181231	175729	150785	139945	127784	
ESOL	-0.0001	-0.0002	-0.0010	-0.0015	-0.0013	0.000
se	0.0016	0.0014	0.0012	0.0013	0.0014	
N	69313	68117	54959	47969	39554	
Level 2	0.0031*	-0.0034**	-0.0061***	-0.0042**	-0.0072***	-0.0058
se	0.0014	0.0013	0.0012	0.0013	0.0013	
N	209055	204836	172474	155422	137098	
English 2	0.0118	-0.0037	-0.0159*	-0.0144*	-0.0090	-0.0131
se	0.0062	0.006	0.0066	0.0073	0.0086	
N	18253	17445	11678	8934	6482	
Maths 2	0.0119	0.0017	-0.0118	-0.0059	-0.0140	N/A
se	0.0061	0.0059	0.0063	0.0064	0.0069	
N	18074	17337	11922	9516	7471	
English & Maths 2	0.0082	-0.0119	-0.0003	0.0022	0.0079	N/A
se	0.0081	0.0079	0.0087	0.0098	0.0111	
N	9378	8792	5440	4147	3118	
Other Level 2	0	-0.004**	-0.0058***	-0.0040**	-0.0073***	-0.0057
se	0.0015	0.0014	0.0013	0.0013	0.0014	
N	156784	154793	137972	127898	115695	

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

Table 38: Daily earnings premium for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations (aged 25+)

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2	0.0168***	0.0170***	0.0122***	0.0138***	0.0143
se	0.002	0.0021	0.0022	0.0024	
N	1065486	921760	830895	744723	
English 1	0.0671***	0.0439**	0.0902***	0.0581	0.0641
se	0.0112	0.0161	0.0219	0.0412	
N	26876	11998	6504	1882	
Maths 1	0.0094	0.0554*	0.0726*	0.0691	0.0657
se	0.0142	0.0239	0.0322	0.0584	
N	18542	6772	3325	946	
English & Maths 1	0.0636***	0.1742***	0.0958*	0.1039	0.1246
se	0.017	0.0287	0.0416	0.0936	
N	12305	3855	1670	420	
Entry Level English	0.0428***	0.0511***	0.0319***	0.0329**	0.0386
se	0.0089	0.0091	0.0096	0.0101	
N	50663	45846	40999	38105	
Entry Level Maths	0.0150	0.0110	0.0159	0.0002	0.000
se	0.0138	0.0140	0.0154	0.0163	
N	20937	18811	16121	14568	
Other Level 1	0.0030	0.0056*	0.0027	0.0051*	0.0045
se	0.0023	0.0024	0.0025	0.0026	
N	843386	779613	720729	659321	
ESOL	0.0478***	0.0537***	0.0569***	0.0809***	0.0638
se	0.006	0.0076	0.0087	0.0103	
N	103191	61632	47101	33807	
Level 2	0.0047*	0.0046*	0.0077**	0.0108***	0.0077
se	0.0022	0.0023	0.0025	0.0026	
N	861215	706168	613942	523627	
English 2	0.041***	0.0406***	0.0669***	0.0780***	0.0618
se	0.0093	0.0116	0.0142	0.0169	
N	52284	31487	22588	15311	
Maths 2	-0.0113	0.0080	0.0229	0.0357*	0.0222
se	0.0088	0.0105	0.0121	0.0146	
N	55760	35639	26868	19691	
English & Maths 2	0.0225	0.0418**	0.0452**	0.0164	0.0345
se	0.0119	0.0142	0.0166	0.019	
N	27828	16589	11798	8071	
Other Level 2	0.0033	0.0012	0.0037	0.0071**	0.0040
se	0.0023	0.0024	0.0026	0.0027	
N	714930	615686	547134	476228	

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

Table 39: Estimated employment probability premium for achievers V non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations (aged 25+)

