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# Further analysis of the earnings differentials associated with BTECs

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**Abstract:** We analyse whether there is an earnings differential associated with having a BTEC qualification as a young person's highest qualification. Previous analyses of wage differentials using survey data on a sample of all working age individuals have shown positive returns for BTEC qualifications for both males and females. More recently, using matched administrative data for a group of young individuals in England, we showed positive earnings differentials for women in possession of BTECs, but failed to observe any positive differentials for males. In this study we investigate further the characteristics of young individuals in possession of BTEC qualifications and estimate earnings differentials compared with a range of different counterfactuals. An analysis of the characteristics of learners in possession of vocational qualifications show that the group of individuals with BTECs typically have higher levels of prior attainment at school and a higher proportion are from BAME backgrounds compared with individuals in possession of other vocational qualifications at the same level. Moreover BTECs act more often as a stepping stone to learning at higher levels (including degree level) compared with other vocational qualifications. When we consider those with BTECs as their highest qualification, we find that earnings differentials are strong and positive for females across all specifications, while they are positive for males only when compared to individuals in possession of BTECs at the level of the RQF immediately below or to individuals enrolling in the same qualification but failing to achieve.

**Keywords:** Vocational education, Administrative data, Returns to education

**JEL codes:** I26, J21, J31, J64

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## Executive Summary

BTEC qualifications are career-based qualifications and can be taken at different levels of the Regulated Qualification Framework (RQF) between Level 1 to Level 5 and above. BTECs at Levels 1 to 3 are normally taken at Further Education Colleges or schools, while BTEC qualifications at higher levels are available at FE colleges and Higher Education Institutions. While BTECs are specialist work-related qualifications, they are college based and not work-based learning qualifications (such as NVQs and Apprenticeships).

Typical evidence from the Labour Force Survey, using historical data referring to a sample of working age individuals (16-64), has found positive wage differentials for BTECs for both males and females at all levels of the Regulated Qualification Framework. More recently, evidence using the matched Longitudinal Education Outcomes (LEO) database for a group of young individuals (aged 26) highlighted strong and positive earnings differentials for females in possession of BTECs as their highest qualification, but failed to observe positive effects for males.

In this note, we explore a variety of indicators and compare outcomes for BTECs, NVQs and other vocational qualifications at Levels 1, 2 and 3 (with particular focus on Level 2 and 3).

The key findings in terms of personal characteristics and further education attainment are as follows:

- Compared to NVQs and other vocational qualifications:
  - The average level of prior attainment (measured at the ages of 11 and 16) is substantially higher for both men and women undertaking BTECs compared to other vocational routes.
  - A higher proportion of learners holding BTECs are from BAME backgrounds (non-white British), and this is true for both males and females and across all levels.
- BTEC qualifications at Level 3 and Level 2 often act as a stepping stone for further study and education for both males and females:
  - Between 40% and 45% of learners with BTECs at Level 3 attain degree-level qualifications or above, compared with between 5% and 8% for Level 3 NVQs and 20% and 25% for other vocational qualifications at Level 3.
  - At Level 2, the percentage of BTEC holders achieving at Level 3 qualification or above is in excess of 50%, with 15% attaining at least degree-level qualifications or equivalent. The corresponding proportions for NVQs at Level 2 are considerably lower, and slightly lower for 'other' vocational qualifications.

We then compared earnings differentials<sup>1</sup> using different specifications and counterfactual groups (including results from the Labour Force Survey restricted to younger people).

- For males in possession of Level 3 BTECs as their highest qualification, we did not observe positive earnings differentials compared with individuals at the qualification level immediately below, however, the earnings differentials turned positive if we restricted our attention to individuals holding Level 2 BTECs or individuals enrolling in Level 3 BTECs but failing to achieve.

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<sup>1</sup> Although we have not presented evidence relating to other labour market outcomes in this note, results were provided in a recent CVER Discussion Paper and illustrated large and positive employment effects (around 8-10 percentage points) and benefits differentials (reduction in the proportion of the year spent in receipt of labour market benefits of around 3-5 percentage points for males and 8-10 percentage points for females).

- Results for other vocational qualifications are generally positive across the different specifications (especially for Level 3 NVQs).
- For Level 2 BTECs there is also very little evidence of positive earnings differentials, while the estimates for other Level 2 vocational qualifications are generally positive.

For females, earnings differentials associated with both Level 3 and Level 2 BTECs are positive and typically range between 10% and 15%, slightly larger than the estimated earnings differentials for other vocational qualifications at the same level.

## 1. Introduction

BTEC qualifications are career-based qualifications and can be taken at different levels of the Regulated Qualification Framework (RQF) between Level 1 to Level 5 and above.<sup>2</sup> BTECs at Levels 1 to 3 are normally taken at Further Education Colleges or schools, while BTEC qualifications at higher levels are available at FE colleges and Higher Education Institutions. While BTECs are specialist work-related qualifications, they are college based and not work-based learning qualifications (such as NVQs and Apprenticeships)<sup>3</sup>. BTECs account for a significant share of those with Level 3 vocational qualifications: for example, they account for 47% of young men and 30% of young women who have Level 3 vocational qualifications as their highest qualification (excluding Apprenticeships). The corresponding percentage at Level 2 is around 8% (for both men and women).

