RESEARCH

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The Long Term Effect of Vocational Qualifications on Labour Market Outcomes

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

Contents

Executive Summary

London Economics were commissioned by the Department for Business, Innovation and Skills to undertake an assessment of the long-term effect of vocational education and training on labour market outcomes. We combined learner attainment information from the Individual Learner Record (ILR) between 2002/03 and 2005/06, annual earnings information (between 2003/04 and 2009/10) and employment information (between 1999/00 and 2009/10) from HM Revenue and Customs, and benefit receipt and duration information (between 1999/00 and 2009/10) from the Department for Work and Pensions. The number of individuals contained in the ILR totalled almost 6.9 million learners that could be subsequently matched to the HMRC and DWP data sources (presented in Figure 1). For the analysis we retained both achievers and individuals who enrolled in the course but failed to achieve the qualification aim.

Figure 1: Sample size availability from ILR

Year	2002/03	2003/04	2004/05	2005/06
Learning Aims	8,384,557	7,993,771	7,934,950	7,372,907
Learners (keeping highest aim)	2,740,968	2,725,156	2,721,444	2,355,256
Learners 2002-06 (keeping highest aim)		6,868,830		

Source: London Economics' analysis

Summary statistics relating to learners and learning aims from the ILR are presented in Table 1.

Table 1: Key demographics (ILR 2002/03 – 2005/06)

	Level 1/ Entry	Level 2	Level 3	Level 4	Other	Total
Number of learning aims						
Male	4,142,503	3,021,486	2,795,801	239,946	2,781,002	12,980,738
Female	6,142,055	4,255,713	3,732,495	310,789	3,543,860	17,984,912
Distribution by gender						
Male	31.9%	23.3%	21.5%	1.8%	21.4%	100%
Female	34.2%	23.7%	20.8%	1.7%	19.7%	100%
Age of entry by level						
Male	30.7	26.2	21.9	31.1	30.0	27.8
Female	34.4	29.6	23.3	33.7	32.4	31.1
Learning aim outcome						
Continuing	3.5%	10.1%	11.7%	30.3%	3.3%	3.5%
Completed	82.9%	73.5%	72.9%	56.3%	90.0%	82.9%
Withdrawn	11.7%	14.6%	13.7%	11.6%	6.0%	11.7%
Transferred	1.9%	1.8%	1.7%	1.7%	0.8%	1.9%

Source: London Economics' analysis

Determinants of learning aim completion

Using this unique data set, we undertook a number of different elements of analysis. In the first (and preparatory) component of the analysis, we assessed the **determinants of individuals completing the specific learning aims** they enrolled for at different levels within the National Qualification Framework. For this element of the analysis, the counterfactual group is formed of individuals enrolling in the same qualification type (or at the same level of the National Qualification Framework) but failing to achieve. This was undertaken at an aggregate level (all learning aims); at different qualification levels (Levels 1, 2, 3 and 4); and at a disaggregated level (i.e. NVQ Level 1 or City & Guilds at Level 2). We also undertook the analysis at different *Skills for Life* levels, as well as for Apprenticeships. We used a range of different econometric specifications and controlled for personal characteristics using learner level information from the ILR, and local area socioeconomic information by merging information from the Index of Multiple Deprivation using learner postcode. The analysis was undertaken at learning aim level (rather than at learner level), and as such, the sample sizes in some of the more aggregated model specifications were in excess of 14 million. It is the first time that an analysis of the determinants of qualification attainment has been undertaken using this data set and the results are exceptionally robust in a statistical sense.

Presented in Table 5, Table 6 and Table 7 (Section 3 of the main report), the findings of the various probit regressions are as follows:

- Age has a positive impact on completing most learning aims with the impact of age increasing as the level of learning aim increases (from 1.7 percentage points per year to 3.8 percentage points per year between Level 1 and 3).

- Women are almost always more likely to complete learning aims compared to men and this gender effect increases with qualification level. Women are 1.7 percentage points more likely to complete a level 1 learning aim but approximately 4 percentage points more likely to complete level 2 or level 3 qualifications

- Compared to white British learners, learners of other ethnic backgrounds are in general less likely to complete qualifications at all aggregated levels, although there are some notable exceptions for some specific qualifications and ethnic groups.

- Local deprivation factors are a determinant of learning aim completion. Learners that are resident in areas that suffer greater socioeconomic deprivation are less likely to complete their learning aim compared to learners in areas suffering less deprivation. Compared to the median level of deprivation, a learner in the 75th percentile of deprivation (i.e. top quarter) is approximately 1.5 percentage points less likely to complete a level 1 or level 2 learning aim, and approximately 3 percentage points less likely to complete a level 3 of level 4 learning aim.

- In general, acquisition of learning aims through classroom contact was most successful at level 1 and level 3; however, workplace learning was associated with the highest success rates at level 2 – especially for men.

- The analysis indicates that compared to 2002/03, individuals in 2005/06 were 4 percentage points more likely to complete a level 1 learning aim, while at level 3, learners were more than 10 percentage points more likely to complete.

Longer term labour market outcomes – definition of counterfactuals

The second (and substantive) component of the analysis undertaken involved an assessment of the **longer term labour market outcomes associated with attaining different qualifications**. Where individuals achieved more than one learning aim over the period, we considered the impact of their highest level of achievement on subsequent outcomes. The outcome measures that we assessed include the **annual earnings achieved by an individual, the proportion of the financial year the individual was in employment and the proportion of the financial year in receipt of a number of benefits** (Job Seekers Allowance (JSA) and Incapacity Benefit (IB)).

The key methodological issue involves how to construct an appropriate counterfactual to assess the long term impact of qualification achievement. The ILR consists of individuals who were enrolled in at least one learning aim in the period 2002-2006. However, due to limitations with the variables contained in the ILR, we were unable to control for further learning undertaken outside of the period 2002-2006 or prior attainment. Therefore, as with most studies of this nature, it was not possible to create a perfect counterfactual. With this in mind, for each of the outcome measures of interest, we considered three alternative counterfactuals. All are likely to have some inherent limitations, but some seem more robust than others. Below we present the case for the different counterfactuals.

One scenario consisted of the assessment of outcomes *'before and after'* the learning aim was attained, comparing the same individual at different points in time, before and after qualification enrolment and attainment. These results generally display very strong positive returns; however, this in part reflect time effects and the return associated with the individual in possession of the learning aim rather than the impact of the learning aim itself. Moreover, given the fact that earnings records are only available from 2003/04, this implies that earnings information prior to course enrolment is only available for the 2005/06 ILR, reducing the robustness of the results generated in this study.

We also modelled a second scenario where the difference in the long term outcomes between those individuals *'simultaneously attaining'* qualifications at adjacent levels was analysed (for instance, individuals completing a qualification aim at Level 2 compared to individuals completing a qualification aim at Level 3). This was initially considered in order to control for the possibility of differences in the unobserved personal characteristics across learners (such as motivation or effort levels). However, the simultaneous attainment counterfactual may suffer from the potential existence of ability bias, where an individual completing a level 3 learning aim may have fundamentally different innate ability characteristics compared to an individual completing a level 2 learning aim (for instance). In addition, there are also some issues in respect to the interpretation of the various coefficients, where a misleading estimate of the return to a particular qualification may occur depending on the returns associated with the adjacent level of qualification.

In order to control for these potential biases and because of the ease of interpretation, we also considered the difference in the long term outcomes between *'completers and non-*

completers'. Non-completers are defined as those enrolling in a course of the same type at the same level as completers, but who failed to achieve the learning aim, either because of withdrawal from the course or because they failed in their exams. Having modelled the determinants of qualification attainment, we are able to control for (at least in part) some of those characteristics that may be relevant in determining completion, leaving a truer indication of the impact of the learning aim itself on long term outcomes.

Understandably, in both the 'completion versus non-completion' and 'simultaneous attainment' counterfactuals, the estimates of the impact of the learning aim on long term outcomes is less than under the 'before and after' counterfactual, illustrating the importance of controlling for both observable and unobservable characteristics that may influence both attainment and outcomes.

Although we cannot rule out the presence of differences in the personal characteristics between the treatment and comparison groups, especially in relation to unobservable characteristics such as of motivation or ability, we have estimated the determinants of qualification attainment and control for a range of observable characteristics at both personal and course level accordingly. We believe that the *'completers versus non-completers'* counterfactual offers the most robust option for identifying the long term outcomes associated with vocational education and training, as well as providing the best opportunity for assessing the relative outcomes of learners on a consistent basis into the future. Given this, the *'completers versus non-completers'* counterfactual is our preferred approach for assessing the longer term impact of education and training on labour market outcomes, and throughout the report, we focus our attention on this group of models (though all other results are presented for completeness). All estimates presented are statistically significant.

Long term impact of education and training on earnings

When analysing the long term earnings effect of qualification attainment, we considered the difference in reported annual earnings between those completing and not completing the particular qualification using information from HM Revenue and Customs.

Figure 2: Long term impact of education and training on earnings (completers vs. non-completers – extended specification)
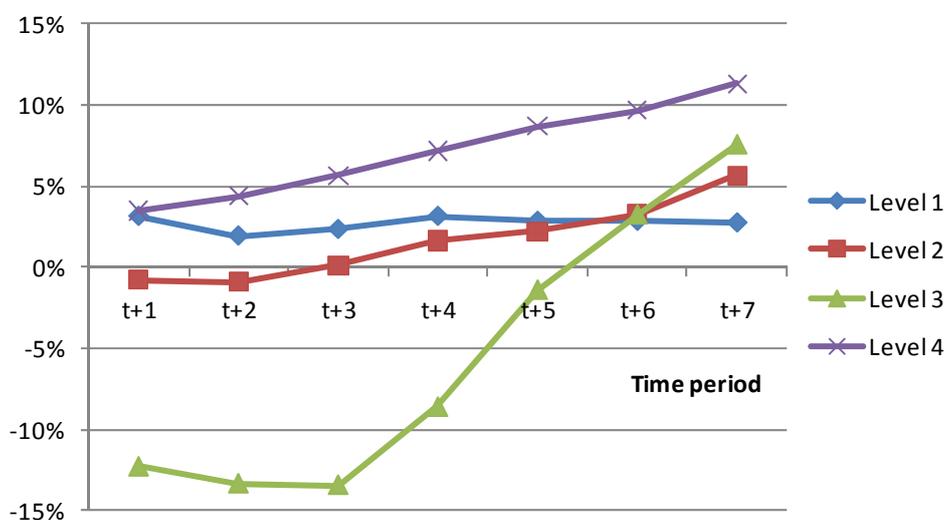
Source: London Economics' analysis. Note: The vertical axis in Figure 2 represent earnings premium following the appropriate exponential transformation under the 'completion versus non completion' counterfactual. See section 4 for more details.

The main results relating to earnings outcomes (presented in Table 8, Table 10, Figure 2 and in section 4.4) are as follows:

- Qualification attainment at Level 1 adds approximately 3% per annum to earnings in the seven years post completion. There is no erosion of the premium over time.

- At level 2, the earnings premium is approximately zero in the first three years post completion; however, increases to approximately 6% after 7 years. There is some variation depending on the particular qualification; with NVQ Level 2 qualifications associated with a return approximately 5% immediately post attainment, rising to 14% after 7 years.

- At level 3, there are negative earning returns in the first four years post attainment; however, this is as a result of the inclusion of GCE 'A' Levels in the analysis. This anomaly is driven by the fact that completers are more likely to attain further or higher education qualifications and remain as relatively low earners for a number of years.

- There are a number of qualifications offering immediate and sustained benefits to acquisition. City & Guilds Level 3 qualifications are associated with an earnings premium of 5-7% per annum. In contrast, NVQ Level 3 qualifications are associated with a small negative earnings return in the first three years post completion; however, a positive earnings return emerges by year 4 post-acquisition and increases to more than 14% after seven years.

Long term impact of education and training on employment

To analyse the effect of qualification attainment on employment outcomes, we estimated the difference in the proportion of the financial year the individual is in employment for, using information on employment spells from HM Revenue and Customs. The analysis is presented in Table 11, Figure 3 and in section 4.6 of the main report.

Figure 3: Long term impact of education and training on employment (completers vs. non-completers – only specification)

Source: London Economics' analysis. Note: The vertical axis in Figure 3 represents the percentage point change in the proportion of the financial year in employment under the 'completion versus non completion' counterfactual. See section 4 for more details

The main findings are that:

- Level 1 qualification completers achieve a statistically significant employment boost from qualification attainment that is immediate and ongoing (between 1% and 4%).

- Level 2 completers achieve an average employment boost of 4.2% over the seven years of analysis, which again increases as the time from qualification acquisition elapses (from 2.2% to 5.4%).

- NVQ Level 2 completers perform better than average; posting a 4.3% employment boost immediately after qualification completion rising to 8.3% seven years post completion. Although initially negative, BTEC Level 2 completers achieve the greatest long term employment boost (8.9% after seven years), while City & Guilds completers perform marginally above average (3.2% employment boost rising to 5.9% after seven years).

- The employment boost achieved by level 3 completers increases over time (from returns of around zero in the first two years post completion to approximately 6% after 7 years). There is some variation around the average, with NVQ Level 3 completers achieving an immediate employment return (between 2% and 3%)

increasing to almost 8% after 7 years. Similar outcomes were associated with both BTEC and City & Guilds qualifications.

Long term impact of education and training on benefit dependency

Using benefit duration information from the Department for Work and Pensions, we also assessed the impact of qualification attainment on benefit dependency, where the outcome measure is the proportion of the calendar the individual is in receipt of particular benefits including Job Seekers Allowance (JSA) and/or Incapacity Benefit (IB). The analysis is presented in Table 13, Table 14, Figure 4 and in section 4.8 of the main report.

Figure 4: Long term impact of education and training on JSA dependence (completers vs. non-completers – only specification)
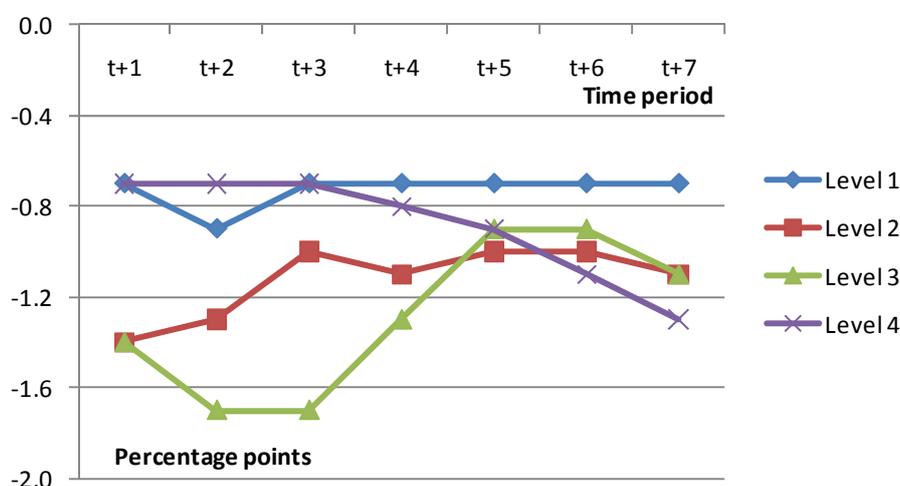
Source: London Economics' analysis. Note: The vertical axis in Figure 4 represents the percentage change in the financial year in receipt of JSA under the 'completion versus non completion' counterfactual. See section 4 for more details

The main findings indicate that:

- At level 3, learning aim completers are approximately 1-2% less likely to be dependent on JSA; however, although the initial impact of education and training is around 2% in the first three years post-completion, the effect dissipates marginally over time (1% less JSA dependent after 5 years).

- The analysis suggests that level 2 completers are approximately 1.5% less JSA dependent immediately post qualification attainment, though in the medium to longer term the effect is also reduced (to approximately 1%).

- NVQ and BTEC Level 2 qualifications have a particularly strong effect on reducing JSA dependency (2.0%-2.5% and 3.5%-4.0% respectively).

- Level 1 completers see a statistically significant reduction in JSA dependency. *Skills for Life* completers at level 1 see a reduction in JSA dependency of approximately

2% in the first two years, although the reduction in JSA dependency falls to approximately 1% thereafter.

Apprenticeships

We undertook an analysis of the impact of undertaking and completing Advanced or Foundation Apprenticeships on annual earnings, as well as the impact of Apprenticeship completion on the proportion of year in employment or in receipt of benefits. The main findings (presented in section 5 of the main report) are as follows:

- Apprenticeships have some of the largest long term impacts on learners. The earnings impact of completing a Foundation Apprenticeship in the first year post acquisition stands at approximately 24.1% compared to a non-completer. Relative earnings benefits remain in excess of 14% compared to non completers throughout the period. The relative return to men is marginally higher that the return to women post-completion.

Figure 5: Earnings outcomes associated with Apprenticeship attainment
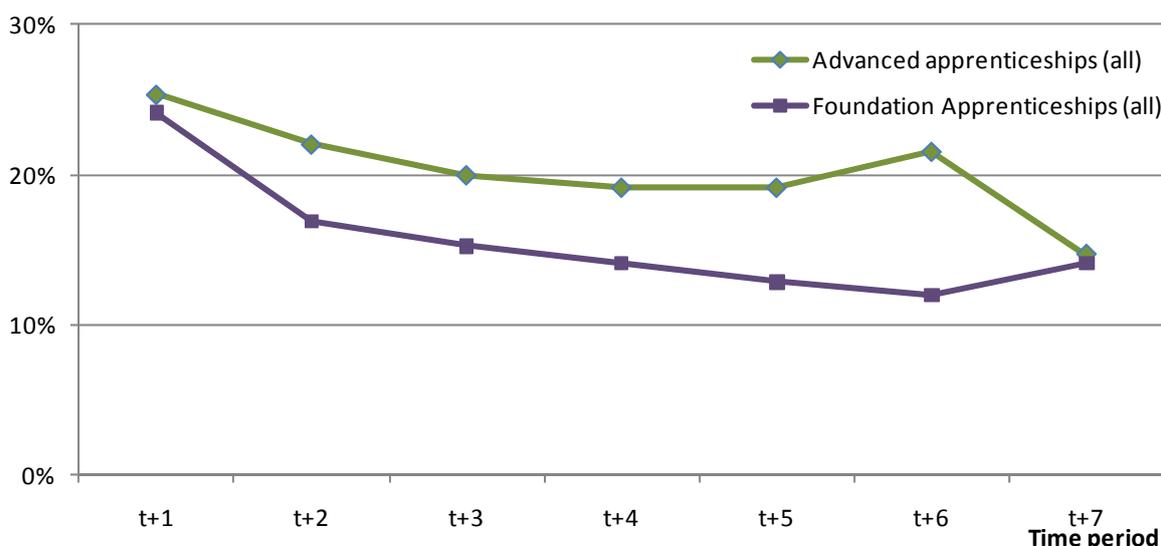
Source: London Economics' analysis. Note: The vertical axis in Figure 5 represents earnings premium following the appropriate exponential transformation under the 'completion versus non completion' counterfactual. See section 5 for more details.

- The earnings premium associated with gaining an Advanced Apprenticeship stands at 25.3% relative to non-completers, with men generating a 31.9% premium relative to non-completers compared to a 14.3% premium achieved by women.

- There is some erosion of the earnings premium over time, with the aggregate premium to Advanced Apprenticeships after seven years standing at 14.7% (consisting of a premium of 16.2% for men and 10.8% for women).

- Both Advanced and Foundation Apprenticeships are associated with an increase in the proportion of the year employed of between 4% and 6%. This employment

effect remains relatively intact over the period of analysis. The analysis illustrates that men achieve a slightly higher employment return compared to women – especially for Advanced Apprenticeships.

- The analysis indicates again that the acquisition of qualifications reduces benefit dependency. In the case of Foundation Apprenticeships, there is a 4% reduction in the proportion of calendar days in receipt of JSA and a 1.2% reduction in IB dependency. For Advanced Apprenticeships, the equivalent estimates stand at 2.3% and 0.7% respectively.

- Benefit dependency is also reduced in the longer term, with individuals completing Advanced and Foundation Apprenticeships approximately 2.1% to 2.4% less JSA dependent compared to non-completers at the end of the seven year period.

Skills for Life

We undertook an analysis of the impact of undertaking and completing *Skills for Life* literacy and numeracy learning aims on annual earnings, and the proportion of the calendar year in employment or in receipt of benefits. The analysis focused on literacy and numeracy learning aims at different levels given the proportion of learners enrolled on these specific courses, and the main findings (presented in section 6) are as follows:

Figure 6: Earnings outcomes associated with SFL attainment
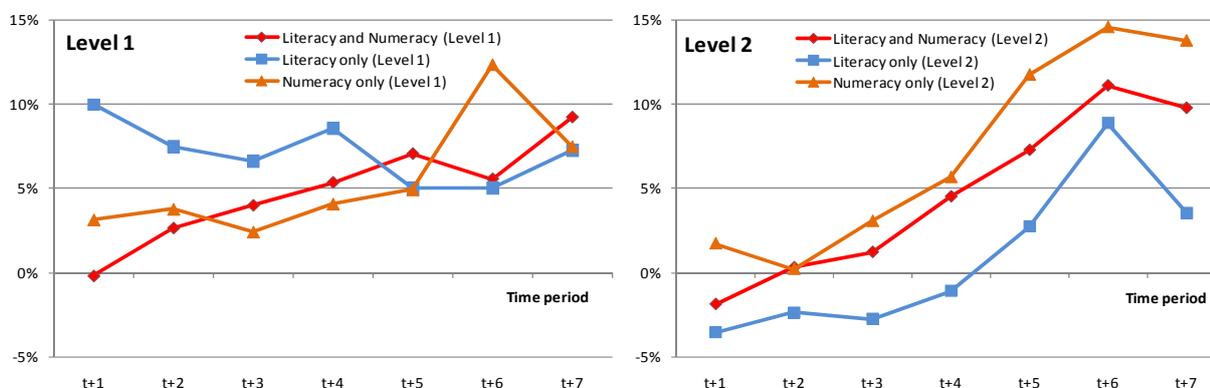
Source: London Economics' analysis. Note: The vertical axis in Figure 6 represents earnings premium following the appropriate exponential transformation under the 'compl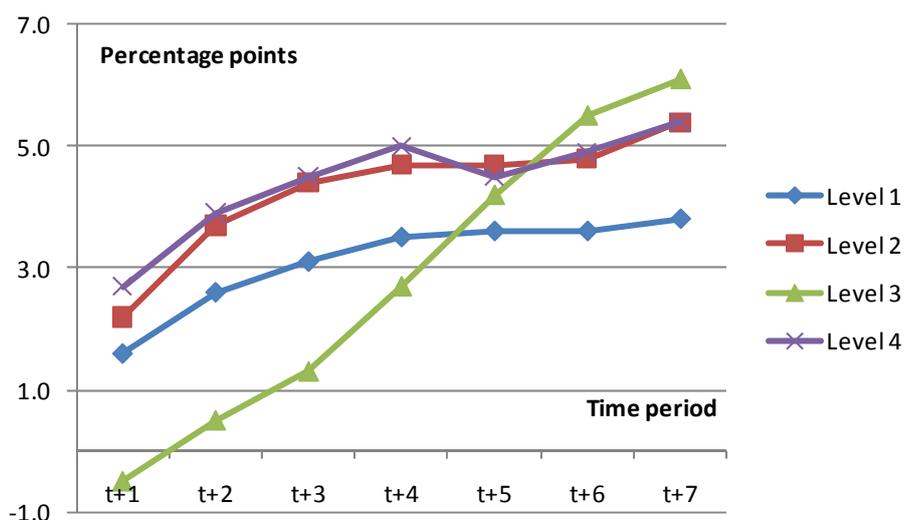etion versus non completion' counterfactual. SFL Entry level learning aims are not incorporated within 'SFL Level 1' learning and as such are not presented in this element of the analysis. See section 6 for more details.

Earnings

- At Level 1, there appears to be a sizeable earnings return associated with SFL literacy learning aims compared to numeracy learning aims (in excess of 7% in the first three years post completion compared to 3% for numeracy); however, this applies more in the short to medium term, as the returns to numeracy qualifications increase steadily over time (from 3% in year one to approximately 12% in year six).

- The analysis indicates that there are immediate and persistent earnings returns associated with the attainment of SFL numeracy learning aims at Level 2 (starting

at approximately 1.7% immediately post attainment rising to more than 13.7% at the end of seven years). In contrast, the returns associated with literacy Level 2 learning aims are negative in the first four years post attainment (standing at approximately -2.5%); however, increase to between 2.7% and 8.8% in the fifth to seventh years post attainment.

- The impact of attaining both literacy and numeracy qualifications at level 2 is marginally negative in the first year post attainment (standing at approximately -1.9%); however, turn strongly positive in the fourth year post attainment (4.5%). These earnings returns increase further in the longer term and stand at approximately 10% in the final two years of the analysis.

Employment

- The analysis of employment outcomes indicates that there are strong and positive employment returns to all SFL learning aims in both the short and longer term.

- Learners completing a SFL numeracy learning aim at Level 1 registered a 2.1% employment boost within two years of qualification completion, increasing to approximately 6.5% by the end of year seven. SFL literacy learning aims were also demonstrated to have a consistently strong impact on employment, with an immediate 1.3% effect in the first year post attainment, increasing to approximately 3.2% by year 7.

- The impact of SFL attainment at level 2 on employment is even more pronounced. Completers of SFL Level 2 numeracy learning aims see an immediate 3.5% increase in employment outcomes compared to non-completers. This employment effect increases steadily over time to almost 10% after seven years. The general impact of attaining SFL literacy learning aims at level 2 is positive with a 4.8% impact at the end of year seven.

Figure 7: Employment outcomes associated with SFL attainment
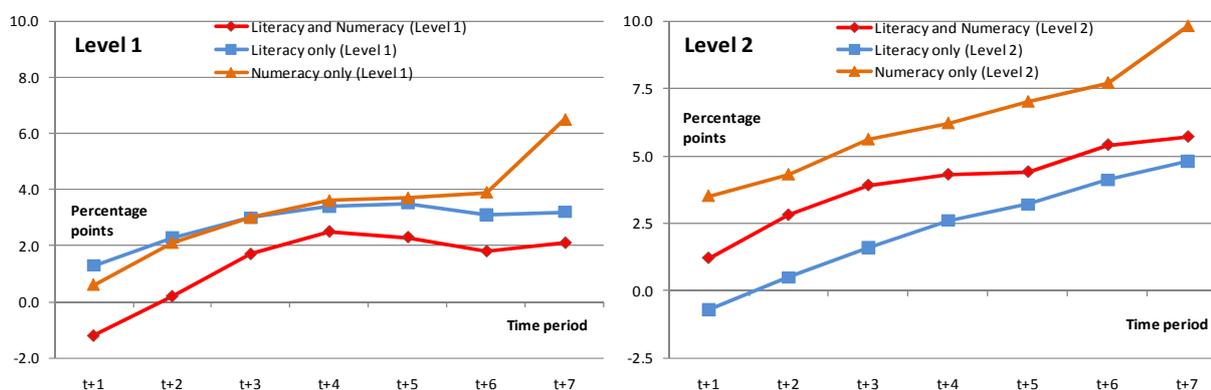
Source: London Economics' analysis. Note: The vertical axis in Figure 7 represents the percentage change in the proportion of the year in employment under the 'completion versus non completion' counterfactual. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis. See section 6 for more details

Benefit dependency

- The analysis indicates that at levels 1 and 2, for both literacy and numeracy, there is an immediate and relatively persistent impact of SFL attainment on JSA benefit dependency.

- At level 1, attaining a SFL numeracy learning aim reduces the proportion of the financial year in receipt of JSA by approximately 1.6%. This occurs in the first year post attainment and persists throughout the period of the analysis. The impact of attaining SFL literacy learning aims is even greater in the short term (2.5%) though does erode by the end of the seven year period.

- The impact of SFL learning aim attainment is even stronger at level 2 than at level 1. The difference in JSA dependency between completers and non-completes stands at 2.2% and 2.7% for literacy only and numeracy only, while the impact of attaining both literacy and numeracy SFL qualifications stands at 2.5%. Over the seven year period, only 25% of this reduction in benefit dependency is eroded.

1. Introduction

London Economics were commissioned by the Department for Business Innovation and Skills to undertake an assessment of the long term effect of vocational education and training on labour market outcomes. To undertake this analysis, we combined information from the Individual Learner Record (ILR) between 2002/03 and 2005/06 on learner attainment, detailed earnings (between 2003/04 and 2009/10) and employment information (between 1999/2000 and 2009/10) from HM Revenue and Customs, and benefit receipt and duration information (between 1999/00 and 2009/10) from the Department for Work and Pensions. The report is set out as follows:

In section 2 of the report, we provide a detailed analysis of the approach we adopted to merge the various data, the econometric approach underpinning the analysis, and the selection of the various counterfactuals for analysis. In section 3, we assessed the **determinants of individuals completing the specific learning aims** they enrolled for at different levels within the National Qualification Framework. This was undertaken at an aggregate level (all learning aims, learning aims at different aggregate qualification levels (levels 1, 2, 3 and 4)), as well as at a disaggregated level (individual qualifications within specific levels (i.e. National Vocational Qualifications or City & Guilds at level 2)). We also undertook the analysis of *Skills for Life* education and training, as well as for Apprenticeships. The analysis involved a range of alternative econometric specifications and controlled for personal characteristics using learner level information from the ILR and local level socioeconomic information by merging information from the Index of Multiple Deprivation using learner postcode.

The substantive component of the analysis undertaken involved the assessment of the **longer term labour market outcomes associated with attaining different qualifications**. The outcome measures that we assessed included the annual earnings achieved by individuals (presented in sections 4.3 and 4.4), the proportion of the year the individual was in employment (presented in sections 4.5 and 4.6) and the proportion of the year in receipt of various benefits (Job Seekers Allowance and Incapacity Benefit), which is presented in sections 4.7 and 4.8. The analysis included a number of alternative model specifications, as well as a range of counterfactuals in an attempt to isolate the impact of education and training on learner outcomes. Throughout section 4, we focus on one particular counterfactual ('completers versus non-completers'), although we present the full econometric results relating to all three counterfactuals in Annex 3 (earnings), Annex 4 (employment) and Annex 5 (benefit dependency).

In section 5, we assessed the impact of acquiring either a Foundation or Advanced Apprenticeship on the three outcome measures of interest using the same range of counterfactuals (with full details in Annex 6), while in Section 6 we undertook a disaggregated analysis of the role of *Skills for Life* on the long term outcomes of learners with full details presented in Annex 7. Section 7 concludes.

2. Data Merging approach and summary methodology

2.1 Datasets under consideration

In this section we describe the different datasets used in the analysis, the variables contained, the time period covered and the approach used to clean and merge the information into one dataset. The datasets used in the analysis contain information from a number of different sources:

- The Individualised Learner Record (ILR) contains information on learning aims and level, as well as personal characteristics supplied by learning providers and collected through the ILR. The ILR is organised by academic year (1st August – 31st July) and this research report uses information from the academic years 2002/03 to 2005/06 inclusive. The files are divided by academic year and funding stream (Further Education and Work Based Learning, with the latter containing information on Apprenticeships).

- HMRC Pay and tax records (P14) contain administrative data collected by HM Revenue & Customs, including information on tax year, tax code, pay and tax records for different employment spells. The information is organised by tax year and employment spell and covers the years from 2003/04 to 2009/10 inclusive.

- HMRC employment spell records (P45) contain administrative data collected by HM Revenue & Customs detailing information on start dates and end dates of employment spells.

- DWP National Benefits Database contains data on benefit spells collected by the Department for Work and Pensions.

We describe in detail the different datasets and how they were cleaned, reshaped and merged into a single dataset containing information on qualification participation and attainment, earnings and employment, and benefits dependency.

2.2 Stage 1 – ILR coding and determinants of qualification attainment

Further Education datasets

Preliminary steps

A series of preliminary cleaning steps were carried out, which involved:

- Retaining those aged between 16 and 59;

- Excluding those individuals with a learning aim that is 'not live';

- Excluding those individuals on an employment training pilot;

- Removing those individuals with no information on their funding source;

- Defining a 'learning window' associated to each academic year, covering a period from August before the start of the academic year to December after the end of the academic year (for example the learning window for 2005/06 would cover the period from August 2004 to December 2006)[1].

Variable definitions

The ILR contains, among other things, information on level of participation, course outcome (i.e. attainment or non-attainment) and also course title. The relevant variables identifying treatment and counterfactual groups were defined combining information on learning aim level, course outcome and extracting details on aim type from course title. The relevant groups for the analysis were defined both at an aggregate level, using notional aim levels as defined by the National Qualification Framework and identified through the variable **a_nvqlev**, and at a disaggregated level. Specific aim types at a disaggregate level were identified through the combination of aim level and aim type.

Aggregated level

For the aggregated classification of learning aims, participation in different aims is classified by level, using the variable a_nvqlev (including both academic and vocational/professional aims), as follows:

- **Level 4** occurs when **a_nvqlev** =4

- **Level 3** occurs when **a_nvqlev** =3

- **Level 2** occurs when **a_nvqlev** =2

- **Level 1** or **Entry level** occurs when **a_nvqlev** =1

The category of aims indentified by **a_nvqlev** =9 ("other") is of miscellaneous nature, including a large variety of aims. Some of the most common aims include: short courses

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[1] Learning windows – as part of the 'before and after' counterfactual analysis, we established a minimum start date and a maximum end date for the learning period to ensure comparability across individuals and also to have a reference period for the analysis. Defining and appropriate end date was particularly relevant in our case, given that we mainly compare outcomes across learners post qualification completion. In addition, the learning window was extended beyond the end of the academic year covered by the ILR to ensure that those individuals undertaking learning aims spanning multiple academic years (for instance) were neither double counted nor routinely considered non-completers as a result of an arbitrary academic year end.

such as Diagnostic Tests in Numeracy, Literacy etc (generally prior to starting a SFL course); tutorial and enrichment studies for full time students (16-18), studying GCE 'A' levels; AS levels; GCSEs and short course GCSEs; courses for individuals with learning disabilities (e.g. Essential Skills Awards); introduction to IT etc.; health and safety courses; first aid courses; vocational study not leading to a recognised qualification; and other education/leisure type courses.

The 2004/05 and 2005/06 datasets also included higher education qualifications under this miscellaneous category, which were removed from the dataset as they were not the primary focus of the analysis.

Disaggregated level

At a disaggregated level, we identified participation in the following learning aims using a combination of **a_nvqlev** and the variables **a_atype** (identifying aim type), and **a09_titl** (detailing the course title) as follows:

1)   **Level 4** (any qualification at level 4).

2)   **Level 3**

- NVQ/GNVQ at level 3 (identified through variable **a_atype**);

- BTEC at level 3 (identified through variable **a09**);

- City and Guilds at level 3 (identified through variable **a09**);

- Any academic aim at level 3 (identified through variable **a_atype**);

- Other qualifications at level 3

3)   **Level 2**

- NVQ/GNVQ at level 2 (identified through variable **a_atype**);

- BTEC at level 2 (identified through variable **a09**);

- City and Guilds at level 2 (identified through variable **a09**);

- *Skills for Life* at level 2 (using variable **a_sflpar**);

- Any academic aim at level 2 (identified through variable **a_atype**);

- Other qualifications at level 2

4)   **Level 1** or **Entry level**

- *Skills for Life* at level 1 or entry level (using variable **a_sflpar**);

- *Skills for Life* at entry level (using variable a_sflpar and variable **a09**);

- Other qualifications at level 1 or entry level;

In Table 2 we present the detailed combination of **a_nvqlev**, **a_atype** and **a_sflpar** through which we identified the different qualification aims used in the analysis.

Table 2: Variable definition – learning aim level

Variable Name	Definition
NVQ3/GNVQ 3	Combination of **a_nvqlev**=3 & (**a_atype**=3 or **a_atype**=4 or **a_atype**=5 or **a_atype**=9)
BTEC 3	Identified using the variable **a09_titl**: we identified those aim titles starting with the code BTEC and combined it with **a_nvqlev**=3
C&G 3	Identified using the variable **a09_titl**: we identified those aim titles starting with the code CG and combined it with **a_nvqlev**=3
Academic level 3	Combination of **a_nvqlev**=3 & (**a_atype** =1| **a_atype** =6)
NVQ/GNVQ 2	Combination of **a_nvqlev**=2 & (**a_atype** =3 or **a_atype** =4 or **a_atype** =5 or **a_atype** =9)
BTEC 2	Identified using the variable **a09_titl**: we identified those aim titles starting with the code BTEC and combined it with **a_nvqlev**=2
C&G 2	Identified using the variable a09_titl: we identified those aim titles starting with the code CG and combined it with **a_nvqlev**=2
Academic level 2	Combination of **a_nvqlev**=2 & (**a_atype**=2)
Skills for Life Level 2	Combination of **a_nvqlev** =2 & **a_sflpar**=1
Skills for Life Level 1	Combination of **a_nvqlev** =1 & **a_sflpar**=1
Skills for Life Entry	Identified using the variable **a09_titl**: we identified those aim titles containing the word "Entry" and combined it with **a_nvqlev**=1& **a_sflpar**=1

Source: London Economics analysis

Work Based Learning (WBL) datasets

Apprenticeships are split into Foundation and Advanced Apprenticeships (at levels 2 and 3), and similar to Further Education qualifications, are available for the academic years 2002/03 to 2005/06 inclusive.

Qualification completion and attainment

The ILR also includes details on course completion and aim attainment. In particular, the variable **a34** identifies whether the learner has completed or not the learning activities and the reason for non-completion at the end of the academic year (withdrawal, transfer to another course, continuing learning). Variable **a35** provides information on learning outcome, indicating whether the learner has achieved the learning aim, partially achieved, failed to achieve or whether, at the end of the academic year, the learner has still to take the exam (or the exam was taken but the outcome is still unknown).

The combination of **a34**=2 and **a35**=1 provides information on those who successfully completed the course and achieved the learning aim. This information was combined with the information on qualification level and type to generate information on achievers and non-achievers at different levels and by different qualifications.

The various treatment groups, formed by qualification achievers, correspond to learners having completed the learning activities (**a34**=2) and having (fully) achieved the

qualification aim (**a35**=1). Non-completers, which constitute the main counterfactual group for each qualification (or level), are defined as those not completing the course because of withdrawal, or completing but failing to achieve the qualification aim. All other cases (continuing or transferring learners, partial achievers and learners whose outcome is unknown) were dropped from the dataset before looking at the determinants of attainment and at the impact of qualification attainment.

For each learning aim level and qualification type (as detailed above), we generated a treatment group formed of qualification achievers and a counterfactual group formed of learners enrolling in the same learning aim but failing to achieve.

2.3 Stage 2 – Reshaping data to generate highest qualification per learner

Moving from learning aim level to learner level

The analysis on determinants of qualification attainment was carried out at learning aim level. However, in order to assign each learner to the appropriate treatment or counterfactual group, we needed to move from a dataset organised by learning aim, with multiple entries per each learner, to a dataset organised by learner, with one entry per learner.

Hence, the next step consisted of aggregating information to learner level. Some learners have more than one entry, because they have enrolled in more than one qualification aim. We therefore aggregated information at learner level, keeping detailed information on the highest qualification achieved and summary information on other aims. When no qualification was achieved at any level we kept detailed information on the highest aim enrolled in.

This reshaping process was carried out first by aggregating information within the same academic year, then merging across academic years (from 2002/03 to 2005/06). Table 3 provides information on the hierarchical ranking of qualifications in the first instance (e.g. a NVQ Level 3 qualification is ranked more highly than a City & Guilds Level 3 qualification), as only the qualification aim at highest level achieved (or enrolled in for non achievers) was retained. When a learner achieved more than one qualification of the same type (for instance two NVQ Level 2 qualifications), the NVQ qualification with the highest number of guided learning hours was retained as the highest qualification. In case of two aims of the same type with identical guided learning hours, we kept the more recent qualification as the highest.