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					3-5 year average
	3 rd Month	1 st Year	3 rd Year	4 th Year	5 th Year	
Below Level 2	-0.0003	0.0021***	0.0032***	0.0035***	0.0033***	0.0033
se	0.0003	0.0004	0.0005	0.0005	0.0005	
N	3431429	3247014	2800073	2556614	2298804	
English 1	0.0023	0.0107***	0.0137***	0.0183***	0.0215***	0.0178
se	0.0016	0.0020	0.0031	0.0039	0.0056	
N	111952	99498	53687	35093	16255	
Maths 1	-0.0088***	0.0028	0.0078	0.0066	0.0157	0.000
se	0.0019	0.0026	0.0044	0.006	0.0085	
N	88974	73738	30477	17130	7474	
English & Maths 1	-0.0041	0.0074*	0.0136**	0.0200**	0.0240*	0.0192
se	0.0022	0.0030	0.0048	0.0067	0.0107	
N	64027	55398	22621	11771	4661	
Entry Level English	0.0059***	0.0102***	0.0151***	0.0166***	0.0178***	0.0165
se	0.0012	0.0015	0.0017	0.0019	0.0020	
N	217112	205293	190746	173676	157930	
Entry Level Maths	0.0031	0.0052*	0.0099***	0.0081**	0.0127***	0.0102
se	0.0021	0.0025	0.0029	0.0032	0.0035	
N	82110	75809	70533	60937	53352	
Other Level 1	0.0001	0.0014**	0.0017***	0.0019**	0.0018**	0.0018
se	0.0004	0.0005	0.0005	0.0006	0.0006	
N	2359908	2257541	2059857	1939345	1794595	
ESOL	0.0013	0.0027**	0.0053***	0.0056***	0.0048**	0.052
se	0.0009	0.001	0.0012	0.0014	0.0015	
N	547704	518664	403332	346368	288717	
Level 2	0.0052***	0.0094***	0.0105***	0.0102***	0.0096***	0.0101
se	0.0005	0.0005	0.0006	0.0007	0.0007	
N	2028777	1954809	1666261	1480692	1291499	
English 2	0.0078***	0.0170***	0.0227***	0.0245***	0.0258***	0.0243
se	0.0017	0.0021	0.0029	0.0034	0.0042	
N	153501	137476	88708	66047	46007	
Maths 2	0.0070***	0.0172***	0.0268***	0.0272***	0.0273***	0.0271
se	0.0017	0.0021	0.0029	0.0034	0.0041	
N	143239	129382	83194	62050	45994	
English & Maths 2	0.0017	0.0131***	0.0202***	0.0209***	0.0227***	0.0213
se	0.0025	0.0030	0.004	0.0049	0.0059	
N	74935	66580	40994	28876	19736	
Other Level 2	0.0045***	0.0076***	0.0081***	0.0081***	0.0078***	0.0080
se	0.0005	0.0006	0.0006	0.0007	0.0007	
N	1616796	1582495	1422236	1296050	1155613	

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

Table 40: Estimated probability of Achievers being on Active Benefits, compared to non-achievers, for sub-divisions of the *Below Level 2* and *L2* highest aim populations (aged 25+)

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 rd Month	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
Below Level 2	0.0090***	0.0017***	-0.0008**	-0.0008**	-0.0017**	-0.0011
se	0.0003	0.0003	0.0003	0.0003	0.0003	
N	2321567	2276962	1965487	1797952	1620013	
English 1	0.0191***	-0.0003	-0.0029	-0.0081*	-0.0133**	-0.0081
se	0.0026	0.0025	0.0031	0.0037	0.0050	
N	70004	66363	34685	22351	10246	
Maths 1	0.0597	0.0154***	0.0016**	0.0069	-0.0010	0.0025
se	0.0037	0.0036	0.0050	0.0065	0.0098	
N	55065	51727	20495	11170	4578	
English & Maths 1	0.0209***	-0.0038	-0.0010	-0.0066	0.0037	N/A
se	0.0040	0.0040	0.0054	0.0072	0.0112	
N	43894	41363	14895	7314	2722	
Entry Level English	0.0083***	0.0026	-0.0005	-0.0007	-0.0016	0.000
se	0.0015	0.0014	0.0013	0.0013	0.0013	
N	140424	137332	127165	114914	104448	
Entry Level Maths	0.0171***	0.0083**	0.0001	0.0061*	-0.0017	0.0015
se	0.0030	0.0029	0.0027	0.0027	0.0028	
N	52222	50574	47148	39698	34442	
Other Level 1	0.0034***	-0.0004	-0.0016***	-0.0016***	-0.0023***	-0.0018
se	0.0004	0.0003	0.0003	0.0003	0.0003	
N	1700460	1679282	1539229	1451012	1343409	
ESOL	0.0104***	0.0023*	-0.001	-0.0017	-0.0012	0.000
se	0.0010	0.0009	0.0009	0.0009	0.0009	
N	283562	273749	200003	167366	133726	
Level 2	0.0059***	-0.001	-0.0028***	-0.0038***	-0.0039***	-0.0035
se	0.0004	0.0004	0.0004	0.0004	0.0004	
N	1527358	1504823	1282486	1137980	990285	
English 2	0.0120***	-0.0041	-0.0065**	-0.0054*	-0.0065*	-0.0061
se	0.0023	0.0022	0.0023	0.0026	0.0030	
N	107600	102527	66501	49065	33985	
Maths 2	0.0164***	-0.0003	-0.0015	-0.0061***	-0.0024	-0.0033
se	0.0022	0.0021	0.0021	0.0023	0.0024	
N	102985	98546	64263	47692	35208	
English & Maths 2	0.0044	-0.0028	-0.0053	-0.0091**	-0.0035	-0.0060
se	0.0030	0.0028	0.0031	0.0034	0.0037	
N	55450	52359	32160	22604	15613	
Other Level 2	0.0038***	-0.0012**	-0.0030***	-0.0038***	-0.0038***	-0.0035
se	0.0004	0.0004	0.0004	0.0004	0.0004	
N	1237273	1227976	1101442	1002754	891924	