Typical evidence from the Labour Force Survey, using historical data referring to a sample of working age individuals (16-64), has found positive wage differentials for BTECs at different levels of the RQF for both males and females<sup>4</sup>. More recently, evidence using the matched Longitudinal Education Outcomes (LEO) database for a group of young individuals (aged 26) highlighted strong and positive earnings differentials for females in possession of BTECs as highest qualification, but failed to observe positive differentials for males<sup>5</sup>.

In this note, we explore a variety of indicators and compare outcomes for BTECs, NVQs and other vocational qualifications at Levels 1, 2 and 3 (with a particular focus on Level 2 and 3). In particular we look at the following metrics:

### *Descriptive statistics and progression to education at higher levels*

- Individual characteristics (e.g. Key Stage 2 test scores, GCSE results and other Key Stage 4 variables, personal characteristics etc.) for all individuals holding BTECs and separately for individuals holding BTECs as their highest qualification, compared to individuals with other vocational qualifications at the same level of the RQF; and
- Progression to education at higher levels for all individuals in possession of BTECs compared to individuals with other vocational qualifications at the same level.

### *Earnings differentials*

- Earnings differentials for individuals holding BTECs and other vocational qualifications as their highest qualification compared with individuals in possession of any qualification at the level below within the RQF ('level below – all' counterfactual);
- Earnings differentials for individuals holding BTECs and other vocational qualifications as their highest qualification compared with individuals in possession of any vocational qualification at the level below within the RQF ('level below – vocational' counterfactual);
- Earnings differentials for individuals holding specific vocational qualifications compared to individuals holding the corresponding qualification at the level below (e.g. BTECs at Level 3 vs. BTECs at Level 2 and BTECs at Level 2 vs. BTECs at Level 1);

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<sup>2</sup> <http://www.accreditedqualifications.org.uk/qualifications-and-credit-framework-qcf.html>

<sup>3</sup> BTECs can also constitute the technical element of an Apprenticeship. More recently, BTEC Apprenticeships have also been developed and can be undertaken by learners (see Annex for further information).

<sup>4</sup> See for example the recent CVER Discussion Paper by McIntosh and Morris (2016).

<sup>5</sup> For the other labour market outcomes (employment and benefits) the estimated effects were positive for both males and females.

- Earnings differentials looking at individuals holding BTECs as their highest qualification compared to individuals enrolling in BTECs but failing to achieve (including drop-outs and those completing but not achieving);
- Earnings differentials compared to a control group based on a Propensity Score Matching (PSM) model using personal characteristics and prior attainment measures to select from individuals with the next highest level of vocational qualification;
- Corresponding findings from the LFS using the standard specification for hourly wages covering all individuals, and separately for young individuals only (presented in the joint London Economics/University of Sheffield CVER Discussion Paper 009<sup>6</sup>);
- Findings from regressions where we estimate the average earnings differentials for all individuals in possession of BTECs (including also individuals with qualifications at higher levels).

## 2. Data and methodology

The analysis presented here is primarily based on the matched LEO dataset, which combines information on education enrolment and attainment at school, Further Education Colleges and Higher Education Institutions (derived from the NPD, ILR and HESA respectively) with data on earnings, employment and benefits (derived from HMRC and DWP). The group of individuals retained in the analysis is formed by learners undertaking Key Stage 4 in the academic years 2001/02 to 2003/04 inclusive (aged 15 at the start of the academic year), and we focus on outcomes measured at the age of 26<sup>7</sup>.

Vocational qualifications were grouped into three different categories at each level of the RQF (from Level 3 to Level 1):

- National Vocational Qualifications (NVQs);
- BTECs;
- All other vocational qualifications<sup>8</sup>.

For the purpose of this analysis we restricted the attention to BTECs and other vocational qualification aims attained as a standalone qualification (i.e. not undertaken as part of an Apprenticeship), and also excluded all those holding academic qualifications at the same level (e.g. BTECs at Level 3 and 2+ A-Levels)<sup>9</sup>.

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<sup>6</sup> Available at <http://cver.lse.ac.uk/textonly/cver/pubs/cverdp009.pdf>

<sup>7</sup> For individuals achieving their highest qualification by the age of 22. Age always refers to the age at the start of the academic year (measured on 31st August).

<sup>8</sup> At Level 2 and 3, this residual category also includes a small number of BTEC qualifications not constituting a Full Level (typically BTEC Awards).

<sup>9</sup> As a consequence, the estimates may not exactly correspond to estimates published in other reports.

## 2.1 *Dependent variable and model*

### 2.1.1 *Longitudinal Education Outcomes (LEO) data*

In the main analysis using LEO data, earnings are derived from HMRC P14 returns and are expressed as daily earnings (total annual gross pay divided by total number of days in employment in the tax year)<sup>10</sup>.