Table 3: Variable definition – learner level

Variable	Definition
Level 4	Any qualification at level 4
NVQ/GNVQ Level 3	NVQ or GNVQ at level 3
BTEC Level 3	BTEC at level 3
C&G Level 3	City and Guilds at level 3
Academic level 3	Any academic qualification at level 3
Other Level 3	Any other qualification at level 3
NVQ/GNVQ Level 2	NVQ or GNVQ at level 2

Variable	Definition
BTEC Level 2	BTEC at level 2
C&G Level 2	City and Guilds at level 2
Academic level 2	Any academic qualification at level 2
SFL Level 2	Skills for Life at level 2
Other Level 3	Any other qualification at level 2
Skills for Life Level 1	Skills for Life at level 1
Skills for Life Entry Level	Skills for Life at entry level
Other Level 1	Any other qualification at level 1
Other qualifications	Any qualification with level undefined

Source: London Economics

Two identifiers are available to aggregate information across years and subsequently with information from HMRC and DWP: the *ccorcid* identifier from the DWP and the *person instance* identifier from HMRC. We used *ccorcid* as the main identifier and *person instance* when *ccorcid* was not available. We also removed observations where the two identifiers were both available but conflicting (for example when many *ccorcid* entries corresponded to the same person instance or vice versa). Also we removed cases when the same identifier was attributed to individuals with differences in characteristics such as date of birth, gender and ethnicity.

Overall, we generated the following number of observations for subsequent merging:

Figure 8: Cleaning FE datasets

Year	2002/03	2003/04	2004/05	2005/06
Aims	8,384,557	7,993,771	7,934,950	7,372,907
	⇩	⇩	⇩	⇩
Learners (keep highest aim)	2,740,968	2,725,156	2,721,444	2,355,256
	⇩	⇩	⇩	⇩
Learners 2002-06 (keep highest aim)		6,868,830		

Source: London Economics' analysis

The cleaning and reshaping process described so far has focused exclusively on data on learning aims and learners' characteristics from the ILR. At this stage the ILR dataset has one observation per learner in the period 2002-2006 and learners are assigned to the relevant treatment or counterfactual groups, depending on the highest qualification aim achieved or enrolled in (without achievement). In section 2.4, we describe how the relevant variables on earnings, employment and benefits were generated, using data from P14, P45 and National Benefits Database. The relevant data were then merged with ILR information to generate a dataset covering the period from the financial year 1998/99 to 2009/10 and containing information on training, earnings, the proportion of the year spent in employment and benefit dependency.

2.4 Stage 3 – Matching information from the ILR with data from P14, P45 and NBD

Pay and tax records - P14

This dataset contains the *ccorcid* and *person instance* identifiers (the former is not available for all observations), along with information on tax year (from 2003/04 to 2009/10), tax code, pay and tax records for the different employment spells, start date and end date when an employment spell started or finished within the tax year, and a ripeness flag to indicate if all **P14** data has been received for the individual for that year. Overall there are around **76 million** records in the dataset. After removing records with zero or negative earnings and removing a few duplicate observations (most were removed before the data transfer), we used information on pay and taxes to generate a variable containing total pay and total tax for each individual in each available year.

This "clean" dataset, where we have at most one observation per individual per year contains slightly more than **10 million** individuals, as identified through the *ccorcid* and *person instance* identifiers.

Employment spells – P45

The **P45** dataset contains, apart from the identifiers, information on start date and end date of an employment spell and a flag to identify whether the record is a main or subsidiary source of income.

There are a few issues associated to **P45** records:

- The flag on source of income is missing in many cases and might not be entirely reliable when it is available;

- There is a high occurrence of records with uncertain start (e.g. 06 Apr YYYY) or uncertain end (e.g. 05 Apr YYYY) associated to the start/end of the financial year. The spells with an uncertain start or an uncertain end may overlap with records with certain start and end dates, signalling that the two records may be "near duplicates". There are also records with the same (certain) start and different ends, as well as the same (certain) end and different start dates;

- Continuing spells of employment are flagged as ending on '31Dec9999'. However, in many cases it is difficult to assess if the end date is coded '31Dec9999' because the employment spell is associated to an ongoing job or because the end date is missing;

- To take into account the presence of possible "near duplicates" we adopted the following strategy:

  o For records with an uncertain start (06 Apr) ending on the same date of records with a certain start, we kept the record with a certain start;

- o For records with an uncertain end (05 Apr or 31 Dec9999) starting on the same date of records with a certain end, we kept the record with a certain end;

- o When two records have the same (certain) end but different starts, we kept the record with the earliest start;

- o When two records have the same (certain) start but different ends, we kept the record with the latest end;

- o When two records have different starts and both have missing ends (31 Dec9999), we kept the record with the latest start (it is more plausible that later starts are a genuine record of ongoing employment).

After removing these "near duplicates" we generated a variable keeping track of the days spent in employment by each individual in each financial year. The variable was then further recoded and expressed as the proportion of the year spent in employment (ranging from 0 to 1).

The original dataset contains around **72 million** records. After cleaning the dataset and generating a dataset with one observation per year per individual we are left with almost **11 million** individuals. We kept track of employment history starting from the financial year 1998/99.

Benefit spells – National Benefits Database (NBD)

Data on benefit spells is contained in the National Benefits Database, along with the *ccorcid* identifier. We kept information on the following labour market benefits:

- Incapacity Benefits (IB, which includes passported Incapacity Benefits);

- Income Support (IS);

- Jobseekers' Allowance (JSA);

- Disability Living Allowance (DLA).

Jobseekers' Allowance accounts for almost half of total records in the original dataset. When we keep only the four benefits above, we find that around two thirds of records are JSA, 17% relate to IS, 12% relate to IB and 5% relate to DLA.

We removed information on other benefits and, following a process similar to that described above for employment spells, and generated four variables identifying the proportion of the year spent by each individual on each different benefit. The original dataset is formed by approximately **28 million** records. After stripping out non relevant benefits we are left with a dataset of around **6.6 million** observations, with data on benefits starting from the financial year 1998/99.

Merging with the ILR

Information from the ILR was matched with the history of earnings employment and benefits contained in the P14, P45 and NBD. The resulting dataset covers the earnings, employment and benefit history of **6,868,830** individuals between 1998/99 and 2009/10 (all those kept after the reshaping of the ILR).

Some learners were not matched to any of the datasets, while others were matched to one or more of the datasets. Also information may be missing for some learners in some years. Overall we have approximately 20 million earnings records (earnings records are not available before 2003/04), 55 million employment records and **40 million** benefits records. However, it should be safe to assume that individuals with missing benefit record (unmatched in the National Benefits Database) are "unknown" to the DWP, having not claimed benefits in the period considered. Hence, benefit records were coded to zero for all individuals not identified in the NBD and we were left with no missing benefit records[2].

2.5 Stage 4 – Econometric Analysis

Counterfactuals

Different counterfactuals were used to assess the long term impact of further education qualifications and Apprenticeships. The favoured comparison is between achievers (i.e. those completing and achieving a qualification aim) and the counterfactual group formed of individuals who enrolled in the same course (or a course at the same level for the aggregated analysis), but failed to achieve (either because of non-completion or because they failed in the final examinations). This counterfactual analysis is described as *"completers versus non-completers"*. We also looked at other counterfactuals, namely *"simultaneous attainment"*[3] and *"before and after"*[4] (with detailed results are presented in Annex 3 to Annex 5). Table 4 details the different counterfactuals used in the analysis.

Table 4: Counterfactuals

Type	Composition	Time periods under consideration
Completers versus non-completers	Individuals enrolled in same learning aim but failing to achieve (excluding those continuing or transferred to another course).	t+i, where i=1 to 7
Simultaneous Attainment	Individuals achieving a qualification at the level immediately below (for example individuals achieving a qualification at	t+i, where i=1 to 7

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[2] DWP data on benefits (and relative identifiers) are generally considered to be of better quality than HMRC records and it seems reasonable to assume that unmatched records signal that the individual has not been a DWP customer in the period examined. However, we need to acknowledge that there may be data accuracy reasons why a person may not match into either dataset. Although this does not make the approach of coding all benefits records for those not matched to NBD any less reasonable, other factors in the match may need to be recognised.

[3] In this counterfactual, achievers at each level are compared to achievers at the level immediately below (for example achievers at level 2 are compared to achievers at level 1)

[4] In this counterfactual, we compare the same individuals before and after attaining the learning aim

Type	Composition	Time periods under consideration
	level 2 are used as counterfactual for achievers at level 3).	
Before and After	Same individual before and after the qualification	Difference between time t+i (i=2 to 4) and t-1

It should be noticed that at time period t+1, there might be some overlap between learning period and earnings, employment and benefits records (given the structure of the academic year and financial year).

For earnings, the 'before and after' specification is only applicable to individuals enrolled in a course in the academic year 2005/06. In general, given the learning window defined (covering 29 months), the 'before and after' analysis is likely to capture mainly a time effect (we are forced to compare periods 3 to 5 years apart).

In the analysis we estimated the following model:

$$Y_{it} = \alpha + \beta' X_{it} + \delta D_i + \varepsilon_{it} \qquad\qquad t=1,..,7$$

Where the dependent variables is, depending on the specification:

- (log of) real earnings;

- Employment (defined as the proportion of the year spent in employment);

- Dependence on Jobseekers' Allowance and Incapacity Benefits (defined as the proportion of the year an individual spent in receipt of the benefit).

The dummy variable   identifies whether the individual is in the treatment or counterfactual group. For the main counterfactual group of non-completers, the variable D_i identifies whether the learner has achieved the qualification aim (D_i equal to one) or has enrolled in the learning aim but failed to achieve (D_i equal to zero).The other explanatory variables (grouped in X) capture course and learner characteristics:

- Socio-demographic characteristics: age, age squared, gender, ethnicity, disability, region of residence, Index of Multiple Deprivation; and

- Course characteristics: type of funding, delivery mode, number of guided learning hours, course subject;

The earnings variable was generated as income from work earned by an individual during a financial year. The variable does not control for the time spent by an individual in and out of the labour market during the financial year. The baseline specification uses this "raw" earnings variable as the dependent variable with no other labour market controls, while in the extended specification we also included additional labour market controls: the proportion of the year spent in employment and benefit reliance (using JSA, Incapacity Benefit and Income Support). These additional variables control for the fact that higher

annual earnings are normally associated with a higher proportion of the year spent in employment and are expected to attenuate the earnings effect.

The specification for employment and benefit dependency uses the proportion of the year spent in employment or in receipt of a type of benefit as the dependent variable, with no additional labour market controls.

3. Determinants of qualification attainment

3.1 Summary

Box 1: Determinants of qualification attainment

In the first (and preparatory) component of the analysis, we assessed the determinants of **individuals completing the specific learning aims** they enrolled for at different levels within the National Qualification Framework. This was undertaken at an aggregate level (all learning aims); at different qualification levels (levels 1, 2, 3 and 4); and at a disaggregated level (i.e. NVQ Level 1 or City & Guilds Level 2). We also undertook the analysis at different *Skills for Life* levels, as well as for Apprenticeships. We used a range of different econometric specifications and controlled for personal characteristics using learner level information from the ILR, and local area socioeconomic information by merging information from the Index of Multiple Deprivation using learner postcode. The analysis was undertaken at learning aim level (rather than at learner level), and as such, the sample sizes in some of the more aggregated model specifications were in excess of 14 million. The results are exceptionally robust in a statistical sense. It is also the first time that an analysis of the determinants of qualification attainment has been undertaken using this data set. Presented in Table 5, Table 6 and Table 7, the findings are as follows:

- Age has a positive impact on completing most learning aims and the age effect increases as the level of learning aim increases (from 1.7 percentage points per year to 3.8 percentage points per year between level 1 and 3).

- Women are almost always more likely to complete learning aims compared to men and this gender effect increases with qualification level. Women are 1.7 percentage points more likely to complete a level 1 learning aim but approximately 4 percentage points more likely to complete level 2 or level 3 qualifications.

- Compared to white British learners, learners of all other ethnic backgrounds are in general less likely to complete qualifications at all levels, although, there are some notable exceptions for some specific qualifications and ethnic groups.

- Learners that are funded in their entirety by the Learning and Skills Council are significantly less likely to complete their training compared to individuals that are non-LSC funded. The difference stands at approximately 4 percentage points at level 1 and 2, but increases to approximately 7 percentage points at level 3.

- Local deprivation factors determine completion of learning aims. Learners that

> ### Box 1: Determinants of qualification attainment
>
> are resident in areas suffering greater socioeconomic deprivation are less likely to complete their learning aim compared to learners in areas suffering less deprivation. Compared to the median level of deprivation, a learner in the 75th percentile of deprivation (i.e. top quartile) is approximately 1.5 percentage points less likely to complete a level 1 or level 2 learning aim, and approximately 3 percentage points less likely to complete a level 3 of level 4 learning aim.
>
> - In general, acquisition of learning aims through classroom contact was most successful at level 1 and level 3; however, workplace learning was associated with the highest success rates at level 2 – especially for men.
>
> - The analysis indicates that compared to 2002/03, individuals in 2006/07 were 4 percentage points more likely to complete a level 1 learning aim, while at level 3, learners were more than 10 percentage points more likely to complete.

3.2 Detailed results of the determinants of qualification attainment

In this section we provide detailed results associated with the determinants of qualification attainment. The analysis used information from the ILR and we modelled a number of different specifications. In particular, we considered the determinants of learners completing different learning aims at and aggregate level (level 1, level 2, level 3, and level 4), as well as considering the determinants of completing individual learning aims at a disaggregated level (for instance, National Vocational Qualifications, BTECs, City & Guilds, Apprenticeships and *Skills for Life* qualifications). The analysis was undertaken for all learners and for men and women separately. We also modelled the determinants of qualification attainment using standard probit analysis (Table 5 to Table 7) and using an ordered probit analysis (Annex 2)[5].

In terms of independent variables, in each of the model specifications, we controlled for a number of factors including age (and age squared), gender, ethnic origin, disability, mode of learning, funding stream, number of guided learning hours, local level socioeconomic factors (using the Index of Multiple Deprivation), region of residence and year of attainment. The analysis was undertaken at learning aim level (rather than at learner level), and as such, the sample sizes in some of the more aggregated model specifications were in excess of **14 million**. The results are exceptionally robust in a statistical sense.

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[5] The difference between the probit and ordered probit models is that the probit model estimates the determinants of qualification attainment for the sample attempting the specific level or type of qualification under consideration where the dependent variable has a binary outcome (completion versus non completion). In contrast, the ordered probit uses the entire sample of learners attempting a qualification at hierarchal levels (level, 1, level 2, level 3 and level 4) and has multiple response variables (completion at level 1, completion at level 2, completion at level 3 and completion at level 4).

Although this element of the analysis is not the primary focus of the research project, this does build on some existing work in the field of the determinants of qualification attainment (Mickelwright (1988)[6], Blundell et al (1996)[7], Conlon (2005)[8]) and (we believe) is the first time that the ILR has been used to consider this research question. In addition, this analysis assists in the identification of the particular variables contained in the ILR that might be used as independent variables in the subsequent analysis relating to the estimation of the long term labour market outcomes to control for qualification completion when comparing completers versus non-completers.

Age

Turning to the results of the probit models, the estimates indicate that there is a positive and increasing relationship between age and the likelihood of completion. From Table 5, the analysis suggests that for every additional year of learner's age, the likelihood of attaining a qualification increases by approximately 1 percentage point at level 1, increasing to approximately 3.8 percentage points at level 4. The analysis also suggests that the impact of age on completion is slightly higher for men than for women (by between 0.5 and 1.0 percentage points). There is some variation depending on the specific level and type of qualification (Table 6). Looking at qualifications at a disaggregated level, age has a significant effect on completion for qualifications such as *Skills for Life* at level 1 (2.0%) and *Skills for Life* at level 2 (3.6%), with a more limited impact on City & Guilds at Level 2 (1.2%), National Vocational Qualifications at level 2 (0.4%), and BTEC Level 2 (-2.4%). At level 3, the impact of age is again relatively small for National Vocational Qualifications (0.6%), although there are strong age effects associated with BTEC Level 3 qualifications (5.5%). Age has a particularly strong impact on the probability of completing either a Foundation Apprenticeship or an Advanced Apprenticeship (49.6% and 59.4% respectively); however, this is predominantly as a result of the significant concentration of learners in the age 18-22 age bracket and the fact that completers are marginally older on average than non-completers.

Gender

There is a generally consistent relationship between gender and the probability of completing learning aims. Women are more likely to complete qualifications in the almost entirety of cases analysed. In particular, women are, on average, 1.4% more likely to complete at level 1 and between 3.5% and 4.8% more likely to complete between levels 2 to 4. At a disaggregated level, women are approximately 2.5% more likely to complete a *Skills for Life* learning aim at level 1 or level 2 or a BTEC qualification at level 2. Women are also slightly more likely to complete National Vocational Qualifications at level 2 (0.6%); however, there is no substantial difference across genders in relation to City and Guilds attainment at this level. At level 3, women increase the relative probability of completing specific qualifications; posting a 4.9% relative outperformance in completing BTEC Level 3 qualifications; a 4.2% increased probability of completing a City & Guilds qualification at level 3; and a 3.1% increased probability of completing a National

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[6] Micklewright, J. (1988), "Choice at sixteen", *Economica*, Volume 56 pp 25-39

[7] Blundell, R, Dearden, L. and Meghir, C. (1996) "The determinants and effects of work related training in Britain" Institute for Fiscal Studies, 1996

[8] Conlon, G. (2005), "The determinants of undertaking academic and vocational qualifications in the United Kingdom, Education Economics, Volume 13 No 3.

Vocational Qualification at level 3. The analysis also suggests that women are 3.1% more likely to complete a Foundation level Apprenticeship; however, despite this, women are approximately 5.7% less likely to complete an Advanced Apprenticeship.

Ethnic origin

We have also assessed the role of ethnic origin in determining qualification completion. Compared to individuals of white British origin, the analysis suggests that in general individuals of minority ethnic backgrounds are less likely to complete learning aims they are enrolled for; however, there are exceptions for some ethnic groups and specific qualifications. For instance, female learners of Bangladeshi origin are more likely to complete at *Skills for Life* qualifications at level 1 and BTEC Level 2 qualifications while learners from other ethnic minority backgrounds are also as likely (or only marginally less likely) to complete these qualifications compared to white British learners. However, black Caribbean learners or learners from other black ethnic minority groupings are significantly less likely to complete *Skills for Life* at level 1.

There is a particularly strong negative effect between ethnic origin and completion of *Skills for Life* learning aims at level 2; however, the relatively poor outcomes posted by those from some ethnic minorities also occur in relation to other qualifications such as City & Guilds at level 2 (for instance, an 11.3% and 11.4% negative effect for learners of black African and black Caribbean origin respectively). The negative impact of ethnic origin on attainment is also demonstrated when considering National Vocational Qualifications at level 2, with the exception of learners from Indian background. In particular, black African and Bangladeshi learners are 2.0% less likely to complete these qualifications, while black Caribbean learners are 4.7% less likely to complete this qualification.

However, the negative impact of ethnic origin on learning outcomes is not universal. In particular, being from an ethnic minority has a positive and significant role in determining whether BTEC qualifications are attained at level 2. Bangladeshi, Pakistani and Indian learners are between 2.0% and 8.7% more likely to complete these learner aims compared to their white British counterparts (with no statistical difference between black-Caribbean and white British learners). These outcomes are replicated at level 3, where ethnic origin appears to have a negative impact on completion in the more occupational orientated vocational qualification but a positive impact in the more classroom based vocational qualifications.

Mode of attainment

The ILR contains detailed information on the mode of learning and in particular, differentiates whether the learning aim was predominantly achieved through class contact, open learning, distance-learning, accreditation of prior learning or e-learning. For a number of qualifications (especially National Vocational Qualifications), there is also information on whether the qualification was attained through the provider only, in the workplace only or through a combination of workplace and classroom learning. At an aggregate level, the econometric analysis indicates that class contact is associated with better probabilities of attainment (compared to open or distance learning, APL or e-learning), although there is no identifiable relationship between the level of qualification and the extent to which class contact is associated with improved learner outcomes.

At a more disaggregated level, the analysis indicates that men are approximately 1.3% more likely to attain a National Vocational Qualification through a workplace only route (compared to class contact) and more than 6% more likely to achieve a NVQ Level 2 on this route than through a provider only. However, some care should be taken when considering these specific results, as there may be some ambiguity in the coding of the original information in the ILR that biases the results of the analysis.

Course funding

We have also estimated the impact of the source of funding on the probability of completing aggregated and disaggregated learning aims. Compared to learning aims that were non-LSC funded, the econometric analysis suggests that learning aims that were exclusively funded through the LSC were associated with lower completion rates and that the rate of non-completion broadly increased as the level of learning aim increased. Learning aims at level 1 and 2 that were LSC funded (exclusively) were associated with around 4% reduced likelihood of completion, while learning aims at level 3 were associated with a 7% reduced likelihood of completion. There was some variation by gender, though less should be inferred from this. Men undertaking learning aims at level 1 in receipt of LSC funding were less likely to fail to complete the qualification than women (-1.9% compared to -5.9%), while men at level 2 and 3 were significantly more likely to fail to complete a LSC funded qualification (-5.1% and -10% compared to -1.7% and -1.2% respectively).

At a disaggregated level, LSC funded *Skills for Life* qualifications were generally associated with a reduced probability of completion – especially amongst women at Entry level and level 1 and amongst men at level 2, while BTEC qualifications at level 2 were also associated with relatively low completion rates (7.9% reduced probability of completion compared to non-LSC funded). However, the negative relationship between the LSC as a source of funding and completion was not universally negative. In particular, men undertaking LSC funded National Vocational Qualifications at level 2 were approximately 1.5% more likely to complete the qualification, while women were approximately 5.7% more likely to complete compared to those that did not rely on LSC funding. A similar outcome was demonstrated in relation to National Vocational Qualifications at level 3 (for women only).

Region of residence and socio-economic factors

In terms of region of residence, compared to individuals resident in the North East of England, the analysis is fairly consistent across qualification level and indicates that learners resident in London, the South East and Yorkshire and the Humber are less likely to complete their learning aim (by between 3% and 7% depending on the level). The dataset also covers individuals residing in the rest of the UK, but enrolled in a course provided by an English provider. These individuals are more likely to complete in most cases. Region of learner residence appears to play a particularly significant role in determining the completion rates for those enrolled in National Vocational Qualifications at level 2 and *Skills for Life* qualifications at both level 1 and level 2.

We also merged information from the Index of Multiple Deprivation (2007) using learner postcode information. The analysis suggests that as the level of deprivation increases, the probability of completing a qualification decreases, irrespective of the level. The econometric analysis indicates that the influence of deprivation on non-completion

increases as the level of learning aim increases. In particular, compared to the median level of deprivation, a learner in the 75th percentile of deprivation (i.e. top quarter) is approximately 1.5 percentage points less likely to complete a level 1 or level 2 learning aim, and 3 percentage points less likely to complete a level 3 of level 4 learning aim.

Time effects

Finally in this section, we comment on the impact of time effects on qualification completion. The analysis indicates that there is a time effect, which increases when interacted with the level of qualification. In particular, compared to 2002/03, an individual undertaking a learning aim in 2005/06 at level 1 is approximately 6.6% more likely to obtain the qualification, which increases to 13.3% and 11.5% at level 2 and 3 respectively. The time effect is particularly important for *Skills for Life* qualifications, Foundation and Advanced Apprenticeships, and BTECs at level 3.

This information is presented at an aggregate level (Table 5), disaggregated at levels 1 and 2 (Table 6) and disaggregated at levels 3 and 4 (Table 7).

Table 5: Determinants of qualification attainment - by level (probit)

	Level 1			Level 2			Level 3			Level 4			Other level		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Age	0.017***	0.019***	0.015***	0.028***	0.029***	0.027***	0.038***	0.043***	0.034***	0.004***	0.003***	0.005***	0.008***	0.011***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Age Squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***	-0.000***	-0.000***	-0.000**	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.014***			0.040***			0.035***			0.048***			-0.017***		
	(0.000)			(0.000)			(0.001)			(0.002)			(0.000)		
Disability	0.017***	0.025***	0.009***	-0.033***	-0.027***	-0.039***	-0.036***	-0.030***	-0.038***	-0.048***	-0.054***	-0.042***	0.004***	0.001	0.008***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.004)	(0.006)	(0.006)	(0.000)	(0.001)	(0.001)
White - Any Other	-0.021***	-0.036***	-0.013***	-0.002*	-0.002	-0.002	-0.016***	-0.024***	-0.010***	-0.011**	-0.031***	-0.001	-0.009***	-0.012***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.005)	(0.008)	(0.006)	(0.001)	(0.001)	(0.001)
Bangladeshi	0.014***	-0.002	0.027***	-0.006**	-0.016***	0.004	-0.044***	-0.078***	-0.004	-0.098***	-0.139***	-0.051**	0.021***	0.017***	0.027***
	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.015)	(0.021)	(0.023)	(0.001)	(0.002)	(0.002)
Indian	-0.016***	-0.018***	-0.013***	-0.024***	-0.039***	-0.012***	-0.032***	-0.036***	-0.025***	-0.056***	-0.081***	-0.037***	0.008***	0.008***	0.010***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.007)	(0.011)	(0.009)	(0.001)	(0.001)	(0.001)
Pakistani	-0.022***	-0.041***	-0.011***	-0.048***	-0.067***	-0.030***	-0.040***	-0.064***	-0.013***	-0.089***	-0.137***	-0.040***	-0.010***	-0.010***	-0.005***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.008)	(0.011)	(0.011)	(0.001)	(0.001)	(0.001)
Other Asian	-0.028***	-0.035***	-0.023***	-0.054***	-0.060***	-0.048***	-0.077***	-0.092***	-0.060***	-0.113***	-0.129***	-0.097***	0.000	-0.000	0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.004)	(0.006)	(0.006)	(0.011)	(0.015)	(0.015)	(0.001)	(0.002)	(0.002)
Black – African	-0.029***	-0.034***	-0.025***	-0.068***	-0.065***	-0.071***	-0.087***	-0.099***	-0.073***	-0.144***	-0.174***	-0.111***	0.018***	0.009***	0.025***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.004)	(0.007)	(0.010)	(0.010)	(0.001)	(0.001)	(0.001)
Black – Caribbean	-0.087***	-0.089***	-0.084***	-0.084***	-0.095***	-0.076***	-0.101***	-0.108***	-0.094***	-0.108***	-0.109***	-0.106***	-0.015***	-0.018***	-0.011***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.003)	(0.007)	(0.013)	(0.009)	(0.001)	(0.002)	(0.001)
Black - Other	-0.072***	-0.073***	-0.072***	-0.107***	-0.107***	-0.107***	-0.100***	-0.101***	-0.100***	-0.108***	-0.118***	-0.099***	-0.003	-0.013***	0.005**
	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)	(0.005)	(0.008)	(0.007)	(0.014)	(0.022)	(0.018)	(0.002)	(0.003)	(0.002)
Chinese	-0.039***	-0.027***	-0.043***	-0.014***	-0.002	-0.020***	-0.012***	-0.014*	-0.003	-0.064***	-0.123***	-0.032**	0.006***	0.010***	0.005**
	(0.002)	(0.003)	(0.002)	(0.003)	(0.005)	(0.004)	(0.005)	(0.007)	(0.006)	(0.013)	(0.022)	(0.016)	(0.002)	(0.002)	(0.002)
Mixed Race	-0.062***	-0.061***	-0.062***	-0.070***	-0.073***	-0.068***	-0.074***	-0.082***	-0.067***	-0.073***	-0.101***	-0.052***	-0.015***	-0.017***	-0.013***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.004)	(0.009)	(0.014)	(0.011)	(0.001)	(0.002)	(0.001)
Any Other	-0.034***	-0.040***	-0.031***	-0.060***	-0.060***	-0.061***	-0.064***	-0.090***	-0.043***	-0.083***	-0.111***	-0.059***	-0.013***	-0.013***	-0.013***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)	(0.009)	(0.013)	(0.012)	(0.001)	(0.001)	(0.001)
Not Known/ Provided	-0.026***	-0.027***	-0.025***	-0.024***	-0.025***	-0.025***	-0.024***	-0.030***	-0.023***	-0.010*	-0.005	-0.013*	0.001	0.003**	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.006)	(0.009)	(0.008)	(0.001)	(0.001)	(0.001)
Open learning	-0.117***	-0.139***	-0.105***	-0.104***	-0.089***	-0.110***	-0.140***	-0.159***	-0.114***	-0.179***	-0.237***	-0.111***	-0.049***	-0.089***	-0.027***
	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.006)	(0.005)	(0.012)	(0.016)	(0.017)	(0.002)	(0.003)	(0.002)
Distance learning	-0.052***	-0.097***	-0.033***	0.066***	0.015***	0.081***	-0.050***	-0.111***	-0.003	0.010*	-0.058***	0.046***	-0.147***	-0.257***	-0.102***
	(0.001)	(0.003)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.004)	(0.003)	(0.006)	(0.010)	(0.007)	(0.003)	(0.006)	(0.003)
APL	-0.035	-0.005	-0.055	-0.020	0.046	-0.071*	-0.035	-0.137**	-0.010	-0.086**	-0.109	-0.081**	-0.131***	-0.138	-0.124***
	(0.065)	(0.107)	(0.083)	(0.031)	(0.047)	(0.041)	(0.025)	(0.069)	(0.026)	(0.037)	(0.084)	(0.041)	(0.040)	(0.086)	(0.045)
E – learning	-0.298***	-0.291***	-0.299***	-0.098***	-0.069***	-0.117***	-0.401***	-0.442***	-0.348***	-0.202***	-0.284***	-0.136***	-0.302***	-0.323***	-0.287***

	Level 1			Level 2			Level 3			Level 4			Other level		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
	(0.004)	(0.006)	(0.005)	(0.003)	(0.005)	(0.004)	(0.006)	(0.007)	(0.009)	(0.033)	(0.046)	(0.045)	(0.005)	(0.009)	(0.006)
NVQ (provider only)	0.026***	0.024***	0.026***	-0.001	0.010***	-0.013***	-0.009***	-0.049***	0.004*	-0.026***	-0.022**	-0.024***	-0.041***	-0.068***	-0.028***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.005)	(0.010)	(0.006)	(0.003)	(0.005)	(0.004)
NVQ(provider / workplace)	0.023***	0.006*	0.034***	-0.009***	0.016***	-0.028***	-0.088***	-0.116***	-0.071***	-0.026***	-0.077***	-0.004	-0.093***	-0.105***	-0.075***
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.004)	(0.007)	(0.004)	(0.005)	(0.008)	(0.008)
NVQ (workplace only)	-0.051***	-0.025**	-0.062***	0.055***	0.100***	-0.029***	-0.105***	-0.139***	-0.072***	-0.138***	-0.203***	-0.095***	-0.048***	-0.179***	0.012
	(0.006)	(0.010)	(0.007)	(0.002)	(0.003)	(0.004)	(0.005)	(0.008)	(0.006)	(0.010)	(0.016)	(0.013)	(0.013)	(0.031)	(0.012)
LSC only	-0.042***	-0.019***	-0.059***	-0.039***	-0.051***	-0.017***	-0.070***	-0.100***	-0.012***	-0.015***	-0.006	-0.017***	-0.007***	-0.002***	-0.012***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.000)	(0.001)	(0.001)
LSC & ESF co-funded	-0.030***	-0.013***	-0.045***	-0.041***	-0.052***	-0.019***	-0.070***	-0.098***	-0.009***	-0.007*	0.003	-0.011**	-0.008***	-0.011***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.006)	(0.005)	(0.001)	(0.001)	(0.001)
GLH 10-30	0.206***	0.217***	0.200***	0.152***	0.165***	0.145***	0.127***	0.183***	0.079***	0.055***	0.129***	-0.002	0.184***	0.173***	0.191***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.003)	(0.010)	(0.014)	(0.013)	(0.000)	(0.001)	(0.001)
GLH 31-60	0.123***	0.116***	0.127***	0.075***	0.082***	0.069***	0.079***	0.145***	0.029***	-0.038***	-0.027***	-0.044***	0.063***	0.071***	0.055***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.005)	(0.008)	(0.006)	(0.000)	(0.001)	(0.001)
GLH 61-120	-0.010***	-0.020***	-0.004***	-0.035***	-0.043***	-0.029***	-0.019***	0.003	-0.027***	-0.007**	-0.011*	-0.004	0.006***	0.009***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.006)	(0.004)	(0.000)	(0.001)	(0.001)
GLH 121-240	0.050***	0.043***	0.055***	0.033***	0.037***	0.031***	0.064***	0.108***	0.043***	-0.021***	-0.031***	-0.014***	0.006***	0.001	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.003)	(0.005)	(0.004)	(0.001)	(0.001)	(0.001)
GLH 240+	0.068***	0.064***	0.072***	0.104***	0.099***	0.111***	0.148***	0.194***	0.122***	-0.038***	-0.022***	-0.051***	-0.011***	-0.016***	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.005)	(0.004)	(0.001)	(0.001)	(0.002)
IMD score	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
North West	-0.008***	-0.019***	-0.001	-0.013***	-0.023***	-0.004***	0.018***	0.019***	0.017***	-0.007	-0.018***	0.002	0.012***	0.007***	0.017***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.006)	(0.005)	(0.001)	(0.001)	(0.001)
Yorkshire & Humberside	-0.020***	-0.031***	-0.013***	-0.034***	-0.045***	-0.025***	0.006***	0.004*	0.008***	-0.047***	-0.061***	-0.035***	-0.026***	-0.017***	-0.032***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.005)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
East Midlands	-0.005***	-0.004***	-0.005***	-0.012***	-0.019***	-0.005***	-0.006***	-0.006**	-0.008***	0.014***	0.017**	0.011*	0.028***	0.032***	0.025***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.005)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
West Midlands	-0.003***	-0.016***	0.005***	-0.047***	-0.063***	-0.035***	-0.026***	-0.036***	-0.020***	-0.040***	-0.053***	-0.028***	0.019***	0.016***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
East of England	-0.025***	-0.038***	-0.017***	-0.038***	-0.055***	-0.024***	-0.012***	-0.025***	-0.004*	-0.039***	-0.043***	-0.033***	0.009***	0.005***	0.014***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.005)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
London	-0.030***	-0.049***	-0.017***	-0.070***	-0.082***	-0.060***	-0.029***	-0.038***	-0.022***	-0.012***	-0.031***	0.001	-0.036***	-0.038***	-0.031***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.005)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
South East	-0.031***	-0.051***	-0.018***	-0.052***	-0.078***	-0.032***	0.001	-0.005**	0.005**	0.010**	-0.019***	0.032***	-0.001*	-0.006***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.004)	(0.007)	(0.005)	(0.001)	(0.001)	(0.001)
South West	-0.003***	-0.013***	0.004***	-0.032***	-0.042***	-0.023***	-0.002	-0.008***	0.000	-0.010**	-0.018**	-0.003	0.002**	-0.001	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.005)	(0.007)	(0.006)	(0.001)	(0.001)	(0.001)
Wales	0.057***	0.064***	0.044***	0.013**	0.035***	-0.021**	0.043***	0.033***	0.046***	-0.015	-0.033	0.006	0.044***	0.053***	0.022***
	(0.005)	(0.007)	(0.007)	(0.006)	(0.008)	(0.009)	(0.007)	(0.010)	(0.011)	(0.016)	(0.023)	(0.023)	(0.003)	(0.003)	(0.005)
Scotland	0.058***	0.101***	0.013*	-0.015**	-0.027***	-0.001	0.084***	0.107***	0.047***	0.032**	-0.005	0.096***	0.053***	0.054***	0.044***
	(0.005)	(0.007)	(0.007)	(0.006)	(0.009)	(0.009)	(0.008)	(0.011)	(0.013)	(0.014)	(0.019)	(0.022)	(0.003)	(0.003)	(0.005)
Northern Ireland	0.140***	0.154***	0.116***	0.067***	0.051**	0.093***	0.109***	0.086***	0.143***	0.023	0.067*	-0.063	0.039***	0.024**	0.060***
	(0.015)	(0.019)	(0.026)	(0.019)	(0.026)	(0.028)	(0.023)	(0.031)	(0.033)	(0.029)	(0.034)	(0.058)	(0.008)	(0.010)	(0.013)

	Level 1			Level 2			Level 3			Level 4			Other level		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
2004	0.031*** (0.000)	0.038*** (0.001)	0.026*** (0.001)	0.028*** (0.001)	0.034*** (0.001)	0.024*** (0.001)	0.029*** (0.001)	0.029*** (0.001)	0.029*** (0.001)	0.007*** (0.003)	0.010** (0.004)	0.006* (0.003)	-0.008*** (0.000)	0.001* (0.001)	-0.015*** (0.001)
2005	0.054*** (0.000)	0.065*** (0.001)	0.047*** (0.001)	0.088*** (0.001)	0.098*** (0.001)	0.080*** (0.001)	0.077*** (0.001)	0.079*** (0.001)	0.073*** (0.001)	0.056*** (0.003)	0.058*** (0.004)	0.054*** (0.003)	0.035*** (0.000)	0.033*** (0.001)	0.036*** (0.001)
2006	0.066*** (0.000)	0.082*** (0.001)	0.056*** (0.001)	0.133*** (0.001)	0.153*** (0.001)	0.120*** (0.001)	0.115*** (0.001)	0.113*** (0.001)	0.115*** (0.001)	0.091*** (0.003)	0.095*** (0.004)	0.086*** (0.003)	0.045*** (0.000)	0.043*** (0.001)	0.046*** (0.000)
Observations	7,818,759	3,118,350	4,700,409	4,514,494	1,813,134	2,701,360	2,091,857	887,067	1,204,790	273,517	116,808	156,709	4,922,679	2,144,244	2,778,435

Source: **London Economics, *** p<0.01, ** p<0.05, * p<0.1**. Standard errors in parenthesis.