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

5.4 Returns to L1/L2 English and/or Maths learners within disaggregated populations of Full Level 2 and Full Level 3 Achievers

Tables 1 through to 6 and Tables 10 through to 15 present a detailed breakdown of the estimated returns for subgroups of learners within the ‘L1/L2 Maths and/or English’ category of learning aim – focusing on the populations of FL2 and FL3 achievers. In particular, we split FL2 and FL3 achievers according to whether the highest learning aim is (i) classroom-based (Tables 1 through to 6) or (ii) apprenticeship (Tables 10 through to 15). For instance, in Table 1, amongst the population of FL2 achievers with a Classroom Based Learning aim, we identify a 2.7% average [3 to 5 year] earnings return for those achieving a L2 English qualification, a 1.5% average [3 to 5 year] earnings return for those achieving a L2 Maths qualification and for those taking both Literacy and Maths at L2, the figure is 4.8%. For Level 1 subcategories in Table 1 the suggestion is that returns are of a similar magnitude in the first year, but the significant drop in numbers as we move on to the third year after learning prevents any further analysis.

Table 41: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL2 achievers – Classroom-based learning]^{51 52}

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.060	-0.048	-0.057	N/A	N/A
se	0.041	0.057	0.128		
N	2229	899	276	30	
Maths L1	0.058	0.032	-0.085	N/A	N/A
se	0.056	0.102	0.295		
N	1375	394	113	16	
English & Maths L1⁵³	0.037	0.042	-0.049	N/A	N/A
se	0.041	0.069	0.124		
N	2041	721	257	33	
English L2	0.060***	0.027	0.043*	0.011	0.027
se	0.014	0.016	0.019	0.024	
N	14558	9016	6368	4113	
Maths L2	0.057**	0.011	0.005	0.029	0.015

⁵¹ Tables 1 to 12 do not include ESOL qualifications in the categories of L1/L2 Literacy for which returns are estimated.

⁵² Our category of **English L1** in Tables 1 to 12 contains all learners who have a Literacy L1 aim overlapping a FL2 spell (but no overlapping Numeracy aim); whilst the **English & Maths L1** category includes all those who have English L1 and Maths L1 aims overlapping a FL2 spell (the same applies to the **English & Maths L2** category). As a result, each category of learner is mutually exclusive and no learner can appear in more than one category.

⁵³ For categories such as **L1 English**, achievement and non-achievement is straightforward. However, for the category of **L1 English & Maths** we can obviously have a combination of achieve/non-achieve groups. The majority of non-achievers taking both, fail both, and majority of achievers taking both, pass both. Non-achievers are therefore those with both Maths and English aim, who fail to achieve either English or Maths, or both. Variations on this approach do not alter our findings.