In this analysis we mainly focused on two different specifications: a specification including basic personal characteristics, KS2 test scores and KS4 characteristics (augmented specification), and an augmented-plus specification that also controls for KS4 outcomes and the type of school attended<sup>11</sup>. All regressions were undertaken separately for males and females. In the regression analysis, we used OLS to estimate the following model:

$$y_{i26} = \delta ach_{i22} + \beta x_{it} + \gamma z_{it} + \varepsilon_{it} \quad (1)$$

where

- $y_{i26}$  represents log daily earnings measured at the age of 26;
- $ach_{i22}$  identifies the highest qualification achieved (in the marginal returns analysis) or whether an individual holds a specific qualification (in the average returns regressions);
- $x_{it}$  contains basic controls (ethnic background, time elapsed since the learner left education<sup>12</sup> and cohort dummies) plus information on eligibility for Free Schools Meals, Special Education Needs status, IDACI (income deprivation) score (all measured at Key Stage 4), and Key Stage 2 Maths and English test scores<sup>13</sup>. These variables were included in the augmented model;
- $z_{it}$  additionally includes controls for GCSE results and type of secondary school attended (augmented-plus specification).

### 2.1.2 *Labour Force Survey (LFS) data*

For the Labour Force Survey analysis, we report estimates referring to the period 2004-2016. The estimates refer to the standard LFS specification, i.e. using log hourly wages as the dependent variable and the full set of control variables typically used in wage analysis (i.e. gender, age, age-squared, ethnicity, public sector worker and full-time status, region and year controls). We report separately estimates for all working-age individuals (16-64) and for a group of younger learners (22-30) who are more comparable to the group used in the LEO analysis<sup>14</sup>.

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<sup>10</sup> The measure used is the total number of days (derived from HMRC P45), as we don't have information on the number of working days or part-time/full-time work.

<sup>11</sup> We have also computed results for the baseline regression including only basic control variables. Results are available from the authors upon request.

<sup>12</sup> This was measured as the time elapsed since the highest qualification aim was achieved or the highest qualification aim was completed without achievement (whichever occurred the latest).

<sup>13</sup> Eligibility for Free School Meals is a binary variable, SEN status is divided into four categories (reflecting increasing intensity), IDACI scores and KS2 test scores were entered in quintiles (missing values were imputed using the imputation approach provided at <https://nationalpupildatabase.wikispaces.com/KS2> whenever possible). For each variable, observations with missing values were allocated to a separate category.

<sup>14</sup> The LFS wage estimates reported here are therefore not directly comparable with the LEO earnings differentials, due to methodological differences, but represent current 'best practice' for each data source. Comparable estimates are presented in the joint CVER Discussion Paper with Sheffield University (CVER DP 009).

### 3. Descriptive statistics and progression to further learning

In Table 1 and Table 2 we present summary statistics describing the characteristics of learners holding BTECs and other vocational qualifications as their highest qualification (top panel of each table) or including all learners holding the qualification (whether as highest or not, bottom panel of each table).

Individuals with BTECs at Level 3 tend to have slightly higher values for indicators of prior attainment at Key Stage 2 (English and Maths test scores) and Key Stage 4 (number of GCSEs and KS4 points score). This is true for both males and females (with females having higher values on average) when we look at individuals holding Level 3 BTECs as their highest qualification or all individuals with BTECs at Level 3.

Looking at individuals holding BTECs at Level 2, the values of the various indicators seem to be broadly in line with the other vocational qualifications for both males and females.

At Level 1, the group does not include individuals also holding 5 GCSEs A\*-G, and as shown in the tables, there is a very high incidence of learners on Special Education Needs (around 80% for males and up to 74% for females in possession of BTECs at Level 1). An in-depth analysis of learners holding vocational qualifications at Level 1 will be presented in a separate CVER briefing note, and results are not discussed in detail here.

Interestingly, the proportion of learners belonging to other ethnic backgrounds (i.e. non-white British) is higher for the group with BTECs. That is true at any level and for both males and females: for example 17% of all males holding Level 3 BTECs are non-white British compared to 7% for Level 3 NVQs, while for females the proportions stand at 16% (Level 3 BTECs) and 9% (Level 3 NVQs).

In Table 3 we present the highest qualification attained by the age of 26 by individuals in possession of vocational qualifications at Level 3 and below. There is a clear tendency for learners with BTECs to further continue their studies and achieve academic or professional qualifications at higher level<sup>15</sup>. In fact:

- 40% of males with Level 3 BTECs attain a qualification at higher education level or equivalent (Level 5 and above). The corresponding figures for Level 3 NVQs and other vocational qualifications at Level 3 are 5% and 20% respectively;
- For females, more than 44% of learners with BTECs at Level 3 attain a qualification at Level 5 or above, compared to 8% for NVQs at Level 3 and 26% for other vocational qualifications at Level 3;
- For male learners in possession of Level 2 BTECs, the percentage achieving at Level 3 and above is just above 50%, while the corresponding proportions for NVQs and other vocational qualifications at Level 2 is 30% and 42% respectively. If we restrict the attention to qualifications at Level 5 and above, the percentage for BTECs holders progressing to this level stands at 15%, compared to 3% for NVQs and 10% for other vocational qualifications;
- The percentage of female learners in possession of BTECs at Level 2 and attaining higher level qualifications is 53%, very similar to the percentage of learners with other vocational qualifications at Level 2. The percentage for females with Level 2 NVQs progressing to

