

RESEARCH

BIS | Department for Business
Innovation & Skills

BIS RESEARCH PAPER NO. 48 Annex 2

Age and Returns to Training

JUNE 2011

A report by Frontier Economics and the Institute for Fiscal Studies (IFS)

Annex 2 to 'Reporting on employment and earnings using experimental matched data'

The views expressed in this report are those of the authors and not necessarily that of the Department for Business, Innovation and Skills or any other Government Department.

Department for Business, Innovation and Skills

1 Victoria Street

London, SW1H 0ET

www.BIS.gov.uk

BIS Research paper number 48 (Annex 2)

June 2011

Contents

Contents	3
Executive summary	4
Introduction	9
Background	9
Objectives and Scope	9
Structure of the Report.....	10
Data	11
Descriptive analysis	13
Overview (FE)	13
Age and outcomes (FE)	14
Age and outcomes (all funding streams).....	21
Impact analysis	27
Scope	27
General findings.....	27
Limitations	28
Conclusions.....	28
Annex 1: Descriptive outputs (FE)	30
Annex 2: Econometric outputs (FE only)	41

Executive summary

BIS has asked Frontier Economics and the Institute for Fiscal Studies (IFS) to undertake an extension of the analysis of the matched ILR, DWP and HMRC data. In particular, BIS is interested in better understanding the role of age on the impact of training, across Further Education (FE), apprenticeships and Train to Gain (TTG). Our previous analysis found that on the whole outcomes were best for apprentices and poorest in TTG learners. We found that following training average earnings decline in real terms for the latter group of learners as a whole.

In order to understand how important age is in determining learning outcomes we focus our analysis on three distinct age groups:

- 19 or younger
- 20 to 24
- 25 or older

Because learner characteristics vary enormously both within and across funding streams, we further restrict our analysis by level of study and subject area for any given age group. This way we are able to isolate some of the observable differences between the learner groups and use broadly comparable learner groups. Our analysis consists of a descriptive section and an econometric section.

The descriptive section studies how average economic performance and changes thereof vary for different learner groups. Whilst informative none of the findings in this section can be taken as causal. The descriptive analysis allows us to see which learner groups experience good/poor outcomes but cannot tell us how much of the effect is due to training and how much is due to underlying characteristics or other factors.

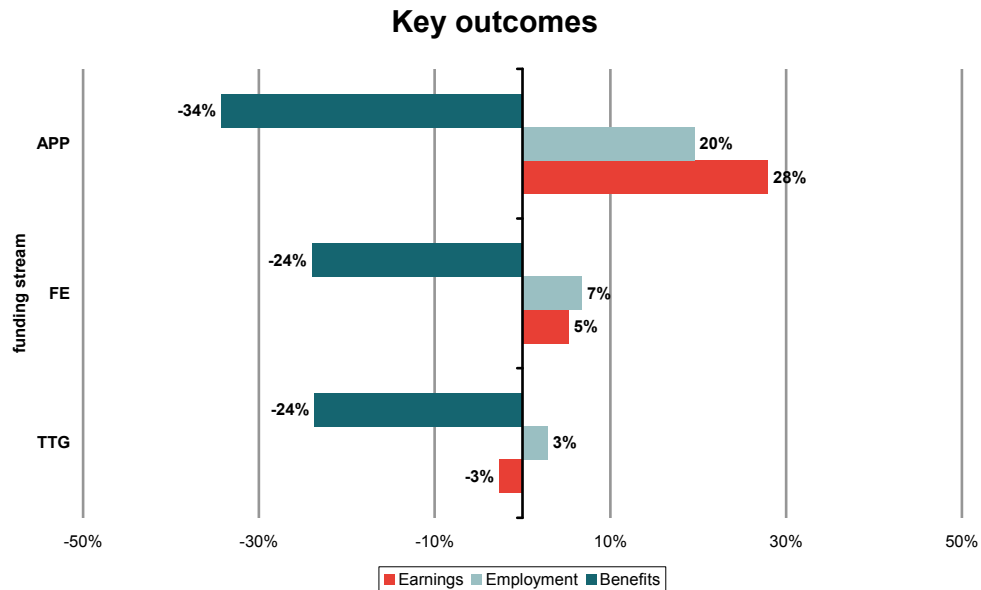
We capture some of the latter in our econometric analysis by controlling for changes in economic conditions over time, using yearly indicator variables. However, even our best econometric specification does not elicit a robust estimate of the true causal effect of training. If employment rates improve with age (which they do) and individuals' earnings tend to increase with experience (which they do), our estimates will ascribe all of this improvement to the impact of training.

Econometric best practice would involve a credible control group who did not enter training, whose later outcomes would provide a proxy for the outcomes of those who did train, had they not entered training. Since such a control group is not available in our data, our estimates should not be interpreted as true causal estimates.

Our descriptive analysis reveals that age is highly correlated with learner outcomes such that older students have poorer outcomes than younger students. This holds across funding stream and learner level. Learners of the same age group studying towards

qualifications at the same level¹ but in different funding streams experience very different returns to training. Focusing on adults (aged 20 or more) who achieve Full Level 2 qualifications we observe that returns are highest among apprentices whose mean wages increase by 28%, length in employment by 20% and time on benefit falls by 34% (see Figure 1). Outcomes are worst for TTG learners, whose real earnings decline by 3%, employment increases modestly and the rate of benefit claims declines by a quarter.

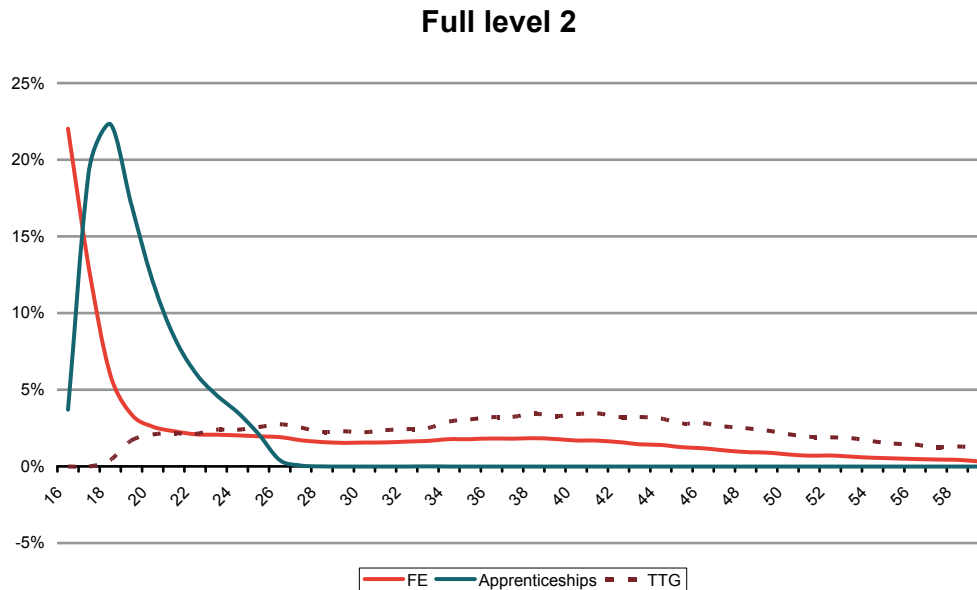
Figure 1: Change in labour market indicators following training: FL2 (20+)



Source: Frontier analysis of ILR-HMRC/DWP data

A potential explanation for the large variance in outcomes is that the age profiles of learners even within the adult group (aged 20 or more) are very different in the three funding streams (see Figure 2).

¹ Due to data issues (sample sizes) detailed comparisons across funding stream are only possible at FL2 (GCSE or equivalent) and in some cases Full Level 3 (A-Level or equivalent). Further, as there are very few TTG learners aged 19 or less, we can only compare outcomes for the other two age groups.

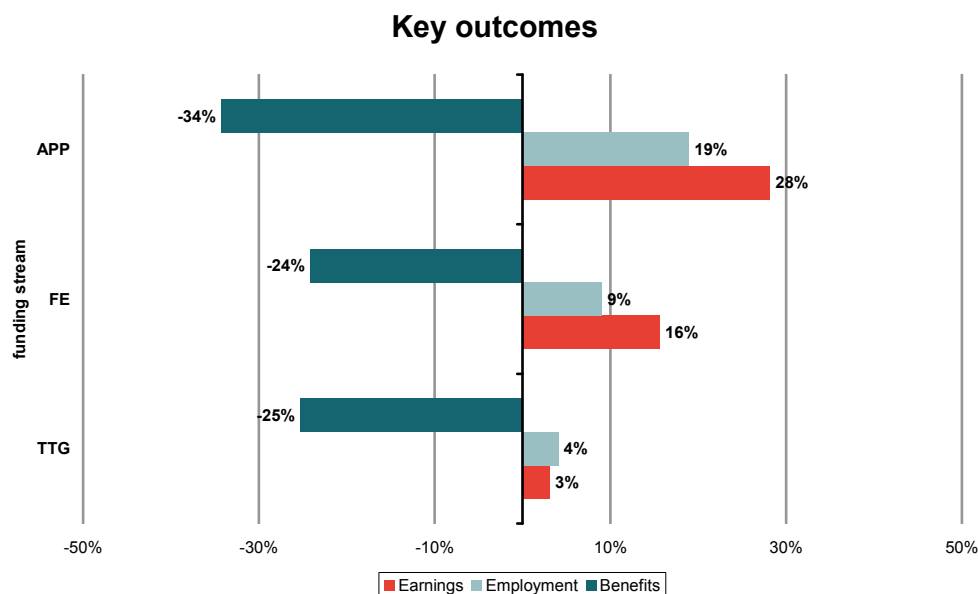
Figure 2: Age distribution of learners in the three funding streams

Source: Frontier analysis of ILR-HMRC/DWP data

The TTG data has the highest concentration of older learners: three quarters are aged 30 or more compared with only a third of FE learners and no apprentices. In order to account for this difference we focus on a narrower age band, learners aged between 20 and 24. A summary of the outcomes for this age group is shown in Figure 3 overleaf.

Excluding the over 25s improves the average outcomes of both TTG and FE but has little effect on Apprenticeships (as there are few learners aged over 25). Most of the improvement is in average earnings, while employment and benefit remain largely unchanged.

Mean TTG earnings now grow in real terms, albeit by a modest 3%. In comparison, earnings growth in FE and Apprenticeships is 16% and 28% respectively.

Figure 3: Change in labour market indicators following trainings: FL2 (20-24)

Source: Frontier analysis of ILR-HMRC/DWP data

Overall, the descriptive analysis suggests that age is indeed a highly significant factor influencing the outcomes of training. Young learners experience significantly better returns than older learners in all funding streams, albeit from a much lower base. Focusing on learners with similar observable characteristics reveals that there is substantial variation in performance even when age, level of study and subject area is taken into account. Our results show that returns are consistently best among apprentices and worst among TTG learners.

In our econometric analysis, we measure the impact of Further Education training as the estimated difference between pre-training and post-training outcomes for the same individuals. We use two alternative specifications:

- firstly, analysing the raw difference between outcomes before and after training;
- secondly, repeating the estimation controlling for changes in economic conditions over time, using yearly indicator variables.

The latter approach should provide more reliable estimates. The econometric results are consistent with the findings in the descriptive section. They show that outcomes post learning tend to be greatest for the 16 to 19 group and smallest for the 25+ age group. This result holds for both men and women across outcome measures and for the majority of areas of study.

The only exception to this result is with respect to the benefit rate, where we see an increase in benefit rates for the 16 to 19 group, but negative impacts for the other groups. The reason for this would seem to be that the methodology is not able to fully distinguish learning-driven effects from changes that would have occurred anyway. With respect to the 16 to 19 age group, we may be picking up a more general change associated with their

growing participation into the labour market. Greater propensity to take benefits may be a part of this.

Introduction

Background

The Education and Skills Act 2008 allowed the sharing of data between the Department for Business, Innovation and Skills (BIS), Her Majesty's Revenue and Customs (HMRC) and the Department for Work and Pensions (DWP) in order to analyse how effective training is in improving the employment and earnings outcomes of learners. Consequently BIS received a dataset with personal information removed, containing the employment, earnings and benefit claim data on all those who have undertaken publicly-funded learning in the FE sector and therefore have an Individualised Learner Record.

Objectives and Scope

We understand that BIS are interested in better understanding how age affects the impact of training and how changes in earnings and employment levels after training differ by age. Previous work conducted by Frontier and the IFS² showed that there are significant differences in the age profile of learners across the different funding streams, as well as variation within the streams. In particular, we found that TTG learners are significantly older than the rest with a mean age of 38 years. At the other end of the spectrum are Apprentices, the majority of whom are 20 or younger. The age distribution of FE learners varies significantly by level of study: Full level students tend to be younger while those taking courses at lower levels are on average older.

In terms of outcomes, our previous work indicated that Apprenticeships offer the best return in terms of wage increases. That said, all apprentices are young and at a stage of their labour market journey where steep increases in earnings can be expected. Outcomes appeared poor for TTG learners, where we observed a fall in aggregate real earnings. The FE group as a whole showed relatively modest wage increases, though this varied substantially by level and area of study.

The purpose of this report is to examine in more detail how training outcomes vary by age both across funding streams and within, where applicable. A focused analysis on age should allow us to understand the differences in outcomes better, and potentially throw some light onto overall differences in changes and impacts. We analyse how age and outcomes vary within funding stream (FE) by level and across all three funding streams for a given level. As in our previous report, Frontier and the IFS have been asked to focus on the following funding streams:

- Further Education (FE)

² "How to make best use of the new matched data for reporting on the employment and earnings outcomes of training", Report prepared for BIS in April 2010

- Apprenticeships
- Train to Gain (TTG)

Structure of the Report

This report is structured as follows:

- Chapter 2 provides a short description of our matched ILR-HMRC/DWP data sets
- Chapter 3 provides a descriptive analysis of the data sets focusing on how outcomes change for the different age groups within funding streams and then across funding streams
- Chapter 4 presents the findings from our econometric impact analysis of the FE data
- Chapter 5 presents our conclusions
- Annex 1 and Annex 2 contain a full set of output tables

Data

For the purposes of this project we have used the same data sets which were created in our previous work during which Frontier and the IFS matched ILR data with DWP and HMRC data for the three funding streams in question. The matched data allowed us to observe how learners perform in the labour market before and after their studies.

Our data sets contain learners who achieved a learning aim during 2005-06 or 2006-07 academic years. We kept only one record per learner-that is where learners achieved multiple aims we kept the highest achievement only. We also excluded learners aged over 59 or less than 16 and those whose learning spells fall outside the academic years in question. Our processed data set is at the learner level and contains information on the demographic characteristics of learners such as age, gender, ethnicity and geographical location. It also holds information on the courses individuals studied such as subject area, level, course duration and others.

The data sets are large allowing disaggregation to a fine level. Table 1 gives an overview of sample sizes and basic learner characteristics in each of the three funding streams.