Table 6: Determinants of qualification attainment – by detailed qualification at level 1 and 2 (probit)

	SFL Entry			SFL 1			SFL 2			C&G 2			BTEC 2			NVQ/GNVQ 2		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Age	-0.003*** (0.000)	-0.005*** (0.000)	-0.002*** (0.000)	0.020*** (0.000)	0.017*** (0.000)	0.022*** (0.000)	0.036*** (0.000)	0.027*** (0.001)	0.041*** (0.001)	0.012*** (0.001)	0.016*** (0.001)	0.004*** (0.001)	-0.024*** (0.001)	-0.029*** (0.002)	-0.024*** (0.002)	0.004*** (0.000)	0.004*** (0.001)	0.003*** (0.000)
Age Squared	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000* (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)
Female	0.013*** (0.001)			0.025*** (0.001)			0.028*** (0.001)			-0.002 (0.003)			0.026*** (0.003)			0.006*** (0.001)		
Disability	0.050*** (0.001)	0.057*** (0.002)	0.043*** (0.001)	0.039*** (0.001)	0.054*** (0.001)	0.025*** (0.001)	-0.048*** (0.002)	-0.040*** (0.003)	-0.055*** (0.003)	-0.032*** (0.006)	-0.035*** (0.007)	-0.026** (0.010)	0.038*** (0.003)	0.045*** (0.004)	0.031*** (0.005)	-0.011*** (0.002)	-0.004 (0.003)	-0.015*** (0.003)
White - Any Other	-0.039*** (0.002)	-0.050*** (0.003)	-0.030*** (0.002)	0.007*** (0.002)	0.001 (0.003)	0.014*** (0.002)	0.045*** (0.003)	0.047*** (0.004)	0.045*** (0.003)	0.011 (0.008)	0.019* (0.011)	-0.000 (0.013)	0.027*** (0.008)	0.013 (0.011)	0.042*** (0.011)	-0.004 (0.004)	-0.007 (0.006)	-0.004 (0.005)
Bangladeshi	-0.001 (0.002)	-0.002 (0.004)	-0.000 (0.003)	0.031*** (0.003)	0.027*** (0.005)	0.036*** (0.004)	-0.034*** (0.006)	-0.033*** (0.008)	-0.029*** (0.009)	-0.090*** (0.025)	-0.096*** (0.030)	-0.065 (0.045)	0.025** (0.012)	0.002 (0.016)	0.068*** (0.020)	-0.020*** (0.007)	-0.054*** (0.010)	0.020* (0.011)
Indian	-0.030*** (0.002)	-0.012*** (0.004)	-0.036*** (0.003)	0.001 (0.003)	-0.001 (0.004)	0.001 (0.003)	-0.069*** (0.004)	-0.064*** (0.005)	-0.073*** (0.006)	-0.062*** (0.012)	-0.061*** (0.015)	-0.064*** (0.021)	0.087*** (0.007)	0.073*** (0.010)	0.109*** (0.011)	0.046*** (0.004)	0.019*** (0.007)	0.068*** (0.006)
Pakistani	-0.033*** (0.002)	-0.020*** (0.004)	-0.039*** (0.002)	-0.003 (0.002)	-0.013*** (0.003)	0.001 (0.003)	-0.073*** (0.003)	-0.074*** (0.005)	-0.069*** (0.005)	-0.130*** (0.014)	-0.140*** (0.016)	-0.105*** (0.024)	0.028*** (0.007)	0.005 (0.009)	0.063*** (0.011)	0.009** (0.004)	-0.025*** (0.006)	0.045*** (0.006)
Other Asian	-0.022*** (0.002)	-0.018*** (0.003)	-0.022*** (0.003)	-0.010*** (0.003)	-0.005 (0.004)	-0.009** (0.004)	-0.029*** (0.005)	-0.001 (0.007)	-0.045*** (0.007)	-0.072*** (0.017)	-0.098*** (0.022)	-0.020 (0.029)	0.054*** (0.012)	0.034** (0.015)	0.097*** (0.019)	-0.015** (0.007)	-0.033*** (0.010)	0.002 (0.009)
Black – African	-0.002 (0.002)	0.005* (0.003)	-0.006*** (0.002)	-0.005*** (0.002)	0.005* (0.003)	-0.012*** (0.002)	-0.051*** (0.003)	-0.025*** (0.005)	-0.069*** (0.005)	-0.113*** (0.012)	-0.117*** (0.014)	-0.107*** (0.020)	0.073*** (0.006)	0.059*** (0.008)	0.090*** (0.009)	-0.020*** (0.004)	-0.050*** (0.007)	0.002 (0.005)
Black – Caribbean	-0.049*** (0.004)	-0.031*** (0.006)	-0.061*** (0.005)	-0.101*** (0.003)	-0.101*** (0.004)	-0.099*** (0.004)	-0.125*** (0.004)	-0.115*** (0.006)	-0.129*** (0.006)	-0.114*** (0.011)	-0.121*** (0.015)	-0.101*** (0.018)	-0.009 (0.007)	-0.019** (0.009)	0.005 (0.010)	-0.047*** (0.005)	-0.060*** (0.007)	-0.036*** (0.006)
Black - Other	-0.023*** (0.004)	-0.017*** (0.006)	-0.028*** (0.006)	-0.079*** (0.004)	-0.069*** (0.006)	-0.086*** (0.006)	-0.130*** (0.007)	-0.104*** (0.009)	-0.149*** (0.009)	-0.158*** (0.022)	-0.167*** (0.030)	-0.144*** (0.032)	-0.009 (0.012)	-0.026 (0.017)	0.012 (0.018)	-0.060*** (0.008)	-0.082*** (0.013)	-0.045*** (0.011)
Chinese	-0.041*** (0.003)	-0.027*** (0.006)	-0.047*** (0.004)	-0.022*** (0.004)	-0.002 (0.007)	-0.032*** (0.005)	0.025*** (0.006)	0.051*** (0.009)	0.016** (0.008)	0.025 (0.024)	0.035 (0.032)	0.017 (0.036)	0.056*** (0.020)	0.036 (0.027)	0.084*** (0.029)	-0.005 (0.010)	-0.039** (0.016)	0.017 (0.012)
Mixed Race	-0.029*** (0.003)	-0.016*** (0.005)	-0.036*** (0.004)	-0.056*** (0.003)	-0.046*** (0.004)	-0.062*** (0.004)	-0.081*** (0.004)	-0.077*** (0.005)	-0.081*** (0.005)	-0.074*** (0.013)	-0.060*** (0.017)	-0.095*** (0.021)	-0.035*** (0.007)	-0.038*** (0.010)	-0.033*** (0.011)	-0.068*** (0.005)	-0.075*** (0.008)	-0.063*** (0.006)

	SFL Entry			SFL 1			SFL 2			C&G 2			BTEC 2			NVQ/GNVQ 2		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Any Other	-0.027*** (0.002)	-0.020*** (0.003)	-0.031*** (0.002)	-0.020*** (0.002)	-0.015*** (0.003)	-0.019*** (0.003)	-0.018*** (0.004)	0.007 (0.006)	-0.032*** (0.005)	-0.041*** (0.012)	-0.044*** (0.015)	-0.034* (0.020)	0.035*** (0.009)	0.031** (0.012)	0.040*** (0.015)	-0.052*** (0.005)	-0.079*** (0.008)	-0.034*** (0.007)
Not Known/ Provided	-0.030*** (0.002)	-0.026*** (0.004)	-0.031*** (0.003)	-0.011*** (0.002)	-0.004 (0.004)	-0.015*** (0.003)	0.005 (0.004)	-0.009 (0.006)	0.022*** (0.005)	-0.047*** (0.008)	-0.053*** (0.010)	-0.034** (0.014)	-0.027*** (0.010)	-0.032** (0.013)	-0.024 (0.016)	-0.014*** (0.004)	0.001 (0.006)	-0.031*** (0.005)
Open learning	0.038*** (0.006)	0.029*** (0.009)	0.045*** (0.007)	0.096*** (0.005)	0.125*** (0.007)	0.077*** (0.006)	0.022* (0.012)	0.063*** (0.021)	0.008 (0.014)	0.025** (0.012)	0.038** (0.016)	0.004 (0.018)	0.066 (0.064)	0.041 (0.085)	0.083 (0.100)	-0.164*** (0.021)	-0.258*** (0.038)	-0.126*** (0.025)
Distance learning	0.044*** (0.012)	0.054*** (0.017)	0.027 (0.017)	-0.062*** (0.008)	-0.105*** (0.015)	-0.030*** (0.010)	0.129*** (0.011)	0.183*** (0.022)	0.118*** (0.013)	-0.180*** (0.025)	-0.158*** (0.030)	-0.199*** (0.051)	0.200*** (0.007)	0.232*** (0.010)	0.192*** (0.009)	-0.049*** (0.006)	-0.059*** (0.011)	-0.041*** (0.007)
APL				0.245** (0.108)	0.092 (0.222)		0.070 (0.072)	0.143 (0.123)	0.035 (0.089)							-0.265*** (0.086)	-0.208 (0.256)	-0.268*** (0.092)
E – learning	-0.096*** (0.027)	-0.129*** (0.041)	-0.073** (0.035)	-0.104*** (0.010)	-0.060*** (0.017)	-0.127*** (0.012)	0.221*** (0.023)	0.250*** (0.036)	0.199*** (0.029)	-0.034 (0.059)	-0.053 (0.060)	0.079 (0.271)						
NVQ (provider only)				0.236* (0.139)			-0.268** (0.114)	-0.258** (0.100)		0.243*** (0.065)	0.263*** (0.064)	0.147 (0.205)				-0.022*** (0.002)	-0.053*** (0.003)	-0.009*** (0.002)
NVQ(provider / workplace)										-0.216** (0.094)	-0.228** (0.111)	-0.149 (0.179)	-0.511*** (0.122)	-0.510*** (0.119)		-0.042*** (0.002)	-0.055*** (0.003)	-0.036*** (0.003)
NVQ (workplace only)																0.003 (0.003)	0.013*** (0.005)	-0.045*** (0.005)
LSC only	-0.019*** (0.003)	0.010** (0.005)	-0.036*** (0.003)	0.007*** (0.002)	-0.009*** (0.003)	0.033*** (0.003)	-0.095*** (0.003)	-0.122*** (0.003)	-0.015*** (0.005)	0.008 (0.006)	0.003 (0.006)	0.030 (0.020)	-0.079*** (0.010)	-0.094*** (0.012)	-0.039* (0.021)	0.032*** (0.003)	0.015*** (0.003)	0.057*** (0.004)
LSC & ESF co-funded	0.046*** (0.003)	0.055*** (0.005)	0.041*** (0.004)	-0.000 (0.002)	-0.023*** (0.003)	0.030*** (0.003)	-0.125*** (0.003)	-0.147*** (0.003)	-0.046*** (0.005)	0.030*** (0.007)	0.034*** (0.008)	0.024 (0.021)	-0.065*** (0.012)	-0.081*** (0.014)	-0.022 (0.022)	0.045*** (0.003)	0.029*** (0.004)	0.070*** (0.004)
GLH 10-30	0.139*** (0.001)	0.160*** (0.002)	0.123*** (0.002)	0.133*** (0.002)	0.125*** (0.003)	0.139*** (0.003)	0.175*** (0.003)	0.186*** (0.005)	0.164*** (0.004)	0.028** (0.013)	0.053*** (0.013)	-0.151*** (0.040)	0.135*** (0.018)	0.179*** (0.040)	0.111*** (0.022)	0.080*** (0.006)	0.004 (0.010)	0.122*** (0.007)
GLH 31-60	0.075*** (0.001)	0.090*** (0.002)	0.065*** (0.001)	0.043*** (0.001)	0.031*** (0.002)	0.052*** (0.002)	0.064*** (0.002)	0.070*** (0.003)	0.058*** (0.003)	0.042*** (0.005)	0.049*** (0.005)	0.006 (0.011)	0.212*** (0.005)	0.267*** (0.006)	0.132*** (0.012)	0.037*** (0.003)	0.024*** (0.005)	0.035*** (0.004)
GLH 61-120	0.031*** (0.001)	0.042*** (0.002)	0.024*** (0.002)	-0.031*** (0.001)	-0.045*** (0.002)	-0.019*** (0.002)	-0.010*** (0.002)	-0.004 (0.003)	-0.014*** (0.003)	0.038*** (0.004)	0.052*** (0.005)	0.008 (0.008)	0.157*** (0.009)	0.206*** (0.013)	0.133*** (0.012)	-0.029*** (0.004)	-0.039*** (0.006)	-0.028*** (0.004)
GLH 121-240	-0.009*** (0.002)	-0.015*** (0.002)	-0.005*** (0.002)	0.032*** (0.002)	0.030*** (0.003)	0.034*** (0.002)	0.020*** (0.004)	0.042*** (0.006)	0.006 (0.005)	-0.026*** (0.005)	-0.034*** (0.006)	-0.018** (0.007)	0.006 (0.010)	0.045*** (0.017)	-0.010 (0.012)	-0.047*** (0.003)	-0.091*** (0.004)	-0.024*** (0.003)
GLH 240+	-0.042*** (0.002)	-0.062*** (0.003)	-0.028*** (0.002)	0.034*** (0.003)	0.025*** (0.004)	0.041*** (0.003)	0.033*** (0.006)	0.040*** (0.010)	0.033*** (0.008)	-0.018*** (0.005)	-0.029*** (0.006)	0.023** (0.009)	0.028*** (0.008)	0.070*** (0.016)	0.016 (0.010)	-0.043*** (0.002)	-0.091*** (0.004)	-0.018*** (0.003)
IMD score	-0.000** (0.000)	-0.000 (0.000)	-0.000** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)
North West	0.007*** (0.002)	-0.000 (0.003)	0.013*** (0.003)	-0.000 (0.002)	-0.023*** (0.003)	0.022*** (0.003)	0.015*** (0.003)	0.001 (0.004)	0.026*** (0.004)	0.034*** (0.008)	0.042*** (0.008)	0.016 (0.018)	0.000 (0.006)	-0.001 (0.008)	0.001 (0.009)	-0.050*** (0.003)	-0.079*** (0.004)	-0.018*** (0.004)
Yorkshire & Humberside	-0.079*** (0.003)	-0.080*** (0.004)	-0.076*** (0.004)	-0.038*** (0.002)	-0.055*** (0.003)	-0.019*** (0.003)	-0.015*** (0.003)	-0.037*** (0.004)	0.002 (0.004)	0.013* (0.008)	0.007 (0.009)	0.036* (0.019)	-0.013* (0.007)	-0.019** (0.009)	-0.006 (0.010)	-0.048*** (0.003)	-0.059*** (0.004)	-0.030*** (0.004)
East Midlands	-0.037*** (0.003)	-0.034*** (0.004)	-0.037*** (0.004)	0.003 (0.002)	0.006* (0.004)	0.004 (0.003)	0.026*** (0.003)	0.020*** (0.005)	0.032*** (0.004)	0.018** (0.009)	0.012 (0.010)	0.032 (0.020)	-0.038*** (0.007)	-0.058*** (0.010)	-0.013 (0.011)	-0.095*** (0.003)	-0.132*** (0.005)	-0.059*** (0.005)
West Midlands	0.022*** (0.002)	0.013*** (0.003)	0.030*** (0.003)	-0.005** (0.002)	-0.028*** (0.003)	0.018*** (0.003)	-0.048*** (0.003)	-0.073*** (0.004)	-0.025*** (0.004)	-0.014* (0.008)	-0.017* (0.009)	-0.003 (0.019)	-0.005 (0.006)	-0.015* (0.009)	0.005 (0.009)	-0.084*** (0.003)	-0.107*** (0.005)	-0.056*** (0.004)
East of England	-0.047*** (0.003)	-0.052*** (0.004)	-0.043*** (0.004)	-0.030*** (0.002)	-0.060*** (0.003)	-0.003 (0.003)	-0.045*** (0.003)	-0.069*** (0.004)	-0.023*** (0.004)	0.023*** (0.008)	0.014 (0.009)	0.035* (0.018)	-0.000 (0.007)	-0.005 (0.009)	0.005 (0.010)	-0.072*** (0.003)	-0.097*** (0.005)	-0.042*** (0.004)
London	-0.019*** (0.002)	-0.019*** (0.003)	-0.017*** (0.003)	-0.049*** (0.002)	-0.074*** (0.003)	-0.025*** (0.003)	-0.072*** (0.003)	-0.096*** (0.004)	-0.049*** (0.004)	-0.019** (0.008)	-0.020** (0.009)	-0.010 (0.018)	-0.022*** (0.007)	-0.030*** (0.009)	-0.013 (0.010)	-0.079*** (0.003)	-0.113*** (0.005)	-0.044*** (0.005)

	SFL Entry			SFL 1			SFL 2			C&G 2			BTEC 2			NVQ/GNVQ 2		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
South East	-0.041*** (0.003)	-0.035*** (0.004)	-0.043*** (0.004)	-0.050*** (0.002)	-0.064*** (0.003)	-0.034*** (0.003)	-0.044*** (0.003)	-0.069*** (0.004)	-0.020*** (0.004)	0.018** (0.008)	0.015* (0.009)	0.023 (0.018)	-0.004 (0.006)	-0.005 (0.009)	-0.002 (0.010)	-0.091*** (0.003)	-0.145*** (0.005)	-0.039*** (0.004)
South West	-0.045*** (0.003)	-0.053*** (0.004)	-0.038*** (0.004)	-0.038*** (0.002)	-0.053*** (0.003)	-0.021*** (0.003)	-0.025*** (0.003)	-0.047*** (0.004)	-0.004 (0.004)	0.005 (0.008)	0.016* (0.009)	-0.016 (0.019)	-0.001 (0.007)	-0.009 (0.009)	0.009 (0.010)	-0.086*** (0.003)	-0.124*** (0.005)	-0.045*** (0.005)
Wales	0.066** (0.030)	0.133*** (0.032)	-0.039 (0.056)	0.020 (0.016)	0.027 (0.019)	-0.016 (0.031)	-0.020 (0.016)	-0.011 (0.020)	-0.047* (0.026)	0.073** (0.035)	0.082** (0.037)	0.056 (0.089)	0.024 (0.037)	-0.029 (0.051)	0.098* (0.051)	-0.002 (0.017)	-0.018 (0.023)	-0.012 (0.028)
Scotland	-0.105*** (0.028)	-0.096** (0.044)	-0.107*** (0.035)	0.060*** (0.017)	0.107*** (0.023)	0.009 (0.025)	0.026 (0.020)	-0.002 (0.026)	0.045 (0.032)	0.107*** (0.037)	0.109*** (0.039)	0.075 (0.118)	0.028 (0.056)	0.124** (0.063)	-0.112 (0.098)	-0.035** (0.017)	-0.074*** (0.021)	-0.032 (0.032)
Northern Ireland				0.229*** (0.066)	0.228** (0.103)	0.226*** (0.087)	0.052 (0.089)	-0.193** (0.098)	0.342*** (0.090)	0.326*** (0.036)		0.268*** (0.099)	-0.093 (0.144)	-0.251 (0.168)		-0.111 (0.074)	-0.112 (0.091)	-0.181 (0.133)
2004	0.012*** (0.001)	0.023*** (0.002)	0.004*** (0.002)	0.025*** (0.001)	0.030*** (0.002)	0.021*** (0.002)	0.058*** (0.002)	0.062*** (0.003)	0.053*** (0.002)	0.049*** (0.003)	0.045*** (0.004)	0.056*** (0.006)	0.018*** (0.005)	0.015** (0.006)	0.020*** (0.007)	0.021*** (0.002)	0.027*** (0.003)	0.016*** (0.002)
2005	-0.005*** (0.001)	0.006*** (0.002)	-0.013*** (0.002)	0.084*** (0.001)	0.106*** (0.002)	0.066*** (0.002)	0.153*** (0.002)	0.156*** (0.003)	0.146*** (0.002)	0.113*** (0.004)	0.111*** (0.005)	0.113*** (0.008)	0.056*** (0.004)	0.056*** (0.006)	0.054*** (0.007)	0.068*** (0.002)	0.071*** (0.003)	0.065*** (0.002)
2006	-0.002 (0.001)	0.012*** (0.002)	-0.012*** (0.002)	0.122*** (0.001)	0.149*** (0.002)	0.099*** (0.002)	0.224*** (0.002)	0.242*** (0.002)	0.204*** (0.002)	0.093*** (0.006)	0.071*** (0.007)	0.149*** (0.011)	0.085*** (0.004)	0.090*** (0.006)	0.078*** (0.006)	0.104*** (0.002)	0.114*** (0.003)	0.095*** (0.002)
Observations	992,176	391,324	600,852	1,396,236	630,331	765,891	796,682	367,647	429,035	103,764	70,545	33,201	134,578	74,884	59,691	581,263	247,056	334,207

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parenthesis.

Table 7: Determinants of qualification attainment - by detailed qualification at level 3 and Apprenticeships (probit)

	C&G 3			BTEC 3			NVQ/GNVQ 3			FMA			AMA		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Age	0.011*** (0.001)	0.010*** (0.002)	0.013*** (0.002)	0.055*** (0.001)	0.060*** (0.002)	0.051*** (0.002)	0.006*** (0.000)	0.010*** (0.001)	0.003*** (0.001)	0.469*** (0.005)	0.492*** (0.008)	0.453*** (0.007)	0.594*** (0.007)	0.910*** (0.010)	0.150*** (0.008)
Age Squared	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000** (0.000)	-0.011*** (0.000)	-0.012*** (0.000)	-0.011*** (0.000)	-0.013*** (0.000)	-0.021*** (0.000)	-0.003*** (0.000)
Female	0.042*** (0.005)			0.049*** (0.002)			0.029*** (0.001)			0.031*** (0.001)			-0.057*** (0.002)		
Disability	-0.063*** (0.009)	-0.039*** (0.013)	-0.084*** (0.012)	-0.011*** (0.003)	-0.006 (0.004)	-0.018*** (0.005)	-0.016*** (0.003)	-0.011*** (0.004)	-0.019*** (0.003)	-0.075*** (0.002)	-0.077*** (0.004)	-0.072*** (0.003)	-0.098*** (0.005)	-0.097*** (0.008)	-0.088*** (0.007)
White - Any Other	0.000 (0.012)	-0.007 (0.020)	0.007 (0.014)	-0.039*** (0.008)	-0.033*** (0.010)	-0.042*** (0.011)	-0.010** (0.004)	-0.033*** (0.007)	0.004 (0.006)	-0.063*** (0.007)	-0.080*** (0.010)	-0.051*** (0.009)	-0.130*** (0.012)	-0.187*** (0.017)	-0.074*** (0.016)
Bangladeshi	-0.093*** (0.036)	-0.118** (0.050)	-0.060 (0.050)	-0.004 (0.012)	-0.035** (0.015)	0.050** (0.020)	-0.033*** (0.007)	-0.094*** (0.009)	0.036*** (0.010)	-0.043*** (0.010)	-0.073*** (0.016)	-0.025* (0.014)	-0.014 (0.023)	-0.063* (0.038)	0.014 (0.028)
Indian	-0.062*** (0.017)	-0.102*** (0.028)	-0.032 (0.021)	0.048*** (0.007)	0.028*** (0.010)	0.076*** (0.011)	0.024*** (0.004)	0.013** (0.006)	0.031*** (0.006)	-0.019** (0.009)	-0.036*** (0.014)	-0.008 (0.012)	-0.053*** (0.013)	-0.080*** (0.019)	-0.022 (0.019)
Pakistani	-0.040** (0.019)	-0.152*** (0.032)	0.032 (0.022)	0.009 (0.007)	-0.021** (0.010)	0.056*** (0.012)	0.002 (0.004)	-0.036*** (0.006)	0.041*** (0.006)	-0.034*** (0.008)	-0.080*** (0.013)	-0.009 (0.010)	-0.015 (0.014)	-0.037 (0.023)	0.006 (0.017)
Other Asian	-0.026 (0.027)	-0.063 (0.040)	0.008 (0.036)	-0.009 (0.013)	-0.006 (0.015)	-0.016 (0.022)	-0.044*** (0.007)	-0.071*** (0.010)	-0.025** (0.011)	-0.042** (0.016)	-0.083*** (0.023)	-0.008 (0.023)	-0.002 (0.025)	0.019 (0.032)	-0.056 (0.039)

	C&G 3			BTEC 3			NVQ/GNVQ 3			FMA			AMA		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Black – African	-0.096*** (0.020)	-0.132*** (0.027)	-0.046 (0.028)	-0.027*** (0.007)	-0.051*** (0.009)	0.007 (0.011)	-0.008* (0.005)	-0.029*** (0.007)	0.006 (0.006)	-0.117*** (0.011)	-0.080*** (0.017)	-0.152*** (0.014)	-0.134*** (0.022)	-0.134*** (0.032)	-0.126*** (0.030)
Black – Caribbean	-0.091*** (0.018)	-0.067** (0.027)	-0.114*** (0.023)	-0.050*** (0.007)	-0.056*** (0.010)	-0.038*** (0.010)	-0.055*** (0.005)	-0.070*** (0.008)	-0.047*** (0.007)	0.079*** (0.005)	0.122*** (0.007)	0.037*** (0.007)	0.050*** (0.006)	0.039*** (0.008)	0.060*** (0.009)
Black - Other	-0.099*** (0.037)	-0.112** (0.055)	-0.090* (0.049)	-0.052*** (0.013)	-0.077*** (0.017)	-0.024 (0.018)	-0.044*** (0.009)	-0.048*** (0.014)	-0.046*** (0.012)	-0.052*** (0.012)	-0.039** (0.018)	-0.069*** (0.017)	-0.058*** (0.020)	-0.084*** (0.027)	-0.026 (0.029)
Chinese	-0.005 (0.037)	0.050 (0.061)	-0.031 (0.046)	0.076*** (0.016)	0.104*** (0.021)	0.057** (0.023)	0.003 (0.009)	-0.026* (0.013)	0.029** (0.012)	-0.022 (0.026)	-0.039 (0.040)	-0.011 (0.035)	-0.060 (0.038)	-0.111** (0.049)	0.008 (0.058)
Mixed Race	-0.078*** (0.023)	-0.041 (0.033)	-0.113*** (0.031)	-0.063*** (0.007)	-0.066*** (0.009)	-0.058*** (0.010)	-0.067*** (0.006)	-0.085*** (0.009)	-0.057*** (0.008)	-0.070*** (0.007)	-0.083*** (0.010)	-0.062*** (0.009)	-0.123*** (0.013)	-0.167*** (0.019)	-0.085*** (0.018)
Any Other	-0.055*** (0.019)	-0.025 (0.028)	-0.083*** (0.026)	-0.026*** (0.010)	-0.028** (0.013)	-0.024 (0.015)	-0.020*** (0.006)	-0.048*** (0.009)	-0.002 (0.008)	-0.049*** (0.010)	-0.041*** (0.015)	-0.062*** (0.014)	-0.079*** (0.015)	-0.099*** (0.021)	-0.061*** (0.023)
Not Known/ Provided	-0.040*** (0.012)	-0.037** (0.019)	-0.042*** (0.016)	-0.034*** (0.008)	-0.040*** (0.011)	-0.023* (0.013)	-0.039*** (0.004)	-0.061*** (0.006)	-0.026*** (0.006)	0.010 (0.008)	-0.011 (0.011)	0.027*** (0.010)	0.017* (0.010)	0.011 (0.012)	0.013 (0.015)
Open learning	-0.035 (0.036)	-0.095* (0.052)	0.025 (0.048)	-0.175*** (0.059)	-0.104 (0.067)	-0.394*** (0.113)	-0.247*** (0.019)	-0.245*** (0.027)	-0.237*** (0.026)						
Distance learning	-0.070*** (0.021)	-0.180*** (0.034)	0.009 (0.025)	0.037 (0.024)	-0.128*** (0.045)	0.043 (0.030)	-0.199*** (0.009)	-0.254*** (0.016)	-0.150*** (0.010)						
APL				0.345*** (0.042)	0.130 (0.159)		-0.519*** (0.046)	-0.524*** (0.105)	-0.512*** (0.052)						
E – learning	0.179*** (0.038)	0.179*** (0.047)	-0.056 (0.329)	-0.103 (0.343)		-0.104 (0.343)	-0.145* (0.085)	-0.517*** (0.133)	0.006 (0.089)						
NVQ (provider only)	0.080 (0.175)	0.003 (0.243)					-0.051*** (0.002)	-0.100*** (0.005)	-0.030*** (0.003)						
NVQ(provider / workplace)	-0.177 (0.118)	-0.156 (0.118)		0.143 (0.087)	0.215** (0.086)	-0.153 (0.258)	-0.112*** (0.002)	-0.161*** (0.004)	-0.080*** (0.003)						
NVQ (workplace only)							-0.177*** (0.005)	-0.244*** (0.008)	-0.118*** (0.006)						
LSC only	0.004 (0.012)	0.023 (0.015)	-0.023 (0.021)	-0.100*** (0.007)	-0.123*** (0.007)	0.033* (0.018)	-0.000 (0.003)	-0.029*** (0.004)	0.036*** (0.005)						
LSC & ESF co-funded	0.038*** (0.013)	0.047*** (0.017)	0.019 (0.023)	-0.095*** (0.007)	-0.128*** (0.008)	0.050*** (0.017)	0.001 (0.003)	-0.029*** (0.005)	0.037*** (0.005)						
GLH 10-30	-0.132*** (0.035)	-0.009 (0.051)	-0.224*** (0.046)	0.232*** (0.020)	0.197*** (0.039)	0.246*** (0.023)	0.095*** (0.004)	0.114*** (0.006)	0.088*** (0.006)						
GLH 31-60	-0.007 (0.008)	0.017 (0.013)	-0.025** (0.011)	0.074** (0.034)	0.172*** (0.044)	0.031 (0.050)	0.131*** (0.003)	0.172*** (0.005)	0.090*** (0.003)						
GLH 61-120	0.080*** (0.005)	0.088*** (0.009)	0.072*** (0.007)	0.103*** (0.023)	0.003 (0.039)	0.161*** (0.026)	0.031*** (0.004)	0.080*** (0.007)	0.008 (0.005)						
GLH 121-240	-0.049*** (0.007)	-0.024** (0.011)	-0.065*** (0.009)	-0.067*** (0.012)	-0.058*** (0.018)	-0.073*** (0.016)	0.008*** (0.003)	0.019*** (0.006)	0.007** (0.003)						
GLH 240+	-0.095*** (0.008)	-0.050*** (0.012)	-0.131*** (0.010)	-0.042*** (0.009)	-0.039*** (0.014)	-0.045*** (0.011)	0.049*** (0.003)	0.048*** (0.006)	0.058*** (0.003)						
IMD score	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
North West	-0.043***	-0.067***	-0.025*	-0.018***	-0.029***	-0.004	0.008***	-0.002	0.016***	-0.013***	-0.048***	0.020***	-0.020***	-0.026***	-0.008

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	C&G 3			BTEC 3			NVQ/GNVQ 3			FMA			AMA		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
	(0.010)	(0.016)	(0.014)	(0.005)	(0.007)	(0.007)	(0.003)	(0.005)	(0.004)	(0.003)	(0.004)	(0.004)	(0.005)	(0.006)	(0.007)
Yorkshire & Humberside	-0.045***	-0.064***	-0.029**	-0.045***	-0.065***	-0.022***	-0.012***	-0.004	-0.015***	0.001	-0.002	-0.002	-0.036***	-0.044***	-0.020***
	(0.010)	(0.016)	(0.013)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)
East Midlands	-0.099***	-0.091***	-0.104***	-0.038***	-0.047***	-0.027***	-0.024***	-0.022***	-0.023***	-0.034***	-0.070***	0.001	-0.048***	-0.055***	-0.024***
	(0.012)	(0.018)	(0.015)	(0.006)	(0.008)	(0.009)	(0.004)	(0.006)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)
West Midlands	-0.086***	-0.098***	-0.076***	-0.018***	-0.027***	-0.005	-0.022***	-0.040***	-0.009**	-0.014***	-0.066***	0.032***	-0.014***	-0.011	-0.008
	(0.011)	(0.017)	(0.014)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)
East of England	-0.051***	-0.077***	-0.034**	-0.035***	-0.051***	-0.014*	-0.015***	-0.019***	-0.012***	-0.046***	-0.075***	-0.017***	-0.083***	-0.087***	-0.066***
	(0.011)	(0.019)	(0.014)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)
London	-0.121***	-0.126***	-0.122***	-0.027***	-0.036***	-0.015*	-0.033***	-0.035***	-0.030***	-0.105***	-0.140***	-0.071***	-0.099***	-0.100***	-0.088***
	(0.012)	(0.018)	(0.016)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.006)	(0.008)	(0.009)
South East	-0.046***	-0.066***	-0.034**	-0.039***	-0.055***	-0.018**	-0.007**	-0.025***	0.005	-0.065***	-0.098***	-0.031***	-0.105***	-0.118***	-0.076***
	(0.011)	(0.017)	(0.014)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.004)	(0.003)	(0.004)	(0.005)	(0.005)	(0.006)	(0.007)
South West	-0.065***	-0.099***	-0.042***	-0.028***	-0.039***	-0.013*	0.001	-0.002	0.001	0.001	-0.027***	0.029***	-0.027***	-0.033***	-0.005
	(0.011)	(0.018)	(0.014)	(0.005)	(0.007)	(0.008)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)	(0.007)	(0.008)
Wales	0.076	-0.018	0.174***	-0.033	-0.070**	0.025	-0.020	-0.017	-0.017	-0.070***	-0.154***	0.014	0.026	0.014	0.050
	(0.056)	(0.085)	(0.062)	(0.026)	(0.034)	(0.039)	(0.018)	(0.026)	(0.025)	(0.018)	(0.024)	(0.027)	(0.022)	(0.027)	(0.041)
Scotland	-0.041	-0.163	0.019	-0.035	-0.048	-0.029	-0.040*	-0.030	-0.052	-0.051***	-0.064***	-0.040	-0.055**	-0.058*	-0.035
	(0.066)	(0.124)	(0.073)	(0.035)	(0.046)	(0.056)	(0.022)	(0.028)	(0.036)	(0.019)	(0.024)	(0.029)	(0.026)	(0.033)	(0.046)
Northern Ireland	-0.038	0.049	-0.167	0.179*	0.221*	0.013	0.156***	0.137**	0.199**	-0.026	-0.145	0.199	-0.020	0.024	-0.073
	(0.179)	(0.224)	(0.296)	(0.100)	(0.113)	(0.246)	(0.049)	(0.062)	(0.078)	(0.127)	(0.137)	(0.217)	(0.078)	(0.092)	(0.154)
2004	-0.018***	0.005	-0.033***	0.295***	0.318***	0.268***	0.009***	0.013***	0.005**	0.082***	0.104***	0.064***	0.008***	0.016***	-0.002
	(0.005)	(0.008)	(0.007)	(0.003)	(0.005)	(0.005)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)
2005	-0.012	-0.002	-0.016	0.345***	0.373***	0.312***	0.063***	0.065***	0.057***	0.316***	0.340***	0.295***	0.233***	0.244***	0.217***
	(0.008)	(0.012)	(0.011)	(0.003)	(0.005)	(0.005)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)
2006	0.032***	0.030**	0.041***	0.386***	0.420***	0.345***	0.127***	0.137***	0.118***	0.384***	0.415***	0.355***	0.329***	0.347***	0.303***
	(0.010)	(0.015)	(0.014)	(0.003)	(0.005)	(0.005)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)
Observations	46,655	19,201	27,452	245,681	134,678	110,992	468,810	195,009	273,801	498,633	242,389	256,244	234,785	140,260	94,525

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parenthesis.

4. Impact of education and training on learner outcomes

4.1 Data and timeframe for analysis

As part of the primary analysis undertaken for the Department for Business, Innovation and Skills, we combined information on learner attainment from the Individual Learner Record (ILR) between 2002/03 and 2005/06; detailed earnings (between 2003/04 and 2009/10) and employment information (between 1999/2000 and 2009/10) from HM Revenue and Customs; and benefit receipt and duration information (between 1999/00 and 2009/10) from the Department for Work and Pensions.

The combination of the various data sets allows for the assessment of learner outcomes for a number of years pre- and post-qualification attainment, although the number of years for which information is available varies depending on the timing of qualification acquisition. For instance, for those individuals attaining a qualification in 2005/06, there are four years of post attainment earnings information available, while for those individuals attaining the qualification in 2002/03, there are seven years of earnings information. Therefore, the sample sizes associated with post attainment outcomes decline as time progresses, and for some cohorts there is no information on earnings pre-acquisition of the qualification in question. This is illustrated in Figure 9.

Figure 9: Data availability and reshaping for counterfactual analysis
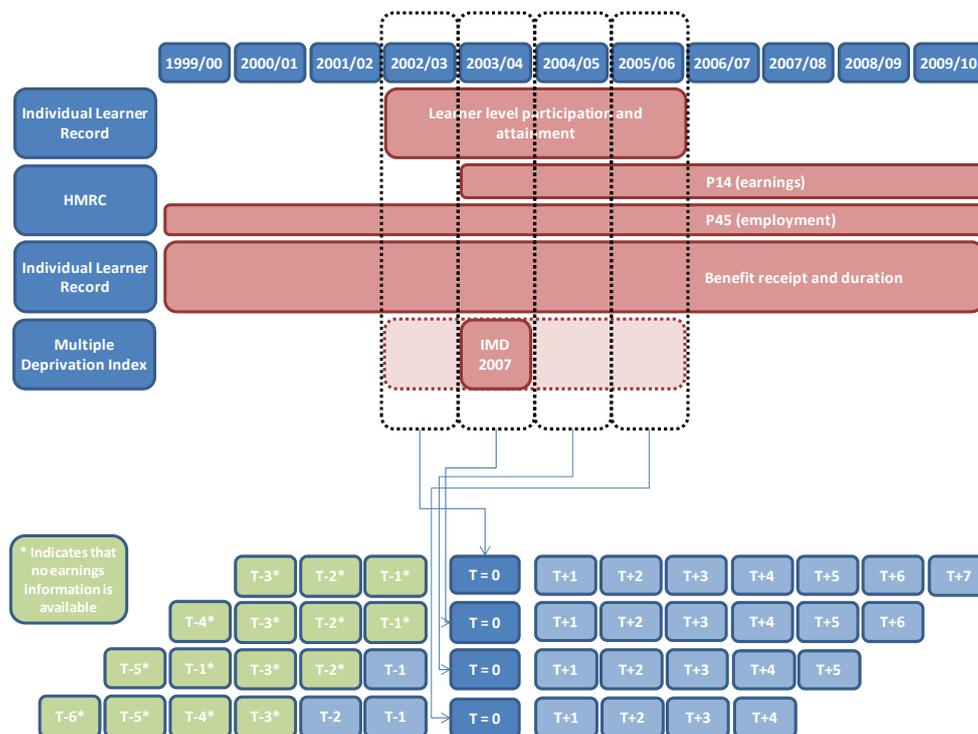
Source: London Economics.

The substantive component of the analysis undertaken involved the assessment of the **longer term labour market outcomes associated with attaining different qualifications**. Where individuals achieved more than one learning aim over the period, we considered the impact of their highest level of achievement on subsequent outcomes.

The outcome measures that we assessed included the **annual earnings** achieved by individuals, **the proportion of the year the individual was in employment and the proportion of the year in receipt of a number of benefits**. There are some issues that should be noted in relation to the interpretation of the findings. In particular, the econometric analysis of earnings is based on a continuous variable that is log-normally distributed (annual earnings). As such, when interpreting the results presented relating to earnings, the actual coefficients from the regression are presented in the various tables in the report, while the precise percentage effect of the independent variable (the qualification in question) on the earnings outcomes is presented in the text (by transforming the coefficient using the transformation $e^\beta -1$). In general terms, for small coefficients (less than 0.10), the coefficient in the regression model will give a reasonable approximation of the actual percentage change; however, for coefficients greater than this, the correction is necessary.

This transformation is required only when considering earnings returns as we are estimating the impact of qualification attainment on the logarithm of hourly earnings. No exponential transformation is necessary when considering the employment or benefit outcomes of learners, as in these regressions, the relevant coefficient provides an automatic estimate of the impact of the qualification on the probability of being in employment or being in receipt of benefits.

The second point to note is that although we assess the impact of education and training on the proportion of the year the individual was in employment and the proportion of the year in receipt of a number of benefits, when considering benefits, there is a more significant clustering of responses around zero. In other words, there is a sizeable proportion of respondents who have no DWP identifier as they have never received any form of social welfare benefit (or have not been matched for some other reason), and this results in pushing the econometric results relating to benefit dependence towards zero. This implies that the estimated coefficients from the relevant tables relating to benefit dependency will in general be lower in absolute terms compared to the estimates relating to the impact of education and training on employment outcomes.

4.2 Counterfactuals

For each of the outcome measures of interest, we considered three scenarios or counterfactuals. One scenario assessed the outcomes of learners *'before and after'* the learning aim was attained. These results generally display very strong and positive returns to qualification attainment; however, these outcomes simply illustrate the growth in earnings following qualification attainment compared to pre-acquisition and in part reflect simple time effects as well as the return associated with the individual in possession of the learning aim rather than the impact of the learning aim itself.

In order to control for these potential biases, we also considered the difference in the long term outcomes between *'completers and non-completers'*. In modelling this scenario, we control for or strip out (at least in part) some of those characteristics that may be

relevant in determining whether the qualification was attained, leaving a better indication of the impact of the learning aim itself on long term outcomes.

The 'completers versus non-completers' is our preferred counterfactual because although we are unable to explicitly control for a number of unobservable characteristics such as motivation and effort (which may influence qualification completion), having undertaken a comprehensive analysis of the determinants of qualification attainment (Section 3), we are able to control for a number of the observable characteristics that influence qualification attainment.

For completeness, we have also modelled a scenario where the difference in the long term outcomes between those individuals *'simultaneously attaining'* qualifications at adjacent levels (for instance individuals moving from level 1 to level 2 compared to individuals moving from level 2 to level 3).