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<sup>15</sup> As already mentioned, to isolate the effect of BTECs and other vocational qualifications, we excluded learners also in possession of academic qualifications at the same level.

further and higher qualifications is slightly lower and stands at 46%. Again, if we look only at learners progressing to HE level or equivalent, the percentage is around 15% for BTECs, 5% for NVQs and 12% for other vocational qualifications.

In summary, looking at the evidence presented in Table 3, BTEC qualifications often seem to act as a stepping stone for further study at higher levels.

#### **4. Earnings differentials using a variety of counterfactual groups**

In this section we discuss the regression results presented in Table 4 and Table 5 using a wide range of different counterfactuals and including also results from the LFS analysis. Results for the LEO dataset refers to daily earnings at age 26, while for the LFS we report results covering all working-age individuals and a group of younger individuals only (22-30).

##### *4.1 Level 3*

For males in possession of BTECs at Level 3, there is a small positive earnings differential when comparing to learners at the level below as the counterfactual group (using the augmented specification); however, this positive differential is no longer discernible once the ‘augmented plus’ specification is adopted. However, again considering the ‘augmented plus’ specification, if we only include individuals following a more similar education path in the counterfactual groups (i.e. BTEC Level 3 vs BTEC Level 2), the differentials turn positive and are around 10%, and 5.5% compared to learners enrolling in Level 3 BTECs but failing to achieve that learning aim. Under the PSM counterfactual, the earnings differentials are negative. LFS estimates are positive (in excess of 10%) when considering individuals of all ages, but drop to zero when restricting the attention to younger individuals only (compared to the ‘level below – all’ group). In contrast, earnings differentials for NVQs and other vocational qualifications at Level 3 are positive and large (especially for NVQs) across the different specifications.

Estimated differentials (Table 5) for females in possession of BTECs at Level 3 are large and positive across the different LEO specifications and counterfactual groups, and typically range between 10% and 15%. LFS results are only positive and significant for all individuals, and drop to zero when looking at younger individuals only. Earnings differentials for learners in possession of NVQs and other vocational qualifications at Level 3 are positive although smaller in magnitude compared to differentials for BTECs. LFS estimates are positive for other Level 3 qualifications but negative for Level 3 NVQs.

##### *4.2 Level 2*

Looking at men in possession of BTECs at Level 2, there is only limited evidence of positive earnings differentials for the specification comparing to vocational qualifications at the level below (3%) and the specification comparing Level 2 BTECs versus Level 1 BTECs (approximately 11% and 8% under the augmented and augmented plus specifications respectively). The other estimates are zero (including the estimates based on the LFS restricted to the younger age group), or negative (specification adopting the PSM modelling approach or compared to non-achievers). NVQs and other Level 2 vocational qualifications show positive differentials across the different LEO specifications, while the LFS estimates are zero for NVQs and positive for other qualifications when looking at the younger age group.

Finally, earnings differentials for females in possession of BTECs at Level 2 are positive and also quite large in most specifications (typically ranging between 10% and 18%), while no significant differential was observed in the LFS analysis. Estimates for other Level 2 qualifications are positive although normally slightly smaller in magnitude and they are also around zero or slightly negative in the LFS analysis (younger group).

## 5. Conclusions

### 5.1 Main findings

In this research note we have investigated different dimensions of the effect of attaining BTEC qualifications at Level 3 and below. The key findings are as follows:

- Compared to NVQs and other vocational qualifications:
  - The average level of prior attainment (measured at the ages of 11 and 16) is substantially higher for both men and women undertaking BTECs compared to other vocational routes.
  - A higher proportion of learners holding BTECs are from BAME background (non-white British), and this is true for both males and females and across all levels.
- BTEC qualifications at Level 3 and Level 2 often act as a stepping stone for further study and education for both males and females:
  - Between 40% and 45% of learners with BTECs at Level 3 attain degree-level qualifications or above, compared with between 5% and 8% for Level 3 NVQs and 20% and 25% for other vocational qualifications at Level 3.
  - At Level 2, the percentage of BTEC holders achieving at Level 3 qualification or above is in excess of 50%, with 15% attaining at least degree-level qualifications or equivalent. The corresponding proportions for NVQs at Level 2 are considerably lower and slightly lower for 'other' vocational qualifications.

We then compared earnings differentials<sup>16</sup> using different specifications and counterfactual groups (including results from the Labour Force Survey restricted to younger people).