Table 1: Characteristics of learners across funding streams (all learners)

	FE	WBL	TTG
Age (average)	31	19	38
Male (percent)	41%	49%	56%
Ethnic (percent)	25%	8%	17%
Deprived (percent)	33%	29%	45%
Level of study ³	BL2,L2,L3,FL2,FL3	FL2,FL3	FL2,FL3
Sample size	2,430k	175k	42k

Source: Frontier analysis of ILR-HMRC/DWP data

The Further Education file is by far the largest with over 2.4million learners. It is also the most diverse in terms of learner characteristics and courses studied. FE data includes individuals taking basic skills courses such as numeracy and literacy but also A-level and even university students⁴. Learners in the other two funding streams have more homogenous characteristics (within funding stream) with both data sets containing only Full Level 2 (FL2) and Full Level 3 (FL3) learners.

However, our previous work with the data showed that FE, WBL (apprentices) and TTG learners have different characteristics. For example WBL learners are very young with a mean age of 19 while TTG students are almost 20 years older. Learner characteristics also vary within funding stream, by level and then within level by subject area. For

³ The following abbreviations are used in this report: Below level 2 (BL2), Level 2(L2), Level 3 (L3), Full Level 2 (FL2), Full Level 3 (FL3)

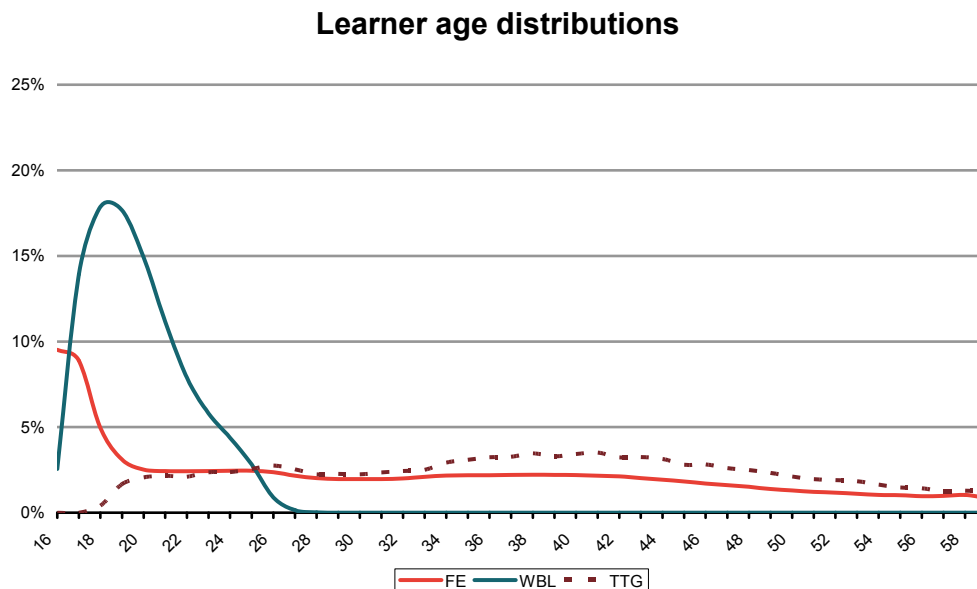
⁴ We have excluded university students from our data sets

example, the mean age in the FE file is 31 years but A-level students (FL3) are on average only 22 years old. But there are variations even within FL3 FE learners-those studying aims under the Education and Training subject area are much older than the rest with a mean age of 36 years.

It is clear from the data that comparisons across funding streams are only possible for FL2 and FL3 learners, as these are the only two levels of study which exist in all three data sets. However, due to the heterogeneity of learner characteristics within level, comparative analyses need to be restricted further by subject area and age. Clearly a person who completes a FL2 qualification in Business, Administration and Law at the age of 35, already established in a career, is very different from a typical 18 year old sixth form student. The effects of training are likely to be different for the two groups.

The limited overlap in age groups is shown in Figure 4 below.

Figure 4: Age distribution of learners in the three funding streams



Source: Frontier analysis of ILR-HMRC/DWP data

Meanwhile within FE we can analyse how age influences outcomes at all levels of learning. We focus on BL2, FL2 and FL3 learners.

Descriptive analysis

The purpose of our descriptive analysis is to study to what extent the labour market performance of learners varies by age. We do this both within funding stream (FE) as well as across all three funding streams. We begin by studying the age profiles of learners at different levels before disaggregating the data further by area of study. We then analyse how the outcomes of learners of similar age groups varies by subject area/level and funding stream. The outcome measures we consider are:

- **Filtered earnings:** defined as the annual real earnings of individuals in continuous employment both before and after learning excluding outliers⁵;
- **Employment:** measured as the number of months employed in a year;
- **Benefits:** measured as the number of months on benefits in a year;

All three are calculated in the 12 months before and after learning, which will span different time periods for different learners as individuals start and end their studies on different dates and in different years. The ILR data used in this project covers two academic years 2005-06 and 2006-07, with the exception of TTG where we have only the latter year.

Overview (FE)

The FE file contains more than 2.4million records and is the largest of the three. FE learners are a very heterogeneous group; their characteristics vary substantially by level and subject area. Their average age is 31 years, though this tends to be lower for students doing full levels and higher amongst those doing BL2 qualifications.

The FE file has learners following aims at BL2, Level 2 including the sub-set FL2 (GCSEs), Level 3 including the sub-set FL3 (A-levels) and Level 4+.

The largest group in terms of student numbers is BL2 which includes Skills for Life learners. This group constitutes 38% of the sample while Levels 2 and 3 have shares of 33% and 26% respectively. There are approximately equal numbers of FL2 and FL3 achievers corresponding to just fewer than 12% of the sample (these are subsets of levels 2 and 3). We focus our descriptive analysis on three distinct learner groups BL2, FL2, and FL3 students.

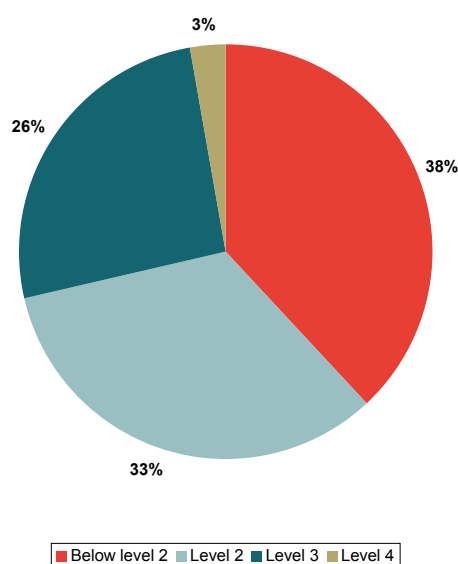
As Table 2 overleaf demonstrates, the characteristics of FE learners vary enormously by level of study. Those following BL2 courses tend to be older – only one in seven is aged less than twenty compared with almost half of FL2 and three quarters of FL3 students. BL2 students are also more likely to be from an ethnic minority compared with the other two groups, and to live in a deprived area.

⁵ In order to exclude unreasonably high/low earnings we focus on individuals earning between £4,800 and £80,000 per annum

Table 2: FE learner characteristics

	BL2	FL2	FL3
% aged 16-19	15%	44%	66%
% aged 20-24	13%	11%	10%
% aged 25+	72%	45%	24%
% ethnic	33%	18%	19%
% male	43%	48%	37%
% deprived	38%	36%	27%

Source: Frontier analysis of ILR-HMRC/DWP data

Figure 5: FE achievers levels

Source: Frontier analysis of ILR-HMRC/DWP data

Age and outcomes (FE)

The purpose of this section is to uncover the extent to which outcomes within the FE file are influenced by age. We do this by comparing the outcomes of groups who appear similar in every respect other than age. To help contextualise the analysis we start by looking at aggregate indicators shown in Table 3. These do not take into account differences in learner characteristics such as age, gender and others. The aggregate statistics show that in the year period before training BL2 learners earned more, were in work and on benefits for longer periods than learners doing GCSEs and A-levels. This looks surprising at face value but is perhaps to be expected, given that BL2 learners are on average older and hence more likely to be established in their careers. Following training, all indicators improve in all groups. They are greatest among FL3 achievers and poorest in students studying BL2.

Table 3: Key outcome indicators

	Before learning			% change post learning		
	BL2	FL2	FL3	BL2	FL2	FL3
Earnings (filtered)	£20,130	£16,677	£14,903	+2%	+4%	+8%
Employment (months)	6.82	5.93	4.80	+15%	+40%	+68%
Benefits (months)	2.2	0.94	0.64	0%	-16%	-48%

Source: Frontier analysis of ILR-HMRC/DWP data

Because of the large differences in the characteristics of learners in the different levels, aggregate comparisons such as this one will omit important variations in the outcomes of students of different sub-groups within the levels. In order to uncover the extent to which age influences outcomes within levels, we drill deeper by breaking the data down by area of study and age group. We then assess how returns to education vary among students of different age groups whose level and area of study are the same. We present a summary of our findings on filtered earnings in the tables and figures that follow. Detailed tables containing all other findings can be found in the Annexe.

Table 4: Filtered earnings (BL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£12,398	£15,124	22%	£15,412	£17,424	13%	£21,591	£22,106	2%
Science and Mathematics							£22,348	£22,278	0%
Agriculture, Horticulture and Animal Care	£13,082	£16,250	24%	£15,392	£16,997	10%	£23,223	£23,208	0%
Engineering and Manufacturing Technologies	£13,771	£16,975	23%	£16,739	£18,869	13%	£25,230	£25,759	2%
Construction, Planning and Built Environment	£13,855	£16,495	19%	£17,465	£18,813	8%	£25,833	£26,242	2%
Information and Communication Technology	£12,712	£16,670	31%	£14,565	£16,588	14%	£18,998	£19,017	0%
Retail and Commercial Enterprise	£13,565	£15,660	15%	£13,952	£15,366	10%	£15,720	£16,234	3%
Leisure, Travel and Tourism	£12,719	£15,782	24%	£16,137	£18,477	14%	£28,069	£28,238	1%
Arts, Media and Publishing	£13,815	£16,057	16%	£15,990	£18,292	14%	£22,994	£23,020	0%
History, Philosophy and Theology							£21,647	£21,889	1%
Social Sciences				£14,877	£18,236	23%	£21,364	£22,143	4%
Languages, Literature and Culture	£12,050	£15,806	31%	£16,182	£19,533	21%	£25,348	£25,632	1%
Education and Training				£13,633	£14,436	6%	£17,807	£17,673	-1%
Preparation for Life and Work	£13,939	£16,818	21%	£14,176	£16,193	14%	£20,989	£21,272	1%
Business, Administration and Law	£12,260	£14,843	21%	£14,917	£16,452	10%	£20,091	£20,131	0%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples

Table 5: Filtered earnings (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£13,318	£16,566	24%	£12,704	£14,257	12%	£13,302	£14,198	7%
Science and Mathematics							£12,915	£14,107	9%
Agriculture, Horticulture and Animal Care	£14,528	£17,331	19%	£13,389	£14,811	11%	£18,226	£18,181	0%
Engineering and Manufacturing Technologies	£12,393	£17,747	43%	£15,620	£18,731	20%	£21,521	£22,359	4%
Construction, Planning and Built Environment	£12,002	£17,786	48%	£15,941	£19,917	25%	£22,956	£24,045	5%
Information and Communication Technology	£14,961	£17,603	18%	£14,834	£16,722	13%	£18,485	£18,804	2%
Retail and Commercial Enterprise	£13,058	£15,819	21%	£13,856	£15,021	8%	£15,552	£16,116	4%
Leisure, Travel and Tourism	£14,195	£16,127	14%	£15,048	£16,584	10%	£21,810	£21,553	-1%
Arts, Media and Publishing	£16,096	£17,573	9%				£19,076	£19,828	4%
History, Philosophy and Theology									
Social Sciences									
Languages, Literature and Culture									
Education and Training				£10,367	£12,254	18%	£11,303	£12,272	9%
Preparation for Life and Work	£13,001	£17,247	33%	£13,053	£15,661	20%	£15,125	£14,523	-4%
Business, Administration and Law	£11,793	£15,523	32%	£14,405	£16,284	13%	£18,339	£18,817	3%

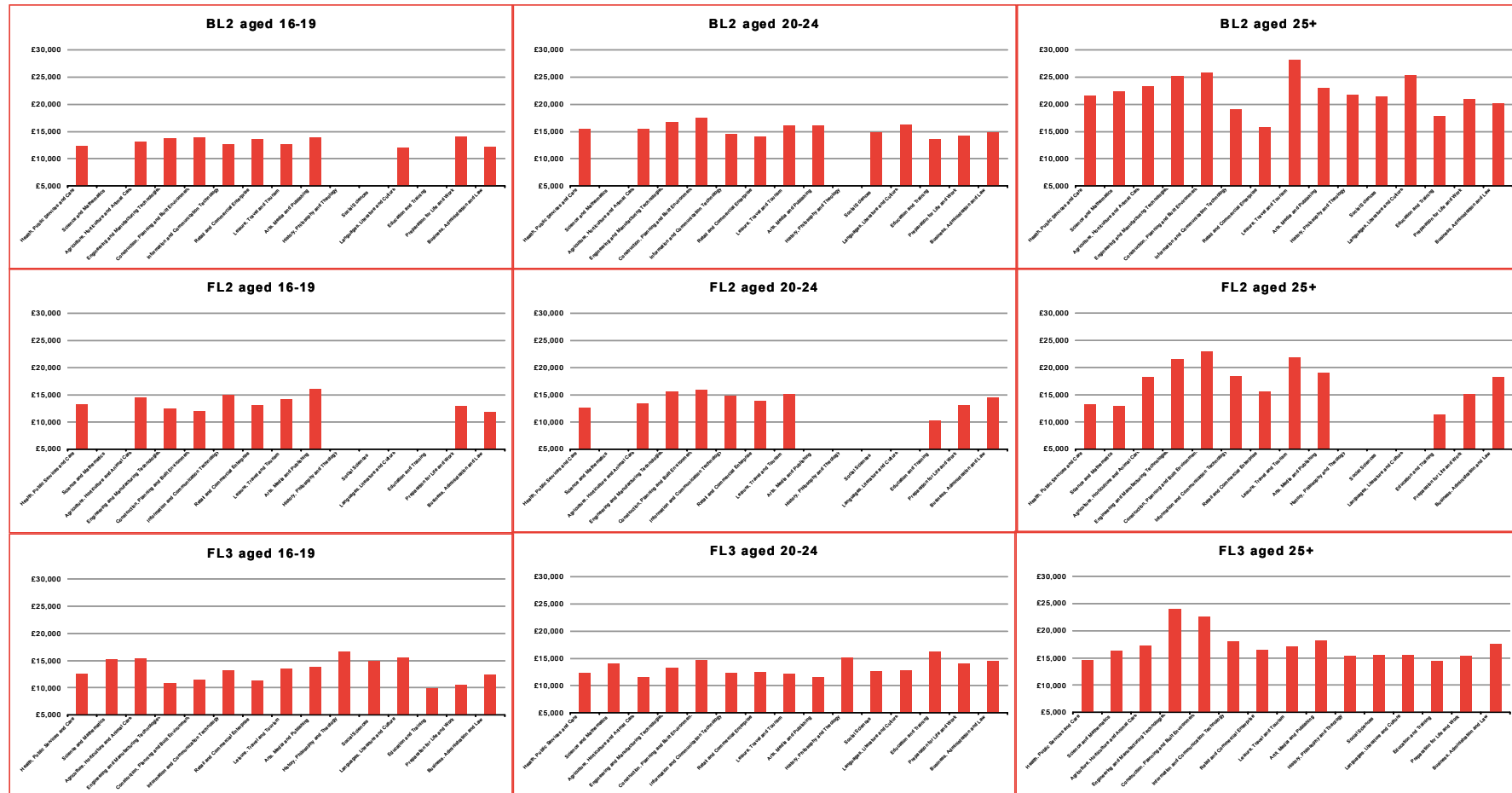
Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples

Table 6: Filtered earnings (FL3)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£12,563	£17,707	41%	£12,399	£14,458	17%	£14,615	£15,769	8%
Science and Mathematics	£15,255	£19,506	28%	£13,972	£13,426	-4%	£16,316	£15,898	-3%
Agriculture, Horticulture and Animal Care	£15,336	£18,857	23%	£11,464	£14,822	29%	£17,315	£18,059	4%
Engineering and Manufacturing Technologies	£10,878	£19,174	76%	£13,273	£21,899	65%	£23,904	£28,206	18%
Construction, Planning and Built Environment	£11,503	£18,800	63%	£14,733	£21,478	46%	£22,585	£26,095	16%
Information and Communication Technology	£13,162	£17,640	34%	£12,356	£14,102	14%	£17,980	£18,236	1%
Retail and Commercial Enterprise	£11,380	£15,830	39%	£12,570	£15,204	21%	£16,502	£17,417	6%
Leisure, Travel and Tourism	£13,509	£19,093	41%						
Arts, Media and Publishing	£13,924	£17,523	26%	£11,505	£12,429	8%	£18,237	£18,910	4%
History, Philosophy and Theology	£16,626	£18,199	9%	£15,138	£13,702	-9%	£15,440	£14,573	-6%
Social Sciences	£14,953	£18,023	21%				£15,608	£15,024	-4%
Languages, Literature and Culture	£15,492	£18,260	18%				£15,570	£16,691	7%
Education and Training				£16,294	£17,083	5%	£14,444	£15,942	10%
Preparation for Life and Work	£10,474	£11,135	6%	£14,014	£13,158	-6%	£15,366	£15,329	0%
Business, Administration and Law	£12,419	£16,519	33%	£14,487	£16,921	17%	£17,618	£18,778	7%

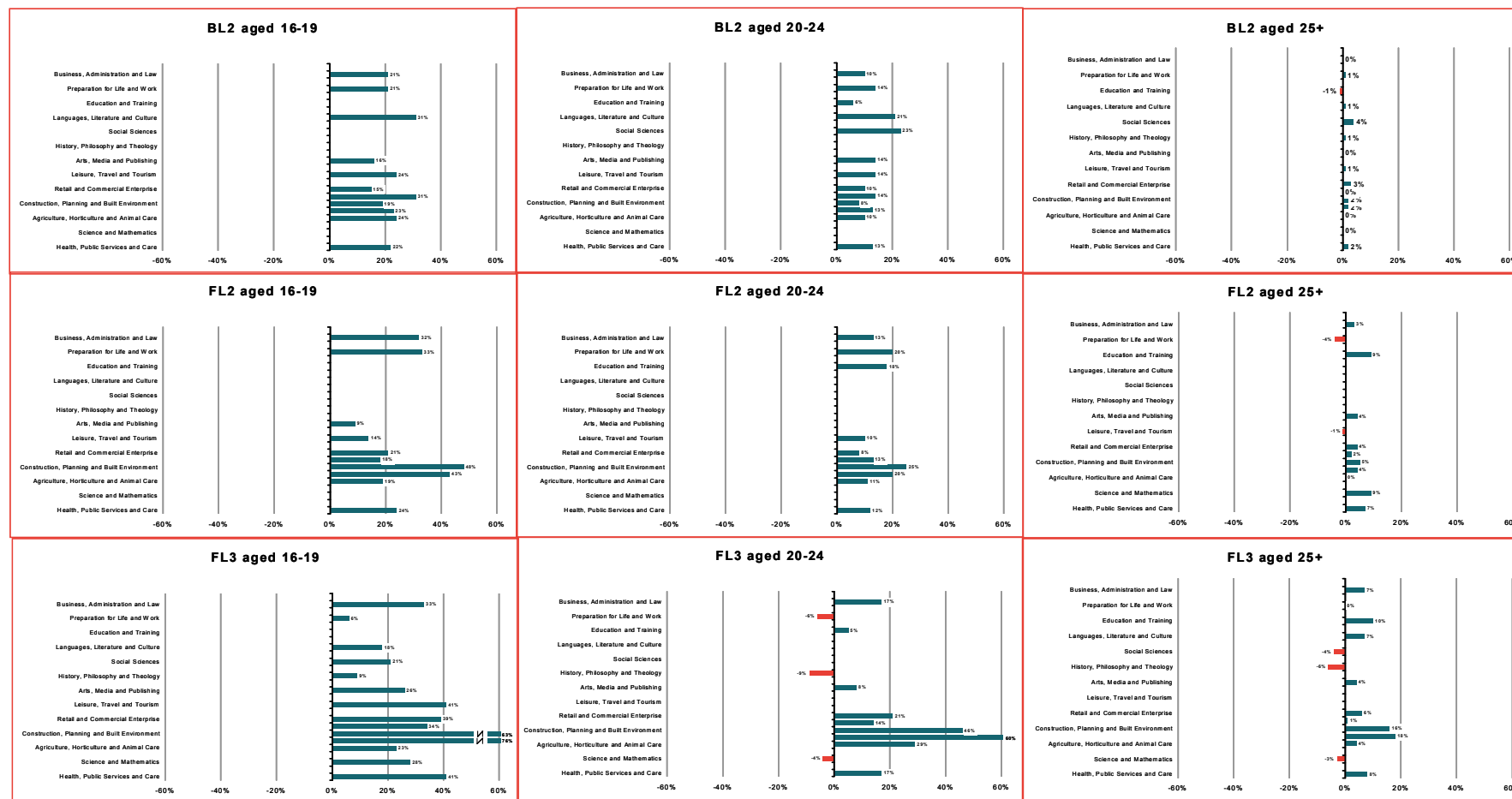
Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples

Figure 6: Filtered earnings before training (FE)



Source: Frontier analysis of ILR-HMRC/DWP data

Figure 7: Changes in filtered earnings (FE)



Source: Frontier analysis of ILR-HMRC/DWP data

It is clear from the data that age is an important driver of changes in labour market performance. In terms of filtered earnings, outcomes are consistently better for the youngest age group at all levels of study and all subject areas. In general the gains are largest at FL3 and lowest at BL2.

Taking BL2 learners for example, we see earnings increases of around a quarter in most subject areas for the 16 to 19 age group. In comparison, the earnings of those aged 25 or more either remain constant or increase by between 1% and 4%.

It appears that the difference in earnings changes between the youngest group and the oldest group are even more pronounced at FL2 and FL3. At FL2 the youngest age group experience earnings increases in the range 9% to 48%. In comparison, the earnings of those aged 25 or more either fall slightly, remain constant or at best increase by between 2% and 9%.

A-level students (FL3) aged 16-19 gain the most from FE training. Their earnings grow by up to 76% (Engineering and Manufacturing Technologies). The same qualification in the same subject area results in an earnings increase of only 18% for learners aged 25 or more.

We find that a similar pattern applies to employment changes following achievement in FE. Again, relative to the older age groups time in employment increases dramatically among the youngest age group, though this is likely to be driven by their growing participation into the labour market. The latter also offers an explanation of the unintuitive increase in benefit claims among 16 to 19 year olds in the period following achievement -as students leave full-time education, their propensity to take benefits increases. In contrast we observe falling benefit rates in learners aged 20 or more.

Age and outcomes (all funding streams)

The purpose of this section is to establish whether age influences outcomes differently in the three funding streams. To do that, we compare the outcomes of learner groups with similar observable characteristics studying towards the same qualifications but under different funding streams.

In the previous chapter of this report we showed that comparisons across funding streams are only possible at FL2 and FL3, as these are the only levels of study which exist in all three data sets. We further noted that due to learner heterogeneity, it is necessary to narrow analyses down further by taking into account level, study area and age. This means that we are able to make detailed comparisons across all funding streams only at FL2, as there are not enough observations in TTG at FL3. Further, even at FL2 there are only a handful of TTG learners aged 16-19 which limits the number of comparisons that are possible across the three funding streams.

Table 7: Age and level sample size by funding stream

	FE		Apprenticeships		TTG	
	FL2	FL3	FL2	FL3	FL2	FL3
16-19	126,180	193,366	73,301	17,670	860	-

	FE		Apprenticeships		TTG	
	FL2	FL3	FL2	FL3	FL2	FL3
20-24	31,607	28,055	40,987	36,202	4,538	89
25+	127,353	71,793	3,049	3,726	35,317	1,081
Total	285,140	293,214	117,337	57,598	40,715	-

Source: Frontier analysis of ILR-HMRC/DWP data. There are fewer than 10 individuals in TTG FL3.

The implications for sample sizes become even more severe when we break the data down by subject area. Table 8 shows sample sizes by funding stream, age group and subject areas. We have shaded in yellow subject areas where sample sizes are sufficiently high in order to make comparisons across at least two of the funding streams. Overall, approximately half of subject areas contain too few observations to construct reliable summary statistics of benefits and employment outcomes. In terms of filtered earnings (calculated using only individuals in continuous employment either side of the learning window), the number of comparisons possible are even smaller. We only report earnings measures where sample sizes consist of 50 or more observations. Where this condition is not met cells are left blank.

The general findings from our comparative analysis are that even in the same age groups and subject areas earnings before training are highest in the TTG group. For example, TTG learners aged 20-24 who achieved in Engineering and Manufacturing Technologies earned on average £18,217 in the year before starting training. Their comparator groups in FE and Apprenticeships earned significantly less at £15,620 and £14,114 respectively.

Following training, earnings increase most among the youngest learners and least in the oldest group.

Within the same age group, earnings growth is strongest for Apprentices followed by FE and TTG. Among the oldest age group (those aged 25 or more), the earnings of TTG learners actually decline. This is the most populous group in the TTG file which explains our previous finding that the real earnings in the TTG group as a whole decline.

Overall, the comparative analysis suggests that outcomes improve most for apprentices and least for TTG learners.

Table 8: Sample size by age, funding stream and subject area (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	FE	Appr.	TTG	FE	Appr.	TTG	FE	Appr.	TTG
Health, Public Services and Care	22,105	10,439	201	4,804	5,231	862	28,943	401	7,351
Science and Mathematics	1,281			93			190		
Agriculture, Horticulture and Animal Care	4,748	2,032	10	811	852	68	3,266	87	580
Engineering and Manufacturing Technologies	15,835	8,934	137	5,403	4,834	928	20,313	401	6,930
Construction, Planning and Built Environment	13,677	20,427	206	5,460	4,122	1,154	18,344	356	6,878
Information and Communication Technology	7,287	2,310	-	750	1,678	37	3,858	123	453
Retail and Commercial Enterprise	25,172	8,876	100	6,899	10,893	632	23,163	716	5,993
Leisure, Travel and Tourism	11,032	16,340	41	1,028	1,642	135	3,403	87	1,000
Arts, Media and Publishing	11,821			590			716		
History, Philosophy and Theology	52			-			24		
Social Sciences	65			-			-		
Languages, Literature and Culture	466			40			100		
Education and Training	159			254			4,705		253
Preparation for Life and Work	2,599			397		72	1,279		605
Business, Administration and Law	9,881	3,784	148	5,071	11,579	650	19,041	862	5,274
TOTAL	126,180	73,142	860	31,607	40,831	4,538	-	3,033	35,317

Source: Frontier analysis of ILR-HMRC/DWP data. Cells which are potentially disclosive have been marked with “-“.

Table 9: Filtered earnings before learning by funding stream and subject area (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	FE	Appr.	TTG	FE	Appr.	TTG	FE	Appr.	TTG
Health, Public Services and Care	£13,318	£11,758		£12,704	£11,887	£12,279	£13,302	£10,990	£13,146
Science and Mathematics					£12,088		£12,915		£16,111
Agriculture, Horticulture and Animal Care	£14,528	£11,576		£13,389	£11,795	£15,037	£18,226	£13,302	£21,146
Engineering and Manufacturing Technologies	£12,393	£12,457		£15,620	£14,114	£18,217	£21,521	£15,426	£21,674
Construction, Planning and Built Environment	£12,002	£11,767		£15,941	£12,268	£21,402	£22,956	£13,251	£26,569
Information and Communication Technology	£14,961	£13,286		£14,834	£14,481	£16,613	£18,485	£14,741	£20,024
Retail and Commercial Enterprise	£13,058	£11,565		£13,856	£12,279	£14,625	£15,552	£12,748	£17,026
Leisure, Travel and Tourism	£14,195	£10,688		£15,048	£11,986	£16,812	£21,810	£15,423	£21,018
Arts, Media and Publishing	£16,096	£9,890			£12,737		£19,076		£26,837
History, Philosophy and Theology					£11,800				
Social Sciences					£16,500	£7,715			£10,489
Languages, Literature and Culture		£11,265			£13,102	£14,449		£14,500	£17,934
Education and Training		£12,659		£10,367	£13,961	£14,801	£11,303	£16,696	£18,320
Preparation for Life and Work	£13,001			£13,053			£15,125		
Business, Administration and Law	£11,793			£14,405			£18,339		

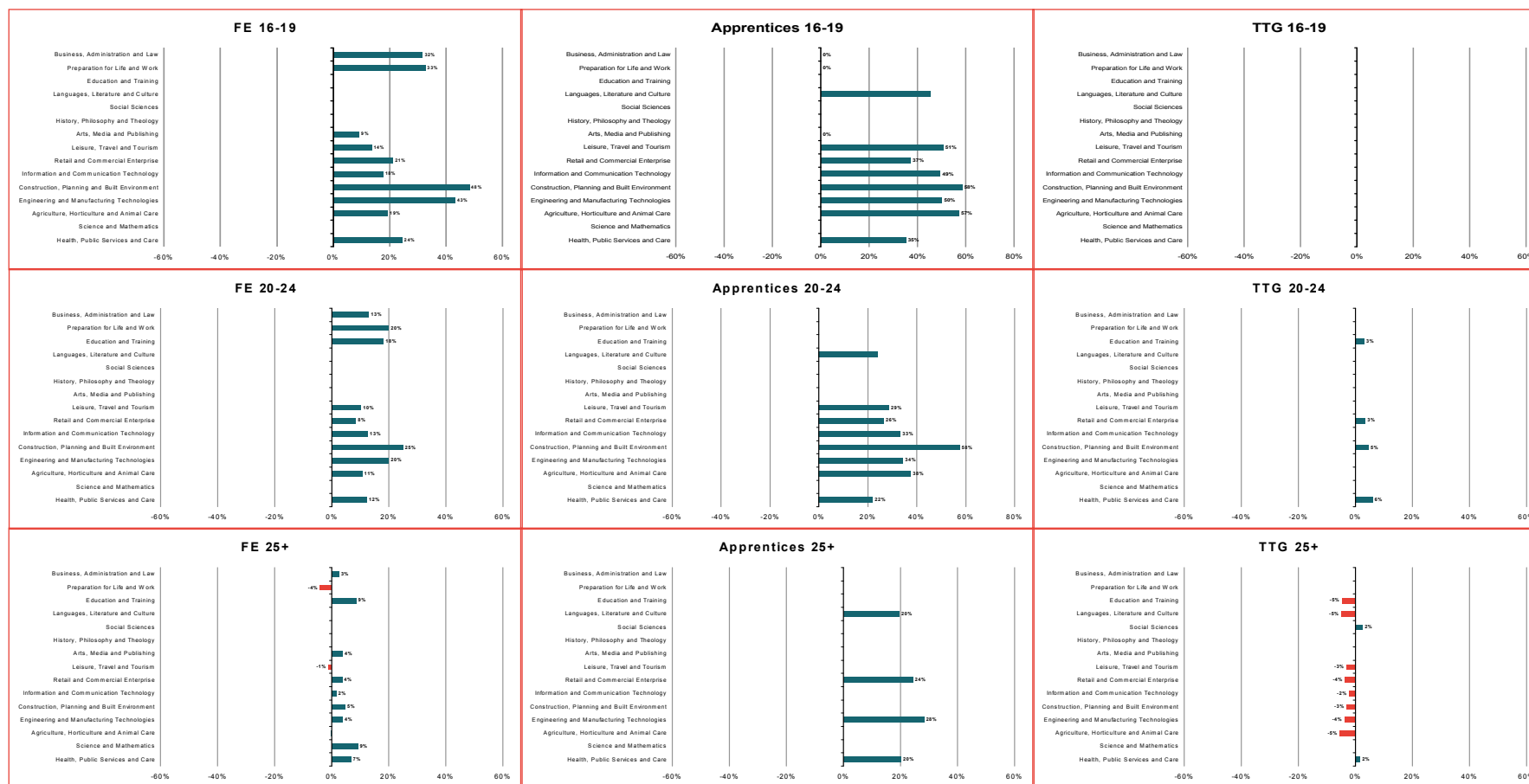
Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Figure 8: Filtered earnings before training (FL2)



Source: Frontier analysis of ILR-HMRC/DWP data

Figure 9: Change in filtered earnings (FL2)



Source: Frontier analysis of ILR-HMRC/DWP data

Impact analysis

This section examines the impact of learning by achievement level and age. We report the sample size, the pre-learning outcome, the raw impact from learning, and the impact estimated with year dummies.