In these final two counterfactual scenarios, the estimates of the impact of the learning aim on long term outcomes (any measure) are substantially lower (in absolute terms) than under the 'before and after' scenario, illustrating again the importance of controlling for both observable and unobservable characteristics that may influence both attainment and outcomes.

Although there may still be some differences in the characteristics between the treatment and control group, we believe that the consideration of the 'simultaneous attainment' counterfactual does not address potential ability bias, which has been identified as a significant source of econometric bias in the human capital literature (Harmon and Walker (1995)[9]). Secondly, there is a difficulty in interpreting the econometric results in the 'simultaneous attainment' counterfactual. Specifically, in this counterfactual, a small coefficient (in absolute terms) occurs when there is a low payoff to the higher level of attainment relative to the attainment of the lower level of qualification. However, in absolute terms, it is not possible to identify whether this is caused by simultaneously low or high returns to the attainment of the two qualifications at adjacent levels. In other words, a small coefficient in the 'simultaneous attainment' counterfactual may occur when both qualifications have sizeable returns (or low returns) that essentially *difference-out*, which may provide a slightly misleading illustration of the returns to the particular qualifications.

Throughout the presentation of results, we concentrate on the aggregate results across men and women combined (focusing on the 'completers versus non completers' counterfactual), while in the annexes, we present information for the equivalent econometric specifications for men and women separately, as well as the detailed results relating to the other counterfactuals.

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[9] Harmon, Colm & Walker, Ian, 1995. "Estimates of the Economic Return to Schooling for the United Kingdom," American Economic Review, American Economic Association, vol. 85(5), pages 1278-86, December 1995

4.3 Summary results in the impact of qualification on long term earnings

Box 2: Summary results of earnings outcomes

The main results relating to earnings outcomes (presented in Table 8, Table 10, Figure 10 and in section 4.4) are as follows:

- Qualification attainment at Level 1 adds approximately 3% per annum to earnings in the seven years post completion. There is no erosion of the premium over time.

- At level 2, the earnings premium is approximately zero in the first three years post completion; however, increases to approximately 6% after 7 years. There is some variation depending on the particular qualification with NVQ Level 2 qualifications associated with a return approximately 5% immediately post attainment, rising to 14% after 7 years.

- At level 3, there are negative earning returns in the first four years post attainment; however, this is as a result of the inclusion of GCE 'A' Levels in the analysis. This anomaly is driven by the fact that completers are more likely to attain further or higher education qualifications and remain as relatively low earners for a number of years.

- There are a number of qualifications offering immediate and sustained benefits to acquisition. City & Guilds Level 3 qualifications are associated with an earnings premium of 5-7% per annum. In contrast, NVQ Level 3 qualifications are associated with a small negative earnings return in the first three years post completion; however, a positive earnings return emerges by year 4 post-acquisition and increases to more than 14% after seven years.

- All estimates are statistically significant.

Source: London Economics

4.4 Detailed results in the impact of qualification on long term earnings

Earnings – 'completion versus non-completion' – aggregate analysis

To place the results relating to the *'completion versus non-completion'* counterfactual in context, the *'before and after'* analysis (presented in more detail in Annex 3) suggests that there is a strong positive return associated with qualification attainment for all levels and types of qualification, and that the earnings returns achieved persist for a number of years (at least) post acquisition. In particular, the analysis indicates that following the acquisition of qualification at level 2 (in aggregate); there is a 34.6% growth in earnings two years after the acquisition of the qualification. This earnings premium post-qualification attainment sits between 30% and 40% in the three to four years post-acquisition. Once employment and benefits variables are controlled for, the analysis suggests that the marginal returns drops by between 3 and 4 percentage points compared to the baseline specification. The information is presented in Annex 3.

In Table 9, we present information on the marginal earnings return associated with completion of various qualifications (relative to non-completers) using just personal, learning aim and socioeconomic control variables (the *basic* specification). In Table 10 we incorporate additional controls for employment and benefits outcomes (the *extended* specification). In general, this reduces the marginal return associated with qualification attainment to some extent (by approximately 3 to 5 percentage points). Given the potential complexity and to illustrate the range of estimates possible, before discussing these results in detail, we have summarised the relative effect in brief for individuals completing aggregate qualification levels in Table 8 and in Figure 10.

The analysis presented in Table 8 suggests that when comparing the return to completers versus non-completers, there are substantial marginal returns associated with most qualification levels and individual qualifications. For instance, the **basic** specification model indicates that the marginal returns to level 2 qualifications is approximately 5.1% immediately post qualification completion ($\beta=0.050$), but also that the marginal return increases as time elapses. In particular, by the end of the seven year period, the marginal return associated with a level 2 qualification in aggregate stands at approximately 11.0% ($\beta=0.104$). In terms of understanding the impact of the different model specifications, the analysis suggests that when all employment and benefit controls are incorporated into the analysis (the *extended* specification), the marginal return associated with a level 2 qualification is slightly negative immediately post acquisition ($\beta=-0.008$) increasing to approximately 5.6% seven years post attainment ($\beta=0.055$). All results are highly statistically significant.

In our reporting of findings, we concentrate on the estimates generated using full controls for employment and benefits outcomes (the *extended* specification). The information contained in Table 8 (and Figure 10) indicates that there are strong positive returns associated with qualification attainment at all levels that emerge or persist well after qualification attainment. We have mentioned the results relating to level 2 aggregated qualifications, and a similar picture emerges at level 1, although if anything the earnings benefits associated with the acquisition of level 1 qualifications exceed the benefits associated with the attainment of level 2 qualifications, especially in the years immediately post acquisition. Specifically, the marginal return associated with a level 1 qualification stands at 3.1% immediately post acquisition ($\beta=0.031$) and is 2.7% seven years post attainment ($\beta=0.027$).

Table 8: Completers versus non completers – earnings effect (basic and extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4							
Basic specification	0.073***	0.077***	0.096***	0.110***	0.126***	0.143***	0.166***
Extended specification	0.034***	0.043***	0.055***	0.069***	0.083***	0.092***	0.107***
Level 3							
Basic specification	-0.095***	-0.109***	-0.102***	-0.053***	0.031***	0.085***	0.132***
Extended specification	-0.131***	-0.143***	-0.144***	-0.090***	-0.014***	0.032***	0.073***
Level 2							
Basic specification	0.050***	0.047***	0.057***	0.074***	0.073***	0.084***	0.104***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Extended specification	-0.008**	-0.009***	0.001	0.016***	0.022***	0.032***	0.055***
Level 1							
Basic specification	0.059***	0.050***	0.055***	0.064***	0.060***	0.062***	0.060***
Extended specification	0.031***	0.019***	0.023***	0.031***	0.028***	0.028***	0.027***

Source: London Economics *** p<0.01, ** p<0.05, * p<0.1

Figure 10: Long term impact of education and training on earnings (completers vs non-completers – extended specification)
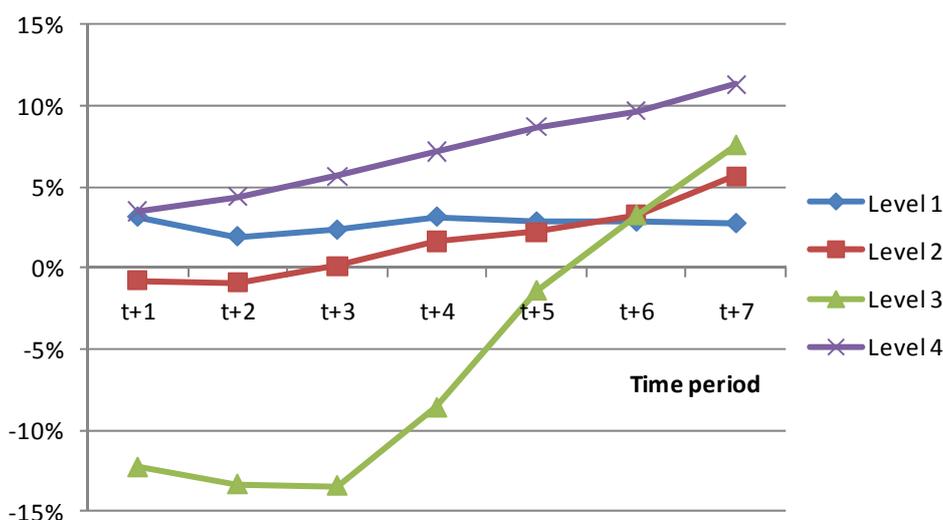
Source: London Economics' analysis

In contrast, at level 3, in the four years following qualification acquisition, there is a reduction in the marginal earnings return between those completing qualifications and those not completing the qualification; however, this earnings outcome is driven by the fact that we have included academic qualifications at level 3 in the analysis and for many of those undertaking GCE 'A' levels, the decision to enter the active labour market (and their associated earnings) is postponed until completing an undergraduate degree. Therefore, we would fully expect a negative earnings return immediately post qualification and the analysis does illustrate that the earnings achieved by these individuals recovers strongly beyond year 4.

Earnings – 'completion versus non-completion' – disaggregated analysis

Turning to the disaggregated analysis presented in Table 10 (where we focus on the *extended* model specification), there is some variation it the marginal returns under the *completion versus non-completion* counterfactual. At level 2, compared to an aggregate marginal return of zero in the year immediately post completion (β=-0.008), which subsequently increases by approximately 6 percentage points seven years post attainment, the marginal returns achieved by those completing National Vocational Qualifications at level 2 stand at 5.2% (β=0.051) immediately following completion of the qualification and increase by almost 9 percentage points over the period of analysis (to 14.0% (β=0.131)). In contrast, BTEC Level 2 qualifications are associated with a large negative return in the first three years post acquisition (with associated β ranging between

-0.162 and -0.062), although between years 4 and 7, these return are generally positive and statistically significant, reaching 11.4% (β=0.108) six years post qualification attainment. City & Guilds qualifications at level 2 also offer completers strong positive returns throughout the period following qualification completion. In particular, over the entire seven year period post qualification acquisition, City & Guilds Level 2 qualifications offer an earnings return of approximately 6% relative to non completers (plus or minus a couple of percentage points in individual years).

Table 9: Completers versus non completers – earnings effect (basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.073***	0.077***	0.096***	0.110***	0.126***	0.143***	0.166***
Level 3 (all qualifications)	-0.095***	-0.109***	-0.102***	-0.053***	0.031***	0.085***	0.132***
Level 2 (all qualifications)	0.050***	0.047***	0.057***	0.074***	0.073***	0.084***	0.104***
Level 1 (all qualifications)	0.059***	0.050***	0.055***	0.064***	0.060***	0.062***	0.060***
NVQ Level 3	0.027***	0.027***	0.035***	0.059***	0.113***	0.174***	0.208***
BTEC Level 3	-0.034**	-0.056***	-0.054***	0.025**	0.132***	0.166***	0.192***
City & Guilds Level 3	0.106***	0.108***	0.101***	0.085***	0.107***	0.111***	0.123***
Academic level 3	-0.242***	-0.311***	-0.308***	-0.209***	-0.021**	0.077***	0.157***
Other Level 3 qualifications	-0.001	0.013*	0.021***	0.044***	0.043***	0.052***	0.075***
NVQ Level 2	0.156***	0.161***	0.176***	0.189***	0.181***	0.169***	0.212***
BTEC Level 2	-0.086***	-0.001	0.032	0.118***	0.133***	0.217***	0.131**
City & Guilds Level 2	0.117***	0.091***	0.073***	0.113***	0.128***	0.129***	0.139***
Skills for Life Level 2	0.001	-0.001	0.037***	0.064***	0.087***	0.130***	0.115***
Academic level 2	-0.002	-0.022	0.017	0.023	0.051***	0.029	0.083***
Other Level 2 qualifications	0.057***	0.050***	0.049***	0.059***	0.050***	0.064***	0.076***
Skills for Life Level 1	0.048***	0.046***	0.056***	0.077***	0.050***	0.067***	0.065**
Skills for Life Entry level	-0.000	0.002	0.000	0.021	0.028	-0.028	0.035
Other Level 1 qualifications	0.059***	0.050***	0.058***	0.066***	0.063***	0.067***	0.062***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 10: Completers versus non completers – earnings effect (extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.034***	0.043***	0.055***	0.069***	0.083***	0.092***	0.107***
Level 3 (all qualifications)	-0.131***	-0.143***	-0.144***	-0.090***	-0.014***	0.032***	0.073***
Level 2 (all qualifications)	-0.008**	-0.009***	0.001	0.016***	0.022***	0.032***	0.055***
Level 1 (all qualifications)	0.031***	0.019***	0.023***	0.031***	0.028***	0.028***	0.027***
NVQ Level 3	-0.028***	-0.031***	-0.025***	0.005	0.051***	0.105***	0.134***
BTEC Level 3	-0.093***	-0.113***	-0.124***	-0.045***	0.049***	0.071***	0.098***
City & Guilds Level 3	0.057*	0.056**	0.050**	0.043*	0.044*	0.062**	0.075**
Academic level 3	-0.259***	-0.309***	-0.319***	-0.217***	-0.053***	0.024**	0.091***
Other Level 3 qualifications	-0.026***	-0.018***	-0.015**	0.009	0.008	0.017**	0.036***
NVQ Level 2	0.051***	0.059***	0.073***	0.088***	0.095***	0.085***	0.131***
BTEC Level 2	-0.162***	-0.095***	-0.062***	0.020	0.017	0.108***	0.014
City & Guilds Level 2	0.057***	0.039***	0.023	0.052***	0.066***	0.075***	0.059**
Skills for Life Level 2	-0.053***	-0.051***	-0.027***	0.001	0.023*	0.058***	0.060***
Academic level 2	-0.039**	-0.057***	-0.029*	-0.011	0.010	-0.015	0.036
Other Level 2 qualifications	0.015***	0.006	0.006	0.013***	0.012**	0.024***	0.038***
Skills for Life Level 1	0.015	0.003	0.021*	0.038***	0.025*	0.032*	0.021
Skills for Life Entry level	0.015	0.005	-0.004	0.004	0.003	-0.068***	0.003
Other Level 1 qualifications	0.026***	0.018***	0.023***	0.031***	0.030***	0.032***	0.032***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

It is interesting to note that all qualifications appear to offer long term benefits to their recipients. Individuals in possession of *Skills for Life* qualifications at level 2 also see a positive return in the medium to longer term. Although initially the marginal return is statistically insignificantly different from zero, by the fifth year post attainment, the marginal returns stand at 2.3% ($\beta=0.023$) rising to approximately 5.8% by year six ($\beta=0.058$). For those in possession of *Skills for Life* qualifications at level 1, there are also positive returns with individuals achieving a marginal return of up to 2.1% in the three years immediately post attainment, further increasing to 3.8% ($\beta=0.038$) in the medium to longer-term. In general, *Skills for Life* Entry level qualifications offer a statistically insignificant return over the period of analysis.

4.5 Summary results in the impact of qualifications on long term employment

The second element of the assessment of learners' labour market outcomes relates to identifying whether learners received any employment boost from qualification attainment. In the same way as for earnings, we considered the same three alternative counterfactuals in aggregate and for men and women separately. In assessing the impact of qualification attainment on employment, the outcome measure that was generated using HM Revenue and Customs information was the proportion of the financial year that the individual was in employment for. Therefore the results should be interpreted as the change in the proportion of the financial year that the individual was in employment for. The summary findings are presented in Box 3.

Box 3: Summary results of employment outcomes

To analyse the effect of qualification attainment on employment outcomes, we estimated the difference in the proportion of the calendar year the individual is in employment for using information on employment spells from HM Revenue and Customs. The analysis is presented in Table 11, Figure 11 and in section 4.6. The main results are as follows:

- Level 1 qualification completers also achieve a statistically significant employment boost from qualification attainment that is immediate and ongoing (between 1% and 4%).

- Level 2 completers achieve an average increase in employment outcomes of 4.2% over the seven years of analysis, which again increases as the time from qualification acquisition elapses (from 2.2% to 5.4%).

- NVQ Level 2 completers perform better than average; posting a 4.3% employment boost immediately after qualification completion rising to 8.3% seven years post completion. Although initially negative, BTEC Level 2 completers achieve the greatest long term employment boost (8.9% after seven years), while City & Guilds completers perform marginally above average (3.2% employment boost rising to 5.9% after seven years).

Box 3: Summary results of employment outcomes

- The employment boost achieved by level 3 completers increases over time (returns of around zero in the first two years post completion to approximately 6% after 7 years). There is some variation around average, with NVQ Level 3 completers achieving an immediate employment return (between 2% and 3%) increasing to almost 8% after 7 years. Similar outcomes were associated with both BTEC and City & Guilds qualifications

4.6 Detailed results in the impact of qualifications on long term employment

Employment - 'completion versus non-completion'

In Table 11 and Figure 11, we present information on the marginal employment returns under the 'completion versus non-completion' counterfactual. The analysis reinforces the findings in the previous section and demonstrates the fact that individuals completing qualifications at different levels achieve significantly better labour market outcomes compared to non-completers. Although it is not possible to fully determine whether the effect of qualification attainment moves individuals from non-employment to employment (as throughout the analysis we estimate the impact of qualification attainment on the proportion of the year the individual is in employment for), it is clear that there is an increase in the amount of time in active employment.

Following the completion of a level 2 qualification, these individuals have a 2.2% increased probability of being in employment compared to non-completers, and this impact on the proportion of year worked increases with time (see Table 11). By year three following the attainment of the qualification, the impact has increased to approximately 4.4%, further increasing to 5.4% by year seven. A similar outcome is seen at other levels of qualification, with completers at level 3 seeing an increase in the proportion of the year in work essentially unchanged relative to non-completers in the first two years but increasing to approximately 6.1% by year seven. Even at level 1, there is a statistically significant impact of qualification attainment on employment outcomes with completers achieving a 1.6% employment boost immediately post completion rising to 3.8% after seven years.

Table 11: Completers versus non completers – employment effect (all – only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.027***	0.039***	0.045***	0.050***	0.045***	0.049***	0.054***
Level 3 (all qualifications)	-0.005***	0.005***	0.013***	0.027***	0.042***	0.055***	0.061***
Level 2 (all qualifications)	0.022***	0.037***	0.044***	0.047***	0.047***	0.048***	0.054***
Level 1 (all qualifications)	0.016***	0.026***	0.031***	0.035***	0.036***	0.036***	0.038***
NVQ Level 3	0.021***	0.032***	0.043***	0.050***	0.056***	0.068***	0.078***
BTEC Level 3	0.026***	0.032***	0.036***	0.047***	0.059***	0.073***	0.070***
City & Guilds Level 3	0.043***	0.059***	0.058***	0.063***	0.059***	0.062***	0.052***
Academic level 3	-0.040***	-0.038***	-0.026***	0.004	0.037***	0.057***	0.073***
Other Level 3 qualifications	0.010***	0.024***	0.028***	0.033***	0.038***	0.043***	0.039***
NVQ Level 2	0.043***	0.061***	0.068***	0.070***	0.070***	0.071***	0.083***
BTEC Level 2	-0.019***	0.029***	0.055***	0.067***	0.091***	0.095***	0.089***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
City & Guilds Level 2	0.032***	0.043***	0.040***	0.047***	0.045***	0.042***	0.059***
Skills for Life Level 2	0.005	0.028***	0.041***	0.047***	0.050***	0.057***	0.062***
Academic level 2	0.028***	0.035***	0.046***	0.047***	0.047***	0.050***	0.049***
Other Level 2 qualifications	0.023***	0.034***	0.036***	0.040***	0.038***	0.040***	0.043***
Skills for Life Level 1	-0.002	0.019***	0.029***	0.039***	0.039***	0.038***	0.040***
Skills for Life Entry level	-0.001	0.009**	0.015***	0.019***	0.023***	0.033***	0.034***
Other Level 1 qualifications	0.021***	0.029***	0.035***	0.037***	0.038***	0.038***	0.040***

Source: London Economics, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Within qualification levels, there is some reasonable variation with completers of National Vocational Qualifications achieving particularly strong outcomes (although this may be in part as a result that a large number of National Vocational Qualifications are undertaken in the workplace while already in employment). Individuals acquiring level 2 and level 3 NVQs post employment gains of approximately 8% by the end of the period. Many of the other vocational qualifications undertaken at these levels also provide a significant employment boost to completers. At lower levels of attainment, *Skills for Life* qualifications also provide their holders with strong positive employment returns. At Entry level, a *Skills for Life* qualification provides a small employment boost within two years of completion, which increases to almost 3.5% by the end of the time period. *Skills for Life* Level 1 qualifications follow this pattern, with the employment gain being slightly higher than at entry level (by between 0.5 and 1 percentage points). Similarly, completers of *Skills for Life* Level 2 qualifications are estimated to be in employment for approximately 6% more of the year by the end of the period compared to individuals that did not complete the qualification.

Figure 11: Long term impact of education and training on employment (completers vs. non-completers – only specification)
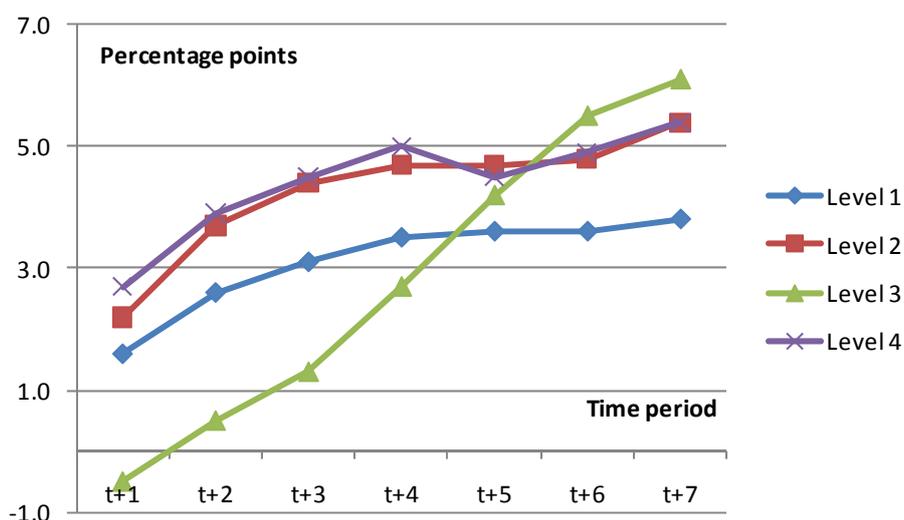
Source: London Economics' analysis

Employment – 'simultaneous attainment'

In Table 12, we illustrate the outcomes associated with the 'simultaneous attainment' counterfactual. The results are generally similar to those presented relating to the 'completers versus non completers' counterfactual albeit the employment effects are

between 3 and 4 percentage points lower in the later years of analysis. Despite this, the analysis suggests that there are almost immediate positive employment effects associated with qualification attainment and that these effects persist well into the medium to longer term.

Table 12: Simultaneous attainment – employment effect (all – only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.057***	0.055***	0.054***	0.045***	0.029***	0.022***	0.022***
Level 3 (all qualifications)	0.007***	-0.002**	-0.003***	0.001	0.008***	0.016***	0.020***
Level 2 (all qualifications)	0.011***	0.017***	0.018***	0.019***	0.019***	0.019***	0.020***
NVQ Level 3	0.034***	0.019***	0.013***	0.016***	0.021***	0.034***	0.040***
BTEC Level 3	0.101***	0.065***	0.053***	0.053***	0.061***	0.066***	0.050***
City & Guilds Level 3	0.063***	0.045***	0.035***	0.031***	0.026***	0.025***	0.019***
Academic level 3	-0.023***	-0.048***	-0.050***	-0.029***	0.006***	0.032***	0.046***
Other Level 3 qualifications	0.001	-0.003**	-0.005***	-0.004***	-0.003**	-0.001	0.000
NVQ Level 2	0.012***	0.020***	0.022***	0.024***	0.027***	0.029***	0.030***
BTEC Level 2	0.003	0.034***	0.051***	0.054***	0.078***	0.102***	0.111***
City & Guilds Level 2	0.044***	0.038***	0.036***	0.034***	0.033***	0.029***	0.038***
Skills for Life Level 2	0.028***	0.043***	0.052***	0.057***	0.057***	0.052***	0.053***
Academic level 2	0.018***	0.026***	0.030***	0.031***	0.037***	0.047***	0.052***
Other Level 2 qualifications	0.008***	0.010***	0.010***	0.010***	0.010***	0.012***	0.013***

Source: London Economics, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

4.7 Summary results in the impact of qualifications on long term benefit dependency

The final element of the assessment of learner outcomes related to identifying whether learners' dependency on different types of welfare benefit decreases following qualification attainment. In assessing the impact of qualification attainment on benefit dependency, the outcome measure that was generated (using Department for Work and Pensions information) was the proportion of the year in question that the individual was in receipt of a particular benefit. We considered two specific benefits as part of this analysis – receipt of the Job Seekers Allowance (JSA) and Incapacity Benefit (IB); however, we did not have any information on the amount of the benefit the individual was in receipt of. The summary findings are presented in Box 4.

> **Box 4: Summary results of benefit dependency outcomes**
>
> Using benefit duration information from the Department for Work and Pensions, we assessed the impact of qualification attainment on benefit dependency, where the outcome measure is the proportion of the calendar the individual is in receipt of particular benefits including JSA and/or IB. The analysis is presented in Table 13, Table 14, Figure 4 and in section 4.8 of the report and the main findings are as follows:
>
> - At level 3, learning aim completers are approximately 1-2% less likely to be dependent on JSA; however, although the initial impact of education and training is around 2% in the first three years post-completion, the effect dissipates marginally over time (completers are approximately 1% less JSA dependent after 5 years).

Box 4: Summary results of benefit dependency outcomes

- The analysis suggests that level 2 completers are approximately 1.5% less JSA dependent immediately post qualification attainment, though in the medium to longer term the effect is reduced (to approximately 1%).

- NVQ and BTEC Level 2 qualifications have a particularly strong effect on reducing JSA dependency (2.0% - 2.5% and 3.5% - 4.0% respectively).

- Level 1 completers see a statistically significant reduction in JSA dependency. *Skills for Life* completers at level 1 see a reduction in JSA dependency of approximately 2% in the first two years, although the reduction in JSA dependency falls to approximately 1% thereafter.

- Overall, qualification completion is associated with a reduction in IB dependence that is marginally greater than the reduction in JSA dependency. The main difference across the two benefits relates to the persistence of benefit dependency. Unlike JSA benefit dependency, completers generally see a limited erosion of their initial positive IB outcome over time.

- Level 3 completers achieve a 2.0% reduction in the proportion of the calendar year in receipt of IB, which remains relatively constant over the following 6 years. At a more disaggregated level, individuals completing NVQs, BTECs and City & Guilds at level 3 all see a similar reduction in IB dependency, which persists for the entire duration of the analysis.

- The difference in benefit dependency at level 2, both in aggregate and for the individual qualifications, are again very similar to the results relating to level 3 completers versus non-completers. NVQ attainment is associated with a 2.0-2.5% reduction in IB dependency, compared to 1.5-2.0% for BTECs and City & Guilds and 1.5% for *Skills for Life* at Level 2.

- There is a limited impact on IB dependency for those individuals completing *Skills for Life* Level 1 qualifications; however, individuals completing *Skills for Life* at Entry level do achieve a statistically significant 1.5% reduction in benefit dependency that persists seven years post completion.

4.8 Detailed results in the impact of qualifications on long term benefit dependency

Benefit receipt – 'Completion versus non-completion'

In Table 13 and Figure 9, we illustrate the role of qualification attainment on benefit receipt using the 'completer versus non completer' counterfactual. The analysis illustrates that when completing qualifications at any level, individuals are statistically significantly less likely to be in receipt of JSA compared to individuals that did not complete the qualification.

At level 1, individuals attaining qualifications were approximately 0.7% less likely to be in receipt of JSA (i.e. spending approximately 0.7% fewer days on JSA compared to non-completers) in the year post qualification. The information in Table 14 indicates that compared to a non completer, they were also approximately 1.3% less likely to be dependent on IB in the year post qualification acquisition. At level 1, there were particularly strong effects on benefit dependency for those completing *Skills for Life* qualifications, where in the two years immediately following completion, there was a 1.7%-2.0% reduction in JSA dependency, although this effect did erode somewhat, with these individuals being approximately 1% less JSA dependent compared to non-completers after seven years. *Skills for Life* at level 1 had no real impact in reducing IB dependency of completers on compared to non-completers.

Table 13: Completers versus non completers – JSA employment effect (all– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.007***	-0.007***	-0.007***	-0.008***	-0.009***	-0.011***	-0.013***
Level 3 (all qualifications)	-0.014***	-0.017***	-0.017***	-0.013***	-0.009***	-0.009***	-0.011***
Level 2 (all qualifications)	-0.014***	-0.013***	-0.010***	-0.011***	-0.010***	-0.010***	-0.011***
Level 1 (all qualifications)	-0.007***	-0.009***	-0.007***	-0.007***	-0.007***	-0.007***	-0.007***
NVQ Level 3	-0.017***	-0.018***	-0.018***	-0.013***	-0.010***	-0.011***	-0.014***
BTEC Level 3	-0.020***	-0.034***	-0.034***	-0.028***	-0.020***	-0.021***	-0.020***
City & Guilds Level 3	-0.009***	-0.009***	-0.011***	-0.010***	-0.012***	-0.013***	-0.014***
Academic level 3	-0.019***	-0.022***	-0.022***	-0.015***	-0.009***	-0.009***	-0.011***
Other Level 3 qualifications	-0.004***	-0.005***	-0.006***	-0.006***	-0.006***	-0.006***	-0.007***
NVQ Level 2	-0.026***	-0.022***	-0.017***	-0.019***	-0.017***	-0.018***	-0.020***
BTEC Level 2	-0.045***	-0.053***	-0.031***	-0.036***	-0.036***	-0.036***	-0.034***
City & Guilds Level 2	-0.016***	-0.013***	-0.013***	-0.016***	-0.015***	-0.018***	-0.021***
Skills for Life Level 2	-0.018***	-0.016***	-0.014***	-0.016***	-0.014***	-0.014***	-0.015***
Academic level 2	-0.006***	-0.005***	-0.003***	-0.006***	-0.004***	-0.006***	-0.006***
Other Level 2 qualifications	-0.007***	-0.008***	-0.007***	-0.008***	-0.007***	-0.006***	-0.007***
Skills for Life Level 1	-0.017***	-0.020***	-0.010***	-0.011***	-0.007***	-0.007***	-0.008***
Skills for Life Entry level	0.007***	0.003***	0.003**	0.002**	0.001	-0.003*	-0.000
Other Level 1 qualifications	-0.007***	-0.006***	-0.006***	-0.006***	-0.006***	-0.005***	-0.006***

Source: London Economics, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The analysis suggests that there is a broad relationship between the level of qualification attained and the extent to which benefit dependency is reduced. The analysis indicates that completion of level 2 qualifications reduces further the benefit dependency of completers, with an impact of approximately 1.5% on JSA dependency immediately post qualification attainment, decreasing to approximately 1% in the medium to longer term. There is a stronger effect in terms of IB, with completers at level 2 experiencing a 2.0% reduction in IB dependency, decreasing to approximately 1.5% in the medium to longer term. At level 2, there is a reduction in JSA dependency for learners attaining National Vocational Qualifications or BTEC Level 2 qualifications, with National Vocational Qualifications resulting in an above average reduction in JSA benefit dependency (by between 2.0% and 2.6%). These outcomes are replicated in relation to IB. BTEC Level 2 qualifications are associated with a 3.5%-4.0% reduction in JSA dependency, as well as a 1.3%-1.9% reduction in IB dependency.

The results relating to *Skills for Life* qualifications also illustrate a reduction in benefit dependency. In particular, individuals completing level 2 qualifications see an immediate 1.8% reduction in JSA dependency (1.3% reduction in IB dependency), which persist across the entire period of analysis (1.5% after seven years). The reduction in IB

dependency also persists across all seven years under consideration, and dependency has decreased by 1.6% by the end of the period. For those individuals completing *Skills for Life* at Level 1, the analysis illustrates that there is a 1.7% reduction in JSA dependency in the first year post completion (falling to 0.8% by the end of the period). There is no impact of completing a *Skills for Life* Level 1 qualification on IB dependency (compared to individuals not completing). Interestingly, the impact of undertaking and completing an entry level *Skills for Life* qualification is to increase (marginally) JSA benefit dependency post-completion (by between 0.2% and 0.7%) but to decrease IB dependency (by between 0.6% and 1.4%).

Figure 12: Long term impact of education and training on JSA dependence (completers vs. non-completers – only specification)
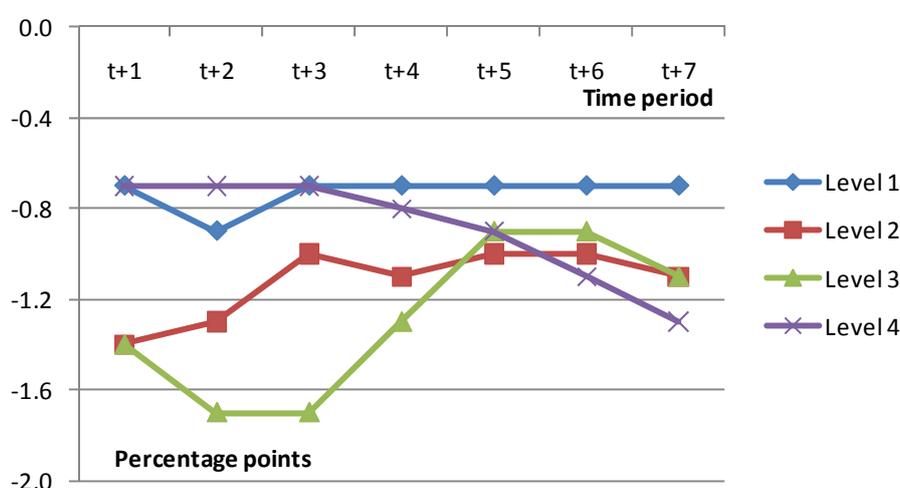
Source: London Economics' analysis

Table 14: Completers versus non completers – IB employment effect (all– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.009***	-0.012***	-0.013***	-0.013***	-0.013***	-0.014***	-0.012***
Level 3 (all qualifications)	-0.018***	-0.020***	-0.021***	-0.020***	-0.020***	-0.020***	-0.018***
Level 2 (all qualifications)	-0.017***	-0.018***	-0.018***	-0.018***	-0.016***	-0.015***	-0.015***
Level 1 (all qualifications)	-0.013***	-0.013***	-0.013***	-0.012***	-0.012***	-0.012***	-0.011***
NVQ Level 3	-0.015***	-0.018***	-0.018***	-0.018***	-0.019***	-0.019***	-0.019***
BTEC Level 3	-0.020***	-0.022***	-0.024***	-0.024***	-0.024***	-0.025***	-0.023***
City & Guilds Level 3	-0.016***	-0.017***	-0.016***	-0.018***	-0.020***	-0.023***	-0.023***
Academic level 3	-0.025***	-0.028***	-0.028***	-0.028***	-0.027***	-0.027***	-0.022***
Other Level 3 qualifications	-0.013***	-0.015***	-0.016***	-0.015***	-0.015***	-0.014***	-0.015***
NVQ Level 2	-0.022***	-0.026***	-0.026***	-0.024***	-0.023***	-0.021***	-0.019***
BTEC Level 2	-0.013***	-0.017***	-0.021***	-0.020***	-0.020***	-0.014***	-0.019***
City & Guilds Level 2	-0.014***	-0.017***	-0.017***	-0.019***	-0.019***	-0.018***	-0.020***
Skills for Life Level 2	-0.013***	-0.014***	-0.015***	-0.014***	-0.014***	-0.015***	-0.016***
Academic level 2	-0.017***	-0.016***	-0.017***	-0.016***	-0.017***	-0.016***	-0.017***
Other Level 2 qualifications	-0.015***	-0.016***	-0.016***	-0.016***	-0.014***	-0.013***	-0.013***
Skills for Life Level 1	-0.002	-0.001	-0.000	0.001	0.003	0.005**	0.005
Skills for Life Entry level	-0.006***	-0.006***	-0.005**	-0.005**	-0.009***	-0.014***	-0.013***
Other Level 1 qualifications	-0.016***	-0.017***	-0.017***	-0.016***	-0.016***	-0.015***	-0.014***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Figure 13: Long term impact of education and training on IB dependence (completers vs. non-completers – only specification)
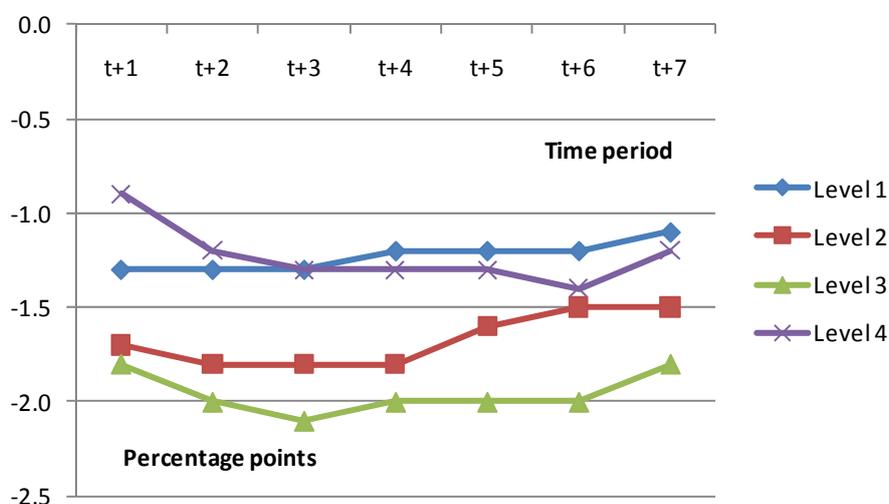
Source: London Economics' analysis

Benefit receipt – 'Simultaneous attainment'

In Table 15 and Table 16, we illustrate the outcomes associated with the 'simultaneous attainment' counterfactual. The results are generally similar to those presented relating to the 'completers versus non completers' counterfactual albeit the estimated impact on benefit dependency are approximately marginally lower. Despite this, the analysis suggests that there are almost immediate positive benefit effects associated with qualification attainment and that these effects persist well into the medium to longer term.