- For males in possession of Level 3 BTECs as their highest qualification, we did not observe positive earnings differentials compared with individuals at the qualification level immediately below, however, the earnings differentials turned positive if we restricted our attention to individuals holding Level 2 BTECs or individuals enrolling in Level 3 BTECs but failing to achieve.
- Results for other vocational qualifications are generally positive across the different specifications (especially for Level 3 NVQs).
- For level 2 BTECs there is little evidence of positive earnings differentials, while the estimates for other Level 2 vocational qualifications are generally positive.

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<sup>16</sup> Although we have not presented evidence relating to other labour market outcomes in this note, results were provided in a recent CVER Discussion Paper and illustrated large and positive employment effects (around 8-10 percentage points) and benefits differentials (reduction in the proportion of the year spent in receipt of labour market benefits of around 3-5 percentage points for males and 8-10 percentage points for females).

- For females, earnings differentials associated with both Level 3 and Level 2 BTECs are positive and typically range between 10% and 15%, slightly larger than the estimated earnings differentials for other vocational qualifications at the same level.

## 5.2 *Final remarks*

It would not be reasonable to interpret the relatively low earnings differential for BTEC qualifications (for young men) as evidence that the qualification does not add any skills or proficiencies that are valued in the labour market. This is because BTECs often enable learners to progress and attain at higher levels. Indeed they are the main vocational route to higher education and equivalent qualifications.

Furthermore, for some counterfactuals (those focusing on individuals following a similar route) there are positive earnings differentials for men in possession of BTECs at Level 3 as their highest qualification. Also, the LFS estimates based on all working age individuals are positive, so it might be that the earnings differentials become higher in later years. For women the earnings differentials are positive and strong across all specifications and typically larger than differentials for other vocational qualifications.

## References

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## Tables

**Table 1 Characteristics of learners by qualification – males**

<b>Held as highest qualification</b>	KS2		% 5 GCSEs		% 5 GCSEs		KS4 points score	Ethnicity -			IDACI score
	English	KS2 Maths	A*-C	# GCSEs A*-C	A*-G	# GCSEs A*-G		white British	FSM (%)	SEN (%)	
NVQ Level 3	47.9	50.2	29%	2.9	94%	8.6	33.5	91%	11%	24%	0.21
BTEC Level 3	52.7	56.3	48%	4.5	97%	9.6	39.5	84%	12%	16%	0.20
Other Level 3 vocational	51.6	51.9	39%	3.7	94%	8.9	36.0	86%	13%	19%	0.21
NVQ Level 2	42.5	43.0	0%	0.8	80%	6.9	21.4	90%	19%	37%	0.26
BTEC Level 2	43.3	45.6	0%	0.9	85%	7.7	23.1	75%	22%	36%	0.25
Other Level 2 vocational	44.4	44.4	0%	0.9	81%	7.2	22.6	83%	22%	34%	0.26
NVQ Level 1	30.4	27.9	0%	0.1	0%	1.7	3.8	88%	33%	77%	0.31
BTEC Level 1	27.3	20.9	0%	0.1	0%	1.2	2.6	70%	36%	82%	0.29
Other Level 1 vocational	33.7	32.8	0%	0.1	0%	1.5	3.3	85%	35%	70%	0.32

  

<b>Held at any level</b>	KS2		% 5 GCSEs		% 5 GCSEs		KS4 points score	Ethnicity -			IDACI score
	English	KS2 Maths	A*-C	# GCSEs A*-C	A*-G	# GCSEs A*-G		white British	FSM (%)	SEN (%)	
NVQ Level 3	49.8	52.4	34%	3.4	96%	8.8	36.0	93%	9%	19%	0.20
BTEC Level 3	53.5	57.8	55%	5.1	98%	9.8	41.5	83%	11%	15%	0.19
Other Level 3 vocational	53.0	54.6	48%	4.5	97%	9.3	39.5	88%	10%	16%	0.20
NVQ Level 2	44.0	45.0	0%	1.1	86%	7.5	24.8	91%	16%	32%	0.24
BTEC Level 2	43.8	46.4	0%	1.2	89%	8.3	25.2	75%	20%	33%	0.25
Other Level 2 vocational	45.6	46.1	0%	1.3	88%	8.0	26.5	83%	18%	29%	0.24
NVQ Level 1	32.4	30.7	0%	0.1	0%	1.9	4.4	87%	31%	73%	0.30
BTEC Level 1	29.5	25.2	0%	0.1	0%	1.4	3.1	70%	32%	79%	0.30
Other Level 1 vocational	35.4	35.4	0%	0.1	0%	1.7	4.0	84%	33%	67%	0.31

Note: Learners achieving by the age of 22 only; cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04; SEN: Special Educational Needs; FSM: eligibility for Free School Meals; KS4 points score reflects the old classification ranging from 0 to 8.