Scope

We consider results separately for men and women. As above, the age groups we use are:

- 16 to 19 years;
- 20 to 24 years;
- 25 + years.

On the basis that non-full level study is more heterogeneous and therefore unlikely to be so informative; we focus on the following levels of achievement:

- BL2 ;
- FL2;
- FL3.

As with the previous impact analysis, we provide results for filtered monthly earnings, raw monthly earnings, the average proportion of time in the year spent in employment (“employment rate”), and the average proportion of time spent in receipt of benefits (“benefit rate”). We report impacts in terms of both size and statistical significance. The significance of the coefficient is reported with stars:

*** significant at the 10% level;

** significant at the 5% level;

* significant at the 1% level.

General findings

Impacts from learning tend to be greatest for the 16 to 19 group and smallest for the 25+ age group. This result holds for both men and women across outcome measures and for the majority of areas of study. The only exception to this result is with respect to the benefit rate, where we see an increase in benefit rates for the 16 to 19 group, but negative impacts for the other groups. The reason for this would seem to be that the methodology is not able to fully distinguish learning-driven effects from changes that would have occurred anyway. With respect to the 16 to 19 age group, we may be picking up a more general

change associated with their growing participation into the labour market. Greater propensity to take benefits may be a part of this.

Limitations

When results are disaggregated simultaneously by age, gender, subject area and level of achievement, sample sizes can become very small for some groups. This is especially true when we analyse filtered earnings, as we focus on only a subset of individuals within the group. This means there might be only one or two people in the group, in which case the statistics would not be computed, let alone be reliable. In particular, where the standard deviation is zero, no result is reported.

It is worth noting that the year-dummy approach can run into difficulties, even if the overall sample looks broadly acceptable. This can happen if the learners entering in different years are significantly different to each other, but there is little overlap between them (so that there is no year containing both many learners in the pre-education period and many learners in the post-education period). In this case cohort differences can become confused with the impact of learning, and so the results should be interpreted with caution.

More generally, the wider limitation should be borne in mind that this analysis does not fully distinguish between changes that occurred due to learning from changes that would have occurred anyway.

Conclusions

Both our descriptive and econometric analyses show that age is a significant factor which influences the outcomes of training. This holds across funding stream, level of study, subject area and learner demographics (such as gender). Young learners experience significantly better returns than older learners in all funding streams, although it must be stressed that their salaries and employment rates are naturally lower in the year before training started. The only area where young learners see a worsening of economic performance is in their benefit rates which generally increase following training. A potential explanation for this counterintuitive finding is that as individuals leave full time education and enter the labour force, their propensity to claim benefits increases.

In order to establish the extent to which age explains the poor outcomes among TTG learners, we focused on comparable learner groups in the three funding streams and compared their outcomes. In particular, we looked at learners of the same age, level of study and subject area. Our focused analysis revealed that even controlling for observable differences, TTG learners have poorer outcomes than the rest. Due to limited overlap in the age distributions and learner levels in the funding streams, comparisons were limited to FL2 qualifications. On the whole, performance in the labour market improves the most amongst apprenticeship learners, followed by FE and TTG. In the latter group, earnings increase modestly amongst learners aged under 25 and fall in those aged 25 or more.

In our econometric analysis, we measured the impact of Further Education training as the estimated difference between pre-training and post-training outcomes for the same individuals. We use two alternative specifications: firstly, analysing the raw difference between outcomes before and after training; secondly, repeating the estimation controlling

for changes in economic conditions over time, using yearly indicator variables. The latter approach should provide more reliable estimates. The econometric results are consistent with the findings in the descriptive section. They show that outcomes post learning tend to be greatest for the 16 to 19 group and smallest for the 25+ age group. This result holds for both men and women across outcome measures and for the majority of areas of study.

Annex 1: Descriptive outputs (FE)

In this section we provide detailed results for filtered monthly earnings, time in employment (months) and time on benefits before and after learning. We disaggregate the data by funding stream, age group and subject area.

Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero).

Table 10: Months in employment (BL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	4.35	7.04	62%	7.86	8.47	8%	8.84	9.07	3%
Science and Mathematics	3.05	6.06	99%	6.37	6.80	7%	7.53	7.75	3%
Agriculture, Horticulture and Animal Care	3.52	5.85	66%	5.49	6.08	11%	7.77	7.91	2%
Engineering and Manufacturing Technologies	3.17	6.95	119%	7.38	7.99	8%	8.79	8.87	1%
Construction, Planning and Built Environment	2.64	7.18	172%	6.47	6.59	2%	7.84	7.95	1%
Information and Communication Technology	4.13	6.69	62%	6.56	7.52	15%	7.33	7.72	5%
Retail and Commercial Enterprise	3.49	6.83	96%	6.95	7.51	8%	8.51	8.83	4%
Leisure, Travel and Tourism	4.23	7.03	66%	7.59	8.22	8%	9.13	9.30	2%
Arts, Media and Publishing	3.99	6.33	59%	6.78	7.20	6%	7.76	7.87	1%
History, Philosophy and Theology	4.31	7.13	65%	7.12	8.11	14%	7.84	8.01	2%
Social Sciences	4.11	7.01	71%	7.03	7.75	10%	7.98	8.12	2%
Languages, Literature and Culture	4.45	7.15	61%	7.79	8.71	12%	8.83	8.96	1%
Education and Training	3.87	5.90	52%	7.63	8.13	7%	7.15	8.03	12%
Preparation for Life and Work	3.90	6.13	57%	3.98	4.98	25%	6.54	7.57	16%
Business, Administration and Law	3.99	6.86	72%	7.02	7.86	12%	8.24	8.68	5%

Source: Frontier analysis of ILR-HMRC/DWP data

Table 11: Months on benefits (BL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	0.63	0.79	24%	1.51	1.30	-14%	1.22	1.05	-14%
Science and Mathematics	0.55	1.04	87%	4.49	3.98	-12%	3.25	3.14	-3%
Agriculture, Horticulture and Animal Care	0.68	1.62	138%	3.81	3.70	-3%	2.92	2.73	-7%
Engineering and Manufacturing Technologies	0.24	0.41	71%	1.35	1.14	-16%	1.09	0.97	-11%
Construction, Planning and Built Environment	0.26	0.38	50%	2.12	1.83	-14%	1.83	1.57	-14%
Information and Communication Technology	0.96	1.29	35%	3.10	2.76	-11%	2.77	2.50	-10%
Retail and Commercial Enterprise	0.55	0.89	61%	2.83	2.68	-5%	1.85	1.60	-13%
Leisure, Travel and Tourism	0.22	0.33	52%	0.90	0.81	-10%	0.96	0.86	-10%
Arts, Media and Publishing	0.74	1.18	59%	2.85	2.76	-3%	3.02	2.79	-8%
History, Philosophy and Theology	0.77	0.93	20%	3.57	2.50	-30%	2.59	2.31	-11%
Social Sciences	0.97	1.22	26%	2.29	2.27	-1%	2.94	2.74	-7%
Languages, Literature and Culture	0.37	0.46	26%	0.67	0.58	-13%	0.97	0.83	-14%
Education and Training	1.63	1.72	6%	3.36	3.37	0%	2.21	2.00	-10%
Preparation for Life and Work	1.26	2.54	101%	5.17	5.27	2%	5.74	5.53	-4%
Business, Administration and Law	0.64	0.96	50%	2.38	2.15	-10%	1.87	1.60	-14%

Source: Frontier analysis of ILR-HMRC/DWP data

Table 12: Filtered earnings (BL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£12,398	£15,124	22%	£15,412	£17,424	13%	£21,591	£22,106	2%
Science and Mathematics							£22,348	£22,278	0%
Agriculture, Horticulture and Animal Care	£13,082	£16,250	24%	£15,392	£16,997	10%	£23,223	£23,208	0%
Engineering and Manufacturing Technologies	£13,771	£16,975	23%	£16,739	£18,869	13%	£25,230	£25,759	2%
Construction, Planning and Built Environment	£13,855	£16,495	19%	£17,465	£18,813	8%	£25,833	£26,242	2%
Information and Communication Technology	£12,712	£16,670	31%	£14,565	£16,588	14%	£18,998	£19,017	0%
Retail and Commercial Enterprise	£13,565	£15,660	15%	£13,952	£15,366	10%	£15,720	£16,234	3%
Leisure, Travel and Tourism	£12,719	£15,782	24%	£16,137	£18,477	14%	£28,069	£28,238	1%
Arts, Media and Publishing	£13,815	£16,057	16%	£15,990	£18,292	14%	£22,994	£23,020	0%
History, Philosophy and Theology							£21,647	£21,889	1%
Social Sciences				£14,877	£18,236	23%	£21,364	£22,143	4%
Languages, Literature and Culture	£12,050	£15,806	31%	£16,182	£19,533	21%	£25,348	£25,632	1%
Education and Training				£13,633	£14,436	6%	£17,807	£17,673	-1%
Preparation for Life and Work	£13,939	£16,818	21%	£14,176	£16,193	14%	£20,989	£21,272	1%
Business, Administration and Law	£12,260	£14,843	21%	£14,917	£16,452	10%	£20,091	£20,131	0%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 13: Months in employment (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	2.74	7.70	181%	7.24	8.63	19%	8.38	9.35	12%
Science and Mathematics	2.19	6.91	215%	5.29	5.35	1%	8.78	9.44	8%
Agriculture, Horticulture and Animal Care	2.55	7.01	175%	5.11	5.06	-1%	7.70	8.10	5%
Engineering and Manufacturing Technologies	3.35	8.23	146%	4.83	4.89	1%	8.94	9.07	1%
Construction, Planning and Built Environment	3.65	7.70	111%	5.07	5.27	4%	7.72	7.90	2%
Information and Communication Technology	2.51	6.91	175%	5.17	4.94	-4%	8.52	8.85	4%
Retail and Commercial Enterprise	3.31	7.94	140%	5.14	5.03	-2%	8.29	8.64	4%
Leisure, Travel and Tourism	2.49	7.60	205%	5.09	5.07	0%	7.89	8.56	9%
Arts, Media and Publishing	2.40	6.75	181%	5.13	5.39	5%	6.25	6.60	6%
History, Philosophy and Theology	2.80	9.02	222%						
Social Sciences	3.27	8.93	173%						
Languages, Literature and Culture	1.83	7.65	319%				5.28	7.93	50%
Education and Training	5.28	8.49	61%	5.30	4.83	-9%	7.71	9.77	27%
Preparation for Life and Work	2.71	7.71	185%	5.24	5.24	0%	7.31	8.44	15%
Business, Administration and Law	3.60	7.95	121%	4.76	4.48	-6%	9.35	9.79	5%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 14: Months on benefits (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	0.27	0.34	25%	2.06	1.38	-33%	1.38	0.90	-35%
Science and Mathematics	0.27	0.37	34%	2.90	2.82	-3%	1.65	1.53	-7%
Agriculture, Horticulture and Animal Care	0.17	0.31	83%	2.01	1.42	-29%	1.99	1.54	-23%
Engineering and Manufacturing Technologies	0.15	0.26	75%	0.91	0.70	-24%	0.83	0.68	-19%
Construction, Planning and Built Environment	0.19	0.31	63%	1.16	0.83	-29%	1.23	0.94	-24%
Information and Communication Technology	0.25	0.51	104%	2.67	2.09	-22%	1.70	1.39	-18%
Retail and Commercial Enterprise	0.27	0.42	53%	2.96	2.29	-22%	2.06	1.64	-20%
Leisure, Travel and Tourism	0.16	0.26	60%	2.21	1.85	-17%	1.91	1.67	-13%
Arts, Media and Publishing	0.20	0.39	94%	4.50	4.25	-6%	4.89	4.57	-7%
History, Philosophy and Theology									
Social Sciences	0.12	0.03	-75%						
Languages, Literature and Culture	0.27	0.47	76%				3.46	2.58	-25%
Education and Training	0.57	0.53	-8%	2.12	1.39	-35%	1.41	0.87	-38%
Preparation for Life and Work	0.37	0.62	70%	3.22	2.71	-16%	3.03	2.53	-17%
Business, Administration and Law	0.32	0.41	28%	1.27	0.95	-26%	0.96	0.73	-24%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 15: Filtered earnings (FL2)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£13,318	£16,566	24%	£12,704	£14,257	12%	£13,302	£14,198	7%
Science and Mathematics							£12,915	£14,107	9%
Agriculture, Horticulture and Animal Care	£14,528	£17,331	19%	£13,389	£14,811	11%	£18,226	£18,181	0%
Engineering and Manufacturing Technologies	£12,393	£17,747	43%	£15,620	£18,731	20%	£21,521	£22,359	4%
Construction, Planning and Built Environment	£12,002	£17,786	48%	£15,941	£19,917	25%	£22,956	£24,045	5%
Information and Communication Technology	£14,961	£17,603	18%	£14,834	£16,722	13%	£18,485	£18,804	2%
Retail and Commercial Enterprise	£13,058	£15,819	21%	£13,856	£15,021	8%	£15,552	£16,116	4%
Leisure, Travel and Tourism	£14,195	£16,127	14%	£15,048	£16,584	10%	£21,810	£21,553	-1%
Arts, Media and Publishing	£16,096	£17,573	9%				£19,076	£19,828	4%
History, Philosophy and Theology									
Social Sciences									
Languages, Literature and Culture									
Education and Training				£10,367	£12,254	18%	£11,303	£12,272	9%
Preparation for Life and Work	£13,001	£17,247	33%	£13,053	£15,661	20%	£15,125	£14,523	-4%
Business, Administration and Law	£11,793	£15,523	32%	£14,405	£16,284	13%	£18,339	£18,817	3%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 16: Months in employment (FL3)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	3.14	8.57	172%	7.74	8.36	8%	8.56	9.12	6%
Science and Mathematics	2.38	7.07	196%	6.91	7.36	7%	7.77	7.22	-7%
Agriculture, Horticulture and Animal Care	2.80	7.89	182%	7.48	8.11	8%	7.80	8.24	6%
Engineering and Manufacturing Technologies	3.70	8.77	137%	8.44	9.13	8%	8.94	9.42	5%
Construction, Planning and Built Environment	5.85	8.62	47%	8.84	8.71	-1%	8.20	8.36	2%
Information and Communication Technology	2.67	7.56	183%	5.57	7.16	29%	7.56	8.20	8%
Retail and Commercial Enterprise	4.43	8.59	94%	7.06	8.01	14%	7.30	8.01	10%
Leisure, Travel and Tourism	3.02	8.40	178%	6.61	7.39	12%	6.38	7.77	22%
Arts, Media and Publishing	2.96	7.36	149%	6.39	6.85	7%	6.57	6.41	-2%
History, Philosophy and Theology	2.52	6.85	171%	7.16	7.09	-1%	7.13	6.89	-3%
Social Sciences	2.63	7.29	177%	6.73	6.93	3%	7.09	6.83	-4%
Languages, Literature and Culture	2.45	7.28	197%	7.46	6.43	-14%	7.85	8.32	6%
Education and Training	7.41	8.21	11%	7.99	8.34	4%	9.22	9.91	8%
Preparation for Life and Work	5.49	7.53	37%	7.18	7.10	-1%	7.59	7.13	-6%
Business, Administration and Law	3.25	7.89	143%	8.33	9.29	12%	9.50	9.95	5%