Table 15: Simultaneous attainment – JSA welfare effect (all – only specification)

Level 4 (all qualifications)	-0.001***	0.000	0.000	-0.004***	-0.005***	-0.006***	-0.006***
Level 3 (all qualifications)	-0.006***	-0.014***	-0.018***	-0.014***	-0.010***	-0.009***	-0.010***
Level 2 (all qualifications)	-0.002***	-0.005***	-0.005***	-0.006***	-0.003***	-0.003***	-0.003***
NVQ Level 3	-0.006***	-0.017***	-0.021***	-0.016***	-0.012***	-0.013***	-0.016***
BTEC Level 3	-0.006***	-0.032***	-0.044***	-0.035***	-0.025***	-0.024***	-0.021***
City & Guilds Level 3	0.002	-0.003***	-0.005***	-0.003***	-0.004***	-0.009***	-0.008***
Academic level 3	-0.013***	-0.028***	-0.033***	-0.024***	-0.015***	-0.014***	-0.013***
Other Level 3 qualifications	-0.002***	-0.007***	-0.010***	-0.008***	-0.007***	-0.006***	-0.007***
NVQ Level 2	-0.014***	-0.018***	-0.015***	-0.016***	-0.013***	-0.011***	-0.009***
BTEC Level 2	-0.022***	-0.026***	-0.015***	-0.013***	-0.008***	-0.012***	-0.011***
City & Guilds Level 2	-0.013***	-0.017***	-0.020***	-0.022***	-0.019***	-0.016***	-0.016***
Skills for Life Level 2	-0.010***	-0.012***	-0.013***	-0.014***	-0.008***	-0.006***	-0.005***
Academic level 2	-0.003***	-0.003***	-0.003***	-0.003***	-0.003***	-0.003**	-0.003
Other Level 2 qualifications	0.002***	-0.001***	-0.002***	-0.003***	-0.001***	-0.001***	-0.001***

Source: London Economics, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 16: Simultaneous attainment – IB welfare effect (all – only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.009***	-0.008***	-0.008***	-0.008***	-0.007***	-0.007***	-0.007***
Level 3 (all qualifications)	-0.006***	-0.008***	-0.009***	-0.009***	-0.010***	-0.010***	-0.009***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 2 (all qualifications)	-0.010***	-0.011***	-0.013***	-0.013***	-0.011***	-0.010***	-0.009***
NVQ Level 3	-0.007***	-0.009***	-0.010***	-0.010***	-0.012***	-0.014***	-0.014***
BTEC Level 3	-0.008***	-0.010***	-0.013***	-0.013***	-0.014***	-0.016***	-0.015***
City & Guilds Level 3	-0.011***	-0.011***	-0.010***	-0.010***	-0.011***	-0.012***	-0.013***
Academic level 3	-0.005***	-0.008***	-0.010***	-0.010***	-0.011***	-0.011***	-0.009***
Other Level 3 qualifications	-0.003***	-0.005***	-0.007***	-0.007***	-0.008***	-0.008***	-0.008***
NVQ Level 2	-0.013***	-0.017***	-0.020***	-0.021***	-0.021***	-0.018***	-0.017***
BTEC Level 2	-0.028***	-0.034***	-0.039***	-0.041***	-0.042***	-0.039***	-0.038***
City & Guilds Level 2	-0.023***	-0.026***	-0.028***	-0.029***	-0.030***	-0.028***	-0.026***
Skills for Life Level 2	-0.021***	-0.026***	-0.029***	-0.030***	-0.029***	-0.027***	-0.023***
Academic level 2	-0.010***	-0.011***	-0.012***	-0.012***	-0.012***	-0.014***	-0.013***
Other Level 2 qualifications	-0.004***	-0.005***	-0.006***	-0.006***	-0.005***	-0.004***	-0.004***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

5. Apprenticeships

5.1 Earnings

In this chapter, we provide some additional information on the medium and longer term outcomes associated with gaining Advanced and Foundation Apprenticeships. The analysis follows the identical approach laid out in the previous sections relating to other vocational and academic qualifications; however, we do not present information on the 'before and after' or 'simultaneous attainment' counterfactual, given the potential for repetition. All these results are presented in Annex 6.

Apprenticeships have some of the largest long term impacts on learners. The information in Table 18 indicates that even when all employment and benefits controls have been included in the model specification, the earnings impact of completing a Foundation Apprenticeship in the first year post acquisition stands at approximately 24.1% (β=0.216) compared to a non-completer. Although the relative earnings associated with completion fall after the first year, they are still in excess of 14% compared to non completers throughout the remainder of the period. The information in Table 18 also indicates that the return to men following completion is marginally higher that the return to women following completion.

A similar impact is demonstrated for those in possession of Advanced Apprenticeships. In aggregate, the earnings premium associated with gaining this qualifications stands at 25.3% (β=0.226) relative to non-completers, with men generating a 31.9% premium (β=0.277) relative to non-completer compared to a 14.3% premium achieved by women (β=0.216).

Table 17: Completers vs. non completers – basic specification of earnings effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (all)	0.340***	0.276***	0.247***	0.244***	0.242***	0.263***	0.205***
Foundation apprenticeships (all)	0.377***	0.281***	0.250***	0.232***	0.213***	0.206***	0.230***
Advanced apprenticeships (men)	0.409***	0.318***	0.282***	0.265***	0.270***	0.282***	0.232***
Foundation apprenticeships (men)	0.423***	0.327***	0.286***	0.266***	0.229***	0.239***	0.257***
Advanced apprenticeships (women)	0.227***	0.197***	0.179***	0.193***	0.179***	0.211***	0.151***
Foundation apprenticeships (women)	0.333***	0.237***	0.214***	0.199***	0.196***	0.177***	0.209***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 18: Completers vs. non completers – extended specification of earnings effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (all)	0.226***	0.199***	0.182***	0.175***	0.175***	0.195***	0.137***
Foundation apprenticeships (all)	0.216***	0.156***	0.142***	0.132***	0.121***	0.113***	0.132***
Advanced apprenticeships (men)	0.277***	0.237***	0.214***	0.193***	0.189***	0.199***	0.150***
Foundation apprenticeships (men)	0.254***	0.195***	0.173***	0.154***	0.123***	0.127***	0.137***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (women)	0.134***	0.124***	0.115***	0.127***	0.132***	0.165***	0.103***
Foundation apprenticeships (women)	0.178***	0.116***	0.109***	0.108***	0.116***	0.099***	0.127***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Figure 14: Completers vs. non completers – extended specification of earnings effect (Apprenticeships)
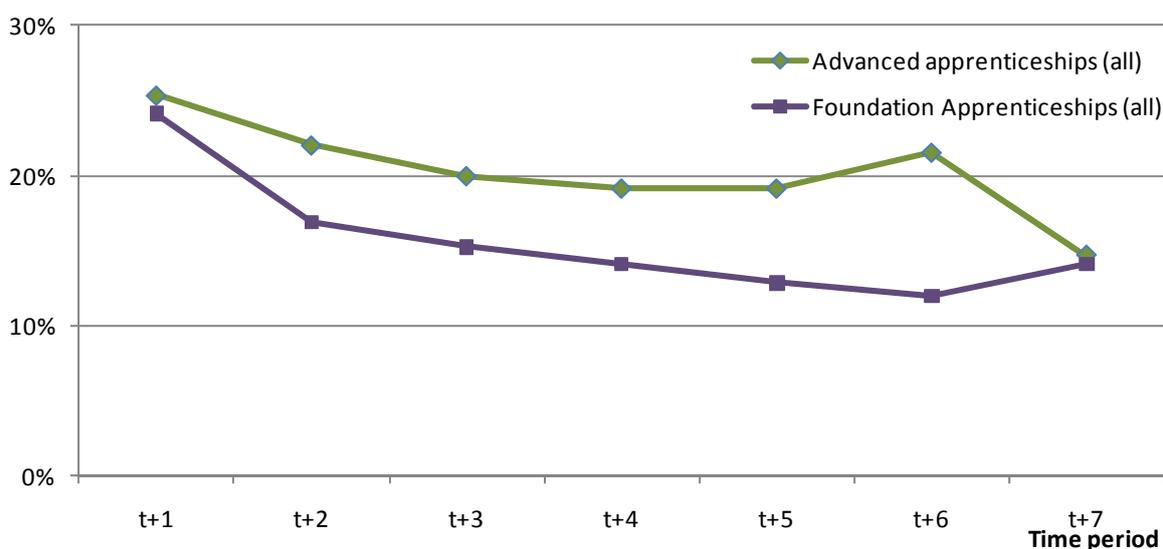
Source: London Economics' analysis

As before, there is some erosion of the earnings premium over time, with the aggregate premium to Advanced Apprenticeships after seven years standing at 24.1% (β=0.137) compared to a premium of 16.2% (β=0.150) for men and 10.8% for women (β=0.103).

5.2 Employment

In terms of other labour market outcomes, the analysis illustrates that there are also significant employment effects associated with acquiring Apprenticeships. Table 19 provides information on the long term effect of Apprenticeship acquisition compared to non completion. The findings indicate that both Advanced and Foundation Apprenticeships are associated with an increase in the proportion of the year employed by between 4% and 6%. This employment effect remains relatively intact over the period of analysis. In addition, the analysis illustrates that men achieve a slightly higher employment return compared to women – especially for Advanced Apprenticeships – while women appear to achieve relatively strong effects from acquisition of Foundation Apprenticeships.

Table 19: Completers vs. non completers – only specification of employment effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (all)	0.048***	0.047***	0.043***	0.046***	0.047***	0.050***	0.054***
Foundation apprenticeships (all)	0.055***	0.049***	0.042***	0.042***	0.045***	0.051***	0.056***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (men)	0.069***	0.062***	0.051***	0.052***	0.058***	0.062***	0.069***
Foundation apprenticeships (men)	0.067***	0.052***	0.038***	0.037***	0.045***	0.051***	0.052***
Advanced apprenticeships (women)	0.023***	0.030***	0.034***	0.038***	0.034***	0.035***	0.036***
Foundation apprenticeships (women)	0.046***	0.047***	0.047***	0.049***	0.045***	0.051***	0.060***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Figure 15: Completers vs. non completers – only specification of employment effect (Apprenticeships)
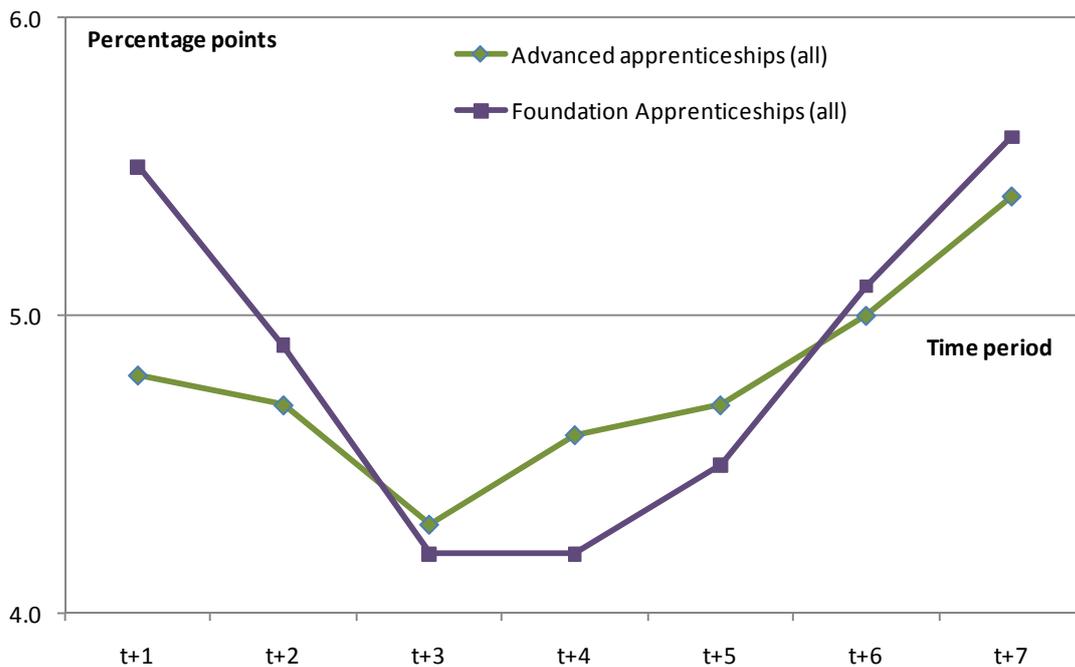
Source: London Economics' analysis

5.3 Benefits

Table 20 and Table 21 illustrate the impact of attaining an Apprenticeship on benefit dependency (JSA and IB respectively). The analysis indicates again that the acquisition of Apprenticeship qualifications reduces benefit dependency. In the case of Foundation Apprenticeships, there is a 4.0% reduction in the proportion of calendar days in receipt of JSA and a 1.2% reduction in IB dependency. For Advanced Apprenticeships, equivalent estimates stand at 2.3% and 0.7% respectively. Benefit dependency is reduced in both the short term and longer term (although somewhat eroded), with individuals in possession of Foundation Apprenticeships continuing to be approximately 2.4% less JSA dependent compared to non-completers at the end of the seven year period (1.0% less IB dependent). The equivalent estimates for the reduction in benefit dependency associated with the acquisition of Advanced Apprenticeship stands at 2.1% and 0.7% in relation to JSA and IB respectively.

Table 20: Completers vs. non completers – only specification of JSA welfare effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (all)	-0.023***	-0.015***	-0.014***	-0.017***	-0.018***	-0.018***	-0.021***
Foundation Apprenticeships (all)	-0.040***	-0.033***	-0.029***	-0.030***	-0.026***	-0.024***	-0.024***
Advanced apprenticeships (men)	-0.028***	-0.019***	-0.018***	-0.022***	-0.025***	-0.025***	-0.030***
Foundation Apprenticeships (men)	-0.045***	-0.039***	-0.037***	-0.043***	-0.038***	-0.039***	-0.040***
Advanced apprenticeships (women)	-0.015***	-0.009***	-0.007***	-0.008***	-0.007***	-0.006***	-0.006***
Foundation Apprenticeships (women)	-0.036***	-0.027***	-0.021***	-0.018***	-0.014***	-0.011***	-0.011***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 21: Completers vs. non completers – only specification of IB welfare effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeships (all)	-0.007***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.007***
Foundation Apprenticeships (all)	-0.012***	-0.013***	-0.014***	-0.012***	-0.012***	-0.011***	-0.010***
Advanced apprenticeships (men)	-0.007***	-0.007***	-0.007***	-0.006***	-0.007***	-0.007***	-0.005***
Foundation Apprenticeships (men)	-0.009***	-0.010***	-0.012***	-0.010***	-0.012***	-0.011***	-0.010***
Advanced apprenticeships (women)	-0.008***	-0.010***	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***
Foundation Apprenticeships (women)	-0.014***	-0.016***	-0.016***	-0.013***	-0.012***	-0.012***	-0.010***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

6. Skills for Life

In addition to the various elements of analysis presented in previous section on the aggregate impact of *Skills for Life* attainment on the outcomes of learners, in this section, we provide more detail at a disaggregated level. Annex 2 provides some information on the number of learners engaged in different levels and types of *Skills for Life* learning aim, which is important both in understanding the *Skills for Life* programme itself, but also has an impact on the sample sizes available for analysis and the robustness of the various results. In particular, the analysis presented in Table 38 illustrates that at *Skills for Life* Level 1, approximately 58% of learners undertake either literacy or numeracy courses, while approximately 14% are engaged in language learning aims and the remaining 28% engaged in 'other' SFL learning aims that generally involve some form of pre-assessment or basic literacy or numeracy learning aim. At level 2, there is a minimal number of these 'other' learning aims and only 7% of learning aims involve language related learning aims, while the proportion engaged in straightforward literacy or numeracy learning aims increases to approximately 88% (relatively evenly split between literacy and numeracy). For this reason, in this section, we focus on the outcomes associated with attaining either literacy or numeracy learning aims (individually or in combination) at level 1 or at level 2, while any discussion of SFL Entry level qualifications is presented in section 4.

6.1 Earnings

Table 22, Table 23 and Figure 16 provide the econometric results relating to the attainment of *Skills for Life* learning aims according to the basic and extended model specifications. As in previous sections, the returns when the additional controls are incorporated into the model are substantially lower than when the basic specification is modelled, and again we concentrate on the extended model specification.

Table 22: Completers vs. non completers – basic specification of earnings effect (*Skills for Life*)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.058***	0.067***	0.088***	0.123***	0.145***	0.201***	0.176***
Literacy only (Level 2)	0.013	0.023**	0.027***	0.040***	0.077***	0.144***	0.107***
Numeracy only (Level 2)	0.105***	0.073***	0.113***	0.142***	0.190***	0.229***	0.239***
Literacy and Numeracy (Level 1)	0.055***	0.065***	0.070***	0.090***	0.102***	0.077**	0.118**
Literacy only (Level 1)	0.167***	0.132***	0.128***	0.142***	0.095***	0.064**	0.148***
Numeracy only (Level 1)	0.077***	0.083***	0.067***	0.085***	0.087***	0.150***	0.116**

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis.

Table 23: Completers vs. non completers – extended specification of earnings effect (*Skills for Life*)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.019*	0.003	0.012	0.044***	0.070***	0.105***	0.093*
Literacy only (Level 2)	-0.036***	-0.024***	-0.028***	-0.011	0.027**	0.085***	0.035
Numeracy only (Level 2)	0.017*	0.002	0.030***	0.055***	0.111***	0.136***	0.129***
Literacy and Numeracy (Level 1)	-0.002	0.026**	0.039***	0.052***	0.068***	0.054*	0.088*

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy only (Level 1)	0.095***	0.072***	0.064***	0.082***	0.049***	0.049**	0.070*
Numeracy only (Level 1)	0.031**	0.037***	0.024**	0.040***	0.048***	0.116***	0.072

Source: London Economics, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

Figure 16: Earnings outcomes associated with SFL attainment

Source: London Economics' analysis. Note: The vertical axis in Figure 16 represents earnings premium associated with completion versus non completion following the appropriate exponential transformation. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

At level 2, the extended model indicates that there are sizeable earnings returns to *Skills for Life* qualifications though there are important differences depending on the nature of the *Skills for Life* learning aim attained (literacy, numeracy) and also depending on whether only one learning aim was achieved or more than one was completed.

In particular, the analysis indicates that there are immediate and persistent earnings returns associated with the attainment of *Skills for Life* numeracy learning aims at level 2 (starting at approximately 1.7% (β=0.017) immediately post attainment rising to more than 13.7% (β=0.129) at the end of seven years. In contrast, the returns associated with literacy level 2 learning aims are negative in the first four years post attainment (standing at approximately -2.5% (β=-0.025)), but increase to between 2.7% and 8.8% in the fifth to seventh years post attainment (β=0.027 and β=0.085 respectively).

The information in Table 23 also illustrates the fact that attaining both literacy and numeracy learning aims is approximately the sum of the returns associated with the individual returns to literacy and numeracy learning aims separately (especially in the short run post qualification attainment). As such, the impact of attaining both literacy and numeracy qualifications at level 2 is marginally negative in the first year post attainment (standing at approximately -1.9% (β=-0.019)); however, the returns are statistically insignificantly different from zero in years two and three, and turn strongly positive in the fourth year post attainment (4.5% (β=0.044)). These earnings return increase further in the longer term and reach or exceed approximately 10% in the final two years for which the analysis is undertaken ((β=0.093)).

There are some differences in the results depending on the level of learning aim attainment. In particular, the attainment of *Skills for Life* numeracy learning aims at level 2 appeared to drive the aggregate returns; however, at level 1, there appears to be a more sizeable return associated with *Skills for Life* literacy learning aims compared to numeracy learning aims; however, this only applies in the short to medium term, with the returns to numeracy qualifications increasing steadily over time (from 3.1% (β=0.031) in year one to approximately 12.3% (β=0.117) in year six).

It is also interesting to note also that the combined return to *Skills for Life* numeracy and literacy learning aims at either level 1 or at level 2 is greater than when we simply consider the headline estimate of the return associated with *Skills for Life* qualifications. In particular, looking at the results presented in Table 10, the analysis indicates that the returns to *Skills for Life* Level 2 qualifications stands at -5.2% (β=-0.053) in the first year post attainment and increase to approximately 6.2% in the seventh year post attainment (β=0.060). The equivalent estimates relating to level 1 *Skills for Life* learning aims are 1.5% (β=0.015) and 2.1% (β=0.021) although both are statistically insignificant. In contrast the results presented above in Table 23 are approximately 3 percentage points higher in the first year post learning aim attainment and 3-5 percentage points higher in the seventh year post learning aim attainment.

6.2 Employment

In Table 24 and Table 13, we provide information on the employment outcomes associated with *Skills for Life* learning aim attainment. The analysis (only specification) indicates that there are strong and positive employment returns associated with all *Skills for Life* qualifications in both the short term and longer term, although the combined effect of gaining both literacy and numeracy qualifications is less than the individual returns from attaining either literacy or numeracy qualifications separately.

Table 24: Completers vs. non completers – only specification of employment effect (*Skills for Life*)

Literacy and Numeracy (Level 2)	0.012***	0.028***	0.039***	0.043***	0.044***	0.054***	0.057***
Literacy only (Level 2)	-0.007**	0.005*	0.016***	0.026***	0.032***	0.041***	0.048***
Numeracy only (Level 2)	0.035***	0.043***	0.056***	0.062***	0.070***	0.077***	0.098***
Literacy and Numeracy (Level 1)	-0.012***	0.002	0.017***	0.025***	0.023***	0.018**	0.021
Literacy only (Level 1)	0.013***	0.023***	0.030***	0.034***	0.035***	0.031***	0.032**
Numeracy only (Level 1)	0.006	0.021***	0.030***	0.036***	0.037***	0.039***	0.065***

Source: London Economics, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

Figure 17: Employment outcomes associated with SFL attainment
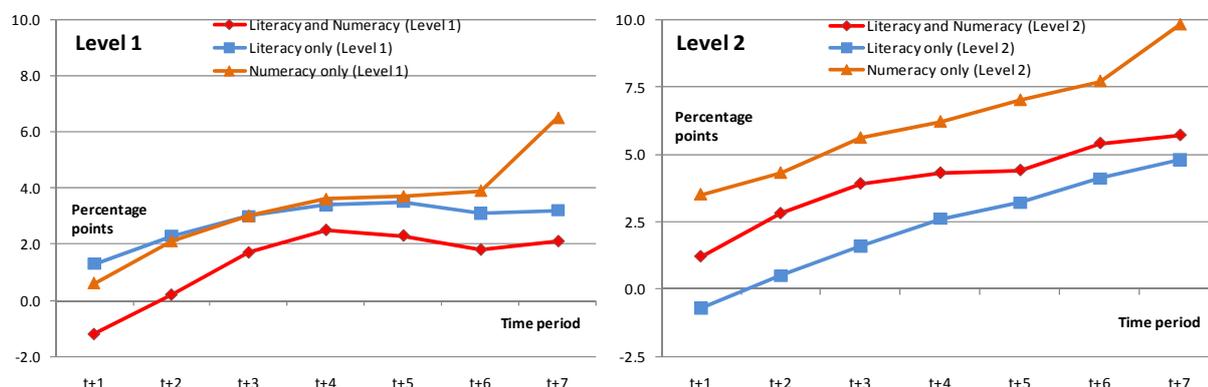
Source: London Economics' analysis. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

The findings in Table 24 indicate that attaining a *Skills for Life* numeracy learning aim at level 1 has a positive employment effect on learners almost immediately, with those completing a numeracy learning aim registering a 2.1% employment boost within two years of qualification completion, which is expected to increase to approximately 6.5% by the end of year seven. The attainment of *Skills for Life* literacy learning aims also has a consistently strong impact in terms of increasing the proportion of the year in employment, with an immediate 1.3% effect in the year post attainment, increasing to approximately 3.2% in the seventh year post attainment. As stated previously, the combined effect of gaining both a literacy and a numeracy learning aim does not appear to have the same impact as attaining the learning aims individually; however, the returns are still positive and statistically significant.

At level 2, a similar picture emerges, though the impact of *Skills for Life* learning aim attainment is far greater than at level 1. In particular, individuals completing *Skills for Life* level 2 numeracy learning aims see an immediate 3.5% increase in the proportion of year in employment compared to those not completing the learning aim. This employment boost increases steadily over time to approximately 9.8% after seven years. Although there is a small negative return associated with the attainment of literacy only learning aims at level 2 in the first year post attainment, the general impact of attaining *Skills for Life* literacy learning aims is positive with a 4.8% effect demonstrated at the end of year seven.

6.3 Benefits

Finally in this section, we provide some information in the impact of qualification attainment on benefit dependency. In Table 25 and Figure 18, we illustrate the impact of the different *Skills for Life* learning aims on JSA dependency, while in Table 26 and Figure 19, we show the results relating to IB dependency (where dependency in both cases relates to the proportion of the year where the individual is in receipt of the benefit in question).

Turning to JSA dependency first, the analysis indicates that at levels 1 and 2, for both literacy and numeracy learning aims, there is an immediate and relatively persistent impact of *Skills for Life* attainment on JSA dependency. At level 1, attaining a *Skills for Life*

numeracy learning aim reduces the proportion of the year in receipt of JSA by approximately 1.6%. This is the case in the first year post attainment and benefit dependency is consistently reduced throughout the period of the analysis (by approximately 1%). A similar (though slightly smaller) effect is illustrated in relation to IB dependency.

Table 25: Completers vs. non completers – only specification of JSA benefit effect (*Skills for Life*)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.025***	-0.024***	-0.021***	-0.024***	-0.019***	-0.018***	-0.022***
Literacy only (Level 2)	-0.022***	-0.019***	-0.016***	-0.018***	-0.011***	-0.013***	-0.017***
Numeracy only (Level 2)	-0.027***	-0.023***	-0.020***	-0.021***	-0.017***	-0.018***	-0.020***
Literacy and Numeracy (Level 1)	-0.024***	-0.017***	-0.006***	-0.007***	-0.006**	-0.010***	-0.013**
Literacy only (Level 1)	-0.025***	-0.019***	-0.012***	-0.013***	-0.010***	-0.007***	-0.006
Numeracy only (Level 1)	-0.016***	-0.014***	-0.007***	-0.008***	-0.006***	-0.004	-0.015***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

Figure 18: JSA dependency associated with SFL attainment
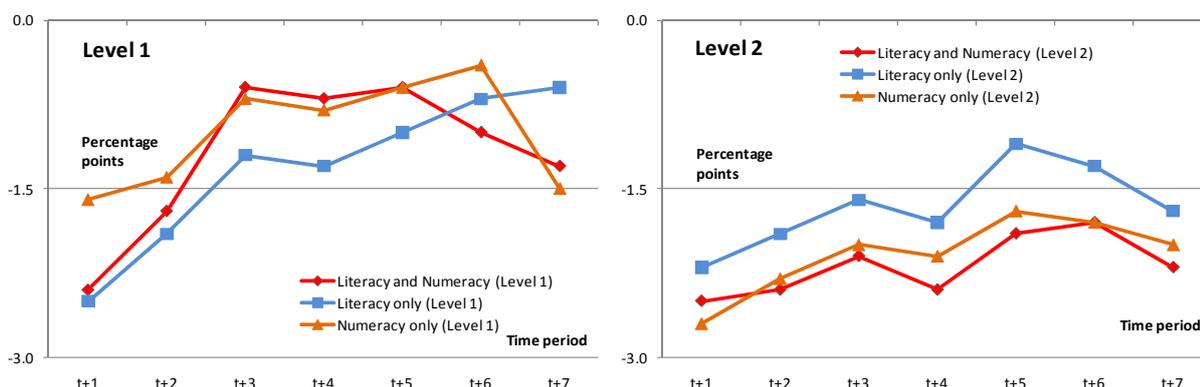
Source: London Economics' analysis. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

The impact of completing *Skills for Life* literacy learning aims at level 1 is greater than the impact associated with numeracy learning aims. The completion of a literacy learning aim at level 1 reduces JSA dependency by approximately 2.5% in the first year post completion, and although some of this effect does dissipate, by the end of the seventh year post learning aims attainment, the impact of the literacy learning aim is still apparent with completers seeing a 0.6% reduction in JSA dependency compared to non-completers. Interestingly, the effect of *Skills for Life* literacy learning aim attainment is more pronounced in relation to IB dependency. Across the entire period of the analysis, the impact of attaining a SFL Level 1 literacy learning aim is to reduce the proportion of the calendar year the individual is in receipt of benefits by approximately 2%.

The impact of SFL learning aim attainment is even stronger at level 2 than at level 1. The reduction in JSA dependency between completers and non-completers stands at 2.2% and 2.7% for literacy only attainment and numeracy only attainment, while the impact of

attaining both literacy and numeracy SFL qualifications stands at 2.5%. Over the seven year period, only 25% of this effect is eroded. In comparison, the impact of SFL learning aim attainment on IB dependency is marginally lower in the short term (1.1% for literacy only, 2.5% for numeracy only and 2.1% for literacy and numeracy); however, the impact of attaining the learning aims is more persistent, with a long term reduction in dependency on IB that is either the same or better at the end of the seven year period than at the start.

Table 26: Completers vs. non completers – only specification of IB benefit effect (*Skills for Life*)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.021***	-0.024***	-0.025***	-0.024***	-0.024***	-0.020***	-0.020***
Literacy only (Level 2)	-0.011***	-0.012***	-0.014***	-0.013***	-0.015***	-0.017***	-0.016***
Numeracy only (Level 2)	-0.025***	-0.027***	-0.028***	-0.026***	-0.029***	-0.029***	-0.035***
Literacy and Numeracy (Level 1)	-0.000	0.003*	0.006***	0.010***	0.005*	0.010**	0.007
Literacy only (Level 1)	-0.016***	-0.015***	-0.015***	-0.014***	-0.016***	-0.017***	-0.021***
Numeracy only (Level 1)	-0.011***	-0.009***	-0.008***	-0.006***	-0.008***	-0.011***	-0.010

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis
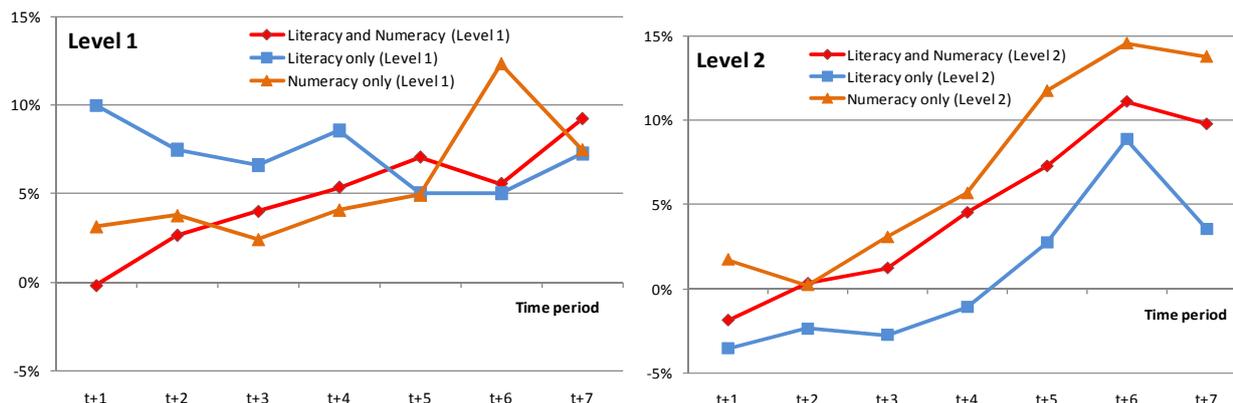
Figure 19: IB dependency associated with SFL attainment
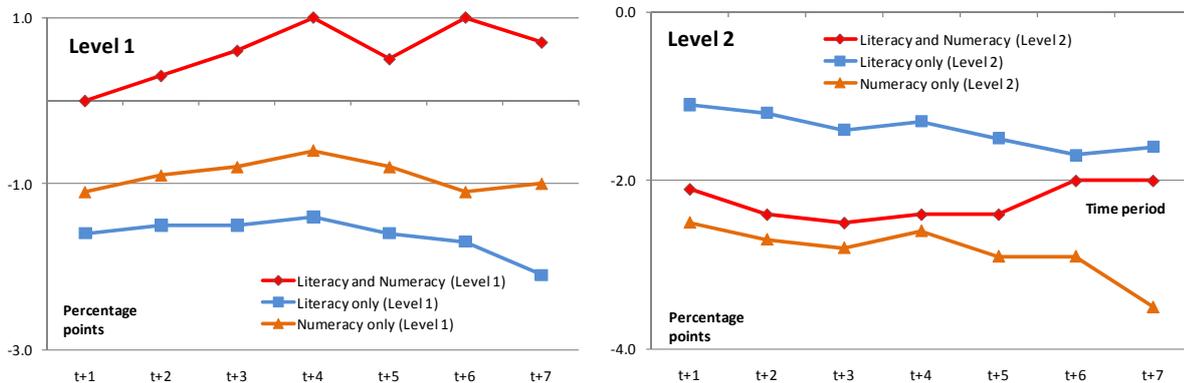
Source: London Economics' analysis. SFL Entry level learning aims are not incorporated within SFL Level 1 learning and as such are not presented in this element of the analysis

7. Conclusions

This report presents the detailed findings following the merging and subsequent analysis a number of data sets from the Department for Business, Innovation and Skills, HM Revenue and Customs and the Department for Work and Pensions. The data matching processes were generally successful and resulted in a significant volume of data available for subsequent analysis. Despite the fact that some data limitations in the ILR limit the possibility of generating an ideal counterfactual scenario, we considered a range econometric modelling techniques and alternative counterfactuals to make the most use of the data available. The volume of data, alongside the consistency of the results generated, suggest that the analysis has provided useful and statistically robust results.

The opportunity to combine and analyse these three data sets in unison creates an information resource that allows for analysis that is far more useful and enlightening than that which might be undertaken on the individual data sets in isolation. We believe that this merged data could become a very important resource for policy makers and researchers alike and we would hope that resources are made available to ensure that this data continues to be updated and upgraded over time.

In terms of the specific results presented in the report, the findings indicate that there are strong positive effects of qualification attainment on both the long term earnings and employment outcomes of those completing learning aims relative to non completers. In addition, the analysis clearly illustrates that individuals attaining additional qualifications are significantly less likely to be benefit dependent. Although there is some variation on the extent of the gains depending on the level of learning aim or the specific qualification, in general the results are unambiguous: education and skills acquisition result in improved labour market outcomes that persist for many years post attainment.

Annex 1: Descriptive statistics

Table 27: Learner participation by aggregated qualification level (ILR 2002/03 – 2005/06)

Participation	2002/03			2003/04			2004/05			2005/06		
Aggregated	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Level 1 or Entry level	995,272	1,524,514	2,519,786	1,101,109	1,664,632	2,765,741	1,079,033	1,629,455	2,708,488	967,089	1,323,454	2,290,543
Level 2	760,371	1,075,524	1,835,895	761,970	1,088,160	1,850,130	752,539	1,064,797	1,817,336	746,606	1,027,232	1,773,838
Level 3	726,332	949,924	1,676,256	698,775	942,585	1,641,360	700,095	936,956	1,637,051	670,599	903,030	1,573,629
Level 4	66,050	80,009	146,059	66,277	87,666	153,943	55,037	73,221	128,258	52,582	69,893	122,475
Other	737,682	986,562	1,724,244	667,208	828,655	1,495,863	692,306	870,558	1,562,864	683,806	858,085	1,541,891
Total	3,285,707	4,616,533	7,902,240	3,295,339	4,611,698	7,907,037	3,279,010	4,574,987	7,853,997	3,120,682	4,181,694	7,302,376
Aggregate Proportions	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Level 1 or Entry level	30.3%	33.0%	31.9%	33.4%	36.1%	35.0%	32.9%	35.6%	34.5%	31.0%	31.6%	31.4%
Level 2	23.1%	23.3%	23.2%	23.1%	23.6%	23.4%	23.0%	23.3%	23.1%	23.9%	24.6%	24.3%
Level 3	22.1%	20.6%	21.2%	21.2%	20.4%	20.8%	21.4%	20.5%	20.8%	21.5%	21.6%	21.5%
Level 4	2.0%	1.7%	1.8%	2.0%	1.9%	1.9%	1.7%	1.6%	1.6%	1.7%	1.7%	1.7%
Other	22.5%	21.4%	21.8%	20.2%	18.0%	18.9%	21.1%	19.0%	19.9%	21.9%	20.5%	21.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Age of entry by Level	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Level 1 or Entry level	30.7	33.9	32.6	31.7	35.7	34.3	31.4	35.2	33.8	28.9	32.4	30.9
Level 2	25.8	28.7	27.5	25.7	29.4	27.9	26.9	30.4	28.9	26.6	29.8	28.4
Level 3	22.2	23.5	23	21.8	23.5	22.8	22	23.4	22.8	21.4	22.7	22.2
Level 4	30	32.3	31.3	30.9	33.3	32.3	31.8	34.7	33.5	32.2	34.9	33.7
Other	31.1	33.5	32.5	29.5	31.2	30.4	29.1	30.8	30	30.2	33.9	32.5
Total	**27.8**	**30.6**	**29.4**	**28**	**31.5**	**30.1**	**28.2**	**31.5**	**30.1**	**27.3**	**30.6**	**29.2**

London Economics' analysis

Table 28: Learner outcomes by aggregated qualification level (ILR 2002/03 – 2005/06)

Learner Outcome	2002/03				2003/04				2004/05				2005/06			
Aggregated	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred
Level 1 or Entry level	4.9%	80.1%	13.3%	1.8%	3.4%	83.4%	11.5%	1.7%	2.9%	84.3%	10.9%	1.9%	3.0%	83.5%	11.2%	2.3%
Level 2	10.7%	71.2%	16.3%	1.7%	10.1%	72.9%	15.2%	1.7%	9.8%	74.4%	14.0%	1.8%	9.8%	75.6%	12.8%	1.9%

Learner Outcome	2002/03				2003/04				2004/05				2005/06			
Level 3	11.8%	71.6%	14.8%	1.7%	12.0%	72.2%	14.1%	1.6%	11.5%	73.6%	13.2%	1.7%	11.5%	74.3%	12.5%	1.7%
Level 4	32.5%	53.2%	12.7%	1.5%	31.6%	54.6%	12.2%	1.6%	28.1%	59.0%	11.1%	1.8%	28.4%	59.5%	10.2%	1.9%
Other	4.0%	88.5%	6.7%	0.8%	3.2%	90.0%	6.1%	0.7%	2.9%	91.0%	5.5%	0.7%	3.1%	90.5%	5.6%	0.8%

London Economics' analysis

Table 29: Learner participation by disaggregated qualification level (ILR 2002/03 – 2005/06)

Participation	2002/03			2003/04			2004/05			2005/06		
Disaggregated	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Skills for Life Entry level	129,460	184,169	313,629	125,337	190,514	315,851	141,012	223,016	364,028	128,260	199,153	327,413
Skills for Life Level 1	214,197	257,175	471,372	227,850	274,471	502,321	220,269	270,788	491,057	230,109	257,354	487,463
Skills for Life Level 2	174,980	190,096	365,076	191,086	211,864	402,950	193,886	226,600	420,486	195,586	230,805	426,391
City & Guilds Level 2	50,627	25,327	75,954	35,994	13,167	49,161	17,926	5,614	23,540	8,863	2,348	11,211
BTEC Level 2	10,098	6,841	16,939	17,221	12,821	30,042	27,636	21,986	49,622	36,115	30,215	66,330
NVQ Level 2	114,454	137,962	252,416	106,660	140,375	247,035	94,303	136,000	230,303	93,400	140,588	233,988
Academic qualifications Level 2	83,775	113,555	197,330	75,654	104,317	179,971	70,869	99,240	170,109	65,888	91,250	157,138
City & Guilds Level 3	18,275	28,908	47,183	7,123	9,923	17,046	3,002	3,006	6,008	1,658	1,307	2,965
BTEC Level 3	37,967	29,199	67,166	72,035	56,638	128,673	85,843	70,256	156,099	101,619	86,614	188,233
NVQ Level 3	112,938	142,031	254,969	89,558	134,458	224,016	83,052	129,291	212,343	47,068	99,992	147,060
Academic qualifications Level 3	335,651	439,125	774,776	330,672	440,285	770,957	325,268	440,536	765,804	319,938	433,791	753,729
Foundation apprenticeship	116,099	121,240	237,339	124,322	125,939	250,261	134,944	124,680	259,624	137,952	121,865	259,817
Advanced apprenticeship	111,023	63,476	174,499	100,850	54,215	155,065	96,996	50,063	147,059	95,377	49,658	145,035
Age of entry by qualification	2002/03			2003/04			2004/05			2005/06		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Skills for Life Entry level	30.8	33.6	32.5	31	33.6	32.6	30.8	33	32.2	30.5	32.3	31.6
Skills for Life Level 1	25.3	28.4	27	24.3	27.8	26.2	23.9	27.4	25.9	23.2	26.9	25.2
Skills for Life Level 2	19.4	21.6	20.6	19.7	22.6	21.3	20	23.7	22	20	23.8	22
City & Guilds Level 2	28.6	33.5	30.2	28.8	31.4	29.5	29.5	29.3	29.5	31.2	28	30.6
BTEC Level 2	17.1	17.9	17.4	17.1	18	17.5	19.3	20.4	19.7	20.1	20.2	20.2
NVQ Level 2	25.5	27.8	26.8	26	28.5	27.4	26.2	29	27.8	27.6	29.5	28.7
Academic qualifications Level 2	20.4	23.4	22.1	20.4	23.5	22.2	20.1	23.1	21.9	19.7	22.6	21.4
City & Guilds Level 3	34.3	37.8	36.4	33.2	37.9	35.9	31.3	36.3	33.8	30.8	34.8	32.6
BTEC Level 3	18.4	18.6	18.5	18.6	18.7	18.6	18.4	18.6	18.5	18.3	18.6	18.4
NVQ Level 3	22.3	26.1	24.4	24.7	28.7	27.1	26.2	29.4	28.1	27.1	31	29.7
Academic qualifications Level 3	17.8	18.6	18.3	17.7	18.6	18.2	17.6	18.4	18.1	17.5	18.2	17.9
Foundation apprenticeship	18.3	18.5	18.4	18.5	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
Advanced apprenticeship	19.2	20	19.5	19.4	20.2	19.7	19.5	20.4	19.8	19.6	20.4	19.9
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