Percentage Log Daily Earnings Premium in Tax Year after Spell End					
Achievement	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
se	0.022	0.026	0.032	0.039	
N	6138	3070	2061	1235	
English & Maths L2	0.058***	0.050**	0.057**	0.038	0.048
se	0.015	0.017	0.019	0.023	
N	12507	7777	5662	3730	

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

Table 42: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL2 achievers – Classroom-based learning]

Percentage Point Employment probability Premium in Time Period after Spell End						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.017	0.012	-0.004	0.006	-0.035	-0.011
se	0.010	0.011	0.018	0.024	0.047	
N	8400	6772	2846	1580	508	
Maths L1	0.012	0.007	-0.008	-0.043	0.043	-0.003
se	0.013	0.015	0.028	0.040	0.099	
N	5112	4358	1405	665	194	
English & Maths L1	0.023*	0.018	0.020	0.049*	0.048	0.039
se	0.009	0.011	0.018	0.024	0.042	
N	9562	7132	2635	1486	509	
English L2	0.007	0.008	0.003	-0.001	0.001	0.001
se	0.004	0.005	0.006	0.006	0.008	
N	44465	41403	25748	20349	12861	
Maths L2	0.004	0.008	-0.012	-0.018	0.006	-0.008
se	0.006	0.007	0.010	0.011	0.014	
N	20485	18506	9195	6740	4122	
English & Maths L2	0.001	0.004	-0.016**	-0.016*	-0.005	-0.012
se	0.005	0.005	0.006	0.007	0.008	
N	36848	33252	20198	16210	10888	

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

Table 43: Estimated probability of LI/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL2 achievers – Classroom-based learning]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.010	-0.003	0.010	-0.005	-0.013	-0.003
se	0.010	0.009	0.012	0.016	0.030	
N	6427	5949	2481	1351	426	
Maths L1	0.019	-0.003	-0.013	-0.028	-0.082	-0.041
se	0.014	0.014	0.023	0.032	0.090	
N	4266	3878	1237	589	163	
English & Maths L1	-0.030***	-0.019	0.005	0.011	-0.014	0.001
se	0.009	0.010	0.014	0.019	0.031	
N	7675	6247	2275	1249	414	
English L2	-0.016***	-0.011**	-0.009*	-0.012*	-0.009	-0.010
se	0.004	0.004	0.004	0.005	0.005	
N	30715	29051	18786	14428	10297	
Maths L2	-0.010	-0.017*	-0.015*	-0.012	-0.014	-0.014
se	0.007	0.007	0.007	0.008	0.009	
N	13876	12892	6673	4714	3229	
English & Maths L2	-0.017***	-0.019***	-0.011*	-0.015**	-0.007	-0.011
se	0.005	0.005	0.005	0.005	0.005	
N	26323	24356	15157	11980	8754	

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

Table 44: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL3 achievers – Classroom-based learning]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.053	-0.015	N/A	N/A	N/A
se	0.055	0.099			
N	1116	394	76	6	
Maths L1	-0.009	-0.047	N/A	N/A	N/A
se	0.061	0.112			
N	857	304	100	9	
English & Maths L1	0.080	0.019	N/A	N/A	N/A
se	0.078	0.201			
N	593	151	21	4	
English L2	-0.022	-0.005	-0.003	0.001	-0.002
se	0.007	0.008	0.009	0.011	
N	70421	40912	27776	17218	
Maths L2	-0.040***	-0.021	0.029*	0.049***	0.019
se	0.011	0.012	0.013	0.015	
N	28558	18147	13127	8889	
English & Maths L2	-0.030***	-0.004	0.020*	0.020*	0.012
se	0.006	0.007	0.008	0.009	
N	71899	46318	33813	22005	

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

Table 45: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL3 achievers – Classroom-based learning]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.016	0.018	0.021	0.077	0.037	0.045
se	0.016	0.017	0.028	0.042	0.134	
N	3453	3299	1254	599	127	
Maths L1	-0.004	0.017	0.070*	0.039	-0.027	0.027
se	0.019	0.019	0.034	0.048	0.105	
N	2585	2463	801	441	147	
English & Maths L1	0.009	0.008	-0.004	0.047	N/A	N/A
se	0.020	0.021	0.040	0.069		
N	2138	1980	600	248	45	
English L2	0.007*	0.003	0.000	0.003	0.007	0.003
se	0.003	0.003	0.003	0.003	0.004	
N	158417	156508	92043	66038	43504	
Maths L2	0.012**	0.000	-0.001	-0.002	-0.005	-0.003
se	0.004	0.004	0.004	0.005	0.005	
N	63591	62408	38000	28656	19868	
English & Maths L2	0.010***	0.004*	-0.001	0.001	0.002	0.001
se	0.003	0.002	0.003	0.003	0.003	
N	156794	152720	96959	73829	51787	