Source: Frontier analysis of ILR-HMRC/DWP data

Table 17: Months on benefits (FL3)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	0.14	0.20	40%	1.77	1.04	-41%	1.37	0.83	-40%
Science and Mathematics	0.06	0.08	33%	1.79	1.02	-43%	2.54	1.70	-33%
Agriculture, Horticulture and Animal Care	0.05	0.14	158%	0.96	0.65	-32%	1.78	1.25	-29%
Engineering and Manufacturing Technologies	0.09	0.11	25%	0.61	0.29	-52%	0.75	0.47	-38%
Construction, Planning and Built Environment	0.10	0.13	29%	0.43	0.24	-44%	0.99	0.69	-30%
Information and Communication Technology	0.11	0.26	139%	2.12	1.48	-30%	2.87	2.08	-27%
Retail and Commercial Enterprise	0.20	0.27	37%	2.35	1.50	-36%	2.90	2.07	-28%
Leisure, Travel and Tourism	0.07	0.12	82%	1.66	1.15	-31%	3.09	2.27	-27%
Arts, Media and Publishing	0.09	0.18	93%	1.88	1.29	-32%	3.81	3.16	-17%
History, Philosophy and Theology	0.09	0.10	17%	2.09	1.62	-22%	3.27	2.30	-30%
Social Sciences	0.06	0.09	40%	2.79	1.69	-39%	4.30	3.11	-28%
Languages, Literature and Culture	0.07	0.08	21%	1.80	1.59	-12%	2.41	1.39	-43%
Education and Training	1.09	0.67	-39%	1.78	1.10	-38%	1.03	0.56	-45%
Preparation for Life and Work	1.15	0.62	-46%	2.34	1.42	-39%	2.80	1.89	-33%
Business, Administration and Law	0.16	0.21	33%	1.09	0.65	-40%	0.76	0.52	-32%

Source: Frontier analysis of ILR-HMRC/DWP data

Table 18: Filtered earnings (FL3)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	Before	After	% change	Before	After	% change	Before	After	% change
Health, Public Services and Care	£12,563	£17,707	41%	£12,399	£14,458	17%	£14,615	£15,769	8%
Science and Mathematics	£15,255	£19,506	28%	£13,972	£13,426	-4%	£16,316	£15,898	-3%
Agriculture, Horticulture and Animal Care	£15,336	£18,857	23%	£11,464	£14,822	29%	£17,315	£18,059	4%
Engineering and Manufacturing Technologies	£10,878	£19,174	76%	£13,273	£21,899	65%	£23,904	£28,206	18%
Construction, Planning and Built Environment	£11,503	£18,800	63%	£14,733	£21,478	46%	£22,585	£26,095	16%
Information and Communication Technology	£13,162	£17,640	34%	£12,356	£14,102	14%	£17,980	£18,236	1%
Retail and Commercial Enterprise	£11,380	£15,830	39%	£12,570	£15,204	21%	£16,502	£17,417	6%
Leisure, Travel and Tourism	£13,509	£19,093	41%						
Arts, Media and Publishing	£13,924	£17,523	26%	£11,505	£12,429	8%	£18,237	£18,910	4%
History, Philosophy and Theology	£16,626	£18,199	9%	£15,138	£13,702	-9%	£15,440	£14,573	-6%
Social Sciences	£14,953	£18,023	21%				£15,608	£15,024	-4%
Languages, Literature and Culture	£15,492	£18,260	18%				£15,570	£16,691	7%
Education and Training				£16,294	£17,083	5%	£14,444	£15,942	10%
Preparation for Life and Work	£10,474	£11,135	6%	£14,014	£13,158	-6%	£15,366	£15,329	0%
Business, Administration and Law	£12,419	£16,519	33%	£14,487	£16,921	17%	£17,618	£18,778	7%

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 19: Filtered earnings before learning by funding stream and subject area (FL3)

Study area	Aged 16 to 19			Aged 20 to 24			Aged 25 +		
	FE	Appr.	TTG	FE	Appr.	TTG	FE	Appr.	TTG
Health, Public Services and Care	£12,563	£10,292		£12,399	£11,148		£14,615	£12,069	£15,859
Science and Mathematics	£15,255			£13,972			£16,316		
Agriculture, Horticulture and Animal Care	£15,336			£11,464	£12,303		£17,315		
Engineering and Manufacturing Technologies	£10,878	£11,050		£13,273	£13,702		£23,904		
Construction, Planning and Built Environment	£11,503	£12,422		£14,733	£13,747		£22,585		£31,130
Information and Communication Technology	£13,162	£14,728		£12,356	£16,960		£17,980		
Retail and Commercial Enterprise	£11,380	£9,967		£12,570	£12,894		£16,502	£13,561	
Leisure, Travel and Tourism	£13,509	£10,457			£12,219				
Arts, Media and Publishing	£13,924			£11,505			£18,237		
History, Philosophy and Theology	£16,626			£15,138			£15,440		
Social Sciences	£14,953						£15,608		
Languages, Literature and Culture	£15,492	£10,071			£13,251		£15,570	£15,332	
Education and Training				£16,294			£14,444		£19,850
Preparation for Life and Work	£10,474			£14,014			£15,366		
Business, Administration and Law	£12,419			£14,487			£17,618		

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Annex 2: Econometric outputs (FE only)

As with the previous impact analysis, we provide results for filtered monthly earnings, raw monthly earnings, the average proportion of time in the year spent in employment (“employment rate”), and the average proportion of time spent in receipt of benefits (“benefit rate”). We report impacts in terms of both size and statistical significance. The significance of the coefficient is reported with stars:

*** significant at the 10% level;

** significant at the 5% level;

* significant at the 1% level.

Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 20: BL2 Men, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	6,570	245.07	214.06***	74.36***	7,798	693.13	157.37***	70.08***	51,263	1454.13	39.32***	.31
Science and Mathematics	196	131.34	183.78***	101.44**	49	333.53	66.93	-18.6	236	1149.39	-83.6	-313.
Agriculture, Horticulture and Animal Care	889	109.96	161.02***	70.35**	516	275.62	100.77***	69.1**	3,196	989.63	-52.86**	-65.47**
Engineering and Manufacturing Technologies	8,123	159.13	264.35***	106.07***	2,388	682.37	127.17***	60.1**	11,707	1659.96	-29.28	-80.92
Construction, Planning and Built Environment	11,809	137.26	292.98***	142.23***	2,545	534.12	41.58***	53.88**	8,253	1203.88	-38.03***	1.09
Information and Communication Technology	4,518	211.24	217.36***	123.09***	3,235	508.22	153.27***	74.79***	30,472	961.34	-45.53***	-68.71***
Retail and Commercial Enterprise	2,118	169.19	200.5***	86.95**	1,241	484.66	120.58***	50.67**	5,213	933.21	50.45***	28.34
Leisure, Travel and Tourism	6,435	178.89	181.92***	42.31***	3,712	595.41	167.86***	16.41	19,446	2070.08	-10.47	-79.92**
Arts, Media and Publishing	1,811	126.42	173.89***	91.2***	1,183	424.28	102.76***	56.12**	8,077	1095.41	-53.6***	-60.67**
History, Philosophy and Theology	54	172.56	202.14***	-60.4	43	425.11	40.03	30.93	486	1257.22	-55.61	33.2
Social Sciences	49	85.79	204.53***	94.88	43	555.54	255.01**	65.06	376	1065.38	-40.06	-119.79
Languages, Literature and Culture	630	193.16	167.03***	39.72	1,553	739.53	297.26***	117.17***	17,660	1881.39	-45.89***	-49.75**
Education and Training	100	125.50	147.22***	58.63	66	409.30	36.08	-172.53**	335	1127.96	-167.45	53.82
Preparation for Life and Work	33,303	166.62	209.25***	119.64***	29,463	333.58	170.93***	77.36***	101,860	523.44	102.16***	43.65***
Business, Administration and Law	1,186	153.87	162.9***	36.95	677	513.24	134.28***	24.61	3,682	1265.47	-37.06**	22.32

Source: Frontier analysis of ILR-HMRC/DWP data

Table 21: FL2 Men, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	4,623	150.14	388.46***	245.18***	1,025	550.96	303.83***	211.65***	2,864	898.08	92.03***	-44.66
Science and Mathematics	525	102.73	215.12***	64.82	32	517.13	56.3	-79.85	24	570.27	209.85*	343.09**
Agriculture, Horticulture and Animal Care	1,365	118.30	277.58***	107.47***	265	620.53	135.08***	-41.62	1,249	1035.10	3.33	29.53
Engineering and Manufacturing Technologies	12,450	164.25	427.5***	187.67***	4,017	742.08	161.29***	-28.69	15,146	1257.67	20.34**	-24.32
Construction, Planning and Built Environment	12,499	172.07	432.55***	146.05***	5,014	558.48	161.06***	28.46	16,919	965.78	32.31***	80.45***
Information and Communication Technology	5,383	96.24	233.29***	88.53***	345	537.55	118.44***	-34.83	1,197	1118.37	-30.63	-15.71
Retail and Commercial Enterprise	3,255	151.36	385.54***	160.45***	1,365	639.24	140.23***	44.28	5,470	1047.08	87.52***	73.63***
Leisure, Travel and Tourism	5,879	98.99	270.95***	122.67***	688	453.65	122.12***	51.04	2,593	1041.03	20.51	33.8
Arts, Media and Publishing	5,818	107.68	190.03***	89.38***	348	252.84	9.16	-10.86	250	601.81	29.51	2.61
History, Philosophy and Theology	-	-	-	-	-	-	-	-	13	1306.91	169.3	125.19
Social Sciences	16	388.26	27.12	128.49	-	-	-	-	-	-	-	-
Languages, Literature and Culture	134	61.14	252.36***	146.68	-	-	-	-	14	874.28	-108.5	-555.61**
Education and Training	14	326.06	105.49	-334.23	14	512.70	173.01	-79.61	132	502.81	111.93*	9.19
Preparation for Life and Work	1,384	128.96	348.21***	-17.37	151	451.62	81.38	349.55	249	763.37	-88.88	35.12
Business, Administration and Law	3,335	149.79	283.16***	108.79***	1,272	784.46	216.82***	116.78***	5,389	1519.75	34.02	-181.26

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially disclosive have been marked with “-”.

Table 22: FL3 Men, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	3,617	101.02	480.79***	9.51	663	537.82	145.8***	-39.55	2,824	981.21	23.01	-81.82**
Science and Mathematics	10,551	73.83	202.34***	75.18***	424	389.49	-63.77**	-148.44**	310	754.33	-230.68***	-79.12
Agriculture, Horticulture and Animal Care	1,570	93.58	420.15***	70.52	249	378.27	161.93***	110.03	417	917.97	-84.74	155.31
Engineering and Manufacturing Technologies	6,167	159.82	539.49***	142.37***	1,727	647.24	482.53***	.03	2,147	1312.35	298.48***	20.23
Construction, Planning and Built Environment	4,096	331.57	488.36***	-65.77	2,102	703.37	386.58***	27.6	3,327	1012.39	182.13***	-23.66
Information and Communication Technology	9,508	88.75	331.9***	138.22***	803	265.38	110.23***	14.15	293	605.83	19.37	14.88
Retail and Commercial Enterprise	1,362	180.76	412.04***	52.51	340	517.12	280.83***	83.79	808	1027.74	105.69***	-165.26**
Leisure, Travel and Tourism	9,686	86.70	369.58***	106.72***	378	347.13	54.38*	18.54	87	389.18	88.05	182.04
Arts, Media and Publishing	17,948	92.69	242.53***	61.91***	2,053	297.68	58.96***	-91.45***	813	739.66	-261.93*	-152.3**
History, Philosophy and Theology	2,614	79.60	192.22***	89.49***	281	474.12	-103.38***	-44.47	296	591.34	-174.86***	-65.88
Social Sciences	3,241	72.43	222.35***	119.83***	136	431.65	-150.39***	-30.89	146	531.67	-156.29***	-93.42
Languages, Literature and Culture	3,011	67.68	205.76***	92.28***	41	461.26	-198.71*	-392.21	72	635.49	-27.13	82.48
Education and Training	36	313.03	7.77	125.66	124	1069.82	1.26	-85.27	710	1783.30	79.2	-213.96
Preparation for Life and Work	475	233.05	173.96***	-37.48	1,095	495.51	-147.71***	-127.25***	1,404	724.09	-275.09***	-167.07***
Business, Administration and Law	7,718	153.84	256.69***	-23.66	981	550.17	140.03***	11.38	1,967	1276.71	88.62***	44.76