London Economics' analysis

Table 30: Learner outcomes by disaggregated qualification (ILR 2002/03 – 2005/06)

Learner Outcome	2002/03				2003/04				2004/05				2005/06			
Disaggregated	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred	Continuing	Completed	Withdrawn	Transferred
Skills for Life Entry level	1.7%	82.4%	13.1%	2.7%	1.0%	84.8%	11.5%	2.8%	1.1%	84.8%	10.4%	3.6%	1.8%	82.5%	11.4%	4.3%
Skills for Life Level 1	4.7%	78.7%	14.3%	2.4%	3.6%	80.5%	13.4%	2.5%	3.4%	81.0%	12.8%	2.8%	3.9%	80.6%	12.5%	3.0%
Skills for Life Level 2	7.6%	71.0%	19.5%	1.9%	7.4%	72.7%	18.2%	1.8%	6.6%	74.9%	16.3%	2.2%	6.4%	76.2%	14.9%	2.5%
City & Guilds Level 2	11.1%	70.7%	15.9%	2.3%	10.4%	74.3%	13.7%	1.6%	7.7%	79.7%	11.2%	1.4%	3.5%	85.6%	9.8%	1.1%
BTEC Level 2	1.7%	69.5%	26.6%	2.3%	1.5%	71.6%	24.4%	2.4%	2.4%	75.0%	20.5%	2.2%	1.1%	78.5%	18.4%	2.0%
NVQ Level 2	21.4%	58.8%	17.5%	2.3%	22.7%	58.3%	16.9%	2.0%	22.7%	59.8%	15.3%	2.1%	23.4%	60.4%	14.3%	1.9%
Academic qualifications level 2	1.3%	64.7%	31.5%	2.5%	1.1%	67.1%	29.7%	2.1%	0.8%	69.2%	28.0%	2.0%	0.7%	71.8%	25.5%	2.1%
City & Guilds Level 3	10.0%	76.4%	11.0%	2.6%	10.0%	75.6%	12.1%	2.3%	11.5%	73.3%	13.5%	1.7%	13.2%	72.3%	12.2%	2.3%
BTEC Level 3	59.7%	11.4%	25.9%	3.0%	42.7%	35.3%	19.7%	2.3%	41.1%	38.3%	18.3%	2.3%	40.8%	39.6%	17.0%	2.6%
NVQ Level 3	26.8%	57.1%	14.1%	1.9%	26.5%	59.0%	12.7%	1.8%	24.0%	63.4%	11.0%	1.6%	23.9%	64.3%	10.2%	1.6%
Academic qualifications level 3	1.6%	80.7%	16.0%	1.7%	1.5%	81.7%	15.2%	1.7%	1.2%	83.2%	14.0%	1.6%	1.1%	84.4%	12.9%	1.6%
Foundation apprenticeship	44.6%	12.7%	41.1%	1.6%	49.3%	15.2%	34.5%	1.1%	45.3%	28.6%	24.8%	1.3%	41.6%	34.2%	22.2%	2.0%
Advanced apprenticeship	54.4%	12.9%	32.0%	0.8%	59.4%	12.8%	27.2%	0.7%	57.5%	21.9%	18.2%	2.4%	55.8%	26.6%	15.1%	2.6%

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Table 31: Learner attainment rates (ILR 2002/03 – 2005/06)

Attainment	2002/03			2003/04			2004/05			2005/06		
Aggregated	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Level 1 or Entry level	66.9%	71.0%	69.4%	71.4%	74.8%	73.5%	74.0%	76.7%	75.7%	74.2%	76.5%	75.5%
Level 2	53.8%	60.7%	58.0%	57.0%	63.4%	60.8%	62.8%	68.7%	66.3%	67.9%	72.1%	70.4%
Level 3	63.8%	67.3%	65.8%	66.2%	69.2%	67.9%	69.7%	72.3%	71.2%	72.0%	74.8%	73.6%
Level 4	56.5%	61.8%	59.4%	58.3%	62.7%	60.8%	63.6%	68.6%	66.5%	67.9%	71.7%	70.1%
Other	82.1%	79.4%	80.5%	83.7%	81.2%	82.3%	87.8%	87.9%	87.9%	88.2%	88.5%	88.4%
Total	**66.9%**	**69.8%**	**68.6%**	**69.8%**	**72.3%**	**71.3%**	**73.8%**	**76.3%**	**75.3%**	**75.6%**	**77.8%**	**76.8%**
Disaggregated	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Skills for Life Entry level	74.2%	76.6%	75.6%	78.2%	78.7%	78.5%	62.7%	68.6%	66.3%	67.8%	72.0%	70.3%
Skills for Life Level 1	63.4%	68.6%	66.4%	63.8%	69.1%	66.8%	67.8%	71.5%	69.9%	69.5%	72.3%	71.1%
Skills for Life Level 2	38.9%	44.9%	42.1%	44.9%	50.7%	48.0%	52.2%	58.9%	55.9%	58.1%	63.1%	60.9%
City & Guilds Level 2	58.4%	58.0%	58.2%	64.4%	63.3%	64.1%	71.9%	69.5%	71.2%	68.6%	72.6%	69.6%

Attainment	2002/03			2003/04			2004/05			2005/06		
BTEC Level 2	62.0%	64.5%	63.0%	64.9%	67.3%	65.9%	70.9%	73.2%	71.9%	75.1%	75.6%	75.3%
NVQ Level 2	60.4%	62.6%	61.6%	63.9%	64.8%	64.4%	69.4%	70.3%	69.9%	74.4%	73.3%	73.7%
Academic qualifications Level 2	65.8%	73.2%	70.3%	66.3%	69.5%	68.2%	65.0%	70.1%	67.6%	66.2%	74.2%	69.7%
City & Guilds Level 3	21.5%	29.4%	24.9%	55.5%	60.3%	57.7%	61.0%	64.7%	62.7%	65.1%	67.8%	66.4%
BTEC Level 3	65.5%	67.9%	66.8%	68.2%	68.3%	68.3%	75.0%	73.5%	74.1%	78.4%	78.0%	78.2%
NVQ Level 3	21.1%	25.8%	23.6%	28.7%	31.7%	30.3%	51.5%	53.3%	52.4%	60.5%	59.6%	60.1%
Academic qualifications Level 3	32.2%	29.7%	31.1%	33.8%	29.6%	32.1%	55.9%	50.3%	53.7%	66.0%	59.0%	63.3%
Foundation apprenticeship	63.4%	68.6%	66.4%	63.8%	69.1%	66.8%	67.8%	71.5%	69.9%	69.5%	72.3%	71.1%
Advanced apprenticeship	38.9%	44.9%	42.1%	44.9%	50.7%	48.0%	52.2%	58.9%	55.9%	58.1%	63.1%	60.9%

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Table 32: Learner attainment by region (ILR 2002/03 – 2005/06)

Attainment	2002/03					2003/04					2004/05					2005/06				
	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other
North East	72.1%	60.4%	64.5%	63.9%	80.4%	75.7%	63.8%	66.1%	64.7%	82.5%	79.1%	71.4%	68.5%	64.4%	89.4%	78.0%	74.1%	68.9%	68.8%	89.9%
North West	69.3%	60.3%	68.8%	59.7%	81.0%	73.0%	61.1%	70.5%	61.8%	82.2%	75.8%	67.5%	74.0%	67.4%	86.7%	75.6%	71.2%	76.4%	69.4%	86.7%
Yorkshire & Humberside	69.0%	60.1%	67.3%	54.3%	73.4%	73.3%	62.0%	68.0%	53.5%	78.4%	75.8%	67.3%	71.2%	63.3%	85.3%	75.5%	70.5%	73.3%	67.6%	87.1%
East Midlands	71.7%	59.4%	62.5%	61.8%	84.3%	75.8%	64.6%	67.0%	67.2%	88.1%	77.7%	70.2%	70.1%	68.0%	93.9%	77.1%	74.7%	71.9%	73.0%	90.2%
West Midlands	70.1%	57.6%	63.0%	54.5%	84.2%	74.4%	59.4%	66.2%	57.2%	85.9%	76.8%	65.7%	70.0%	65.9%	92.0%	77.9%	69.9%	72.1%	66.8%	91.4%
East of England	69.8%	57.0%	64.9%	60.2%	81.6%	72.9%	60.5%	67.2%	59.4%	82.9%	74.4%	65.7%	71.6%	64.5%	90.1%	75.4%	70.5%	74.6%	66.8%	91.1%
London	62.8%	51.4%	61.7%	56.2%	75.0%	67.2%	55.8%	63.9%	56.7%	80.3%	71.8%	60.6%	68.2%	63.6%	85.3%	71.7%	64.9%	71.7%	69.8%	88.0%
South East	71.3%	56.3%	69.0%	64.2%	84.3%	74.1%	60.2%	70.6%	65.9%	81.6%	73.7%	64.8%	73.2%	69.5%	83.9%	72.4%	68.9%	76.0%	73.4%	85.2%
South West	73.3%	60.3%	66.2%	62.4%	83.1%	78.1%	62.7%	68.3%	62.1%	82.1%	78.7%	66.8%	69.9%	68.5%	88.8%	78.5%	70.9%	72.3%	72.1%	88.0%
Wales	79.6%	67.5%	70.0%	53.3%	79.9%	84.5%	69.2%	71.1%	64.3%	90.9%	84.3%	71.4%	74.0%	71.8%	94.5%	86.4%	75.0%	77.7%	68.4%	92.7%
Scotland	82.2%	77.0%	71.1%	62.0%	89.1%	87.9%	69.3%	74.1%	76.1%	96.3%	83.0%	74.6%	75.5%	64.5%	95.0%	85.1%	77.9%	78.3%	71.5%	92.7%
Northern Ireland	83.6%	81.3%	72.0%	57.7%	93.3%	91.5%	77.8%	77.8%	67.9%	95.4%	94.3%	77.1%	78.6%	63.3%	92.9%	91.9%	83.4%	75.7%	80.0%	87.7%
	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA
North East	39.6%	61.6%	62.9%	68.1%	22.9%	49.8%	60.6%	65.4%	70.7%	30.5%	58.6%	70.6%	68.0%	75.4%	52.5%	65.1%	62.8%	74.3%	79.2%	58.6%
North West	42.1%	61.7%	61.2%	62.4%	23.0%	49.8%	65.0%	66.5%	63.4%	28.8%	59.6%	74.3%	70.1%	71.6%	51.7%	63.3%	72.7%	75.1%	74.7%	59.5%
Yorkshire & Humberside	44.1%	58.5%	65.3%	66.0%	24.0%	49.7%	65.9%	65.1%	66.2%	31.3%	59.3%	73.8%	72.3%	71.8%	53.0%	62.0%	63.7%	76.5%	74.2%	60.6%
East Midlands	42.5%	62.2%	57.3%	60.6%	24.1%	51.6%	68.1%	63.4%	62.7%	31.0%	59.7%	68.9%	71.1%	68.2%	51.5%	64.2%	66.5%	72.8%	74.5%	60.4%
West Midlands	39.5%	54.8%	60.0%	61.9%	26.1%	43.4%	63.4%	63.9%	63.9%	32.7%	52.2%	68.8%	76.7%	68.5%	52.2%	58.5%	65.8%	77.0%	72.5%	60.6%
East of England	42.1%	59.5%	66.4%	62.4%	23.6%	48.2%	66.6%	67.3%	64.4%	31.4%	54.9%	75.0%	71.8%	69.2%	53.8%	62.0%	70.9%	75.2%	73.9%	60.3%
London	42.5%	51.1%	60.9%	56.4%	17.5%	46.0%	56.8%	64.8%	61.8%	21.1%	50.3%	68.6%	70.0%	66.6%	43.5%	54.9%	70.1%	73.7%	71.1%	53.6%
South East	38.5%	60.9%	65.5%	61.1%	21.5%	46.8%	65.6%	67.4%	65.4%	29.1%	55.2%	72.2%	71.9%	67.2%	52.4%	59.1%	75.7%	76.4%	71.7%	61.4%
South West	42.0%	60.2%	66.9%	57.6%	28.2%	48.0%	66.3%	68.3%	63.4%	34.2%	55.3%	66.4%	73.0%	70.1%	57.9%	61.0%	69.3%	75.3%	72.2%	63.7%
Wales	36.4%	56.7%	88.2%	65.0%	27.0%	49.9%	77.8%	65.5%	65.5%	28.7%	49.7%	69.6%	75.9%	77.3%	48.7%	62.9%	66.7%	83.3%	82.2%	57.6%
Scotland	60.9%	69.4%	72.7%	77.8%	18.1%	52.6%	78.5%	76.9%	73.9%	30.7%	61.0%	70.0%	68.0%	76.2%	54.5%	64.7%	78.9%	80.0%	70.2%	61.2%

Attainment	2002/03					2003/04					2004/05					2005/06				
Northern Ireland	31.6%	92.3%	100%	50.0%	66.7%	75.0%	84.6%	100%	77.8%	40.0%	50.0%	100%	80.0%	82.4%	33.3%	100%	100%	66.7%	45.5%	100%

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Table 33: Learner attainment by ethnic origin (ILR 2002/03 – 2005/06)

Attainment	2002/03					2003/04					2004/05					2005/06				
	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other
White – British	71.3%	59.2%	67.1%	60.7%	80.9%	75.3%	62.0%	69.2%	62.6%	81.6%	77.6%	67.6%	72.2%	67.7%	86.8%	77.4%	71.5%	74.4%	71.2%	87.3%
White - Any Other	66.3%	60.4%	63.1%	59.9%	76.9%	71.8%	63.5%	65.8%	62.6%	83.4%	73.9%	68.2%	69.8%	67.3%	91.8%	74.4%	72.2%	72.8%	72.4%	93.4%
Bangladeshi	68.1%	51.1%	60.8%	53.9%	82.3%	71.7%	55.3%	63.0%	51.7%	85.8%	72.6%	61.0%	67.4%	54.1%	88.9%	72.2%	63.5%	70.4%	60.5%	91.3%
Indian	69.9%	55.2%	66.5%	55.3%	81.8%	72.7%	58.9%	68.1%	58.9%	86.2%	74.3%	66.5%	72.4%	68.3%	90.6%	74.5%	70.0%	74.5%	73.5%	87.1%
Pakistani	64.6%	49.7%	59.1%	43.6%	76.0%	68.1%	53.4%	61.2%	44.9%	78.7%	70.6%	59.6%	66.1%	56.0%	89.5%	70.9%	63.7%	69.3%	61.7%	88.9%
Other Asian	66.0%	52.9%	60.6%	50.9%	80.0%	69.8%	58.2%	64.6%	47.7%	86.8%	72.4%	63.6%	68.0%	61.5%	91.8%	72.4%	68.3%	70.7%	64.9%	90.2%
Black - African	63.1%	50.2%	58.0%	41.3%	81.6%	66.5%	53.7%	60.5%	45.9%	87.3%	69.6%	59.7%	65.7%	51.2%	91.0%	70.8%	64.6%	69.4%	54.7%	90.9%
Black - Caribbean	56.8%	48.5%	52.7%	47.9%	74.8%	61.4%	51.0%	56.9%	46.7%	79.4%	65.2%	56.6%	62.0%	56.5%	84.7%	67.7%	60.1%	65.3%	59.4%	86.1%
Black - Other	57.8%	44.5%	54.2%	48.3%	77.7%	62.9%	51.2%	55.5%	50.9%	81.9%	65.6%	53.1%	60.1%	57.3%	87.7%	67.0%	59.0%	63.8%	59.3%	90.5%
Chinese	67.3%	57.9%	65.5%	53.7%	76.6%	72.2%	60.1%	68.1%	49.9%	81.9%	74.0%	66.6%	72.5%	61.4%	89.6%	74.2%	72.2%	78.9%	61.0%	89.4%
Mixed Race	59.2%	46.7%	58.6%	51.6%	75.2%	63.5%	50.9%	62.0%	52.7%	79.2%	67.1%	55.1%	65.6%	57.7%	83.7%	67.3%	60.9%	69.3%	63.7%	84.7%
Any Other	64.4%	52.4%	60.4%	52.7%	79.3%	68.5%	56.9%	61.5%	55.0%	84.4%	71.4%	61.9%	66.1%	61.5%	91.5%	72.1%	66.7%	70.3%	65.5%	92.2%
Not Known/ Provided	69.9%	59.7%	64.0%	64.2%	82.5%	74.0%	62.5%	66.0%	56.3%	85.1%	75.1%	66.5%	70.0%	64.6%	91.6%	75.0%	70.6%	74.1%	69.0%	90.8%
	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA
White – British	39.8%	60.3%	64.1%	63.2%	23.2%	47.2%	65.9%	66.5%	65.3%	30.8%	56.4%	72.4%	72.2%	70.6%	53.0%	61.7%	70.7%	75.3%	74.3%	60.6%
White - Any Other	54.8%	60.1%	57.8%	58.2%	12.2%	56.9%	65.4%	67.2%	64.5%	27.8%	62.1%	75.4%	73.7%	72.7%	47.9%	65.6%	72.7%	77.7%	76.6%	54.4%
Bangladeshi	45.1%	36.9%	66.1%	53.8%	20.7%	49.3%	51.4%	65.6%	58.1%	19.3%	54.6%	63.0%	67.1%	62.9%	32.4%	59.5%	76.5%	73.4%	67.4%	50.1%
Indian	44.3%	49.6%	61.3%	65.0%	18.8%	51.0%	60.8%	70.1%	67.7%	27.6%	57.8%	66.4%	81.0%	73.1%	45.7%	61.9%	62.8%	79.9%	77.5%	59.4%
Pakistani	41.9%	38.2%	55.2%	60.0%	18.3%	49.7%	53.1%	64.7%	62.3%	23.4%	54.8%	57.8%	71.0%	66.4%	43.8%	57.2%	61.6%	75.0%	69.7%	53.3%
Other Asian	47.9%	51.3%	63.7%	50.5%	16.2%	53.8%	54.5%	72.5%	60.2%	22.3%	57.9%	68.5%	73.8%	69.3%	48.7%	58.8%	58.8%	77.8%	78.8%	57.0%
Black – African	46.0%	44.4%	66.8%	55.0%	13.1%	47.8%	50.3%	67.4%	61.2%	11.8%	52.4%	55.2%	76.5%	66.8%	38.3%	56.7%	56.9%	79.5%	70.8%	51.7%
Black – Caribbean	35.2%	44.4%	55.1%	55.2%	30.4%	38.3%	48.0%	58.4%	57.0%	21.0%	45.2%	61.5%	67.5%	62.1%	42.8%	49.8%	49.7%	72.5%	66.1%	54.1%
Black - Other	34.6%	40.2%	50.4%	52.3%	16.9%	40.3%	44.3%	61.5%	60.1%	23.9%	44.1%	57.1%	66.7%	59.3%	45.7%	49.6%	42.5%	73.2%	65.2%	51.1%
Chinese	52.1%	57.4%	61.9%	44.1%	21.9%	54.6%	72.6%	74.7%	57.3%	32.9%	61.2%	74.6%	77.9%	75.5%	54.7%	68.4%	53.3%	77.5%	77.3%	57.0%
Mixed Race	35.1%	46.7%	53.3%	49.4%	8.0%	40.7%	54.2%	58.6%	56.0%	20.1%	45.7%	59.4%	65.3%	59.1%	41.8%	52.7%	66.7%	69.3%	65.1%	53.0%
Any Other	46.8%	54.3%	63.6%	52.7%	14.7%	52.1%	54.9%	69.2%	59.0%	27.3%	56.2%	68.0%	73.6%	66.7%	50.0%	60.0%	71.9%	77.3%	70.8%	54.1%
Not Known/ Provided	46.1%	57.7%	61.4%	61.8%	28.8%	47.5%	59.5%	60.4%	63.1%	32.9%	55.3%	70.2%	65.0%	67.5%	55.6%	59.9%	69.3%	70.8%	70.5%	55.6%

London Economics' analysis

Table 34: Learner attainment by funding source (ILR 2002/03 – 2005/06)

Attainment	2002/03			2003/04			2004/05			2005/06		
Aggregated	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded
Level 1 or Entry level	68.4%	69.8%	62.5%	80.0%	73.3%	71.2%	83.8%	75.2%	75.3%	84.6%	75.7%	73.7%
Level 2	59.0%	58.3%	51.1%	63.3%	61.0%	58.0%	69.4%	66.6%	64.8%	77.7%	70.7%	68.2%
Level 3	68.0%	65.8%	64.7%	68.8%	68.2%	64.0%	74.1%	71.7%	68.6%	78.8%	74.2%	71.2%
Level 4	58.9%	59.7%	63.5%	58.9%	62.1%	61.6%	66.1%	66.9%	65.9%	68.7%	71.0%	70.3%
Other	85.2%	79.3%	80.7%	85.2%	79.3%	80.7%	85.2%	79.3%	80.7%	90.4%	88.2%	87.4%

London Economics' analysis

Table 35: Learner attainment by ethnic origin (ILR 2002/03 – 2005/06)

Attainment	2002/03					2003/04					2004/05					2005/06				
	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other
White – British	71.3%	59.2%	67.1%	60.7%	80.9%	75.3%	62.0%	69.2%	62.6%	81.6%	77.6%	67.6%	72.2%	67.7%	86.8%	77.4%	71.5%	74.4%	71.2%	87.3%
White - Any Other	66.3%	60.4%	63.1%	59.9%	76.9%	71.8%	63.5%	65.8%	62.6%	83.4%	73.9%	68.2%	69.8%	67.3%	91.8%	74.4%	72.2%	72.8%	72.4%	93.4%
Bangladeshi	68.1%	51.1%	60.8%	53.9%	82.3%	71.7%	55.3%	63.0%	51.7%	85.8%	72.6%	61.0%	67.4%	54.1%	88.9%	72.2%	63.5%	70.4%	60.5%	91.3%
Indian	69.9%	55.2%	66.5%	55.3%	81.8%	72.7%	58.9%	68.1%	58.9%	86.2%	74.3%	66.5%	72.4%	68.3%	90.6%	74.5%	70.0%	74.5%	73.5%	87.1%
Pakistani	64.6%	49.7%	59.1%	43.6%	76.0%	68.1%	53.4%	61.2%	44.9%	78.7%	70.6%	59.6%	66.1%	56.0%	89.5%	70.9%	63.7%	69.3%	61.7%	88.9%
Other Asian	66.0%	52.9%	60.6%	50.9%	80.0%	69.8%	58.2%	64.6%	47.7%	86.8%	72.4%	63.6%	68.0%	61.5%	91.8%	72.4%	68.3%	70.7%	64.9%	90.2%
Black - African	63.1%	50.2%	58.0%	41.3%	81.6%	66.5%	53.7%	60.5%	45.9%	87.3%	69.6%	59.7%	65.7%	51.2%	91.0%	70.8%	64.6%	69.4%	54.7%	90.9%
Black - Caribbean	56.8%	48.5%	52.7%	47.9%	74.8%	61.4%	51.0%	56.9%	46.7%	79.4%	65.2%	56.6%	62.0%	56.5%	84.7%	67.7%	60.1%	65.3%	59.4%	86.1%
Black - Other	57.8%	44.5%	54.2%	48.3%	77.7%	62.9%	51.2%	55.5%	50.9%	81.9%	65.6%	53.1%	60.1%	57.3%	87.7%	67.0%	59.0%	63.8%	59.3%	90.5%
Chinese	67.3%	57.9%	65.5%	53.7%	76.6%	72.2%	60.1%	68.1%	49.9%	81.9%	74.0%	66.6%	72.5%	61.4%	89.6%	74.2%	72.2%	78.9%	61.0%	89.4%
Mixed Race	59.2%	46.7%	58.6%	51.6%	75.2%	63.5%	50.9%	62.0%	52.7%	79.2%	67.1%	55.1%	65.6%	57.7%	83.7%	67.3%	60.9%	69.3%	63.7%	84.7%
Any Other	64.4%	52.4%	60.4%	52.7%	79.3%	68.5%	56.9%	61.5%	55.0%	84.4%	71.4%	61.9%	66.1%	61.5%	91.5%	72.1%	66.7%	70.3%	65.5%	92.2%
Not Known/ Provided	69.9%	59.7%	64.0%	64.2%	82.5%	74.0%	62.5%	66.0%	56.3%	85.1%	75.1%	66.5%	70.0%	64.6%	91.6%	75.0%	70.6%	74.1%	69.0%	90.8%
	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA	SFL 2	C&G 2	BTEC2	NVQ2	FMA
White – British	39.8%	60.3%	64.1%	63.2%	23.2%	47.2%	65.9%	66.5%	65.3%	30.8%	56.4%	72.4%	72.2%	70.6%	53.0%	61.7%	70.7%	75.3%	74.3%	60.6%
White - Any Other	54.8%	60.1%	57.8%	58.2%	12.2%	56.9%	65.4%	67.2%	64.5%	27.8%	62.1%	75.4%	73.7%	72.7%	47.9%	65.6%	72.7%	77.7%	76.6%	54.4%
Bangladeshi	45.1%	36.9%	66.1%	53.8%	20.7%	49.3%	51.4%	65.6%	58.1%	19.3%	54.6%	63.0%	67.1%	62.9%	32.4%	59.5%	76.5%	73.4%	67.4%	50.1%
Indian	44.3%	49.6%	61.3%	65.0%	18.8%	51.0%	60.8%	70.1%	67.7%	27.6%	57.8%	66.4%	81.0%	73.1%	45.7%	61.9%	62.8%	79.9%	77.5%	59.4%
Pakistani	41.9%	38.2%	55.2%	60.0%	18.3%	49.7%	53.1%	64.7%	62.3%	23.4%	54.8%	57.8%	71.0%	66.4%	43.8%	57.2%	61.6%	75.0%	69.7%	53.3%
Other Asian	47.9%	51.3%	63.7%	50.5%	16.2%	53.8%	54.5%	72.5%	60.2%	22.3%	57.9%	68.5%	73.8%	69.3%	48.7%	58.8%	58.8%	77.8%	78.8%	57.0%
Black – African	46.0%	44.4%	66.8%	55.0%	13.1%	47.8%	50.3%	67.4%	61.2%	11.8%	52.4%	55.2%	76.5%	66.8%	38.3%	56.7%	56.9%	79.5%	70.8%	51.7%
Black – Caribbean	35.2%	44.4%	55.1%	55.2%	30.4%	38.3%	48.0%	58.4%	57.0%	21.0%	45.2%	61.5%	67.5%	62.1%	42.8%	49.8%	49.7%	72.5%	66.1%	54.1%

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Attainment	2002/03					2003/04					2004/05					2005/06				
Black - Other	34.6%	40.2%	50.4%	52.3%	16.9%	40.3%	44.3%	61.5%	60.1%	23.9%	44.1%	57.1%	66.7%	59.3%	45.7%	49.6%	42.5%	73.2%	65.2%	51.1%
Chinese	52.1%	57.4%	61.9%	44.1%	21.9%	54.6%	72.6%	74.7%	57.3%	32.9%	61.2%	74.6%	77.9%	75.5%	54.7%	68.4%	53.3%	77.5%	77.3%	57.0%
Mixed Race	35.1%	46.7%	53.3%	49.4%	8.0%	40.7%	54.2%	58.6%	56.0%	20.1%	45.7%	59.4%	65.3%	59.1%	41.8%	52.7%	66.7%	69.3%	65.1%	53.0%
Any Other	46.8%	54.3%	63.6%	52.7%	14.7%	52.1%	54.9%	69.2%	59.0%	27.3%	56.2%	68.0%	73.6%	66.7%	50.0%	60.0%	71.9%	77.3%	70.8%	54.1%
Not Known/ Provided	46.1%	57.7%	61.4%	61.8%	28.8%	47.5%	59.5%	60.4%	63.1%	32.9%	55.3%	70.2%	65.0%	67.5%	55.6%	59.9%	69.3%	70.8%	70.5%	55.6%

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Table 36: Learner attainment by funding source (ILR 2002/03 – 2005/06)

Attainment	2002/03			2003/04			2004/05			2005/06		
Aggregated	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded	No LSC	LSC only	LSC & ESF co-funded
Level 1 or entry level	68.4%	69.8%	62.5%	80.0%	73.3%	71.2%	83.8%	75.2%	75.3%	84.6%	75.7%	73.7%
Level 2	59.0%	58.3%	51.1%	63.3%	61.0%	58.0%	69.4%	66.6%	64.8%	77.7%	70.7%	68.2%
Level 3	68.0%	65.8%	64.7%	68.8%	68.2%	64.0%	74.1%	71.7%	68.6%	78.8%	74.2%	71.2%
Level 4	58.9%	59.7%	63.5%	58.9%	62.1%	61.6%	66.1%	66.9%	65.9%	68.7%	71.0%	70.3%
Other	85.2%	79.3%	80.7%	85.2%	79.3%	80.7%	85.2%	79.3%	80.7%	90.4%	88.2%	87.4%

Source: London Economics' analysis of the ILR

Table 37: Learner attainment by mode of learning (ILR 2002/03 – 2005/06)

Attainment	2002/03					2003/04					2004/05					2005/06				
	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other	Level 1	Level 2	Level 3	Level 4	Other
Class contact	70.2%	57.0%	66.1%	60.4%	80.6%	73.7%	59.2%	68.2%	61.2%	82.2%	75.8%	64.0%	71.4%	66.5%	87.7%	75.5%	68.5%	73.6%	70.0%	88.2%
Open learning	58.1%	54.4%	53.9%	35.7%	84.1%	64.5%	57.7%	58.3%	55.6%	93.3%	71.2%	66.1%	62.4%	60.3%	97.5%	73.7%	72.5%	67.6%	60.3%	98.0%
Distance learning	71.2%	69.7%	61.7%	55.8%	66.6%	78.5%	77.1%	62.4%	66.3%	64.0%	77.3%	84.6%	66.7%	73.1%	82.4%	80.5%	84.9%	73.2%	77.2%	89.4%
APL	57.1%	63.0%	24.1%	59.7%	97.5%	66.7%	55.8%	79.6%	41.8%		75.0%	89.5%	87.4%	38.2%	75.0%	91.2%	91.7%	93.5%	90.9%	60.7%
E – learning	52.3%	35.0%	25.6%	39.2%	71.9%	61.0%	48.4%	26.8%	11.5%	90.0%	57.4%	80.5%	39.4%	58.1%	93.8%	66.9%	75.0%	58.2%	70.6%	61.8%
NVQ (provider only)	65.2%	60.0%	65.0%	57.2%	89.6%	67.6%	62.6%	66.0%	60.0%		71.0%	67.4%	71.6%	65.7%		73.8%	70.6%	75.8%	68.9%	
NVQ(provider/workplace)	75.3%	63.6%	58.5%	58.7%	87.1%	78.6%	64.2%	61.2%	57.2%		81.5%	71.6%	67.4%	65.6%		84.0%	75.7%	73.5%	70.4%	
NVQ (workplace only)	71.0%	70.8%	63.7%	49.0%	89.3%	85.7%	76.8%	59.9%	50.3%		77.3%	79.2%	68.6%	58.4%		83.0%	81.1%	70.5%	63.6%	

Source: London Economics' analysis of the ILR

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Table 38: Skills for Life – by type

	SFL Entry				SFL 1				SFL 2			
	Males		Females		Males		Females		Males		Females	
Literacy	1,483	0.3%	1,917	0.3%	247,196	32.7%	253,637	27.2%	284,421	47.7%	314,219	43.6%
Numeracy	832	0.2%	666	0.1%	222,942	29.5%	243,638	26.1%	252,233	42.3%	296,707	41.1%
Language	68,275	14.2%	113,673	15.4%	90,897	12.0%	143,119	15.3%	32,377	5.4%	58,845	8.2%
Other	411,133	85.3%	621,650	84.2%	195,924	25.9%	292,679	31.4%	27,253	4.6%	51,334	7.1%
Total	481,723		737,906		756,959		933,073		596,284		721,105	

Source: London Economics' analysis of the ILR

Annex 2 Determinants of qualification attainment

Table 39: Determinants of qualification attainment (Ordered probit)

	Combined	Males	Females
Age	0.055*** (0.000)	0.048*** (0.000)	0.060*** (0.000)
Age Squared	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Female	0.065*** (0.001)		
Disability	-0.283*** (0.001)	-0.256*** (0.001)	-0.295*** (0.001)
White - Any Other	-0.185*** (0.001)	-0.158*** (0.002)	-0.200*** (0.002)
Bangladeshi	-0.201*** (0.003)	-0.118*** (0.004)	-0.275*** (0.004)
Indian	-0.193*** (0.002)	-0.143*** (0.003)	-0.227*** (0.003)
Pakistani	-0.243*** (0.002)	-0.130*** (0.003)	-0.326*** (0.003)
Other Asian	-0.294*** (0.002)	-0.251*** (0.004)	-0.323*** (0.003)
Black – African	-0.228*** (0.002)	-0.152*** (0.003)	-0.284*** (0.002)
Black – Caribbean	-0.054*** (0.002)	-0.061*** (0.004)	-0.044*** (0.003)
Black - Other	-0.143*** (0.004)	-0.106*** (0.006)	-0.166*** (0.005)
Chinese	-0.244*** (0.003)	-0.196*** (0.006)	-0.275*** (0.004)
Mixed Race	-0.103*** (0.002)	-0.087*** (0.004)	-0.112*** (0.003)
Any Other	-0.262*** (0.002)	-0.229*** (0.003)	-0.283*** (0.003)
Not Known/ Provided	-0.084*** (0.002)	-0.098*** (0.003)	-0.072*** (0.002)
Open learning	-0.033*** (0.002)	0.071*** (0.003)	-0.096*** (0.002)
Distance learning	0.789*** (0.002)	0.890*** (0.003)	0.768*** (0.002)
APL	1.212*** (0.039)	0.915*** (0.076)	1.359*** (0.045)
E – learning	0.533*** (0.006)	0.581*** (0.009)	0.502*** (0.007)
NVQ (provider only)	0.034*** (0.002)	-0.012*** (0.004)	0.043*** (0.003)
NVQ(provider / workplace)	0.729*** (0.002)	0.653*** (0.004)	0.764*** (0.003)
NVQ (workplace only)	1.010*** (0.005)	0.987*** (0.006)	0.998*** (0.007)
LSC only	0.273*** (0.001)	0.086*** (0.002)	0.450 (0.002)
LSC & ESF co-funded	0.236*** (0.001)	0.074*** (0.002)	0.397*** (0.002)
GLH 10-30	1.034*** (0.001)	0.997*** (0.001)	1.066*** (0.001)
GLH 31-60	1.269*** (0.001)	1.142*** (0.002)	1.362*** (0.001)
GLH 61-120	1.359*** (0.001)	1.183*** (0.002)	1.482*** (0.001)

	Combined	Males	Females
GLH 121-240	1.562*** (0.001)	1.390*** (0.002)	1.696*** (0.002)
GLH 240+	2.347*** (0.001)	2.182*** (0.002)	2.480*** (0.002)
IMD score	-0.003*** (0.000)	-0.002*** (0.000)	-0.003*** (0.000)
North West	-0.049*** (0.001)	-0.025*** (0.002)	-0.064*** (0.002)
Yorkshire & Humberside	0.009*** (0.001)	-0.001 (0.002)	0.018*** (0.002)
East Midlands	0.016*** (0.002)	0.011*** (0.002)	0.022*** (0.002)
West Midlands	-0.033*** (0.001)	-0.035*** (0.002)	-0.029*** (0.002)
East of England	-0.045*** (0.001)	-0.041*** (0.002)	-0.047*** (0.002)
London	-0.181*** (0.001)	-0.119*** (0.002)	-0.220*** (0.002)
South East	-0.033*** (0.001)	-0.029*** (0.002)	-0.032*** (0.002)
South West	0.004*** (0.001)	0.006*** (0.002)	0.007*** (0.002)
Wales	0.156*** (0.007)	0.076*** (0.009)	0.244*** (0.011)
Scotland	0.115*** (0.007)	0.078*** (0.010)	0.133*** (0.012)
Northern Ireland	0.130*** (0.022)	0.020 (0.027)	0.314*** (0.038)
2004	0.093*** (0.001)	0.075*** (0.001)	0.105*** (0.001)
2005	0.097*** (0.001)	0.094*** (0.001)	0.096*** (0.001)
2006	0.100*** (0.001)	0.094*** (0.001)	0.102*** (0.001)
Observations	14,350,527	5,775,710	8,574,817

London Economics' analysis

Annex 3: Additional econometric analysis - earnings

Earnings – 'before and after'

In Table 40, we present information on the most straightforward of the analyses, where the returns of those completing specific levels and types of qualification are compared before and after the acquisition of the particular qualification. In the basic specification (Table 40), we have controlled only for the personal and socioeconomic characteristics of the learner, while in the extended specification (Table 41), we also control for employment and benefit outcomes. The coefficients presented in Table 40 and Table 41 demonstrate the change in earnings following qualification attainment and are taken directly from the various tables without any logarithmic transformation.

Table 40: Before and after – earnings effect (basic specification)

	t+2	t+3	t+4
Level 4 (all qualifications)	0.468***	0.531***	0.498***
Level 3 (all qualifications)	0.477***	0.532***	0.509***
Level 2 (all qualifications)	0.346***	0.385***	0.316***
Level 1 (all qualifications)	0.261***	0.281***	0.218***
NVQ Level 3	0.561***	0.615***	0.586***
BTEC Level 3	1.020***	1.135***	1.116***
City & Guilds Level 3	0.589***	0.579***	0.557***
Academic level 3	0.401***	0.464***	0.475***
Other Level 3 qualifications	0.331***	0.372***	0.331***
NVQ Level 2	0.437***	0.460***	0.362***
BTEC Level 2	0.476***	0.561***	0.442***
City & Guilds Level 2	0.393***	0.420***	0.344***
Skills for Life Level 2	0.405***	0.479***	0.416***
Academic level 2	0.307***	0.377***	0.339***
Other Level 2 qualifications	0.301***	0.336***	0.277***
Skills for Life Level 1	0.319***	0.357***	0.301***
Skills for Life Entry level	0.332***	0.348***	0.302***
Other Level 1 qualifications	0.249***	0.267***	0.201***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

This analysis suggests that there is a strong positive return associated with qualification attainment for all levels and types of qualification, and that the earnings returns achieved persists for a number of years (at least) post acquisition. In particular, considering the acquisition of qualification at level 2 (in aggregate), the analysis suggests that there is a 34.6% growth in earnings two years after the acquisition of the qualification. This earnings premium post qualification attainment increases to approximately 38.5% three years following qualification acquisition but dips to 31.6% four years post acquisition. Once employment and benefits variables are controlled for (Table 41), the analysis suggests that the marginal returns drops by between 3 and 4 percentage points compares to the baseline specification.