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

Table 46: Estimated probability of LI/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL3 achievers – Classroom-based learning]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.014	0.002	-0.008	0.010	0.083	0.028
se	0.013	0.012	0.017	0.023	0.065	
N	3185	3045	1152	540	107	
Maths L1	-0.013	-0.001	-0.067**	-0.028	-0.087	-0.061
se	0.015	0.014	0.023	0.029	0.079	
N	2392	2284	748	406	138	
English & Maths L1	-0.013	-0.039*	-0.008	N/A	N/A	N/A
se	0.016	0.016	0.027			
N	1960	1817	533	214	33	
English L2	-0.015***	-0.013***	-0.005*	-0.003	-0.004*	-0.004
se	0.002	0.002	0.002	0.002	0.002	
N	132295	130691	81179	59320	39459	
Maths L2	-0.018***	-0.015***	-0.004*	-0.002	-0.002	-0.003
se	0.003	0.002	0.002	0.003	0.003	
N	52812	51841	33472	25688	17979	
English & Maths L2	-0.018***	-0.014***	-0.007***	-0.005*	-0.005*	-0.006
se	0.002	0.001	0.002	0.002	0.002	
N	133775	130304	86209	66676	47231	

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

The first row of Table 7 presents the estimated returns to L1 and/or L2 Maths/English qualifications gained from the comparison of achiever and non-achievers for a population of FL2 achievers with a Classroom Based Learning aim, while the second row carries out the same analysis for a population of FL3 achievers with a Classroom Based Learning aim. More specifically:

- The first row of Table 7 estimates the value added of L1 and/or L2 Maths/English qualifications, with the population of individuals included in the regression equations restricted to those who have achieved a highest aim of Full Level 2 with a Classroom Based Learning aim. The 3 to 5 year average earnings return of 2.2% is therefore the earnings premium that those achieving a L1 and/or L2 Maths/English qualification secure, relative to those who do not achieve their L1/L2 Maths or English qualification (with this estimate relevant for the population of FL2 achievers with a Classroom Based Learning aim).
- The second row of Table 7 estimates the value added of L1 and/or L2 Maths/English qualifications, with the population of individuals included in the regression equations restricted to those who have achieved a highest aim of Full Level 3 with a Classroom Based Learning aim. The 3 to 5 years average earnings return of 0.7% is therefore the earnings premium that those achieving a L1 and/or L2 Maths/English qualification secure, relative to those who do not achieve their L1/L2 Maths or English qualification (with this estimate relevant for the population of FL3 achievers with a Classroom Based Learning aim).

Tables 8 and 9 repeat the same analysis but for employment probability premiums and the probability of being on active benefits, respectively.

Table 47: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL2 or FL3 achievers – Classroom-based learning]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	0.053***	0.018	0.027*	0.021	0.022
se	0.009	0.011	0.013	0.015	
N	38848	21877	14737	9125	
FL3 Achievers	-0.027***	-0.009	0.013*	0.018**	0.007
se	0.005	0.005	0.006	0.007	
N	173444	106226	74913	48138	

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

Table 48: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL2 or FL3 achievers – Classroom-based learning]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	0.009**	0.010***	-0.001	-0.001	0.002	0.000
se	0.003	0.003	0.004	0.004	0.005	
N	124872	111423	62027	47030	29082	
FL3 Achievers	0.011***	0.005*	0.001	0.003	0.003	0.002
se	0.002	0.002	0.002	0.002	0.002	
N	386978	379378	229657	169811	115478	

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

Table 49: Estimated probability of L1/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL3 achievers – Classroom-based learning]

Achievement	Percentage Point Probability of Achievers V Non-achievers being on Active Benefits					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.013***	-0.015***	-0.009**	-0.010***	-0.012***	-0.010
se	0.003	0.003	0.003	0.003	0.003	
N	89282	82373	46609	34311	23283	
English & Maths L2	-0.017***	-0.015***	-0.005***	-0.002*	-0.004***	-0.004
se	0.001	0.001	0.001	0.001	0.001	
N	326419	319982	203293	152844	104947	