Source: Frontier analysis of ILR-HMRC/DWP data

Table 23: BL2 Women, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	12,810	198.58	174.16***	75.6***	12,352	589.12	130.32***	56.39***	81,200	824.03	20.45***	-1.13
Science and Mathematics	201	160.82	172.99***	118.35	95	495.77	59.04	35.71	547	705.71	-12.23	44.82
Agriculture, Horticulture and Animal Care	768	149.05	171.72***	115.07***	397	498.72	76.42***	50.59	3,873	865.12	-25.95*	-21.91
Engineering and Manufacturing Technologies	711	262.35	156.37***	60.71**	920	561.06	107.42***	30.35	4,902	907.49	-.73	5.22
Construction, Planning and Built Environment	313	414.34	-38.9	-1313.74	211	498.59	61.11	25.25	1,206	770.56	20.81	-9.26
Information and Communication Technology	3,492	210.27	196.2***	88.18***	6,001	424.20	138.59***	85.78***	69,362	596.66	9.25***	-9.21
Retail and Commercial Enterprise	7,170	141.36	178.02***	78.26***	2,876	419.82	79.7***	75.91***	17,140	612.07	17.32***	4.31
Leisure, Travel and Tourism	2,855	163.86	156.92***	31.69**	1,780	563.44	215.1***	71.28***	9,988	997.13	28.81***	28.93**
Arts, Media and Publishing	2,449	152.81	140.13***	70.61***	2,691	514.91	119.27***	51.18**	24,742	789.61	-34.14***	-22.94**
History, Philosophy and Theology	86	173.49	161.94***	-113.97**	81	527.92	172.72*	-111.34	1,246	802.43	-68.39***	-65.17**
Social Sciences	130	128.19	171.53***	86.93**	167	532.99	213.87***	40.71	1,117	765.33	34.35	76.84**
Languages, Literature and Culture	1,780	191.16	178.17***	56.06***	4,537	655.26	233.43***	76.26***	33,251	1124.04	-33.19***	-38.79**
Education and Training	144	220.12	71.04***	50.8	230	373.45	24.98	-44.08	1,668	475.21	42.18***	44.91**
Preparation for Life and Work	23,706	146.93	175.04***	92.31***	33,450	257.31	183.27***	81.64***	135,425	342.17	75.23***	36.51***
Business, Administration and Law	1,945	217.27	213.4***	99.01***	1,811	536.96	121.17***	110.02***	9,197	751.24	18.69*	27.03

Source: Frontier analysis of ILR-HMRC/DWP data

Table 24: FL2 Women, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	15,472	110.73	268.38***	129.12***	3,356	444.67	111.66***	38.69**	24,458	531.33	98.2***	27.82***
Science and Mathematics	548	76.50	217.31***	110.91***	50	328.28	199.69**	48.96	145	671.38	54.64	-11.8
Agriculture, Horticulture and Animal Care	1,770	89.01	228.94***	90.16***	275	446.19	164.86***	126.54**	712	526.79	33.55	61.84
Engineering and Manufacturing Technologies	549	255.77	273.87***	125.95***	538	725.36	153.85***	38.77	2,956	969.54	-15.48	-24.07
Construction, Planning and Built Environment	200	172.79	341.97***	84.88	98	455.41	207.33***	68.58	550	530.13	85.53**	-3.49
Information and Communication Technology	1,184	125.43	245.19***	103.55***	354	670.51	108.51***	1.3	2,473	833.19	-.15	-41.55
Retail and Commercial Enterprise	15,814	129.30	271.81***	94.02***	4,670	396.45	59.53***	7.48	15,619	503.54	24.02***	11.76
Leisure, Travel and Tourism	4,012	104.98	265.74***	101.42***	294	353.86	108.91***	15.61	741	658.77	17.1	-34.61
Arts, Media and Publishing	5,004	86.73	183.09***	85.61***	193	260.24	-16.03	12.81	346	367.56	-22.66	-62.16
History, Philosophy and Theology	-	-	-	-	-	-	-	-	-	-	-	-
Social Sciences	14	119.72	333.18**	-23.21	-	-	-	-	-	-	-	-
Languages, Literature and Culture	162	34.90	329.63***	331.71***	21	205.74	139.43	42.06	57	373.25	249.87***	508.24***
Education and Training	95	286.67	198.96***	49.38	206	403.20	84.32**	-37.79	4,032	367.97	141.89***	69.77***
Preparation for Life and Work	849	107.37	282.52***	214.3***	208	313.43	214.06***	208.54	941	421.21	60.63***	67.77
Business, Administration and Law	4,749	199.03	305.88***	126.67***	3,040	668.99	182.15***	-14.12	11,548	800.65	70.76***	8.94

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially disclosive have been marked with “-”.

Table 25: FL3 Women, earnings (unfiltered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	22,087	98.12	386.29***	117.44***	5,106	460.50	106.35***	-52.14***	24,359	573.94	77.77***	-8.39
Science and Mathematics	13,606	72.82	202.12***	86.15***	648	461.05	-80.38***	-182.26***	1,134	483.30	-109.18***	-139.45**
Agriculture, Horticulture and Animal Care	3,079	82.18	362.13***	142.94***	351	449.67	246.5***	-25.41	517	593.56	19.17	-317.51
Engineering and Manufacturing Technologies	375	114.22	326.57***	157.73***	66	688.30	148.37	-257.94	195	853.08	182.11**	-94.93
Construction, Planning and Built Environment	149	254.01	522.39***	35.6	114	641.36	496.01***	2.8	223	819.85	274.43***	126.0
Information and Communication Technology	2,241	98.91	282.43***	67.63**	231	274.87	144.63***	103.57	404	712.86	35.19	77.6
Retail and Commercial Enterprise	10,391	145.81	382.01***	97.8***	1,867	348.58	153.49***	5.55	4,086	383.34	64.96***	37.28
Leisure, Travel and Tourism	8,278	84.07	398.71***	143.76***	237	289.90	145.28***	62.41	122	441.70	39.54	-141.16
Arts, Media and Publishing	25,095	86.86	236.82***	86.41***	1,242	281.31	31.15**	2.31	1,415	428.37	-63.93***	-68.91**
History, Philosophy and Theology	3,745	81.16	184.28***	79.05***	468	472.61	-97.72***	-146.11***	840	436.75	-89.46***	-65.13**
Social Sciences	4,827	77.89	215.91***	82.71***	301	379.74	-109.02***	-82.6**	571	400.67	-81.69***	-24.67
Languages, Literature and Culture	8,470	73.57	202.39***	91.92***	99	477.24	-27.59	-55.93	270	575.28	.93	-13.52
Education and Training	151	391.19	80.05	111.46	553	500.74	-53.83**	-18.45	5,679	538.50	111.36***	69.73***
Preparation for Life and Work	916	295.00	87.28***	-184.22***	2,776	424.58	-87.95***	-70.73***	6,829	437.26	-106.31***	-64.59***
Business, Administration and Law	7,942	125.77	299.56***	117.09***	2,155	706.62	153.18***	8.8	8,074	941.31	96.46***	4.99

Source: Frontier analysis of ILR-HMRC/DWP data

Table 26: BL2 Men, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	574	88.77	301.14***	30.27***	2,246	120.19	196.47***	38.41***	25,190	185.32	52.82***	34.28***
Science and Mathematics	-	-	-	-	-	-	-	-	61	209.41	-9.38	-423.27
Agriculture, Horticulture and Animal Care	26	84.46	234.58***	-147.93***	52	103.63	244.27***	120.65***	855	184.32	13.48	-28.07
Engineering and Manufacturing Technologies	407	97.82	277.97***	112.05***	635	124.28	190.17***	78.26***	4,925	191.84	52.0*	49.51
Construction, Planning and Built Environment	404	96.68	226.2***	80.5***	423	122.23	114.24***	112.75***	2,948	184.70	37.6***	86.79***
Information and Communication Technology	303	95.16	346.49***	192.11***	651	110.91	196.88***	124.31***	8,599	170.29	-4.15	13.39
Retail and Commercial Enterprise	96	94.24	148.42***	60.1	251	104.63	158.94***	-46.6*	1,636	146.49	37.28**	68.59**
Leisure, Travel and Tourism	356	91.28	250.42***	18.89	813	116.06	175.41***	-12.48	9,840	215.88	5.39	31.3
Arts, Media and Publishing	54	92.14	337.11***	127.46***	167	117.45	262.49***	30.2	2,322	197.64	14.49	35.52
History, Philosophy and Theology	-	-	-	-	-	-	-	-	157	187.40	88.93	260.26**
Social Sciences	-	-	-	-	13	110.90	124.48	-242.45	119	193.17	0.2	-84.62
Languages, Literature and Culture	32	98.93	418.31***	236.91***	427	122.71	328.14***	5.65	7,892	215.04	32.6**	59.08**
Education and Training	-	-	-	-	13	104.41	47.68	-62.61	75	181.07	75.86	-175.14**
Preparation for Life and Work	1,408	100.39	284.42***	85.01***	2,951	111.08	187.19***	31.78***	17,318	145.14	62.04***	38.08***
Business, Administration and Law	53	95.08	218.09***	166.65***	131	114.42	176.22***	162.91***	1,521	181.97	3.16	85.75***

Source: Frontier analysis of ILR-HMRC/DWP data. Cells which are potentially disclosive have been marked with “-“.

Table 27: FL2 Men, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	158	94.56	326.36***	90.95***	204	100.74	209.36***	269.21***	1,097	119.60	67.61***	34.86
Science and Mathematics	18	114.04	47.39**	-393.47***	-	-	-	-	-	-	-	-
Agriculture, Horticulture and Animal Care	47	95.30	263.95***	-109.93***	67	103.72	200.63***	66.96	537	135.45	33.33	220.39***
Engineering and Manufacturing Technologies	688	87.69	409.58***	14.45	1,204	112.81	228.7***	-49.45**	7,125	156.98	54.93***	16.63
Construction, Planning and Built Environment	678	84.70	466.79***	82.27***	985	112.12	315.47***	39.86	5,047	160.95	83.84***	39.82
Information and Communication Technology	130	108.50	209.04***	27.41**	65	113.70	148.93***	-96.0	444	163.33	20.4	146.04**
Retail and Commercial Enterprise	177	79.80	347.8***	33.91	348	108.51	100.8***	58.9**	2,378	141.18	51.55***	66.93***
Leisure, Travel and Tourism	118	97.60	204.5***	31.7**	102	108.23	137.13***	34.13	921	158.77	-18.85	84.89**
Arts, Media and Publishing	130	110.50	108.02***	-34.16**	28	80.42	118.56***	91.49**	60	158.26	105.49***	-60.01
History, Philosophy and Theology	-	-	-	-	-	-	-	-	-	-	-	-
Social Sciences	-	-	-	-	-	-	-	-	-	-	-	-
Languages, Literature and Culture	-	-	-	-	-	-	-	-	-	-	-	-
Education and Training	-	-	-	-	-	-	-	-	30	87.90	140.95**	-96.25
Preparation for Life and Work	36	92.24	331.63***	245.07**	19	118.95	36.64	177.07	46	147.56	-263.58***	818.26***
Business, Administration and Law	168	84.70	237.47***	-40.91**	488	112.29	176.14***	39.07	3,153	166.54	12.52	-18.39

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially disclosive have been marked with “-“.

Table 28: FL3 Men, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	94	83.36	449.22***	-246.7***	151	97.16	234.1***	57.66	1,129	129.62	76.36***	27.27
Science and Mathematics	153	111.56	366.42***	88.88***	38	99.06	-7.37	-81.37	59	129.97	-143.55***	63.4
Agriculture, Horticulture and Animal Care	39	100.80	278.21***	201.65***	33	85.24	223.2***	277.74***	118	135.97	30.77	102.19
Engineering and Manufacturing Technologies	482	75.90	692.76***	51.43**	555	91.75	743.17***	155.35**	1,068	169.81	377.07***	-8.91
Construction, Planning and Built Environment	711	79.68	602.47***	7.72	717	103.26	559.9***	39.71	1,124	160.49	285.92***	-108.56**
Information and Communication Technology	183	92.52	398.7***	22.3	56	81.83	133.52***	45.76	68	134.57	13.26	120.77**
Retail and Commercial Enterprise	106	62.93	477.25***	91.29	75	96.90	309.47***	-42.97	314	151.43	50.43	-4.14
Leisure, Travel and Tourism	183	93.62	459.5***	86.2***	31	81.95	181.65***	114.95	-	-	-	-
Arts, Media and Publishing	318	90.57	311.76***	35.42***	137	79.61	109.87***	58.98**	122	147.20	104.62	224.21***
History, Philosophy and Theology	42	105.50	185.66***	-29.4	21	122.09	-70.68*	-91.57	31	145.94	-147.***	-52.67
Social Sciences	46	111.12	159.64***	169.42***	14	86.78	-88.89*	233.87***	17	110.07	211.81***	-74.04
Languages, Literature and Culture	46	102.78	130.15***	-72.64***	-	-	-	-	12	117.86	101.23	72.25
Education and Training	-	-	-	-	32	207.25	251.57***	-74.69	401	214.78	158.46***	-149.27
Preparation for Life and Work	28	79.49	308.95***	124.47**	115	100.52	-44.63**	-188.02***	227	122.25	14.25	12.55
Business, Administration and Law	214	84.89	368.17***	14.95	260	95.19	245.37***	104.93**	965	157.96	93.46***	29.86

Source: Frontier analysis of ILR-HMRC/DWP data. Cells which are potentially disclosive have been marked with “-“.

Table 29: BL2 Women, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	964	84.41	183.21***	60.41***	3,693	98.91	150.6***	51.51***	32,781	122.56	35.85***	28.7***
Science and Mathematics	11	75.41	428.5***	186.05	20	89.93	249.22***	6.57	155	133.87	-1.4	232.85***
Agriculture, Horticulture and Animal Care	28	96.67	291.48***	77.17**	84	108.79	65.61**	67.14	1,258	145.26	-11.12	39.5
Engineering and Manufacturing Technologies	60	80.32	193.52***	21.86	227	93.47	142.87***	54.17	1,838	130.23	24.76*	7.86
Construction, Planning and Built Environment	15	82.16	57.23	294.87	39	110.19	94.48**	-31.72	398	138.77	25.44	64.38
Information and Communication Technology	279	80.67	311.54***	54.92***	1,135	95.45	152.54***	76.27***	18,767	114.24	4.75	3.53
Retail and Commercial Enterprise	285	94.11	183.55***	-5.11	537	93.18	98.76***	35.81**	5,621	98.18	44.79***	49.31***
Leisure, Travel and Tourism	131	79.54	276.67***	6.29	462	104.84	229.63***	45.58*	4,230	145.78	35.74***	60.17***
Arts, Media and Publishing	100	97.82	102.83***	74.47***	569	109.08	171.16***	94.86***	7,213	147.36	-1.24	59.22***
History, Philosophy and Theology	-	-	-	-	19	100.54	212.21**	-26.57	410	135.98	-5.59	31.83
Social Sciences	-	-	-	-	46	101.09	323.85***	159.53	360	133.43	86.51***	89.84**
Languages, Literature and Culture	111	79.21	282.72***	3.35	1,230	108.69	262.41***	31.84	13,757	153.49	19.16	62.74***
Education and Training	10	90.94	104.72***	51.04	40	90.05	72.9**	-40.26	379	112.39	-27.02*	7.08
Preparation for Life and Work	895	93.99	177.51***	13.17**	2,951	95.26	133.22***	-.17	20,259	108.42	40.15***	24.38***
Business, Administration and Law	153	81.63	214.29***	53.82**	485	100.59	115.02***	55.71**	3,262	119.65	4.09	35.19

Source: Frontier analysis of ILR-HMRC/DWP data. Cells which are potentially disclosive have been marked with “-“.