Source: London Economics based on LEO data

**Table 2 Characteristics of learners by qualification – females**

<b>Held as highest qualification</b>	KS2		% 5 GCSEs	# GCSEs	% 5 GCSEs	# GCSEs	KS4 points	Ethnicity -			IDACI
	English	KS2 Maths	A*-C	A*-C	A*-G	A*-G	score	white British	FSM (%)	SEN (%)	score
NVQ Level 3	52.9	47.5	32%	3.4	95%	8.9	36.3	91%	13%	13%	0.22
BTEC Level 3	56.0	53.2	55%	5.2	98%	9.8	42.3	86%	13%	10%	0.21
Other Level 3 vocational	55.4	48.4	45%	4.4	96%	9.3	39.5	89%	14%	11%	0.22
NVQ Level 2	46.4	39.9	0%	1.0	85%	7.5	24.4	90%	22%	26%	0.27
BTEC Level 2	45.4	41.8	0%	1.0	86%	7.9	23.7	79%	25%	28%	0.27
Other Level 2 vocational	47.8	40.1	0%	1.2	84%	7.6	24.8	85%	24%	25%	0.28
NVQ Level 1	34.6	27.4	0%	0.1	0%	1.7	3.6	91%	37%	67%	0.32
BTEC Level 1	31.2	23.8	0%	0.1	0%	1.5	3.2	78%	39%	74%	0.31
Other Level 1 vocational	37.2	30.3	0%	0.1	0%	1.5	3.3	85%	37%	60%	0.33

  

<b>Held at any level</b>	KS2		% 5 GCSEs	# GCSEs	% 5 GCSEs	# GCSEs	KS4 points	Ethnicity -			IDACI
	English	KS2 Maths	A*-C	A*-C	A*-G	A*-G	score	white British	FSM (%)	SEN (%)	score
NVQ Level 3	53.5	48.3	35%	3.7	96%	9.0	37.1	91%	13%	13%	0.22
BTEC Level 3	57.0	54.9	62%	5.8	98%	10.0	44.5	84%	12%	9%	0.20
Other Level 3 vocational	56.6	50.6	54%	5.1	97%	9.6	42.3	89%	12%	10%	0.21
NVQ Level 2	47.9	41.5	0%	1.4	90%	8.0	27.5	89%	19%	21%	0.25
BTEC Level 2	45.5	42.3	0%	1.3	90%	8.4	26.2	78%	23%	26%	0.27
Other Level 2 vocational	48.9	41.9	0%	1.6	91%	8.4	28.9	85%	20%	20%	0.26
NVQ Level 1	36.4	29.9	0%	0.1	0%	1.9	4.2	89%	35%	61%	0.32
BTEC Level 1	32.6	26.2	0%	0.1	0%	1.6	3.6	77%	37%	67%	0.30
Other Level 1 vocational	39.8	33.6	0%	0.2	0%	1.7	4.3	84%	35%	55%	0.32

Note: Learners achieving by the age of 22 only; cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04; SEN: Special Educational Needs; FSM: eligibility for Free School Meals; KS4 points score reflects the old classification ranging from 0 to 8.

Source: London Economics based on LEO data

**Table 3 Highest level achieved by the age of 26 for learners in possession of vocational qualifications**

	Males									Females								
	L7/8	L5/6	L4 V	L3 Appr.	L3 V	L2 Appr.	L2 V	L1 V	Obs	L7/8	L5/6	L4 V	L3 Appr.	L3 V	L2 Appr.	L2 V	L1 V	Obs
NVQ Level 3	0.3%	5.1%	4.9%	33.9%	55.7%	0.0%	0.0%	0.0%	12,293	0.4%	7.8%	3.4%	5.1%	83.2%	0.0%	0.0%	0.0%	25,047
BTEC Level 3	2.2%	37.6%	4.6%	5.0%	50.6%	0.0%	0.0%	0.0%	58,692	3.1%	41.2%	2.0%	3.2%	50.5%	0.0%	0.0%	0.0%	45,440
Other Level 3 voc	1.3%	19.2%	3.8%	19.5%	56.2%	0.0%	0.0%	0.0%	61,242	2.2%	23.5%	2.6%	5.2%	66.5%	0.0%	0.0%	0.0%	63,148
NVQ Level 2	0.2%	2.9%	1.1%	11.4%	14.3%	13.9%	56.2%	0.0%	55,193	0.2%	4.4%	0.9%	7.4%	33.4%	7.9%	45.7%	0.0%	49,371
BTEC Level 2	0.5%	14.8%	1.3%	3.9%	29.8%	5.3%	44.5%	0.0%	20,258	0.5%	14.3%	0.9%	4.3%	32.7%	5.3%	41.9%	0.0%	14,231
Other Level 2 voc	0.5%	9.3%	1.1%	9.3%	22.1%	9.6%	48.1%	0.0%	144,439	0.6%	11.5%	1.1%	6.6%	32.7%	7.4%	40.0%	0.0%	112,754
NVQ Level 1	0.1%	1.1%	0.1%	3.0%	7.8%	9.5%	39.0%	39.4%	4,048	0.1%	1.5%	0.3%	2.2%	13.3%	6.7%	37.6%	38.3%	3,574
BTEC Level 1	0.1%	4.0%	0.4%	0.5%	11.4%	3.5%	42.0%	38.2%	1,556	0.4%	4.2%	0.2%	1.4%	11.6%	3.7%	38.3%	40.2%	1,176
Other Level 1 voc	0.2%	2.0%	0.2%	1.9%	6.7%	6.2%	34.3%	48.4%	34,964	0.3%	4.0%	0.4%	2.2%	12.5%	5.5%	31.9%	43.2%	19,544