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

Table 50: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL2 achievers – Apprenticeships]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.087	0.109	0.394*	N/A	N/A
se	0.124	0.125	0.172		
N	438	275	145	87	
Maths L1	0.099	0.077	0.217	0.139	0.144
se	0.079	0.090	0.158	0.199	
N	879	611	367	144	
English & Maths L1	0.051***	0.041*	0.021	0.024	0.029
se	0.014	0.018	0.025	0.036	
N	16610	10287	5818	2467	
English L2	0.067***	0.068***	0.063***	0.058***	0.063
se	0.012	0.013	0.013	0.013	
N	21435	18338	15944	13558	
Maths L2	0.014	0.058	0.136**	0.083	0.092
se	0.033	0.036	0.043	0.044	
N	2247	1678	1223	853	
English & Maths L2	0.074***	0.076***	0.084***	0.097***	0.086
se	0.014	0.015	0.016	0.019	
N	14029	11429	9062	6394	

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

Table 51: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL2 achievers – Apprenticeships]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.021	-0.003	-0.030	-0.054	0.019	-0.022
se	0.033	0.035	0.042	0.055	0.094	
N	1107	758	516	320	139	
Maths L1	0.038	0.026	0.016	0.021	-0.042	-0.002
se	0.025	0.030	0.034	0.044	0.062	
N	2384	1516	1032	714	362	
English & Maths L1	-0.004	0.006	0.004	-0.001	-0.017	-0.005
se	0.003	0.004	0.006	0.008	0.012	
N	67864	33898	17612	11729	5891	
English L2	0.009	0.001	-0.007	-0.007	-0.007	-0.007
se	0.005	0.005	0.005	0.005	0.005	
N	41279	35637	31364	27470	23466	
Maths L2	-0.006	-0.023	-0.038**	-0.054***	-0.044**	-0.045
se	0.015	0.014	0.013	0.014	0.015	
N	4159	3722	3058	2371	1660	
English & Maths L2	0.010	-0.004	-0.021***	-0.025***	-0.024***	-0.023
se	0.006	0.006	0.006	0.006	0.006	
N	24818	22998	20209	16756	12473	

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

Table 52: Estimated probability of LI/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL2 achievers – Apprenticeships]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	0.015	-0.034	0.022	-0.007	-0.122*	-0.036
se	0.022	0.032	0.026	0.028	0.058	
N	936	703	485	295	131	
Maths L1	-0.037	-0.026	-0.045	-0.090*	-0.073	-0.069
se	0.020	0.022	0.026	0.040	0.042	
N	1987	1392	947	650	336	
English & Maths L1	-0.017***	-0.010***	-0.003	0.010*	0.002	0.003
se	0.002	0.003	0.005	0.005	0.007	
N	55948	31056	16344	10721	5368	
English L2	-0.022***	-0.017***	-0.017***	-0.010***	-0.017***	-0.015
se	0.003	0.003	0.003	0.003	0.003	
N	35997	31899	28444	24786	21387	
Maths L2	-0.009	0.000	-0.014	-0.001	-0.003	-0.006
se	0.010	0.009	0.010	0.010	0.010	
N	3678	3354	2812	2152	1561	
English & Maths L2	-0.019***	-0.010**	-0.010**	-0.010**	-0.007	-0.009
se	0.004	0.004	0.004	0.004	0.004	
N	21922	20538	18061	14780	11372	

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

Table 53: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL3 achievers – Apprenticeships]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	N/A	N/A	N/A	N/A	N/A
se					
N	25	13	9	4	
Maths L1	N/A	N/A	N/A	N/A	N/A
se					
N	36	20	14	7	
English & Maths L1	-0.065	0.077	N/A	N/A	N/A
se	0.096	0.187			
N	261	162	81	39	
English L2	0.087***	0.048	0.055	0.082*	0.062
se	0.026	0.027	0.034	0.041	
N	4862	3581	2626	1775	
Maths L2	0.033	0.069***	0.045*	0.010	0.041
se	0.018	0.019	0.021	0.024	
N	9544	7594	5596	3558	
English & Maths L2	0.048***	0.030***	0.032***	0.028**	0.030
se	0.006	0.007	0.008	0.010	
N	79230	55795	38437	21628	