Table 41: Before and after – earnings effect (extended specification)

Level 4 (all qualifications)	0.413***	0.458***	0.388***
Level 3 (all qualifications)	0.316***	0.335***	0.296***
Level 2 (all qualifications)	0.288***	0.312***	0.223***
Level 1 (all qualifications)	0.260***	0.256***	0.182***
NVQ Level 3	0.420***	0.422***	0.364***
BTEC Level 3	0.623***	0.650***	0.609***
City & Guilds Level 3	0.357**	0.489***	0.367***
Academic level 3	0.123***	0.145***	0.183***
Other Level 3 qualifications	0.263***	0.289***	0.230***
NVQ Level 2	0.327***	0.348***	0.226***
BTEC Level 2	0.429***	0.470***	0.346***
City & Guilds Level 2	0.327***	0.382***	0.262**
Skills for Life Level 2	0.318***	0.350***	0.268***
Academic level 2	0.264***	0.364***	0.342***
Other Level 2 qualifications	0.258***	0.277***	0.201***
Skills for Life Level 1	0.333***	0.343***	0.267***
Skills for Life Entry level	0.277***	0.249***	0.244***
Other Level 1 qualifications	0.244***	0.239***	0.161***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Before and after' basic specification by gender

Table 42: Before and after – earnings effect (men and women separately– basic specification)

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 4 (all qualifications)	0.509***	0.581***	0.533***	0.442***	0.497***	0.476***
Level 3 (all qualifications)	0.506***	0.560***	0.515***	0.457***	0.513***	0.505***
Level 2 (all qualifications)	0.352***	0.385***	0.279***	0.342***	0.385***	0.339***
Level 1 (all qualifications)	0.251***	0.262***	0.174***	0.269***	0.296***	0.251***
NVQ Level 3	0.562***	0.606***	0.538***	0.560***	0.618***	0.609***
BTEC Level 3	1.008***	1.150***	1.133***	1.035***	1.115***	1.095***
City & Guilds Level 3	0.592***	0.589***	0.646***	0.586***	0.569***	0.464***
Academic level 3	0.466***	0.551***	0.502***	0.366***	0.418***	0.461***
Other Level 3 qualifications	0.338***	0.364***	0.306***	0.326***	0.378***	0.348***
NVQ Level 2	0.045***	0.004	-0.118***	0.433***	0.486***	0.423***
BTEC Level 2	0.299***	0.173***	-0.042***	0.468***	0.565***	0.487***
City & Guilds Level 2	0.039	0.029	-0.091***	0.668***	0.703***	0.512**
Skills for Life Level 2	0.236***	0.110***	-0.042***	0.354***	0.436***	0.397***
Academic level 2	0.045*	0.049*	-0.052*	0.304***	0.368***	0.326***
Other Level 2 qualifications	0.050***	0.029***	-0.084***	0.310***	0.341***	0.298***
Skills for Life Level 1	0.179***	0.084***	-0.058***	0.277***	0.337***	0.309***
Skills for Life Entry level	0.026**	-0.049***	-0.084***	0.331***	0.369***	0.338***
Other Level 1 qualifications	0.028***	0.011***	-0.089***	0.264***	0.287***	0.238***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Before and after' extended specification by gender

Table 43: Before and after – earnings effect (men and women separately– extended specification)

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 4 (all qualifications)	0.442***	0.495***	0.439***	0.385***	0.423***	0.335***
Level 3 (all qualifications)	0.342***	0.360***	0.295***	0.298***	0.318***	0.297***
Level 2 (all qualifications)	0.299***	0.324***	0.205***	0.280***	0.303***	0.237***

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 1 (all qualifications)	0.269***	0.266***	0.174***	0.253***	0.248***	0.190***
NVQ Level 3	0.399***	0.371***	0.298***	0.434***	0.451***	0.401***
BTEC Level 3	0.588***	0.667***	0.631***	0.670***	0.630***	0.582***
City & Guilds Level 3	0.554***	0.518**	0.553**	0.240	0.360*	0.211
Academic level 3	0.214***	0.223***	0.201***	0.071**	0.102***	0.176***
Other Level 3 qualifications	0.284***	0.309***	0.222***	0.247***	0.273***	0.236***
NVQ Level 2	-0.081***	-0.091***	-0.235***	0.305***	0.344***	0.259***
BTEC Level 2	-0.021	0.019	-0.214***	0.445***	0.438***	0.279***
City & Guilds Level 2	-0.064	-0.012	-0.191**	0.494**	0.726***	0.328
Skills for Life Level 2	0.055**	0.008	-0.104***	0.280***	0.326***	0.273***
Academic level 2	-0.024	0.011	-0.050	0.240***	0.382***	0.348***
Other Level 2 qualifications	-0.006	-0.027***	-0.149***	0.263***	0.274***	0.217***
Skills for Life Level 1	0.083***	-0.037*	-0.130***	0.272***	0.301***	0.241***
Skills for Life Entry level	-0.040	-0.116***	-0.135***	0.290***	0.272***	0.285***
Other Level 1 qualifications	-0.012	-0.052***	-0.153***	0.243***	0.234***	0.172***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' basic earnings specification - men

Table 44: Completers versus non completers – earnings effect (men – basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.054***	0.051***	0.061***	0.080***	0.094***	0.106***	0.109***
Level 3 (all qualifications)	-0.088***	-0.105***	-0.114***	-0.065***	-0.012**	0.034***	0.075***
Level 2 (all qualifications)	0.012**	0.014***	0.023***	0.037***	0.034***	0.040***	0.043***
Level 1 (all qualifications)	0.064***	0.044***	0.051***	0.062***	0.059***	0.060***	0.046***
NVQ Level 3	-0.011	-0.028**	-0.030**	0.008	0.038***	0.082***	0.107***
BTEC Level 3	-0.055***	-0.069***	-0.081***	-0.032**	0.062***	0.073***	0.096*
City & Guilds Level 3	0.141***	0.148***	0.094***	0.128***	0.132***	0.158***	0.199***
Academic level 3	-0.248***	-0.283***	-0.318***	-0.234***	-0.107***	-0.035**	0.030
Other Level 3 qualifications	0.019*	0.016*	0.019**	0.043***	0.023**	0.059***	0.080***
NVQ Level 2	0.076***	0.081***	0.089***	0.095***	0.099***	0.073***	0.096***
BTEC Level 2	-0.152***	-0.075***	-0.045*	0.016	-0.014	0.097**	-0.008
City & Guilds Level 2	0.090***	0.077***	0.063***	0.079***	0.102***	0.125***	0.093***
Skills for Life Level 2	-0.027	-0.029*	-0.010	0.018	0.027	0.028	0.046
Academic level 2	-0.024	-0.031	0.009	0.040	0.033	-0.016	0.038
Other Level 2 qualifications	0.030***	0.027***	0.029***	0.038***	0.025***	0.038***	0.024*
Skills for Life Level 1	0.050***	0.012	0.037**	0.046***	0.074***	0.075***	0.084**
Skills for Life Entry level	0.019	0.012	-0.016	0.005	-0.017	-0.055*	-0.049
Other Level 1 qualifications	0.062***	0.050***	0.059***	0.069***	0.065***	0.066***	0.053***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' basic earnings specification - women

Table 45: Completers versus non completers – earnings effect (women – basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.014	0.031***	0.045***	0.053***	0.068***	0.075***	0.103***
Level 3 (all qualifications)	-0.161***	-0.170***	-0.165***	-0.108***	-0.016***	0.027***	0.070***
Level 2 (all qualifications)	-0.014***	-0.020***	-0.011**	0.005	0.016***	0.027***	0.063***
Level 1 (all qualifications)	0.004	-0.002	-0.001	0.006	0.003	0.002	0.012
NVQ Level 3	-0.033***	-0.033***	-0.021**	0.002	0.061***	0.124***	0.161***
BTEC Level 3	-0.153***	-0.174***	-0.186***	-0.068***	0.023	0.057*	0.091*
City & Guilds Level 3	-0.044	-0.046	-0.002	-0.050	-0.051	-0.036	-0.042

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Academic level 3	-0.261***	-0.321***	-0.316***	-0.205***	-0.018*	0.063***	0.138***
Other Level 3 qualifications	-0.066***	-0.047***	-0.045***	-0.020**	-0.007	-0.019*	-0.000
NVQ Level 2	0.026***	0.032***	0.054***	0.077***	0.085***	0.090***	0.150***
BTEC Level 2	-0.178***	-0.125***	-0.092***	0.018	0.051	0.108**	0.085
City & Guilds Level 2	-0.017	-0.054*	-0.074**	-0.024	-0.021	-0.034	-0.009
Skills for Life Level 2	-0.060***	-0.055***	-0.030**	-0.002	0.030*	0.091***	0.074**
Academic level 2	-0.043**	-0.066***	-0.046**	-0.034*	0.001	-0.010	0.033
Other Level 2 qualifications	0.012*	-0.003	-0.006	-0.001	0.005	0.014*	0.043***
Skills for Life Level 1	-0.027	-0.011	0.000	0.025	-0.033*	-0.026	-0.055
Skills for Life Entry level	0.009	-0.006	0.005	0.001	0.020	-0.079***	0.057
Other Level 1 qualifications	0.000	-0.003	-0.002	0.004	0.005	0.008	0.017*

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' extended earnings specification – men

Table 46: Completers versus non completers – earnings effect (men – extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.050***	0.048***	0.059***	0.076***	0.090***	0.104***	0.107***
Level 3 (all qualifications)	-0.083***	-0.102***	-0.111***	-0.062***	-0.010	0.036***	0.076***
Level 2 (all qualifications)	0.015***	0.015***	0.024***	0.037***	0.034***	0.040***	0.041***
Level 1 (all qualifications)	0.061***	0.041***	0.049***	0.059***	0.057***	0.057***	0.045***
NVQ Level 3	-0.012	-0.028**	-0.030**	0.008	0.039***	0.083***	0.109***
BTEC Level 3	-0.056***	-0.073***	-0.084***	-0.035**	0.059***	0.068***	0.094*
City & Guilds Level 3	0.127***	0.135***	0.082***	0.115***	0.122***	0.148***	0.190***
Academic level 3	-0.232***	-0.271***	-0.307***	-0.226***	-0.099***	-0.029*	0.030
Other Level 3 qualifications	0.021**	0.018**	0.021**	0.044***	0.024**	0.060***	0.080***
NVQ Level 2	0.081***	0.083***	0.091***	0.097***	0.100***	0.075***	0.095***
BTEC Level 2	-0.130***	-0.053**	-0.024	0.036	0.000	0.111***	0.002
City & Guilds Level 2	0.085***	0.074***	0.057***	0.075***	0.098***	0.124***	0.095***
Skills for Life Level 2	-0.024	-0.026*	-0.007	0.018	0.026	0.025	0.044
Academic level 2	-0.028	-0.036	0.004	0.035	0.031	-0.015	0.034
Other Level 2 qualifications	0.030***	0.025***	0.027***	0.036***	0.023***	0.035***	0.019
Skills for Life Level 1	0.053***	0.015	0.039***	0.048***	0.072***	0.072***	0.084**
Skills for Life Entry level	0.012	0.011	-0.016	0.001	-0.020	-0.051*	-0.042
Other Level 1 qualifications	0.059***	0.047***	0.056***	0.066***	0.062***	0.064***	0.051***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' extended earnings specification - women

Table 47: Completers versus non completers – earnings effect (women – extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.017	0.033***	0.050***	0.058***	0.073***	0.080***	0.102***
Level 3 (all qualifications)	-0.146***	-0.156***	-0.152***	-0.096***	-0.007	0.033***	0.072***
Level 2 (all qualifications)	-0.009*	-0.015***	-0.006	0.009**	0.019***	0.030***	0.064***
Level 1 (all qualifications)	0.002	-0.003	-0.000	0.006	0.004	0.003	0.012
NVQ Level 3	-0.025**	-0.026***	-0.016*	0.006	0.063***	0.124***	0.161***
BTEC Level 3	-0.152***	-0.175***	-0.187***	-0.072***	0.020	0.053*	0.077
City & Guilds Level 3	-0.022	-0.040	0.003	-0.039	-0.044	-0.024	-0.035
Academic level 3	-0.248***	-0.308***	-0.303***	-0.191***	-0.009	0.070***	0.140***
Other Level 3 qualifications	-0.055***	-0.037***	-0.035***	-0.011	0.001	-0.016	-0.003
NVQ Level 2	0.034***	0.038***	0.058***	0.079***	0.085***	0.087***	0.146***
BTEC Level 2	-0.159***	-0.108***	-0.072***	0.030	0.057	0.114**	0.092
City & Guilds Level 2	-0.003	-0.042	-0.065**	-0.014	-0.013	-0.024	-0.007
Skills for Life Level 2	-0.054***	-0.051***	-0.027**	0.002	0.033**	0.091***	0.076***
Academic level 2	-0.050**	-0.066***	-0.043**	-0.035*	-0.003	-0.014	0.022

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Other Level 2 qualifications	0.014**	0.000	-0.002	0.002	0.007	0.017**	0.045***
Skills for Life Level 1	-0.027	-0.007	0.006	0.030*	-0.028	-0.021	-0.050
Skills for Life Entry level	0.007	-0.003	0.007	0.003	0.024	-0.071**	0.064
Other Level 1 qualifications	-0.001	-0.004	-0.002	0.004	0.005	0.008	0.015

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Earnings – 'simultaneous attainment'

In section 3 of this analysis, we assessed the determinants of qualification attainment using a range of personal, regional, socio-economic and course related characteristics, and used those variables that were statistically significant as control variables in the *'completers versus non-completers'* analysis. However, this attempt to control for observable characteristics will never completely control for those innate and unobservable characteristics that may determine qualification completion (such as motivation). Therefore, for completeness, we have undertaken another analysis of the relative earnings outcomes across individuals that completed qualifications at different levels in the same period. In summary, we have assessed the relative outcomes of individuals that have simultaneously attained qualifications at adjacent levels in the same period. In other words, for two groups of individuals who were either at level 2 and level 1, we have assessed their relative earnings when those at level 2 have moved to level 3 and those at level 1 have moved to level 2.

There may be a number of biases in the estimates resulting from unobservable ability biases (and the selection into different qualification levels in the first instance); however, this element of the analysis at least provides some indication of the results bearing this in mind. In general terms, the analysis results in an increase in the estimated marginal returns at level 3 and a reduction in the estimated marginal return at level 2 compared to the 'completion versus non-completion' counterfactual; however, given the difference in the counterfactual and all the other factors mentioned previously, the results presented here should be viewed as an analysis that complements the *'completers versus non completers'* analysis rather than an alternative.

In Table 48, we present information on the basic model specification (using basic personal, regional and socioeconomic controls), while in Table 49, we extend the analysis and control for employment and benefits outcomes. As with the *'completers versus non completers'* analysis, the inclusion of the additional controls reduces the size of the estimates, though only to a relatively small extent and we focus on the extended model results in the next section.

Table 48: Simultaneous attainment – earnings effect (all – basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.267***	0.277***	0.277***	0.262***	0.218***	0.200***	0.198***
Level 3 (all qualifications)	0.041***	0.014***	-0.001	0.014***	0.064***	0.093***	0.122***
Level 2 (all qualifications)	-0.024***	-0.008***	0.002	0.007***	0.014***	0.023***	0.037***
NVQ Level 3	0.063***	0.036***	0.022***	0.032***	0.077***	0.114***	0.165***
BTEC Level 3	0.112***	0.070***	0.033***	0.044***	0.108***	0.135***	0.178***
City & Guilds Level 3	0.352***	0.291***	0.260***	0.241***	0.225***	0.212***	0.203***
Academic level 3	-0.268***	-0.359***	-0.383***	-0.291***	-0.078***	0.050***	0.136***
Other Level 3 qualifications	0.129***	0.116***	0.105***	0.103***	0.102***	0.096***	0.089***
NVQ Level 2	0.018***	0.057***	0.050***	0.049***	0.037***	0.036***	0.048***
BTEC Level 2	-0.261***	-0.135***	-0.075***	-0.047***	0.002	0.079***	0.055
City & Guilds Level 2	0.170***	0.167***	0.154***	0.166***	0.159***	0.161***	0.180***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Skills for Life Level 2	-0.068***	-0.019***	0.018***	0.037***	0.073***	0.083***	0.087***
Academic level 2	0.018	0.011	0.035***	0.046***	0.066***	0.056***	0.062***
Other Level 2 qualifications	-0.019***	-0.013***	-0.009***	-0.007***	-0.006*	0.006*	0.021***

Source: London Economics, Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

The analysis in Table 49 suggests that the marginal returns to level 3 qualifications in aggregate are immediately positive post qualification acquisition. The return in the first year post qualification attainment stands at approximately 2.0% (β=0.020) and subsequently increases steadily to approximately 9.3% (β=0.089) seven years post completion. As would be expected, there is some clear variation depending on the specific qualification. The marginal return to the acquisition of City & Guilds qualifications are very substantial immediately post completion (approximately 34.3% (β=0.293)); however, the marginal return to a City & Guilds Level 3 qualification falls to approximately 20.2% (β=0.184) after seven years compared to the simultaneous attainment of a qualification at level 2. The returns associated with National Vocational Qualifications at level 3 are also positive throughout the period of analysis. In particular, the attainment of a NVQ at level 3 results in an initial earnings premium of 2.7% (β=0.027) increasing to 11.4% (β=0.108) seven years post completion compared to simultaneous attainment at level 2.

In contrast, considering the results relating to the attainment of aggregate level 2 qualifications compared to the simultaneous attainment of level 1 qualifications, the analysis indicates that there are statistically significant negative returns in the first five years post completion with earnings return only becoming statistically significantly positive seven years post completion. However, as before there is some variation around these aggregate results. For instance, individuals attaining City & Guilds qualifications at level 2 demonstrate immediate and prolonged double digit returns over the entire period, while individuals attaining National Vocational Qualifications initially demonstrate a small (statistically significant) negative return immediately post attainment, although this negative return increases in the medium term and is approximately 1.5% seven years after qualification attainment (β=0.015). At the other end of the spectrum, BTEC qualifications at level 2 are associated with large negative returns over the entire duration of the analysis. Finally, *Skills for Life* qualifications at level 2 are associated with strong negative returns in the first four years post attainment, followed by three years of positive return.

Table 49: Simultaneous attainment – earnings effect (all – extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.232***	0.252***	0.254***	0.232***	0.198***	0.180***	0.178***
Level 3 (all qualifications)	0.020***	-0.008***	-0.027***	-0.006**	0.041***	0.065***	0.089***
Level 2 (all qualifications)	-0.044***	-0.034***	-0.029***	-0.021***	-0.012***	-0.001	0.014***
NVQ Level 3	0.027***	-0.005	-0.021***	-0.000	0.041***	0.069***	0.108***
BTEC Level 3	0.035***	-0.024***	-0.071***	-0.037***	0.027***	0.052***	0.101***
City & Guilds Level 3	0.293***	0.249***	0.224***	0.212***	0.201***	0.180***	0.184***
Academic level 3	-0.272***	-0.364***	-0.397***	-0.287***	-0.094***	0.016**	0.086***
Other Level 3 qualifications	0.114***	0.099***	0.084***	0.086***	0.087***	0.079***	0.071***
NVQ Level 2	-0.023***	0.002	0.000	0.001	-0.009	-0.006	0.015
BTEC Level 2	-0.309***	-0.221***	-0.166***	-0.133***	-0.092***	-0.018	-0.011
City & Guilds Level 2	0.100***	0.096***	0.080***	0.097***	0.094***	0.105***	0.131***
Skills for Life Level 2	-0.131***	-0.089***	-0.063***	-0.039***	0.003	0.024***	0.034**
Academic level 2	-0.005	-0.010	0.003	0.016	0.033***	0.021	0.013
Other Level 2 qualifications	-0.026***	-0.026***	-0.025***	-0.021***	-0.019***	-0.008**	0.006

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

This may in part be as a result of the fact that individuals simultaneously attaining level 1 *Skills for Life* qualifications are more heavily rewarded in the labour market following the acquisition of these particular qualifications. This final point is quite important more generally. The nature of the comparison being undertaken is such that the attainment of a particular qualification may appear to provide a low or negative return; however, this may simply be as a result of particularly strong earnings returns associated with attainment of qualifications at the adjacent level (the counterfactual group). The diminishing returns to qualification attainment is an entirely plausible hypothesis and this, combined with the difficulty in interpreting the relevant coefficients, are the primary reasons why we believe that the analysis of completers versus non completers provides a better assessment of the longer term impact of vocational qualifications on attainment.

'Simultaneous attainment' basic earnings specification - men

Table 50: Simultaneous attainment – earnings effect (men – basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.175***	0.186***	0.189***	0.189***	0.159***	0.169***	0.167***
Level 3 (all qualifications)	0.007*	-0.018***	-0.026***	-0.011***	0.026***	0.064***	0.095***
Level 2 (all qualifications)	-0.041***	-0.023***	-0.015***	-0.015***	-0.009**	0.005	0.012
NVQ Level 3	-0.008	-0.029***	-0.031***	-0.026***	0.011	0.060***	0.145***
BTEC Level 3	0.121***	0.071***	0.050***	0.052***	0.093***	0.107***	0.138***
City & Guilds Level 3	0.216***	0.196***	0.185***	0.177***	0.181***	0.185***	0.206***
Academic level 3	-0.328***	-0.400***	-0.422***	-0.352***	-0.191***	-0.058***	0.038**
Other Level 3 qualifications	0.090***	0.075***	0.072***	0.078***	0.078***	0.078***	0.057***
NVQ Level 2	0.059***	0.090***	0.073***	0.068***	0.056***	0.045***	0.039*
BTEC Level 2	-0.249***	-0.134***	-0.102***	-0.082***	-0.005	0.096***	0.037
City & Guilds Level 2	0.209***	0.196***	0.187***	0.183***	0.179***	0.205***	0.215***
Skills for Life Level 2	-0.038***	0.016*	0.048***	0.049***	0.090***	0.100***	0.094***
Academic level 2	-0.008	0.005	0.046***	0.044**	0.067***	0.030	0.075**
Other Level 2 qualifications	-0.053***	-0.048***	-0.045***	-0.046***	-0.050***	-0.036***	-0.026***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' basic earnings specification – women

Table 51: Simultaneous attainment – earnings effect (women – basic specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.304***	0.312***	0.315***	0.291***	0.241***	0.207***	0.204***
Level 3 (all qualifications)	0.045***	0.015***	-0.004	0.011***	0.067***	0.091***	0.120***
Level 2 (all qualifications)	0.002	0.017***	0.026***	0.035***	0.041***	0.045***	0.062***
NVQ Level 3	0.119***	0.086***	0.061***	0.071***	0.126***	0.153***	0.179***
BTEC Level 3	0.113***	0.069***	0.013	0.034***	0.121***	0.163***	0.208***
City & Guilds Level 3	0.377***	0.306***	0.268***	0.252***	0.227***	0.206***	0.188***
Academic level 3	-0.238***	-0.338***	-0.363***	-0.262***	-0.023***	0.106***	0.187***
Other Level 3 qualifications	0.127***	0.112***	0.099***	0.091***	0.091***	0.084***	0.085***
NVQ Level 2	-0.015*	0.032***	0.034***	0.039***	0.026***	0.032***	0.055***
BTEC Level 2	-0.262***	-0.122***	-0.027*	0.015	0.023	0.054*	0.086
City & Guilds Level 2	0.034	0.050***	0.033*	0.078***	0.070***	0.028	0.079***
Skills for Life Level 2	-0.073***	-0.029***	0.006	0.034***	0.064***	0.072***	0.081***
Academic level 2	0.021	0.006	0.020	0.038***	0.055***	0.058***	0.038
Other Level 2 qualifications	0.018***	0.024***	0.028***	0.032***	0.035***	0.042***	0.058***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' extended earnings specification – men

Table 52: Simultaneous attainment – earnings effect (men – extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.142***	0.160***	0.162***	0.153***	0.134***	0.136***	0.124***
Level 3 (all qualifications)	-0.020***	-0.046***	-0.064***	-0.044***	-0.006	0.028***	0.056***
Level 2 (all qualifications)	-0.062***	-0.053***	-0.051***	-0.045***	-0.041***	-0.026***	-0.018**
NVQ Level 3	-0.030***	-0.062***	-0.074***	-0.056***	-0.027***	0.008	0.080***
BTEC Level 3	0.041***	-0.023***	-0.060***	-0.038***	0.004	0.020	0.067
City & Guilds Level 3	0.144***	0.134***	0.112***	0.121***	0.126***	0.122***	0.157***
Academic level 3	-0.340***	-0.407***	-0.447***	-0.366***	-0.212***	-0.096***	-0.008
Other Level 3 qualifications	0.066***	0.052***	0.042***	0.049***	0.056***	0.058***	0.039***
NVQ Level 2	-0.003	0.016*	0.007	0.004	-0.007	-0.014	-0.002
BTEC Level 2	-0.302***	-0.229***	-0.196***	-0.167***	-0.115***	-0.014	-0.029
City & Guilds Level 2	0.114***	0.101***	0.092***	0.099***	0.101***	0.127***	0.136***
Skills for Life Level 2	-0.103***	-0.064***	-0.050***	-0.041***	0.005	0.021	0.018
Academic level 2	-0.040**	-0.033*	0.002	0.009	0.017	-0.026	0.001
Other Level 2 qualifications	-0.058***	-0.060***	-0.061***	-0.057***	-0.063***	-0.048***	-0.040***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' extended earnings specification – women

Table 53: Simultaneous attainment – earnings effect (women – extended specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.268***	0.288***	0.294***	0.266***	0.226***	0.197***	0.199***
Level 3 (all qualifications)	0.027***	-0.004	-0.023***	-0.001	0.050***	0.069***	0.093***
Level 2 (all qualifications)	-0.018***	-0.008***	-0.002	0.008***	0.016***	0.023***	0.041***
NVQ Level 3	0.073***	0.037***	0.018***	0.037***	0.089***	0.112***	0.129***
BTEC Level 3	0.036***	-0.025**	-0.084***	-0.038***	0.043***	0.079***	0.124***
City & Guilds Level 3	0.321***	0.273***	0.249***	0.235***	0.219***	0.193***	0.186***
Academic level 3	-0.241***	-0.345***	-0.372***	-0.251***	-0.036***	0.075***	0.140***
Other Level 3 qualifications	0.114***	0.097***	0.083***	0.082***	0.082***	0.071***	0.071***
NVQ Level 2	-0.047***	-0.015**	-0.011	-0.003	-0.014	-0.006	0.020
BTEC Level 2	-0.302***	-0.199***	-0.116***	-0.079***	-0.057***	-0.029	0.014
City & Guilds Level 2	0.013	0.032*	0.002	0.038**	0.035*	0.020	0.083***
Skills for Life Level 2	-0.129***	-0.089***	-0.060***	-0.029***	0.007	0.028**	0.045**
Academic level 2	0.003	-0.004	-0.003	0.013	0.032**	0.034**	0.009
Other Level 2 qualifications	0.008**	0.009***	0.010***	0.015***	0.018***	0.023***	0.042***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Annex 4: Additional econometric analysis – employment

Employment – 'before and after analysis'

Table 54: Before and after – employment effect (all – only specification)

	t+2	t+3	t+4
Level 4 (all qualifications)	0.104***	0.122***	0.134***
Level 3 (all qualifications)	0.241***	0.273***	0.303***
Level 2 (all qualifications)	0.149***	0.172***	0.188***
Level 1 (all qualifications)	0.106***	0.121***	0.135***
NVQ Level 3	0.238***	0.262***	0.288***
BTEC Level 3	0.420***	0.468***	0.507***
City & Guilds Level 3	0.139***	0.144***	0.144***
Academic level 3	0.373***	0.422***	0.470***
Other Level 3 qualifications	0.097***	0.116***	0.134***
NVQ Level 2	0.198***	0.222***	0.237***
BTEC Level 2	0.424***	0.496***	0.534***
City & Guilds Level 2	0.086***	0.098***	0.107***
Skills for Life Level 2	0.234***	0.276***	0.303***
Academic level 2	0.128***	0.151***	0.168***
Other Level 2 qualifications	0.108***	0.125***	0.138***
Skills for Life Level 1	0.205***	0.241***	0.264***
Skills for Life Entry level	0.207***	0.227***	0.245***
Other Level 1 qualifications	0.083***	0.095***	0.107***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Before and after' only specification by gender

Table 55: Before and after – employment effect (men and women separately – only specification)

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 4 (all qualifications)	0.096***	0.115***	0.128***	0.111***	0.128***	0.138***
Level 3 (all qualifications)	0.146***	0.264***	0.291***	0.109***	0.279***	0.311***
Level 2 (all qualifications)	0.146***	0.168***	0.182***	0.152***	0.175***	0.192***
Level 1 (all qualifications)	0.101***	0.115***	0.127***	0.109***	0.126***	0.142***
NVQ Level 3	0.212***	0.236***	0.263***	0.256***	0.281***	0.306***
BTEC Level 3	0.398***	0.445***	0.481***	0.445***	0.494***	0.535***
City & Guilds Level 3	0.106***	0.111***	0.111***	0.163***	0.167***	0.168***
Academic level 3	0.395***	0.445***	0.488***	0.359***	0.407***	0.458***
Other Level 3 qualifications	0.073***	0.090***	0.102***	0.112***	0.134***	0.155***
NVQ Level 2	0.018***	0.017***	0.014***	0.213***	0.242***	0.259***
BTEC Level 2	0.090***	0.071***	0.035***	0.438***	0.511***	0.553***
City & Guilds Level 2	0.019***	0.009***	0.005***	0.084***	0.103***	0.121***
Skills for Life Level 2	0.049***	0.044***	0.022***	0.207***	0.247***	0.277***
Academic level 2	0.030***	0.022***	0.013***	0.121***	0.146***	0.164***
Other Level 2 qualifications	0.012***	0.017***	0.012***	0.118***	0.135***	0.149***
Skills for Life Level 1	0.036***	0.034***	0.019***	0.191***	0.228***	0.255***
Skills for Life Entry level	0.005***	0.011***	0.012***	0.200***	0.229***	0.251***
Other Level 1 qualifications	0.009***	0.011***	0.011***	0.091***	0.104***	0.117***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers only specification – men

Table 56: Completers versus non completers – employment effect (men – only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.036***	0.048***	0.052***	0.055***	0.048***	0.049***	0.054***
Level 3 (all qualifications)	0.001	0.008***	0.014***	0.023***	0.037***	0.051***	0.056***
Level 2 (all qualifications)	0.025***	0.039***	0.042***	0.045***	0.045***	0.046***	0.054***
Level 1 (all qualifications)	0.024***	0.032***	0.038***	0.041***	0.042***	0.041***	0.043***
NVQ Level 3	0.016***	0.023***	0.033***	0.037***	0.047***	0.056***	0.068***
BTEC Level 3	0.031***	0.033***	0.038***	0.044***	0.053***	0.070***	0.067***
City & Guilds Level 3	0.047***	0.064***	0.067***	0.070***	0.062***	0.079***	0.068***
Academic level 3	-0.033***	-0.036***	-0.027***	-0.002	0.024***	0.048***	0.061***
Other Level 3 qualifications	0.016***	0.027***	0.029***	0.029***	0.038***	0.045***	0.038***
NVQ Level 2	0.050***	0.061***	0.061***	0.065***	0.067***	0.066***	0.079***
BTEC Level 2	-0.022***	0.028***	0.052***	0.059***	0.085***	0.083***	0.079***
City & Guilds Level 2	0.041***	0.056***	0.049***	0.053***	0.050***	0.049***	0.069***
Skills for Life Level 2	0.006	0.036***	0.044***	0.040***	0.047***	0.054***	0.056***
Academic level 2	0.044***	0.048***	0.054***	0.053***	0.049***	0.057***	0.067***
Other Level 2 qualifications	0.027***	0.033***	0.035***	0.037***	0.034***	0.036***	0.039***
Skills for Life Level 1	0.011**	0.029***	0.039***	0.046***	0.044***	0.041***	0.033***
Skills for Life Entry level	0.002	0.006	0.009	0.019***	0.027***	0.041***	0.035***
Other Level 1 qualifications	0.029***	0.037***	0.042***	0.044***	0.045***	0.045***	0.049***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers only specification – women

Table 57: Completers versus non completers – employment effect (women– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.017***	0.030***	0.038***	0.045***	0.042***	0.049***	0.054***
Level 3 (all qualifications)	-0.009***	0.004**	0.012***	0.031***	0.046***	0.057***	0.064***
Level 2 (all qualifications)	0.019***	0.037***	0.045***	0.050***	0.049***	0.050***	0.054***
Level 1 (all qualifications)	0.010***	0.020***	0.025***	0.029***	0.030***	0.032***	0.034***
NVQ Level 3	0.027***	0.041***	0.050***	0.062***	0.065***	0.078***	0.088***
BTEC Level 3	0.019***	0.030***	0.032***	0.051***	0.067***	0.075***	0.072***
City & Guilds Level 3	0.030***	0.045***	0.039***	0.048***	0.051***	0.041***	0.033**
Academic level 3	-0.039***	-0.035***	-0.023***	0.009***	0.046***	0.063***	0.081***
Other Level 3 qualifications	0.004	0.019***	0.025***	0.034***	0.037***	0.041***	0.038***
NVQ Level 2	0.038***	0.062***	0.074***	0.074***	0.074***	0.077***	0.088***
BTEC Level 2	-0.016*	0.028***	0.058***	0.079***	0.101***	0.116***	0.107***
City & Guilds Level 2	0.010	0.011	0.016	0.029***	0.035***	0.027**	0.035**
Skills for Life Level 2	0.005	0.023***	0.038***	0.051***	0.052***	0.058***	0.067***
Academic level 2	0.021***	0.030***	0.043***	0.045***	0.045***	0.046***	0.040***
Other Level 2 qualifications	0.019***	0.033***	0.036***	0.041***	0.039***	0.042***	0.044***
Skills for Life Level 1	-0.014***	0.011**	0.020***	0.032***	0.035***	0.035***	0.047***
Skills for Life Entry level	-0.003	0.013**	0.020***	0.017***	0.018**	0.025***	0.034***
Other Level 1 qualifications	0.015***	0.024***	0.029***	0.032***	0.032***	0.033***	0.034***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' only specification – men

Table 58: Simultaneous attainment – employment effect (men – only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.051***	0.054***	0.056***	0.053***	0.038***	0.030***	0.039***
Level 3 (all qualifications)	0.009***	-0.000	0.000	0.002*	0.007***	0.016***	0.018***
Level 2 (all qualifications)	0.007***	0.011***	0.013***	0.013***	0.014***	0.014***	0.018***
NVQ Level 3	0.015***	0.001	-0.002	0.001	0.005**	0.020***	0.029***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
BTEC Level 3	0.096***	0.058***	0.048***	0.048***	0.053***	0.054***	0.033***
City & Guilds Level 3	0.058***	0.055***	0.054***	0.047***	0.042***	0.043***	0.030***
Academic level 3	-0.025***	-0.049***	-0.048***	-0.036***	-0.010***	0.017***	0.031***
Other Level 3 qualifications	0.004**	0.003	0.004**	0.004***	0.004*	0.003	-0.001
NVQ Level 2	0.008***	0.017***	0.018***	0.021***	0.023***	0.024***	0.023***
BTEC Level 2	-0.005	0.019***	0.032***	0.032***	0.058***	0.083***	0.085***
City & Guilds Level 2	0.056***	0.051***	0.047***	0.042***	0.041***	0.039***	0.052***
Skills for Life Level 2	0.022***	0.041***	0.051***	0.051***	0.052***	0.049***	0.049***
Academic level 2	0.022***	0.038***	0.040***	0.038***	0.041***	0.056***	0.061***
Other Level 2 qualifications	0.004***	0.004***	0.002*	0.002*	0.002	0.003*	0.007**

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' only specification – women

Table 59: Simultaneous attainment – employment effect (women– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.056***	0.050***	0.048***	0.035***	0.020***	0.013***	0.010**
Level 3 (all qualifications)	0.006***	-0.003***	-0.006***	-0.001	0.007***	0.015***	0.020***
Level 2 (all qualifications)	0.016***	0.022***	0.024***	0.025***	0.025***	0.024***	0.024***
NVQ Level 3	0.046***	0.030***	0.023***	0.025***	0.032***	0.041***	0.047***
BTEC Level 3	0.107***	0.073***	0.059***	0.059***	0.071***	0.080***	0.067***
City & Guilds Level 3	0.065***	0.040***	0.026***	0.024***	0.020***	0.014**	0.016**
Academic level 3	-0.017***	-0.042***	-0.045***	-0.021***	0.018***	0.044***	0.057***
Other Level 3 qualifications	0.001	-0.006***	-0.010***	-0.009***	-0.008***	-0.006***	-0.001
NVQ Level 2	0.024***	0.032***	0.033***	0.033***	0.038***	0.038***	0.041***
BTEC Level 2	0.011**	0.052***	0.075***	0.081***	0.101***	0.118***	0.129***
City & Guilds Level 2	0.015***	0.010*	0.012**	0.017***	0.017***	0.010	0.014*
Skills for Life Level 2	0.033***	0.045***	0.052***	0.059***	0.058***	0.053***	0.053***
Academic level 2	0.015***	0.019***	0.025***	0.027***	0.034***	0.043***	0.045***
Other Level 2 qualifications	0.011***	0.016***	0.017***	0.017***	0.017***	0.019***	0.019***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Annex 5: Additional econometric analysis – benefit dependency

Benefit receipt – 'before and after analysis'

Table 60: Before and after – JSA welfare effect (all – only specification)

	t+2	t+3	t+4
Level 4 (all qualifications)	-0.015***	-0.017***	-0.017***
Level 3 (all qualifications)	0.016***	0.013***	0.025***
Level 2 (all qualifications)	0.019***	0.022***	0.024***
Level 1 (all qualifications)	0.021***	0.021***	0.022***
NVQ Level 3	0.019***	0.017***	0.026***
BTEC Level 3	0.055***	0.050***	0.073***
City & Guilds Level 3	-0.026***	-0.030***	-0.031***
Academic level 3	0.027***	0.026***	0.045***
Other Level 3 qualifications	-0.004***	-0.007***	-0.002***
NVQ Level 2	0.028***	0.036***	0.036***
BTEC Level 2	0.096***	0.127***	0.132***
City & Guilds Level 2	0.002	-0.003*	-0.006***
Skills for Life Level 2	0.045***	0.046***	0.047***
Academic level 2	0.021***	0.024***	0.022***
Other Level 2 qualifications	0.005***	0.004***	0.006***
Skills for Life Level 1	0.061***	0.067***	0.067***
Skills for Life Entry level	0.032***	0.026***	0.023***
Other Level 1 qualifications	0.010***	0.009***	0.011***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 61: Before and after – IB welfare effect (all – only specification)

	t+2	t+3	t+4
Level 4 (all qualifications)	-0.002**	-0.000	-0.001
Level 3 (all qualifications)	0.011***	0.014***	0.013***
Level 2 (all qualifications)	0.017***	0.022***	0.020***
Level 1 (all qualifications)	0.041***	0.045***	0.043***
NVQ Level 3	0.009***	0.013***	0.014***
BTEC Level 3	0.016***	0.020***	0.018***
City & Guilds Level 3	0.003	0.006**	0.008***
Academic level 3	0.014***	0.016***	0.016***
Other Level 3 qualifications	0.009***	0.010***	0.008***
NVQ Level 2	0.011***	0.019***	0.020***
BTEC Level 2	0.024***	0.034***	0.032***
City & Guilds Level 2	0.015***	0.017***	0.017***
Skills for Life Level 2	0.027***	0.028***	0.024***
Academic level 2	0.020***	0.021***	0.021***
Other Level 2 qualifications	0.016***	0.020***	0.018***
Skills for Life Level 1	0.066***	0.075***	0.073***
Skills for Life Entry level	0.076***	0.080***	0.077***
Other Level 1 qualifications	0.029***	0.032***	0.030***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Before and after' JSA - only specification by gender

Table 62: Before and after – JSA welfare effect (men and women separately – only specification)

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 4 (all qualifications)	-0.025***	-0.027***	-0.026***	-0.007***	-0.009***	-0.010***
Level 3 (all qualifications)	0.024***	0.017***	0.033***	0.015***	0.010***	0.019***