Note: cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04;

L7/8: Postgraduate degrees (PhD and Masters) and equivalent qualifications;

L5/6: First/Foundation degrees and equivalent qualifications;

L3 Appr: Level 3 Advanced Apprenticeship;

L2 Appr: Level 2 Intermediate Apprenticeship;

L4 V: Level 4 Vocational Qualification;

L3 V: Level 3 Vocational Qualification;

L2 V: Level 2 Vocational Qualification;

L1 V: Level 1 Vocational Qualification.

Source: London Economics based on LEO data

**Table 4 Earnings/wage differentials using different counterfactual groups and data sources – males**

Source Counterfactual group	LEO Level below (all)		LEO Level below (vocational)		LEO Corresponding qualification at level below		LEO Non-achievers		LEO PSM	LEO Average returns	LFS Level below (all)	LFS
	26		26		26		26		26	26	16-64	22-30
	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug.	Typical	Typical
NVQ Level 3	0.171*** (0.009)	0.162*** (0.009)	0.177*** (0.010)	0.156*** (0.010)	0.106*** (0.010)	0.078*** (0.010)	0.090*** (0.017)	0.075*** (0.017)	0.184*** (0.015)	0.039*** (0.006)	0.048*** (0.006)	0.066*** (0.013)
BTEC Level 3	0.025*** (0.005)	0.005 (0.005)	0.035*** (0.005)	-0.002 (0.006)	0.139*** (0.010)	0.093*** (0.011)	0.078*** (0.008)	0.053*** (0.008)	-0.033*** (0.008)	-0.017*** (0.003)	0.108*** (0.007)	0.005 (0.015)
Other Level 3 vocational	0.075*** (0.005)	0.066*** (0.005)	0.092*** (0.006)	0.067*** (0.006)	0.127*** (0.006)	0.076*** (0.007)	0.066*** (0.008)	0.045*** (0.008)	0.044*** (0.008)	0.009*** (0.003)	0.062*** (0.006)	0.079*** (0.017)
NVQ Level 2	0.138*** (0.006)	0.137*** (0.006)	0.178*** (0.007)	0.174*** (0.007)	0.156*** (0.014)	0.136*** (0.014)	0.135*** (0.017)	0.129*** (0.017)	0.151*** (0.012)	0.079*** (0.003)	-0.064*** (0.007)	-0.004 (0.015)
BTEC Level 2	-0.007 (0.009)	-0.007 (0.009)	0.028*** (0.010)	0.026*** (0.010)	0.103*** (0.033)	0.077** (0.033)	-0.010 (0.014)	-0.026* (0.015)	-0.063*** (0.017)	-0.040*** (0.005)	0.029 (0.022)	0.027 (0.031)
Other Level 2 vocational	0.025*** (0.005)	0.025*** (0.005)	0.062*** (0.006)	0.060*** (0.006)	0.061*** (0.006)	0.031*** (0.006)	0.095*** (0.008)	0.076*** (0.008)	-0.009 (0.009)	-0.021*** (0.002)	-0.000 (0.012)	0.104*** (0.031)
NVQ Level 1	0.012 (0.026)	0.017 (0.026)	0.060** (0.027)	0.059** (0.027)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	0.212*** (0.064)	0.204*** (0.065)	-0.022 (0.033)	-0.024*** (0.005)	-0.117*** (0.018)	-0.118*** (0.049)
BTEC Level 1	-0.071 (0.055)	-0.052 (0.056)	-0.017 (0.057)	-0.012 (0.057)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	-0.016 (0.061)	-0.021 (0.061)	-0.123** (0.049)	-0.153*** (0.014)	0.076 (0.060)	0.107 (0.068)
Other Level 1 vocational	-0.024** (0.011)	-0.021* (0.011)	0.015 (0.013)	0.012 (0.013)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	0.040 (0.028)	0.034 (0.028)	-0.052*** (0.018)	-0.049*** (0.002)	-0.049** (0.020)	0.035 (0.075)

Note: Significance levels: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors in parentheses. Dependent variable: log daily earnings (LEO), log hourly wage (LFS). For the definition of counterfactual groups see section 1.

LEO Augmented - controlling for ethnic background, time elapsed since left education, FSM, SEN status, IDACI score, KS2 Maths and English test scores and cohort dummies.

LEO Augmented plus – augmented plus GCSE results/KS4 point score and type of school attended.

PSM: reporting ATT. Matching based on KS2 Maths and English test scores, KS4 point score, time elapsed, ethnic background, FSM, SEN status, IDACI score.

LFS typical – controlling for gender, age, age-squared, ethnicity, public sector worker and full-time status, region and year controls.