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

Table 54: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL3 achievers – Apprenticeships]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	N/A	N/A	N/A	N/A	N/A	N/A
se						
N	52	45	26	16	9	
Maths L1	N/A	N/A	N/A	N/A	N/A	N/A
se						
N	63	55	30	18	13	
English & Maths L1	-0.030	-0.016	-0.015	0.046	N/A	N/A
se	0.040	0.042	0.052	0.070		
N	455	396	286	165	74	
English L2	0.006	-0.004	0.002	0.002	-0.013	-0.003
se	0.012	0.011	0.011	0.012	0.013	
N	7943	7265	5638	4271	2982	
Maths L2	0.016*	0.013	0.013	0.009	0.008	0.010
se	0.008	0.008	0.008	0.008	0.009	
N	15823	14297	11775	9024	6159	
English & Maths L2	0.008**	0.003	0.000	-0.003	-0.007*	-0.003
se	0.003	0.003	0.003	0.003	0.003	
N	140171	120489	92348	67286	42588	

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

Table 55: Estimated probability of L1/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL3 achievers – Apprenticeships]

Percentage Point Probability of Achievers V Non-achievers being on Active Benefits						
Achievement	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	N/A	N/A	N/A	N/A	N/A	N/A
se						
N	49	43	25	15	9	
Maths L1	N/A	N/A	N/A	N/A	N/A	N/A
se						
N	58	51	28	17	13	
English & Maths L1	0.034	-0.014	-0.023	-0.010	N/A	N/A
se	0.019	0.021	0.022	0.051		
N	428	377	274	156	68	
English L2	-0.010	-0.012*	-0.011	-0.010	-0.005	-0.009
se	0.006	0.006	0.006	0.007	0.008	
N	7512	6921	5390	4060	2856	
Maths L2	-0.010*	-0.004	-0.010*	-0.009*	-0.007	-0.009
se	0.004	0.004	0.004	0.004	0.004	
N	14762	13435	11093	8438	5763	
English & Maths L2	-0.007***	-0.008***	-0.004***	-0.002	-0.005*	-0.004
se	0.001	0.001	0.001	0.002	0.002	
N	130683	114174	87513	63240	40126	

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

The first row of Table 16 presents the estimated returns to L1 and/or L2 Maths/English qualifications gained from the comparison of achiever and non-achievers for a population of FL2 achievers with an Apprenticeship aim, while the second row carries out the same analysis for a population of FL3 achievers with an Apprenticeship aim. More specifically:

- The first row of Table 16 estimates the value added of L1 and/or L2 Maths/English qualifications, with the population of individuals included in the regression equations restricted to those who have achieved a highest aim of Full Level 2 with an Apprenticeship aim. The 3 to 5 year average earnings return of 5.9% is therefore the earnings premium that those achieving a L1 and/or L2 Maths/English qualification secure, relative to those who do not achieve their L1/L2 Maths or English qualification (with this estimate relevant for the population of FL2 achievers with an Apprenticeship aim).
- The second row of Table 16 estimates the value added of L1 and/or L2 Maths/English qualifications, with the population of individuals included in the regression equations restricted to those who have achieved a highest aim of Full Level 3 with an Apprenticeship aim. The 3 to 5 years average earnings return of 3.0% is therefore the earnings premium that those achieving a L1 and/or L2 Maths/English qualification secure, relative to those who do not achieve their L1/L2 Maths or English qualification (with this estimate relevant for the population of FL3 achievers with an Apprenticeship aim).

Tables 17 and 18 repeat the same analysis but for employment probability premiums and the probability of being on active benefits, respectively.

Table 56: Returns to daily earnings for L1/L2 English and/or Maths achievers [for a population of FL2 or FL3 achievers – Apprenticeships]

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	0.060***	0.053***	0.065***	0.058***	0.059
se	0.008	0.009	0.010	0.011	
N	55638	42618	32559	23466	
FL3 Achievers	0.041***	0.032***	0.029***	0.029**	0.030
se	0.006	0.007	0.008	0.010	
N	93958	67165	46763	26987	

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

Table 57: Estimated employment probability premiums for L1/L2 English and/or Maths achievers [for populations of FL2 or FL3 achievers – Apprenticeships]

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
FL2 Achievers	-0.003	-0.002	-0.010***	-0.013***	-0.017***	-0.013
se	0.003	0.003	0.003	0.003	0.004	
N	141611	98529	73791	59360	43991	
FL3 Achievers	0.011***	0.007*	0.004	0.001	-0.001	0.001
se	0.003	0.003	0.003	0.003	0.003	
N	164507	142547	110103	80780	51825	