Table 30: FL2 Women, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	438	90.61	252.41***	5.57	695	83.99	111.08***	31.	7,452	87.54	78.24***	27.72***
Science and Mathematics	14	73.62	152.73***	36.01	-	-	-	-	70	86.17	88.43**	95.83
Agriculture, Horticulture and Animal Care	48	98.89	116.51***	-62.48***	63	88.26	51.95	-128.77**	155	107.76	77.37***	84.27
Engineering and Manufacturing Technologies	50	92.08	191.61***	69.42	208	101.72	63.56**	-39.01	1,420	114.83	4.95	38.12
Construction, Planning and Built Environment	-	-	-	-	19	85.57	125.71*	-182.82	105	118.16	180.41***	252.72***
Information and Communication Technology	45	91.94	233.37***	224.01***	124	98.25	168.4***	93.58	1,073	113.69	28.92**	-32.25
Retail and Commercial Enterprise	549	93.11	178.82***	-54.79***	778	91.14	88.78***	-3.24	4,361	89.29	50.11***	32.5***
Leisure, Travel and Tourism	101	97.08	85.08***	-271.45***	35	94.93	107.86***	-146.83**	217	120.12	-37.67*	-41.57
Arts, Media and Publishing	96	113.14	163.41***	283.3***	16	68.81	18.37	286.66***	55	111.10	41.67	-33.78
History, Philosophy and Theology	-	-	-	-	-	-	-	-	-	-	-	-
Social Sciences	-	-	-	-	-	-	-	-	-	-	-	-
Languages, Literature and Culture	-	-	-	-	-	-	-	-	12	98.52	166.34*	521.09***
Education and Training	-	-	-	-	41	71.53	97.94**	-18.57	939	73.22	78.42***	15.54
Preparation for Life and Work	21	90.78	401.69***	169.**	34	78.48	318.81***	605.82***	192	95.45	-7.69	266.56***
Business, Administration and Law	395	80.69	295.12***	22.85	1,110	95.50	137.8***	50.71	5,297	105.08	46.37***	

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially dispositive have been marked with “-“.

Table 31: FL3 Women, earnings (filtered)

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	564	87.96	427.92***	24.26**	1,015	84.27	161.42***	-40.66**	7,285	96.93	99.01***	48.7***
Science and Mathematics	191	101.33	344.42***	172.85***	93	96.12	-60.87**	-117.17**	154	106.84	6.98	71.02
Agriculture, Horticulture and Animal Care	72	109.52	343.91***	155.18***	87	77.42	283.32***	201.3**	118	104.38	85.58*	-50.48
Engineering and Manufacturing Technologies	15	65.38	275.59***	692.52***	19	100.56	156.6	-228.77	88	118.27	184.23**	-152.06
Construction, Planning and Built Environment	13	77.84	757.98***	1586.68***	49	89.83	534.***	-143.34	100	114.77	370.81***	449.5**
Information and Communication Technology	42	86.31	252.33***	-523.88***	21	97.29	248.92***	253.69***	155	120.76	9.33	121.85
Retail and Commercial Enterprise	376	83.57	356.19***	121.19***	253	84.33	199.07***	16.1	685	97.59	108.29***	32.99
Leisure, Travel and Tourism	156	94.32	444.25***	-85.06***	19	88.97	165.72***	-122.52	23	113.43	97.01	110.69
Arts, Media and Publishing	455	101.17	295.03***	134.24***	92	80.65	38.3**	152.11***	196	113.74	31.55*	12.22
History, Philosophy and Theology	56	122.81	90.42***	26.3**	67	99.72	-134.6***	-18.2	126	97.62	-53.65**	59.58**
Social Sciences	67	98.74	321.69***	230.17***	28	88.26	-192.22***	-195.8***	79	107.95	-104.53***	-82.47
Languages, Literature and Culture	136	109.13	264.69***	36.04***	14	94.40	66.75	-740.6***	75	105.76	108.33***	-131.67
Education and Training	21	70.06	54.36	78.92	106	84.66	-13.42	23.47	2,105	77.95	118.89***	54.48***
Preparation for Life and Work	65	69.91	-53.32*	12.14	328	96.14	-79.64***	88.5***	929	102.89	-8.69	30.59**
Business, Administration and Law	305	89.98	235.18***	92.77***	855	101.34	163.53***	34.7	4,265	113.48	88.36***	33.32**

Source: Frontier analysis of ILR-HMRC/DWP data

Table 32: BL2 Men, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	6,570	0.373	.209***	.113***	7,798	0.623	.051***	.047***	51,263	0.740	.015***	.012***
Science and Mathematics	196	0.228	.239***	.205***	49	0.368	.073	.076	236	0.586	.014	.008
Agriculture, Horticulture and Animal Care	889	0.282	.182***	.153***	516	0.378	.053***	.058**	3,196	0.601	.012**	.01
Engineering and Manufacturing Technologies	8,123	0.251	.326***	.168***	2,388	0.600	.044***	.015	11,707	0.724	.01***	.007
Construction, Planning and Built Environment	11,809	0.217	.381***	.297***	2,545	0.532	.009	.035***	8,253	0.652	.005	.017***
Information and Communication Technology	4,518	0.317	.225***	.134***	3,235	0.505	.072***	.05***	30,472	0.557	.015***	.022***
Retail and Commercial Enterprise	2,118	0.322	.254***	.136***	1,241	0.546	.046***	.027*	5,213	0.653	.039***	.022***
Leisure, Travel and Tourism	6,435	0.344	.229***	.102***	3,712	0.620	.042***	.027***	19,446	0.773	.01***	.006***
Arts, Media and Publishing	1,811	0.313	.185***	.127***	1,183	0.459	.031***	.045***	8,077	0.609	-.002	-.001
History, Philosophy and Theology	54	0.329	.221***	.122	43	0.455	.115	.098	486	0.612	-.011	-.03
Social Sciences	49	0.341	.177**	.008	43	0.568	.077	.198**	376	0.636	-.007	-.048**
Languages, Literature and Culture	630	0.317	.232***	.13***	1,553	0.618	.085***	.063***	17,660	0.737	.005**	.001
Education and Training	100	0.259	.188***	.124*	66	0.497	.004	.019	335	0.486	.072***	.063**
Preparation for Life and Work	33,303	0.317	.184***	.146***	29,463	0.388	.126***	.075***	101,860	0.510	.081***	.041***
Business, Administration and Law	1,186	0.290	.23***	.109***	677	0.493	.077***	.028	3,682	0.678	.014**	.021***

Source: Frontier analysis of ILR-HMRC/DWP data

Table 33: FL2 Men, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	4,623	0.250	.393***	.257***	1,025	0.559	.165***	.194***	2,864	0.702	.06***	.028**
Science and Mathematics	525	0.184	.365***	.224***	32	0.495	.043	-.008	24	0.465	.13**	-.019
Agriculture, Horticulture and Animal Care	1,365	0.207	.368***	.222***	265	0.598	.055**	-.014	1,249	0.697	.059***	.023
Engineering and Manufacturing Technologies	12,450	0.263	.413***	.269***	4,017	0.658	.045***	.008	15,146	0.735	.028***	-.012**
Construction, Planning and Built Environment	12,499	0.278	.359***	.184***	5,014	0.553	.045***	-.012	16,919	0.612	.049***	.031***
Information and Communication Technology	5,383	0.207	.356***	.243***	345	0.517	.103***	.051	1,197	0.650	.017	.034**
Retail and Commercial Enterprise	3,255	0.285	.382***	.208***	1,365	0.615	.095***	.043**	5,470	0.716	.044***	.038***
Leisure, Travel and Tourism	5,879	0.202	.413***	.255***	688	0.556	.058***	.04	2,593	0.652	.058***	.03***
Arts, Media and Publishing	5,818	0.204	.343***	.221***	348	0.417	-.011	.046	250	0.452	.041*	.024
History, Philosophy and Theology	-	-	-	-	-	-	-	-	13	0.621	.071	.06
Social Sciences	16	0.364	.379**	.538***	-	-	-	-	-	-	-	-
Languages, Literature and Culture	134	0.140	.508***	.193	-	-	-	-	14	0.659	.045	-.59***
Education and Training	14	0.692	-.045	-.244	14	0.798	-.113	-.18	132	0.539	.181***	.057
Preparation for Life and Work	1,384	0.216	.422***	.111	151	0.485	.077*	.254**	249	0.510	.069**	-.048
Business, Administration and Law	3,335	0.245	.366***	.221***	1,272	0.705	.069***	.036**	5,389	0.811	.025***	-.007

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially disclosive have been marked with “-“.

Table 34: FL3 Men, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	3,617	0.244	.48***	.153***	663	0.586	.087***	-.063**	2,824	0.709	.045***	-.023**
Science and Mathematics	10,551	0.182	.377***	.189***	424	0.518	.06**	-.027	310	0.569	.004	-.04
Agriculture, Horticulture and Animal Care	1,570	0.210	.433***	.16***	249	0.485	.138***	-.091	417	0.582	.075***	.048
Engineering and Manufacturing Technologies	6,167	0.276	.444***	.229***	1,727	0.608	.154***	.004	2,147	0.682	.101***	.036**
Construction, Planning and Built Environment	4,096	0.446	.253***	-.123***	2,102	0.659	.054***	-.031	3,327	0.625	.058***	-.01
Information and Communication Technology	9,508	0.197	.429***	.302***	803	0.400	.173***	.05	293	0.516	.075***	.025
Retail and Commercial Enterprise	1,362	0.405	.238***	.035	340	0.596	.098***	.039	808	0.683	.059***	-.02
Leisure, Travel and Tourism	9,686	0.216	.461***	.262***	378	0.500	.094***	-.02	87	0.407	.206***	.244**
Arts, Media and Publishing	17,948	0.225	.367***	.165***	2,053	0.456	.105***	-.036	813	0.444	.012	-.036
History, Philosophy and Theology	2,614	0.199	.345***	.172***	281	0.556	-.015	-.014	296	0.496	-.01	.032
Social Sciences	3,241	0.209	.377***	.195***	136	0.485	.038	.025	146	0.468	-.036	-.05
Languages, Literature and Culture	3,011	0.189	.391***	.188***	41	0.618	-.121	-.11	72	0.548	.077	.167
Education and Training	36	0.639	-.041	-.019	124	0.663	.075*	-.021	710	0.764	.043***	-.007
Preparation for Life and Work	475	0.400	.182***	.027	1,095	0.568	-.014	-.037	1,404	0.537	.008	-.023
Business, Administration and Law	7,718	0.234	.4***	.23***	981	0.600	.109***	-.032	1,967	0.749	.05***	.024

Source: Frontier analysis of ILR-HMRC/DWP data

Table 35: BL2 Women, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	12,810	0.355	.233***	.104***	12,352	0.675	.051***	.039***	81,200	0.735	.022***	.018***
Science and Mathematics	201	0.276	.266***	.128**	95	0.613	.016	.1*	547	0.647	.021	.011
Agriculture, Horticulture and Animal Care	768	0.295	.221***	.163***	397	0.554	.051***	.033	3,873	0.679	.019***	.0
Engineering and Manufacturing Technologies	711	0.411	.197***	.073***	920	0.651	.071***	.025	4,902	0.748	.004	-.003
Construction, Planning and Built Environment	313	0.315	.27***	.208***	211	0.620	.039	.047	1,206	0.654	.047***	.015
Information and Communication Technology	3,492	0.378	.199***	.108***	6,001	0.568	.086***	.071***	69,362	0.633	.044***	.034***
Retail and Commercial Enterprise	7,170	0.281	.287***	.15***	2,876	0.591	.049***	.042***	17,140	0.724	.026***	.022***
Leisure, Travel and Tourism	2,855	0.370	.244***	.107***	1,780	0.658	.073***	.058***	9,988	0.739	.021***	.019***
Arts, Media and Publishing	2,449	0.346	.205***	.11***	2,691	0.610	.037***	.015	24,742	0.659	.012***	.003
History, Philosophy and Theology	86	0.377	.245***	.195**	81	0.673	.061	-.001	1,246	0.673	.022**	.025*
Social Sciences	130	0.341	.268***	.213***	167	0.595	.055*	.1*	1,117	0.672	.02*	.013
Languages, Literature and Culture	1,780	0.389	.223***	.122***	4,537	0.660	.073***	.043***	33,251	0.736	.014***	.008***
Education and Training	144	0.365	.157***	.19***	230	0.582	.079***	.025	1,668	0.621	.073***	.076***
Preparation for Life and Work	23,706	0.329	.194***	.149***	33,450	0.407	.186***	.101***	135,425	0.570	.091***	.052***
Business, Administration and Law	1,945	0.356	.246***	.136***	1,811	0.618	.069***	.057***	9,197	0.690	.046***	.042***

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 36: FL2 Women, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	15,472	0.220	.418***	.273***	3,356	0.616	.106***	.048***	24,458	0.686	.098***	.028***
Science and Mathematics	548	0.174	.404***	.298***	50	0.547	.084	-.08	145	0.770	.074**	-.05
Agriculture, Horticulture and Animal Care	1,770	0.205	.361***	.223***	275	0.556	.144***	.1**	712	0.584	.049***	.018
Engineering and Manufacturing Technologies	549	0.358	.313***	.216***	538	0.717	.074***	-.025	2,956	0.789	.001	.0
Construction, Planning and Built Environment	200	0.330	.347***	.202***	98	0.533	.173***	.111	550	0.553	.089***	.015
Information and Communication Technology	1,184	0.238	.363***	.218***	354	0.707	.04*	.02	2,473	0.742	.034***	-.013
Retail and Commercial Enterprise	15,814	0.263	.384***	.213***	4,670	0.578	.073***	.023**	15,619	0.668	.049***	.016***
Leisure, Travel and Tourism	4,012	0.212	.433***	.262***	294	0.539	.093***	.096**	741	0.674	.045***	.014
Arts, Media and Publishing	5,004	0.191	.376***	.244***	193	0.485	.004	.049	346	0.551	.036	-.035
History, Philosophy and Theology	-	-	-	-	-	-	-	-	-	-	-	-
Social Sciences	14	0.206	.469***	.04	-	-	-	-	-	-	-	-
Languages, Literature and Culture	162	0.131	.534***	.379***	21	0.483	-.008	.518***	57	0.456	.301***	.458***
Education and Training	95	0.492	.253***	.246***	206	0.603	.127***	.066	4,032	0.639	.176***	.14***
Preparation for Life and Work	849	0.221	.409***	.225**	208	0.504	.158***	.199	941	0.634	.102***	.022
Business, Administration and Law	4,749	0.333	.346***	.194***	3,040	0.700	.075***	.031***	11,548	0.766	.047***	.012**

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially disclosive have been marked with “-”.