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 2 (all qualifications)	0.024***	0.031***	0.038***	0.016***	0.015***	0.013***
Level 1 (all qualifications)	0.029***	0.031***	0.035***	0.015***	0.013***	0.011***
NVQ Level 3	0.021***	0.020***	0.035***	0.018***	0.014***	0.019***
BTEC Level 3	0.060***	0.059***	0.087***	0.048***	0.039***	0.056***
City & Guilds Level 3	-0.036***	-0.043***	-0.045***	-0.018***	-0.019***	-0.019***
Academic level 3	0.038***	0.038***	0.061***	0.020***	0.018***	0.033***
Other Level 3 qualifications	-0.011***	-0.014***	-0.006***	0.000	-0.002***	0.001*
NVQ Level 2	0.024***	0.018***	0.008***	0.031***	0.030***	0.024***
BTEC Level 2	0.056***	0.040***	0.014***	0.091***	0.113***	0.105***
City & Guilds Level 2	-0.005***	-0.005***	-0.003*	0.005**	-0.001	-0.005*
Skills for Life Level 2	0.019***	0.005***	0.006***	0.030***	0.029***	0.026***
Academic level 2	0.014***	0.006**	-0.003	0.016***	0.017***	0.016***
Other Level 2 qualifications	-0.008***	0.000	0.007***	0.004***	0.002***	0.002***
Skills for Life Level 1	0.021***	0.012***	0.006***	0.045***	0.045***	0.040***
Skills for Life Entry level	-0.022***	-0.009***	-0.003***	0.023***	0.018***	0.016***
Other Level 1 qualifications	-0.001***	0.001	0.005***	0.007***	0.005***	0.004***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Before and after' IB - only specification by gender

Table 63: Before and after – IB welfare effect (men and women separately – only specification)

	Men			Women		
	t+2	t+3	t+4	t+2	t+3	t+4
Level 4 (all qualifications)	-0.004***	-0.002	-0.003**	-0.001	0.001	0.000
Level 3 (all qualifications)	0.019***	0.015***	0.014***	0.035***	0.013***	0.012***
Level 2 (all qualifications)	0.019***	0.023***	0.022***	0.016***	0.020***	0.018***
Level 1 (all qualifications)	0.048***	0.054***	0.053***	0.035***	0.038***	0.034***
NVQ Level 3	0.010***	0.014***	0.014***	0.008***	0.013***	0.014***
BTEC Level 3	0.014***	0.017***	0.017***	0.019***	0.022***	0.019***
City & Guilds Level 3	0.007**	0.009***	0.011***	-0.001	0.003	0.005
Academic level 3	0.015***	0.018***	0.018***	0.013***	0.015***	0.015***
Other Level 3 qualifications	0.010***	0.012***	0.011***	0.009***	0.009***	0.006***
NVQ Level 2	0.009***	0.008***	0.002***	0.014***	0.022***	0.022***
BTEC Level 2	0.011***	0.009***	-0.001	0.027***	0.039***	0.037***
City & Guilds Level 2	0.004***	0.003**	0.001	0.013***	0.013***	0.009**
Skills for Life Level 2	0.003***	0.001	-0.004***	0.022***	0.024***	0.020***
Academic level 2	0.002	0.002	0.001	0.017***	0.017***	0.017***
Other Level 2 qualifications	0.004***	0.003***	-0.002***	0.015***	0.018***	0.016***
Skills for Life Level 1	0.013***	0.009***	-0.002***	0.060***	0.069***	0.066***
Skills for Life Entry level	0.009***	0.003***	-0.004***	0.065***	0.070***	0.068***
Other Level 1 qualifications	0.006***	0.005***	-0.000	0.024***	0.025***	0.022***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' JSA – only specification - men

Table 64: Completers versus non completers – JSA effect (men– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.010***	-0.011***	-0.011***	-0.012***	-0.013***	-0.018***	-0.020***
Level 3 (all qualifications)	-0.019***	-0.024***	-0.026***	-0.022***	-0.017***	-0.016***	-0.019***
Level 2 (all qualifications)	-0.020***	-0.019***	-0.016***	-0.020***	-0.018***	-0.018***	-0.020***
Level 1 (all qualifications)	-0.011***	-0.014***	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***
NVQ Level 3	-0.025***	-0.026***	-0.029***	-0.021***	-0.018***	-0.019***	-0.023***
BTEC Level 3	-0.025***	-0.039***	-0.042***	-0.037***	-0.029***	-0.029***	-0.029***
City & Guilds Level 3	-0.013***	-0.017***	-0.021***	-0.018***	-0.022***	-0.023***	-0.024***
Academic level 3	-0.026***	-0.033***	-0.035***	-0.028***	-0.019***	-0.017***	-0.017***
Other Level 3 qualifications	-0.006***	-0.007***	-0.009***	-0.010***	-0.010***	-0.010***	-0.014***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
NVQ Level 2	-0.039***	-0.035***	-0.029***	-0.033***	-0.032***	-0.030***	-0.033***
BTEC Level 2	-0.048***	-0.059***	-0.040***	-0.053***	-0.055***	-0.056***	-0.054***
City & Guilds Level 2	-0.020***	-0.017***	-0.017***	-0.020***	-0.018***	-0.024***	-0.030***
Skills for Life Level 2	-0.018***	-0.020***	-0.022***	-0.026***	-0.025***	-0.027***	-0.029***
Academic level 2	-0.013***	-0.012***	-0.012***	-0.016***	-0.012***	-0.015***	-0.017***
Other Level 2 qualifications	-0.009***	-0.011***	-0.011***	-0.014***	-0.011***	-0.010***	-0.012***
Skills for Life Level 1	-0.022***	-0.030***	-0.020***	-0.022***	-0.018***	-0.015***	-0.016***
Skills for Life Entry level	0.009***	0.004**	0.003	0.000	-0.002	-0.009***	-0.003
Other Level 1 qualifications	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***	-0.009***	-0.011***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' JSA – only specification - women

Table 65: Completers versus non completers – JSA employment effect (women–only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.005***	-0.003***	-0.003***	-0.003***	-0.005***	-0.005***	-0.005***
Level 3 (all qualifications)	-0.009***	-0.011***	-0.011***	-0.007***	-0.003***	-0.003***	-0.004***
Level 2 (all qualifications)	-0.009***	-0.007***	-0.005***	-0.005***	-0.004***	-0.004***	-0.004***
Level 1 (all qualifications)	-0.004***	-0.004***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
NVQ Level 3	-0.012***	-0.012***	-0.012***	-0.008***	-0.005***	-0.005***	-0.006***
BTEC Level 3	-0.013***	-0.027***	-0.024***	-0.017***	-0.010***	-0.009***	-0.011**
City & Guilds Level 3	-0.005*	-0.001	-0.001	-0.001	-0.003	-0.004*	-0.004
Academic level 3	-0.012***	-0.014***	-0.013***	-0.007***	-0.002***	-0.003***	-0.006***
Other Level 3 qualifications	-0.003***	-0.004***	-0.004***	-0.003***	-0.003***	-0.003***	-0.002**
NVQ Level 2	-0.016***	-0.012***	-0.008***	-0.009***	-0.007***	-0.008***	-0.008***
BTEC Level 2	-0.042***	-0.044***	-0.019***	-0.015***	-0.011***	-0.006	-0.001
City & Guilds Level 2	-0.007***	-0.004*	-0.004*	-0.007***	-0.007***	-0.006***	-0.003
Skills for Life Level 2	-0.015***	-0.012***	-0.007***	-0.008***	-0.006***	-0.004***	-0.005**
Academic level 2	-0.002*	-0.001	0.000	-0.002	-0.001	-0.002	-0.002
Other Level 2 qualifications	-0.005***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***
Skills for Life Level 1	-0.012***	-0.009***	0.001	-0.001	0.004***	0.001	0.001
Skills for Life Entry level	0.005***	0.002	0.002*	0.003**	0.003**	-0.000	0.001
Other Level 1 qualifications	-0.004***	-0.003***	-0.002***	-0.002***	-0.002***	-0.003***	-0.002***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' IB – only specification – men

Table 66: Completers versus non completers – IB employment effect (men– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.010***	-0.013***	-0.012***	-0.013***	-0.015***	-0.015***	-0.014***
Level 3 (all qualifications)	-0.018***	-0.019***	-0.020***	-0.020***	-0.021***	-0.020***	-0.018***
Level 2 (all qualifications)	-0.016***	-0.017***	-0.018***	-0.017***	-0.016***	-0.016***	-0.016***
Level 1 (all qualifications)	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***	-0.013***	-0.014***
NVQ Level 3	-0.013***	-0.014***	-0.015***	-0.015***	-0.016***	-0.016***	-0.017***
BTEC Level 3	-0.021***	-0.023***	-0.024***	-0.024***	-0.024***	-0.025***	-0.022***
City & Guilds Level 3	-0.018***	-0.018***	-0.014***	-0.017***	-0.021***	-0.020***	-0.020***
Academic level 3	-0.024***	-0.028***	-0.029***	-0.030***	-0.030***	-0.029***	-0.022***
Other Level 3 qualifications	-0.012***	-0.012***	-0.013***	-0.012***	-0.013***	-0.012***	-0.012***
NVQ Level 2	-0.020***	-0.024***	-0.024***	-0.022***	-0.022***	-0.022***	-0.022***
BTEC Level 2	-0.011***	-0.015***	-0.018***	-0.017***	-0.018***	-0.018***	-0.025***
City & Guilds Level 2	-0.014***	-0.015***	-0.014***	-0.015***	-0.016***	-0.016***	-0.020***
Skills for Life Level 2	-0.007***	-0.008***	-0.011***	-0.010***	-0.010***	-0.012***	-0.013***
Academic level 2	-0.017***	-0.018***	-0.020***	-0.020***	-0.021***	-0.021***	-0.024***
Other Level 2 qualifications	-0.016***	-0.017***	-0.017***	-0.017***	-0.015***	-0.014***	-0.013***
Skills for Life Level 1	-0.000	-0.001	0.000	0.000	0.001	0.004	0.005

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	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Skills for Life Entry level	-0.006*	-0.007**	-0.005*	-0.006*	-0.011***	-0.016***	-0.013*
Other Level 1 qualifications	-0.018***	-0.018***	-0.018***	-0.017***	-0.017***	-0.017***	-0.018***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Completers versus non-completers' IB – only specification – women

Table 67: Completers versus non completers – IB employment effect (women– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.009***	-0.011***	-0.013***	-0.013***	-0.011***	-0.012***	-0.009***
Level 3 (all qualifications)	-0.018***	-0.020***	-0.021***	-0.020***	-0.020***	-0.020***	-0.018***
Level 2 (all qualifications)	-0.017***	-0.018***	-0.018***	-0.018***	-0.016***	-0.014***	-0.014***
Level 1 (all qualifications)	-0.012***	-0.013***	-0.013***	-0.012***	-0.012***	-0.011***	-0.010***
NVQ Level 3	-0.018***	-0.021***	-0.021***	-0.021***	-0.021***	-0.022***	-0.021***
BTEC Level 3	-0.019***	-0.022***	-0.023***	-0.022***	-0.023***	-0.024***	-0.022***
City & Guilds Level 3	-0.013***	-0.015***	-0.018***	-0.019***	-0.019***	-0.024***	-0.025***
Academic level 3	-0.024***	-0.026***	-0.026***	-0.025***	-0.024***	-0.024***	-0.020***
Other Level 3 qualifications	-0.014***	-0.017***	-0.018***	-0.018***	-0.017***	-0.015***	-0.016***
NVQ Level 2	-0.024***	-0.027***	-0.027***	-0.026***	-0.023***	-0.021***	-0.018***
BTEC Level 2	-0.015***	-0.021***	-0.024***	-0.022***	-0.021***	-0.009	-0.011
City & Guilds Level 2	-0.017***	-0.022***	-0.025***	-0.027***	-0.026***	-0.021***	-0.021***
Skills for Life Level 2	-0.016***	-0.017***	-0.018***	-0.017***	-0.017***	-0.017***	-0.017***
Academic level 2	-0.016***	-0.015***	-0.015***	-0.015***	-0.015***	-0.013***	-0.013***
Other Level 2 qualifications	-0.014***	-0.015***	-0.015***	-0.015***	-0.013***	-0.013***	-0.013***
Skills for Life Level 1	-0.003	-0.002	-0.001	0.001	0.004	0.004	0.004
Skills for Life Entry level	-0.006**	-0.005**	-0.006**	-0.006**	-0.009**	-0.013**	-0.014**
Other Level 1 qualifications	-0.015***	-0.016***	-0.016***	-0.015***	-0.015***	-0.013***	-0.012***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' JSA– only specification – men

Table 68: Simultaneous attainment – JSA welfare effect (men– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.006***	-0.003***	-0.003***	-0.008***	-0.010***	-0.012***	-0.013***
Level 3 (all qualifications)	-0.010***	-0.020***	-0.025***	-0.023***	-0.017***	-0.017***	-0.018***
Level 2 (all qualifications)	-0.003***	-0.008***	-0.009***	-0.010***	-0.006***	-0.006***	-0.007***
NVQ Level 3	-0.009***	-0.022***	-0.027***	-0.023***	-0.019***	-0.023***	-0.027***
BTEC Level 3	-0.010***	-0.036***	-0.050***	-0.044***	-0.036***	-0.035***	-0.030***
City & Guilds Level 3	-0.004*	-0.011***	-0.016***	-0.012***	-0.011***	-0.018***	-0.016***
Academic level 3	-0.016***	-0.036***	-0.044***	-0.035***	-0.023***	-0.024***	-0.022***
Other Level 3 qualifications	-0.007***	-0.010***	-0.013***	-0.012***	-0.010***	-0.009***	-0.010***
NVQ Level 2	-0.022***	-0.025***	-0.020***	-0.022***	-0.019***	-0.017***	-0.015***
BTEC Level 2	-0.023***	-0.031***	-0.022***	-0.021***	-0.018***	-0.021***	-0.024***
City & Guilds Level 2	-0.020***	-0.023***	-0.026***	-0.027***	-0.023***	-0.022***	-0.024***
Skills for Life Level 2	-0.011***	-0.017***	-0.022***	-0.024***	-0.015***	-0.014***	-0.016***
Academic level 2	-0.005***	-0.004**	-0.005***	-0.008***	-0.005***	-0.006**	-0.006
Other Level 2 qualifications	0.003***	-0.002***	-0.004***	-0.005***	-0.002***	-0.001	-0.002

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' JSA– only specification – women

Table 69: Simultaneous attainment – JSA welfare effect (women– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	0.000	0.002***	0.002***	-0.001***	-0.002***	-0.003***	-0.001
Level 3 (all qualifications)	-0.003***	-0.011***	-0.012***	-0.008***	-0.004***	-0.003***	-0.003***
Level 2 (all qualifications)	-0.002***	-0.003***	-0.003***	-0.003***	-0.002***	-0.001***	-0.001
NVQ Level 3	-0.005***	-0.015***	-0.017***	-0.011***	-0.007***	-0.005***	-0.007***

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
BTEC Level 3	-0.002**	-0.028***	-0.035***	-0.023***	-0.014***	-0.012***	-0.011***
City & Guilds Level 3	0.001	0.000	0.001	0.002**	0.001	-0.001	-0.001
Academic level 3	-0.011***	-0.023***	-0.025***	-0.016***	-0.007***	-0.005***	-0.004***
Other Level 3 qualifications	-0.000	-0.006***	-0.007***	-0.005***	-0.003***	-0.003***	-0.003***
NVQ Level 2	-0.008***	-0.012***	-0.010***	-0.010***	-0.007***	-0.006***	-0.004***
BTEC Level 2	-0.019***	-0.020***	-0.006***	-0.003*	0.003*	0.001	0.004
City & Guilds Level 2	-0.001	-0.002**	-0.003***	-0.004***	-0.004***	-0.001	0.003
Skills for Life Level 2	-0.007***	-0.007***	-0.007***	-0.006***	-0.003***	-0.001	0.001
Academic level 2	-0.002***	-0.001*	-0.001	0.000	-0.001	-0.000	0.001
Other Level 2 qualifications	-0.000	-0.001***	-0.002***	-0.002***	-0.001***	-0.001***	-0.001

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' IB– only specification – men

Table 70: Simultaneous attainment – IB welfare effect (men– only specification)

Level 4 (all qualifications)	-0.014***	-0.013***	-0.012***	-0.011***	-0.010***	-0.011***	-0.014***
Level 3 (all qualifications)	-0.009***	-0.011***	-0.012***	-0.012***	-0.013***	-0.013***	-0.012***
Level 2 (all qualifications)	-0.011***	-0.013***	-0.015***	-0.016***	-0.015***	-0.013***	-0.010***
NVQ Level 3	-0.007***	-0.009***	-0.010***	-0.010***	-0.012***	-0.014***	-0.013***
BTEC Level 3	-0.008***	-0.011***	-0.012***	-0.012***	-0.012***	-0.014***	-0.014***
City & Guilds Level 3	-0.020***	-0.022***	-0.021***	-0.020***	-0.023***	-0.021***	-0.021***
Academic level 3	-0.004***	-0.008***	-0.009***	-0.010***	-0.012***	-0.011***	-0.009***
Other Level 3 qualifications	-0.009***	-0.010***	-0.011***	-0.011***	-0.011***	-0.012***	-0.010***
NVQ Level 2	-0.021***	-0.025***	-0.028***	-0.028***	-0.029***	-0.023***	-0.018***
BTEC Level 2	-0.028***	-0.034***	-0.041***	-0.043***	-0.046***	-0.040***	-0.034***
City & Guilds Level 2	-0.034***	-0.034***	-0.034***	-0.035***	-0.036***	-0.033***	-0.030***
Skills for Life Level 2	-0.015***	-0.021***	-0.027***	-0.028***	-0.030***	-0.030***	-0.023***
Academic level 2	-0.014***	-0.017***	-0.018***	-0.018***	-0.021***	-0.022***	-0.015***
Other Level 2 qualifications	-0.006***	-0.006***	-0.008***	-0.008***	-0.007***	-0.006***	-0.003***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

'Simultaneous attainment' IB– only specification – women

Table 71: Simultaneous attainment – IB welfare effect (women– only specification)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Level 4 (all qualifications)	-0.006***	-0.006***	-0.006***	-0.006***	-0.005***	-0.004***	-0.004**
Level 3 (all qualifications)	-0.004***	-0.006***	-0.007***	-0.007***	-0.008***	-0.008***	-0.008***
Level 2 (all qualifications)	-0.010***	-0.011***	-0.012***	-0.013***	-0.011***	-0.010***	-0.009***
NVQ Level 3	-0.008***	-0.009***	-0.010***	-0.010***	-0.011***	-0.014***	-0.015***
BTEC Level 3	-0.008***	-0.010***	-0.014***	-0.014***	-0.016***	-0.018***	-0.018***
City & Guilds Level 3	-0.007***	-0.006***	-0.005***	-0.005***	-0.004*	-0.005**	-0.008***
Academic level 3	-0.006***	-0.009***	-0.010***	-0.010***	-0.011***	-0.012***	-0.010***
Other Level 3 qualifications	-0.001	-0.003***	-0.005***	-0.005***	-0.006***	-0.006***	-0.006***
NVQ Level 2	-0.010***	-0.015***	-0.018***	-0.019***	-0.019***	-0.017***	-0.018***
BTEC Level 2	-0.027***	-0.034***	-0.038***	-0.039***	-0.037***	-0.036***	-0.039***
City & Guilds Level 2	-0.012***	-0.017***	-0.019***	-0.021***	-0.019***	-0.017***	-0.018***
Skills for Life Level 2	-0.023***	-0.027***	-0.029***	-0.030***	-0.028***	-0.025***	-0.023***
Academic level 2	-0.007***	-0.007***	-0.009***	-0.009***	-0.007***	-0.009***	-0.011***
Other Level 2 qualifications	-0.005***	-0.006***	-0.006***	-0.007***	-0.006***	-0.006***	-0.006***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Annex 6: Additional econometric analysis – Apprenticeships

Earnings

'Before and after'

Table 72: Before and after – basic specification of earnings effect (Apprenticeships)

	t+2	t+3	t+4
Advanced apprenticeship (all)	0.722***	0.760***	0.740***
Foundation apprenticeship (all)	0.964***	1.000***	0.923***
Advanced apprenticeship (men)	0.757***	0.788***	0.774***
Foundation apprenticeship (men)	0.976***	1.001***	0.904***
Advanced apprenticeship (women)	0.663***	0.714***	0.690***
Foundation apprenticeship (women)	0.950***	1.000***	0.941***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 73: Before and after – extended specification of earnings effect (Apprenticeships)

	t+2	t+3	t+4
Advanced apprenticeship (all)	0.692***	0.729***	0.693***
Foundation apprenticeship (all)	0.831***	0.860***	0.762***
Advanced apprenticeship (men)	0.742***	0.783***	0.772***
Foundation apprenticeship (men)	0.857***	0.887***	0.778***
Advanced apprenticeship (women)	0.603***	0.635***	0.572***
Foundation apprenticeship (women)	0.806***	0.838***	0.753***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Simultaneous attainment

Table 74: Simultaneous attainment – extended specification of earnings effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Baseline specification							
Advanced apprenticeship (all)	0.209***	0.221***	0.213***	0.244***	0.251***	0.263***	0.217***
Advanced apprenticeship (men)	0.251***	0.253***	0.244***	0.278***	0.287***	0.284***	0.261***
Advanced apprenticeship (women)	0.157***	0.182***	0.177***	0.201***	0.202***	0.241***	0.171***
Extended specification							
Advanced apprenticeship (all)	0.140***	0.143***	0.142***	0.167***	0.154***	0.174***	0.100***
Advanced apprenticeship (men)	0.175***	0.155***	0.168***	0.198***	0.187***	0.161***	0.140***
Advanced apprenticeship (women)	0.101***	0.124***	0.110***	0.129***	0.105***	0.171***	0.042

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Employment

Before and after

Table 75: Before and after – basic specification of employment effect (Apprenticeships)

	t+2	t+3	t+4
Advanced apprenticeship (all)	0.072***	0.091***	0.110***
Foundation apprenticeship (all)	0.252***	0.274***	0.295***
Advanced apprenticeship (men)	0.056***	0.071***	0.089***
Foundation apprenticeship (men)	0.239***	0.259***	0.280***
Advanced apprenticeship (women)	0.099***	0.124***	0.142***
Foundation apprenticeship (women)	0.264***	0.288***	0.309***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Simultaneous attainment

Table 76: Simultaneous attainment – extended specification of employment effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeship (all)	0.016***	0.025***	0.028***	0.032***	0.027***	0.023***	0.028***
Advanced apprenticeship (men)	0.032***	0.039***	0.041***	0.042***	0.034***	0.028***	0.037***
Advanced apprenticeship (women)	0.003	0.013***	0.016***	0.020***	0.021***	0.017***	0.019**

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Benefits - JSA

Before and after

Table 77: Before and after – basic specification of JSA welfare effect (Apprenticeships)

	t+2	t+3	t+4
Advanced apprenticeship (all)	0.003***	0.005***	0.008***
Foundation apprenticeship (all)	0.009***	0.012***	0.017***
Advanced apprenticeship (men)	0.004***	0.008***	0.012***
Foundation apprenticeship (men)	0.013***	0.021***	0.031***
Advanced apprenticeship (women)	-0.000	-0.000	0.000
Foundation apprenticeship (women)	0.006***	0.004***	0.004***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Simultaneous attainment

Table 78: Simultaneous attainment – extended specification of JSA welfare effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeship (all)	-0.011***	-0.011***	-0.013***	-0.017***	-0.017***	-0.016***	-0.015***
Advanced apprenticeship (men)	-0.012***	-0.013***	-0.017***	-0.023***	-0.026***	-0.025***	-0.027***
Advanced apprenticeship (women)	-0.009***	-0.008***	-0.007***	-0.007***	-0.006***	-0.006***	-0.005***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Benefits - IB

Before and after

Table 79: Before and after – basic specification of IB welfare effect (Apprenticeships)

	t+2	t+3	t+4
Advanced apprenticeship (all)	0.003***	0.004***	0.004***
Foundation apprenticeship (all)	0.006***	0.007***	0.006***
Advanced apprenticeship (men)	0.003***	0.004***	0.003***
Foundation apprenticeship (men)	0.005***	0.006***	0.005***
Advanced apprenticeship (women)	0.003***	0.005***	0.004***
Foundation apprenticeship (women)	0.006***	0.008***	0.007***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Simultaneous attainment

Table 80: Simultaneous attainment – extended specification of IB welfare effect (Apprenticeships)

	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Advanced apprenticeship (all)	-0.002***	-0.003***	-0.003***	-0.004***	-0.004***	-0.004***	-0.005***
Advanced apprenticeship (men)	-0.002***	-0.003***	-0.003***	-0.003***	-0.004***	-0.004***	-0.004**
Advanced apprenticeship (women)	-0.002***	-0.004***	-0.004***	-0.004***	-0.005***	-0.004***	-0.005***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Annex 7: Additional econometric analysis - Skills for Life

Completers versus non completers

Basic earnings specification

Table 81: Completers vs. non completers – basic specification of earnings effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.131***	0.148***	0.154***	0.166***	0.178***	0.249***	0.225***
Literacy only (Level 2)	0.078***	0.072***	0.078***	0.099***	0.120***	0.172***	0.115**
Numeracy only (Level 2)	0.108***	0.098***	0.130***	0.138***	0.169***	0.163***	0.243***
Literacy and Numeracy (Level 1)	0.117***	0.117***	0.114***	0.146***	0.157***	0.149***	0.198***
Literacy only (Level 1)	0.257***	0.199***	0.184***	0.185***	0.137***	0.098**	0.203***
Numeracy only (Level 1)	0.108***	0.096***	0.081***	0.093***	0.150***	0.223***	0.209***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 82: Completers vs. non completers – basic specification of earnings effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.007	0.001	0.036**	0.090***	0.118***	0.132***	0.114
Literacy only (Level 2)	-0.034**	-0.017	-0.012	-0.002	0.045***	0.123***	0.104**
Numeracy only (Level 2)	0.110***	0.063***	0.107***	0.148***	0.203***	0.272***	0.232***
Literacy and Numeracy (Level 1)	-0.007	0.012	0.024	0.029	0.027	-0.049	-0.037
Literacy only (Level 1)	0.078***	0.064***	0.069***	0.094***	0.051**	0.026	0.100*
Numeracy only (Level 1)	0.062***	0.089***	0.067***	0.090***	0.045*	0.089**	0.051

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Extended earnings specification

Table 83: Completers vs. non completers – extended specification of earnings effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.048***	0.075***	0.067***	0.081***	0.110***	0.124***	0.086
Literacy only (Level 2)	0.013	0.003	0.003	0.033**	0.050***	0.086***	0.010
Numeracy only (Level 2)	0.027*	0.026*	0.047***	0.054***	0.079***	0.062**	0.107***
Literacy and Numeracy (Level 1)	0.026	0.056***	0.078***	0.090***	0.101***	0.102***	0.130**
Literacy only (Level 1)	0.145***	0.118***	0.102***	0.099***	0.082***	0.070**	0.136***
Numeracy only (Level 1)	0.066***	0.069***	0.055***	0.045***	0.097***	0.158***	0.121*

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 84: Completers vs. non completers – extended specification of earnings effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.060***	-0.047***	-0.028*	0.020	0.041*	0.074**	0.092
Literacy only (Level 2)	-0.074***	-0.049***	-0.056***	-0.044***	0.010	0.086***	0.063
Numeracy only (Level 2)	0.020*	-0.005	0.026**	0.060***	0.133***	0.187***	0.144***
Literacy and Numeracy (Level 1)	-0.016	0.005	-0.001	0.010	0.021	-0.028	0.003
Literacy only (Level 1)	0.040**	0.020	0.019	0.057***	0.014	0.028	0.017
Numeracy only (Level 1)	0.025	0.032*	0.014	0.052***	0.020	0.088**	0.039

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Employment

Table 85: Completers vs. non completers – only specification of employment effect –men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.014**	0.029***	0.032***	0.031***	0.031***	0.051***	0.066***
Literacy only (Level 2)	0.007	0.022***	0.031***	0.035***	0.047***	0.053***	0.062***
Numeracy only (Level 2)	0.023***	0.034***	0.043***	0.043***	0.056***	0.063***	0.083***
Literacy and Numeracy (Level 1)	0.011**	0.013**	0.020***	0.026***	0.025***	0.029***	0.026
Literacy only (Level 1)	0.025***	0.033***	0.039***	0.049***	0.050***	0.035***	0.017
Numeracy only (Level 1)	0.000	0.014**	0.019***	0.027***	0.036***	0.050***	0.067***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 86: Completers vs. non completers – only specification of employment effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	0.010*	0.025***	0.043***	0.052***	0.052***	0.052***	0.036
Literacy only (Level 2)	-0.016***	-0.005	0.008**	0.022***	0.023***	0.032***	0.036***
Numeracy only (Level 2)	0.041***	0.047***	0.061***	0.072***	0.075***	0.081***	0.101***
Literacy and Numeracy (Level 1)	-0.041***	-0.013**	0.013**	0.021***	0.018**	-0.006	0.005
Literacy only (Level 1)	0.002	0.014***	0.023***	0.021***	0.021***	0.024**	0.041**
Numeracy only (Level 1)	0.010*	0.024***	0.036***	0.040***	0.032***	0.021*	0.060***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

JSA Benefit dependency

Table 87: Completers vs. non completers – only specification of JSA benefit effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.026***	-0.030***	-0.030***	-0.035***	-0.031***	-0.031***	-0.036***
Literacy only (Level 2)	-0.026***	-0.023***	-0.023***	-0.028***	-0.018***	-0.026***	-0.031***
Numeracy only (Level 2)	-0.032***	-0.029***	-0.028***	-0.030***	-0.028***	-0.032***	-0.042***

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 1)	-0.030***	-0.027***	-0.018***	-0.020***	-0.020***	-0.022***	-0.023**
Literacy only (Level 1)	-0.033***	-0.028***	-0.023***	-0.025***	-0.020***	-0.016***	-0.011
Numeracy only (Level 1)	-0.016***	-0.018***	-0.014***	-0.015***	-0.020***	-0.015***	-0.024***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 88: Completers vs. non completers – only specification of JSA benefit effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.019***	-0.016***	-0.012***	-0.012***	-0.007***	-0.001	-0.004
Literacy only (Level 2)	-0.016***	-0.014***	-0.010***	-0.010***	-0.003**	-0.001	-0.004
Numeracy only (Level 2)	-0.022***	-0.019***	-0.014***	-0.015***	-0.010***	-0.009***	-0.008***
Literacy and Numeracy (Level 1)	-0.011***	0.001	0.010***	0.009***	0.010***	0.005	0.001
Literacy only (Level 1)	-0.017***	-0.010***	-0.001	-0.002	-0.001	0.001	-0.003
Numeracy only (Level 1)	-0.012***	-0.008***	-0.001	-0.002	0.005**	0.004	-0.010**

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Incapacity Benefit dependency

Table 89: Completers vs. non completers – only specification of IB benefit effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.013***	-0.017***	-0.019***	-0.019***	-0.018***	-0.019***	-0.018***
Literacy only (Level 2)	-0.010***	-0.010***	-0.011***	-0.011***	-0.017***	-0.018***	-0.019***
Numeracy only (Level 2)	-0.016***	-0.018***	-0.020***	-0.020***	-0.022***	-0.025***	-0.031***
Literacy and Numeracy (Level 1)	0.001	0.003*	0.006***	0.009***	0.001	0.006	-0.004
Literacy only (Level 1)	-0.019***	-0.018***	-0.018***	-0.016***	-0.021***	-0.019***	-0.019**
Numeracy only (Level 1)	-0.001	0.000	0.001	0.000	-0.003	-0.011**	-0.012

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 90: Completers vs. non completers – only specification of IB benefit effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
Literacy and Numeracy (Level 2)	-0.024***	-0.028***	-0.029***	-0.026***	-0.029***	-0.021***	-0.020**
Literacy only (Level 2)	-0.011***	-0.014***	-0.016***	-0.014***	-0.014***	-0.016***	-0.013**
Numeracy only (Level 2)	-0.028***	-0.031***	-0.032***	-0.028***	-0.032***	-0.031***	-0.035***
Literacy and Numeracy (Level 1)	0.002	0.007**	0.011***	0.016***	0.012***	0.018***	0.029**
Literacy only (Level 1)	-0.014***	-0.013***	-0.013***	-0.012***	-0.011***	-0.014***	-0.019**
Numeracy only (Level 1)	-0.016***	-0.014***	-0.013***	-0.009***	-0.009**	-0.009*	-0.004

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Simultaneous attainment

Basic earnings specification

Table 91: Simultaneous attainment– basic specification of earnings effect – all (SFL)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	0.014	0.070***	0.077***	0.096***	0.134***	0.181***	0.136***
SFL 2-Numeracy	0.126***	0.136***	0.173***	0.156***	0.220***	0.194***	0.217***
SFL 2-Language	0.019	0.092***	0.101***	0.119***	0.150***	0.109***	0.127**
SFL 2-Other	0.122***	0.125***	0.122***	0.115***	0.153***	0.137***	0.207***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 92: Simultaneous attainment– basic specification of earnings effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.000	0.067***	0.065***	0.098***	0.132***	0.194***	0.109
SFL 2-Numeracy	0.127***	0.156***	0.172***	0.135***	0.215***	0.169***	0.178***
SFL 2-Language	-0.026	0.034	0.068	0.078*	0.117**	0.007	-0.001
SFL 2-Other	0.127***	0.144***	0.147***	0.124***	0.185***	0.163***	0.240***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 93: Simultaneous attainment – basic specification of earnings effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	0.044**	0.093***	0.102***	0.108***	0.146***	0.172***	0.167***
SFL 2-Numeracy	0.138***	0.131***	0.183***	0.181***	0.227***	0.213***	0.232***
SFL 2-Language	0.048	0.120***	0.112***	0.130***	0.154***	0.151***	0.205**
SFL 2-Other	0.126***	0.117***	0.108***	0.110***	0.135***	0.124***	0.202***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Extended earnings specification

Table 94: Simultaneous attainment – extended specification of earnings effect – all (SFL)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.041***	-0.012	-0.009	0.014	0.065***	0.094***	0.094**
SFL 2-Numeracy	0.019	0.033**	0.060***	0.058***	0.108***	0.091***	0.149***
SFL 2-Language	0.009	0.064***	0.067***	0.085***	0.112***	0.084**	0.108*
SFL 2-Other	0.077***	0.073***	0.065***	0.076***	0.110***	0.096***	0.168***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 95: Simultaneous attainment – extended specification of earnings effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.040**	-0.010	-0.031**	0.001	0.058**	0.092***	0.081
SFL 2-Numeracy	0.030	0.058***	0.056***	0.039**	0.088***	0.067*	0.115*
SFL 2-Language	0.006	0.035	0.032	0.066*	0.113**	-0.001	0.020
SFL 2-Other	0.088***	0.091***	0.086***	0.085***	0.138***	0.112***	0.190***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 96: Simultaneous attainment – extended specification of earnings effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.016	0.014	0.026*	0.039***	0.087***	0.097***	0.103**
SFL 2-Numeracy	0.031*	0.033*	0.077***	0.087***	0.131***	0.107***	0.159**
SFL 2-Language	0.012	0.079***	0.080***	0.086***	0.101**	0.121**	0.181**
SFL 2-Other	0.080***	0.067***	0.056***	0.075***	0.095***	0.089***	0.166***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Employment

Table 97: Simultaneous attainment– only specification of employment effect – all (SFL)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	0.047***	0.055***	0.053***	0.053***	0.049***	0.055***	0.060***
SFL 2-Numeracy	0.083***	0.082***	0.077***	0.074***	0.078***	0.059***	0.034**
SFL 2-Language	0.024***	0.016**	0.017**	0.016**	0.006	0.002	0.001
SFL 2-Other	0.036***	0.043***	0.046***	0.046***	0.042***	0.040***	0.046***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 98: Simultaneous attainment– only specification of employment effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	0.040***	0.048***	0.047***	0.044***	0.040***	0.041***	0.050***
SFL 2-Numeracy	0.060***	0.057***	0.059***	0.053***	0.047***	0.027**	0.014
SFL 2-Language	-0.001	-0.005	0.005	0.005	0.000	-0.012	-0.028
SFL 2-Other	0.027***	0.040***	0.046***	0.038***	0.036***	0.039***	0.056***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 99: Simultaneous attainment – only specification of employment effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	0.049***	0.058***	0.056***	0.057***	0.054***	0.062***	0.069***
SFL 2-Numeracy	0.099***	0.098***	0.088***	0.086***	0.097***	0.087***	0.050**
SFL 2-Language	0.036***	0.025***	0.022**	0.019**	0.007	0.009	0.013

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Other	0.039***	0.042***	0.044***	0.047***	0.044***	0.039***	0.040***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

JSA Dependency

Table 100: Simultaneous attainment– only specification of JSA dependency effect – all (SFL)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.013***	-0.027***	-0.034***	-0.036***	-0.025***	-0.026***	-0.018***
SFL 2-Numeracy	-0.024***	-0.035***	-0.041***	-0.041***	-0.036***	-0.032***	-0.025***
SFL 2-Language	0.005**	0.006***	-0.000	-0.001	-0.003	-0.004	-0.010***
SFL 2-Other	0.003**	0.001	-0.001	-0.002	-0.001	-0.004**	-0.002

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 101: Simultaneous attainment– only specification of JSA dependency effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.013***	-0.029***	-0.041***	-0.049***	-0.035***	-0.040***	-0.035***
SFL 2-Numeracy	-0.023***	-0.041***	-0.053***	-0.054***	-0.048***	-0.039***	-0.041***
SFL 2-Language	-0.000	0.002	-0.011***	-0.008**	-0.009**	-0.006	-0.016**
SFL 2-Other	0.003	-0.003	-0.005*	-0.005*	-0.005	-0.010**	-0.011

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 102: Simultaneous attainment – only specification of JSA dependency effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.010***	-0.025***	-0.027***	-0.025***	-0.015***	-0.013***	-0.004
SFL 2-Numeracy	-0.020***	-0.027***	-0.028***	-0.026***	-0.022***	-0.023***	-0.007
SFL 2-Language	0.003	0.004*	0.003*	0.001	-0.001	-0.004	-0.007*
SFL 2-Other	0.001	0.001	-0.000	-0.001	-0.001	-0.002	-0.001

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

IB Dependency

Table 103: Simultaneous attainment– only specification of IB dependency effect – all (SFL)

All	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.019***	-0.026***	-0.032***	-0.033***	-0.036***	-0.036***	-0.026***
SFL 2-Numeracy	-0.032***	-0.039***	-0.044***	-0.043***	-0.048***	-0.048***	-0.039***
SFL 2-Language	-0.004*	-0.007***	-0.010***	-0.011***	-0.013***	-0.016***	-0.023***
SFL 2-Other	-0.014***	-0.017***	-0.020***	-0.021***	-0.021***	-0.023***	-0.019***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 104: Simultaneous attainment– only specification of IB dependency effect – men (SFL)

Men	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.010***	-0.017***	-0.023***	-0.026***	-0.029***	-0.026***	-0.012
SFL 2-Numeracy	-0.019***	-0.028***	-0.034***	-0.035***	-0.039***	-0.042***	-0.025***
SFL 2-Language	-0.004	-0.007*	-0.010**	-0.012***	-0.012***	-0.016***	-0.017**
SFL 2-Other	0.000	-0.006	-0.011**	-0.011**	-0.012**	-0.016**	-0.011

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1

Table 105: Simultaneous attainment – only specification of IB dependency effect – women (SFL)

Women	t+1	t+2	t+3	t+4	t+5	t+6	t+7
SFL 2-Literacy	-0.023***	-0.030***	-0.037***	-0.037***	-0.040***	-0.042***	-0.036***
SFL 2-Numeracy	-0.038***	-0.044***	-0.048***	-0.047***	-0.051***	-0.050***	-0.054***
SFL 2-Language	-0.004	-0.007***	-0.009***	-0.011***	-0.013***	-0.015***	-0.028***
SFL 2-Other	-0.021***	-0.022***	-0.025***	-0.027***	-0.027***	-0.027***	-0.024***

Source: London Economics, *** p<0.01, ** p<0.05, * p<0.1