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

Table 58: Estimated probability of L1/L2 English and/or Maths achievers being on active benefits, compared to non-achievers [for a population of FL3 achievers – Apprenticeships]

Achievement	Percentage Point Probability of Achievers V Non-achievers being on Active Benefits					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
English L1	-0.018***	-0.011***	-0.011***	-0.008***	-0.012***	-0.010
se	0.002	0.002	0.002	0.002	0.003	
N	120468	88942	67093	53384	40155	
English & Maths L2	-0.005***	-0.007***	-0.005*	-0.005*	-0.004*	-0.005
se	0.001	0.001	0.002	0.002	0.002	
N	153492	135001	104323	75926	48835	

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

5.5 Returns to IT qualifications, within the wider foundation [highest] learning aim categories of ‘thin’ L2 and ‘Below L2’

We looked at earnings returns and employment returns for IT qualifications within the large groups of the “other” level 1” and “other” level 2 qualifications. These “other” qualifications are “thin L2” and “below L2” qualifications which are not Maths, English or ESOL. The results are shown in tables 59 and 60.

Table 59: Daily earnings premium for IT achievers, relative to non-achievers: within the *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Log Daily Earnings Premium in Tax Year after Spell End				
	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
IT Below L2	0.0020	0.0140***	0.0097*	0.0149**	0.0129
se	0.0041	0.0042	0.0043	0.0045	
N	203550	189862	174623	155310	
IT Below L2 (19-24)	0.0640***	0.0697***	0.0562***	0.0970***	0.0743
se	0.0165	0.0163	0.0163	0.0172	
N	11366	10741	10132	9268	
IT Below L2 (25+)	-0.0031	0.0103*	0.0062	0.0083	0.0083
se	0.0042	0.0043	0.0045	0.0047	
N	188534	175866	161478	143329	
IT L2	0.0041	0.0166***	0.0237***	0.0283***	0.0229
se	0.0043	0.0044	0.0045	0.0048	
N	165238	158630	145897	130136	
IT L2 (19-24)	0.0110	0.0551***	0.0645***	0.0729***	0.0642
se	0.0149	0.0138	0.137	0.0143	
N	14478	14236	13314	12067	
IT L2 (25+)	0.0036	0.0108*	0.0184***	0.0227***	0.0173
se	0.0045	0.0046	0.0048	0.0051	
N	147555	141205	129572	115322	

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

Note: The numbers of the 19-24 years old and of the 25+ years old do not add up to the overall numbers because of the presence of individuals who were aged 16,17,18 at the time in which they started attending the IT courses.

Table 60: Employment Probability premiums for IT achievers, relative to non-achievers: within *Below Level 2* and *L2* highest aim populations

Achievement	Percentage Point Employment probability Premium in Time Period after Spell End					
	3 months	1 st Year	3 rd Year	4 th Year	5 th Year	3-5 year average
IT Below L2	0.0008	0.0027**	0.0018	0.0021*	0.0010	0.0016
se	0.0008	0.0009	0.0010	0.0010	0.0011	
N	599889	577863	524146	489466	441035	
IT Below L2 (19-24)	0.0064*	0.0075*	0.0078	0.0075	0.0058	0.0070
se	0.0033	0.0038	0.0043	0.0045	0.0048	
N	39862	38032	34121	31775	28422	
IT Below L2 (25+)	-0.0002	0.0018*	0.0010	0.0013	0.0004	0.0009
se	0.0008	0.0009	0.0011	0.0011	0.0012	
N	534720	516567	472883	442989	401109	
IT L2	0.0016	0.0080***	0.0100***	0.0094***	0.0088***	0.0094
se	0.0011	0.0012	0.0013	0.0014	0.0014	
N	359149	357834	347137	325179	295024	
IT L2 (19-24)	0.0093*	0.0142**	0.0157***	0.0169***	0.0171***	0.0166
se	0.0041	0.0044	0.0046	0.0047	0.0049	
N	35048	34828	33688	31819	29189	
IT L2 (25+)	0.0006	0.0079***	0.0105***	0.0100***	0.0086***	0.0097
se	0.0011	0.0012	0.0013	0.0014	0.0015	
N	312726	311758	302925	283668	257631	

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

Note: The numbers of the 19-24 years old and of the 25+ years old do not add up to the overall numbers because of the presence of individuals who were aged 16,17,18 at the time in which they started attending the IT courses.



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