Table 37: FL3 Women, employment rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	22,087	0.231	.483***	.252***	5,106	0.606	.092***	-.022**	24,359	0.673	.083***	-.012**
Science and Mathematics	13,606	0.203	.408***	.206***	648	0.572	.065***	-.048	1,134	0.612	-.002	-.075***
Agriculture, Horticulture and Animal Care	3,079	0.204	.457***	.292***	351	0.583	.13***	-.006	517	0.576	.139***	.057
Engineering and Manufacturing Technologies	375	0.230	.477***	.289***	66	0.592	.19***	-.07	195	0.690	.096***	.08
Construction, Planning and Built Environment	149	0.423	.355***	-.077	114	0.618	.166***	-.055	223	0.648	.158***	-.098
Information and Communication Technology	2,241	0.206	.439***	.279***	231	0.439	.235***	.094	404	0.688	.055***	.02
Retail and Commercial Enterprise	10,391	0.346	.326***	.059***	1,867	0.558	.108***	.028	4,086	0.568	.083***	.033**
Leisure, Travel and Tourism	8,278	0.233	.492***	.293***	237	0.442	.204***	.049	122	0.545	.111***	-.033
Arts, Media and Publishing	25,095	0.223	.404***	.212***	1,242	0.483	.102***	.024	1,415	0.540	.043***	-.025
History, Philosophy and Theology	3,745	0.213	.376***	.182***	468	0.605	.014	-.074**	840	0.608	-.002	-.054**
Social Sciences	4,827	0.221	.401***	.195***	301	0.581	.018	-.085**	571	0.602	.005	-.035
Languages, Literature and Culture	8,470	0.206	.409***	.204***	99	0.608	-.057	-.011	270	0.651	.064**	-.006
Education and Training	151	0.612	.077**	.143**	553	0.658	.025	.009	5,679	0.746	.076***	.04***
Preparation for Life and Work	916	0.482	.162***	-.073**	2,776	0.593	.012	-.06***	6,829	0.617	-.013**	-.039***
Business, Administration and Law	7,942	0.267	.414***	.22***	2,155	0.695	.095***	.023	8,074	0.785	.048***	.008

Source: Frontier analysis of ILR-HMRC/DWP data

Table 38: BL2 Men, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	6,570	0.058	.008***	-.014***	7,798	0.123	-.018***	-.024***	51,263	0.090	-.011***	-.01***
Science and Mathematics	196	0.030	.036**	-.01	49	0.378	-.01	-.061	236	0.316	.013	.023
Agriculture, Horticulture and Animal Care	889	0.070	.096***	.005	516	0.379	-.016	-.025	3,196	0.314	-.006	.0
Engineering and Manufacturing Technologies	8,123	0.017	.014***	.008***	2,388	0.113	-.017***	-.021***	11,707	0.085	-.011***	-.014***
Construction, Planning and Built Environment	11,809	0.019	.01***	.001	2,545	0.169	-.022***	-.01	8,253	0.138	-.018***	-.022***
Information and Communication Technology	4,518	0.060	.036***	-.005	3,235	0.242	-.011***	-.02***	30,472	0.271	-.012***	-.023***
Retail and Commercial Enterprise	2,118	0.047	.039***	-.007	1,241	0.178	.003	-.003	5,213	0.174	-.012***	-.01**
Leisure, Travel and Tourism	6,435	0.018	.009***	.002	3,712	0.074	-.009***	-.006*	19,446	0.063	-.005***	-.003**
Arts, Media and Publishing	1,811	0.069	.056***	.017*	1,183	0.303	.005	.002	8,077	0.329	-.009***	-.006*
History, Philosophy and Theology	54	0.001	.024		43	0.357	-.096**	-.14**	486	0.251	-.011*	-.009
Social Sciences	49	0.063	.073**	.082	43	0.170	.055**	-.006	376	0.323	0	.02
Languages, Literature and Culture	630	0.036	.008	.002	1,553	0.061	-.012***	-.012**	17,660	0.075	-.008***	-.008***
Education and Training	100	0.254	-.035	-.1**	66	0.343	-.057	-.119**	335	0.299	-.033***	-.034
Preparation for Life and Work	33,303	0.091	.059***	.002	29,463	0.242	-.001	-.009***	101,860	0.302	-.005***	-.004***
Business, Administration and Law	1,186	0.052	.026***	.011	677	0.194	-.021**	-.028*	3,682	0.145	-.016***	-.02***

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 39: FL2 Men, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	4,623	0.022	-.002	-.028***	1,025	0.123	-.086***	-.133***	2,864	0.085	-.031***	-.022***
Science and Mathematics	525	0.022	.012*	-.017**	32	0.298	-.022	.159	24	0.245	-.058	-.011
Agriculture, Horticulture and Animal Care	1,365	0.012	.018***	.007	265	0.139	-.019*	.003	1,249	0.094	-.024***	-.009
Engineering and Manufacturing Technologies	12,450	0.012	.01***	.006***	4,017	0.074	-.015***	-.006	15,146	0.062	-.008***	-.001
Construction, Planning and Built Environment	12,499	0.015	.011***	.007**	5,014	0.089	-.02***	-.004	16,919	0.087	-.016***	-.005**
Information and Communication Technology	5,383	0.020	.023***	.006**	345	0.263	-.066***	-.111***	1,197	0.179	-.021***	-.037***
Retail and Commercial Enterprise	3,255	0.017	.014***	.003	1,365	0.122	-.037***	-.037***	5,470	0.088	-.016***	-.02***
Leisure, Travel and Tourism	5,879	0.014	.007***	.002	688	0.146	-.014	-.008	2,593	0.141	-.016***	-.007
Arts, Media and Publishing	5,818	0.016	.017***	.003	348	0.346	-.017	-.068**	250	0.428	-.016	-.033
History, Philosophy and Theology	-	-	-	-	-	-	-	-	13	0.166	-.013	-.016
Social Sciences	16	0.010	-.01	.012	-	-	-	-	-	-	-	-
Languages, Literature and Culture	134	0.024	.013	.055	-	-	-	-	14	0.215	.016	.009
Education and Training	14	0.139	.08	-.114	14	0.098	-.027	-.027	132	0.175	-.061**	-.039
Preparation for Life and Work	1,384	0.017	.021***	-.022	151	0.217	-.039	-.219**	249	0.227	-.029*	-.012
Business, Administration and Law	3,335	0.017	.009***	.007**	1,272	0.073	-.02***	-.005	5,389	0.041	-.008***	.002

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially dispositive have been marked with “-”.

Table 40: FL3 Men, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	3,617	0.006	.008***	-.02**	663	0.089	-.033***	-.039**	2,824	0.086	-.035***	-.033***
Science and Mathematics	10,551	0.004	.002***	.001	424	0.119	-.045***	-.089***	310	0.174	-.077***	-.126***
Agriculture, Horticulture and Animal Care	1,570	0.004	.006***	-.004	249	0.076	-.021	.044	417	0.119	-.03**	.015
Engineering and Manufacturing Technologies	6,167	0.007	.002*	.001	1,727	0.042	-.018***	-.032**	2,147	0.051	-.015***	-.014**
Construction, Planning and Built Environment	4,096	0.007	.003**	-.004	2,102	0.030	-.01***	-.006	3,327	0.072	-.017***	-.002
Information and Communication Technology	9,508	0.008	.013***	.0	803	0.153	-.036***	-.069**	293	0.231	-.06***	-.07**
Retail and Commercial Enterprise	1,362	0.008	.009***	.001	340	0.056	-.019*	-.009	808	0.063	-.004	-.023**
Leisure, Travel and Tourism	9,686	0.004	.004***	.003	378	0.087	-.012	-.096**	87	0.180	-.027	-.047
Arts, Media and Publishing	17,948	0.008	.01***	.003	2,053	0.123	-.033***	-.094***	813	0.300	-.034***	-.11***
History, Philosophy and Theology	2,614	0.007	.002	.003	281	0.107	-.022*	-.043**	296	0.280	-.051***	-.143***
Social Sciences	3,241	0.003	.005***	.0	136	0.166	-.09***	-.154***	146	0.345	-.09***	-.205***
Languages, Literature and Culture	3,011	0.005	.003**	.006**	41	0.101	-.008	.022	72	0.262	-.15***	-.198**
Education and Training	36	0.133	-.109**	-.121**	124	0.083	-.057***	-.06***	710	0.075	-.031***	-.03***
Preparation for Life and Work	475	0.069	-.04***	-.124***	1,095	0.130	-.063***	-.089***	1,404	0.228	-.077***	-.117***
Business, Administration and Law	7,718	0.010	.007***	.001	981	0.087	-.038***	-.03**	1,967	0.072	-.017***	-.026***

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero)

Table 41: BL2 Women, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	12,810	0.050	.015***	-.005**	12,352	0.127	-.017***	-.017***	81,200	0.107	-.016***	-.012***
Science and Mathematics	201	0.061	.045***	-.017	95	0.364	-.06*	-.058	547	0.244	-.015	.005
Agriculture, Horticulture and Animal Care	768	0.039	.058***	-.011	397	0.222	.014	-.01	3,873	0.173	-.014***	-.007*
Engineering and Manufacturing Technologies	711	0.051	.017**	.004	920	0.109	-.016**	-.002	4,902	0.101	-.007***	.005
Construction, Planning and Built Environment	313	0.095	.013	.001	211	0.259	-.041*	-.024	1,206	0.239	-.041***	-.001
Information and Communication Technology	3,492	0.104	.017***	-.008	6,001	0.265	-.036***	-.04***	69,362	0.210	-.026***	-.026***
Retail and Commercial Enterprise	7,170	0.045	.025***	.004	2,876	0.255	-.014***	-.013*	17,140	0.144	-.02***	-.017***
Leisure, Travel and Tourism	2,855	0.018	.01***	-.005	1,780	0.077	-.002	-.004	9,988	0.108	-.013***	-.011***
Arts, Media and Publishing	2,449	0.055	.026***	.002	2,691	0.206	-.009**	-.01	24,742	0.221	-.02***	-.01***
History, Philosophy and Theology	86	0.100	.01	-.015	81	0.252	-.071**	-.056	1,246	0.193	-.024***	-.01
Social Sciences	130	0.087	.001	-.023	167	0.189	-.014	.001	1,117	0.212	-.016**	-.01
Languages, Literature and Culture	1,780	0.028	.008***	.001	4,537	0.054	-.005***	-.009***	33,251	0.082	-.012***	-.009***
Education and Training	144	0.224	.003	-.064**	230	0.310	-.005	.015	1,668	0.189	-.017***	-.011
Preparation for Life and Work	23,706	0.115	.061***	.001	33,450	0.224	-.001	-.01***	135,425	0.317	-.015***	-.012***
Business, Administration and Law	1,945	0.054	.027***	.016**	1,811	0.199	-.019***	-.02**	9,197	0.158	-.024***	-.022***

Source: Frontier analysis of ILR-HMRC/DWP data

Table 42: FL2 Women, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	15,472	0.022	.009***	.004**	3,356	0.183	-.044***	-.035***	24,458	0.113	-.038***	-.018***
Science and Mathematics	548	0.030	.005	-.004	50	0.197	-.001	-.003	145	0.114	-.008	-.011
Agriculture, Horticulture and Animal Care	1,770	0.015	.011***	.005	275	0.154	-.036***	-.059**	712	0.219	-.028***	-.057***
Engineering and Manufacturing Technologies	549	0.027	.015**	-.007	538	0.063	.009	.025**	2,956	0.053	.003	.003
Construction, Planning and Built Environment	200	0.050	-.008	-.061**	98	0.205	-.042	-.054	550	0.314	-.074***	-.058**
Information and Communication Technology	1,184	0.025	.015***	-.001	354	0.162	-.031**	.016	2,473	0.118	-.027***	-.022***
Retail and Commercial Enterprise	15,814	0.025	.015***	.007***	4,670	0.264	-.041***	-.03***	15,619	0.178	-.028***	-.022***
Leisure, Travel and Tourism	4,012	0.014	.009***	.007**	294	0.249	-.049***	-.044**	741	0.211	-.029***	-.004
Arts, Media and Publishing	5,004	0.017	.014***	.004	193	0.408	-.003	-.062	346	0.403	-.027**	.002
History, Philosophy and Theology	-	-	-	-	-	-	-	-	-	-	-	-
Social Sciences	14	0.036	-.024	-.095	-	-	-	-	-	-	-	-
Languages, Literature and Culture	162	0.034	.027**	.024	21	0.474	-.13*	.015	57	0.226	-.062	.128
Education and Training	95	0.053	-.024	-.051**	206	0.195	-.064***	-.048	4,032	0.116	-.042***	-.032***
Preparation for Life and Work	849	0.060	.024***	-.094	208	0.310	-.047**	-.173**	941	0.260	-.043***	-.039
Business, Administration and Law	4,749	0.033	.009***	.005	3,040	0.115	-.023***	-.01	11,548	0.090	-.02***	-.013***

Source: Frontier analysis of ILR-HMRC/DWP data. Empty cells indicate that statistic could not be calculated due to small samples (e.g. dividing by zero). Cells which are potentially dispositive have been marked with “-“.

Table 43: FL3 Women, benefit rate

Study area	Aged 16 to 19				Aged 20 to 24				Aged 25 +			
	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact	Number	Before	Raw difference	Year dummy impact
Health, Public Services and Care	22,087	0.012	.006***	-.006**	5,106	0.143	-.051***	-.066***	24,359	0.110	-.037***	-.023***
Science and Mathematics	13,606	0.006	.002**	-.001	648	0.152	-.06***	-.032**	1,134	0.206	-.052***	-.07***
Agriculture, Horticulture and Animal Care	3,079	0.004	.01***	.005**	351	0.061	-.009	-.032**	517	0.140	-.027***	-.018
Engineering and Manufacturing Technologies	375	0.010	-.005	.008	66	0.094	-.051*	-.114	195	0.100	-.035***	-.118**
Construction, Planning and Built Environment	149	0.004	.007	-.002	114	0.033		-.224	223	0.130	-.028*	.028
Information and Communication Technology	2,241	0.009	.01***	.001	231	0.198	-.049**	-.107**	404	0.231	-.058***	-.05**
Retail and Commercial Enterprise	10,391	0.017	.007***	.005	1,867	0.217	-.055***	-.031**	4,086	0.267	-.066***	-.036***
Leisure, Travel and Tourism	8,278	0.006	.006***	.002	237	0.172	-.041**	-.019	122	0.273	-.053*	-.027
Arts, Media and Publishing	25,095	0.007	.006***	.001	1,242	0.166	-.03***	-.084***	1,415	0.279	-.017**	-.056***
History, Philosophy and Theology	3,745	0.007	.001	.0	468	0.210	-.044***	-.061***	840	0.258	-.08***	-.089***
Social Sciences	4,827	0.007	.001	.0	301	0.254	-.084***	-.106***	571	0.345	-.086***	-.077***
Languages, Literature and Culture	8,470	0.005	.001	.0	99	0.159	-.008	.005	270	0.177	-.058***	-.003
Education and Training	151	0.081	-.017	-.058**	553	0.162	-.054***	-.088***	5,679	0.084	-.035***	-.033***
Preparation for Life and Work	916	0.109	-.047***	-.054***	2,776	0.216	-.077***	-.083***	6,829	0.227	-.069***	-.092***
Business, Administration and Law	7,942	0.015	.004***	-.002	2,155	0.097	-.035***	-.027***	8,074	0.060	-.017***	-.007**

Source: Frontier analysis of ILR-HMRC/DWP data.

© Crown copyright 2011

You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. Visit www.nationalarchives.gov.uk/doc/open-government-licence, write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

This publication is also available on our website at www.bis.gov.uk

Any enquiries regarding this publication should be sent to:

Department for Business, Innovation and Skills
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5000

If you require this publication in an alternative format, email enquiries@bis.gsi.gov.uk, or call 020 7215 5000.

URN 11/1039