Source: London Economics and Sheffield University based on LEO (cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04) and LFS 2004-2016 data

**Table 5 Earnings/wage differentials using different counterfactual groups and data sources – females**

Source	LEO		LEO		LEO		LEO		LEO	LEO	LFS	LFS
	Level below (all)		Level below (vocational)		Corresponding qualification at level below		Non-achievers		PSM	Average returns	Level below (all)	
Age	26		26		26		26		26	26	16-64	22-30
Specification	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug. Plus	Aug.	Aug.	Typical	Typical
NVQ Level 3	0.090*** (0.007)	0.083*** (0.007)	0.118*** (0.007)	0.094*** (0.008)	0.106*** (0.008)	0.072*** (0.009)	0.098*** (0.014)	0.072*** (0.014)	0.064*** (0.011)	0.042*** (0.005)	-0.016*** (0.004)	-0.021** (0.010)
BTEC Level 3	0.159*** (0.006)	0.130*** (0.007)	0.194*** (0.007)	0.152*** (0.008)	0.184*** (0.015)	0.124*** (0.016)	0.127*** (0.011)	0.103*** (0.011)	0.077*** (0.013)	0.038*** (0.004)	0.087*** (0.007)	0.017 (0.015)
Other Level 3 vocational	0.104*** (0.006)	0.088*** (0.006)	0.143*** (0.006)	0.103*** (0.007)	0.160*** (0.008)	0.086*** (0.008)	0.107*** (0.009)	0.073*** (0.009)	0.051*** (0.008)	-0.002 (0.003)	0.037*** (0.009)	0.052*** (0.019)
NVQ Level 2	0.066*** (0.008)	0.066*** (0.008)	0.123*** (0.010)	0.121*** (0.010)	0.177*** (0.019)	0.142*** (0.019)	0.070*** (0.027)	0.048* (0.027)	0.051*** (0.01)	-0.014*** (0.004)	-0.066*** (0.005)	-0.024* (0.013)
BTEC Level 2	0.099*** (0.014)	0.099*** (0.014)	0.167*** (0.015)	0.166*** (0.016)	0.191*** (0.043)	0.136*** (0.043)	0.137*** (0.027)	0.110*** (0.027)	0.066** (0.025)	0.029*** (0.007)	0.028 (0.020)	0.020 (0.042)
Other Level 2 vocational	0.057*** (0.007)	0.058*** (0.007)	0.109*** (0.009)	0.108*** (0.009)	0.100*** (0.010)	0.069*** (0.010)	0.025** (0.012)	0.004 (0.012)	0.024** (0.01)	-0.008*** (0.002)	-0.003 (0.012)	-0.022 (0.062)
NVQ Level 1	0.001 (0.036)	0.002 (0.036)	0.004 (0.039)	0.003 (0.039)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	0.098 (0.104)	0.105 (0.108)	-0.124* (0.07)	-0.058*** (0.007)	-0.121*** (0.014)	-0.079* (0.048)
BTEC Level 1	-0.025 (0.074)	-0.022 (0.074)	-0.035 (0.077)	-0.022 (0.077)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	0.065 (0.099)	0.086 (0.098)	-0.043 (0.076)	-0.079*** (0.017)	0.026 (0.069)	0.167 (0.399)
Other Level 1 vocational	-0.003 (0.020)	-0.002 (0.020)	0.001 (0.024)	0.001 (0.024)	<i>na</i> <i>na</i>	<i>na</i> <i>na</i>	-0.046 (0.042)	-0.074* (0.042)	0.004 (0.034)	-0.024*** (0.003)	0.047*** (0.011)	-0.057 (0.052)

Note: Significance levels: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors in parentheses. Dependent variable: log daily earnings (LEO), log hourly wage (LFS). For the definition of counterfactual groups see section 1.

LEO Augmented - controlling for ethnic background, time elapsed since left education, FSM, SEN status, IDACI score, KS2 Maths and English test scores ad cohort dummies.

LEO Augmented plus – augmented plus GCSE results /KS4 point score and type of school attended.

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LFS typical – controlling for gender, age, age-squared, ethnicity, public sector worker and full-time status, region and year controls.

Source: London Economics and Sheffield University based on LEO (cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04) and LFS 2004-2016 data

## Appendix 1: Type of BTECs at different levels

RQF Level	Type of BTEC	Detailed qualification
Entry Level	BTEC Entry Level	
	BTEC WorkSkills	
RQF Level 1	MySkills	
	BTEC Level 1 and Level 1 Introductory	
	BTEC Specialist and Professional qualifications	
	BTEC Tech Awards	
	BTEC WorkSkills	
RQF Level 2	BTEC First	Diploma
		Extended Certificate
		Certificate
		Award
	BTEC Apprenticeships	
	BTEC Enterprise qualifications	
	BTEC Level 2 Diploma in Music Industry Skills	
	BTEC Level 2 Technicals	
	BTEC Specialist and Professional qualifications	
	BTEC Tech Awards	
BTEC WorkSkills		
RQF Level 3	New Apprenticeships	
	BTEC Apprenticeships	
	BTEC Foundation Diploma in Art and Design	
	BTEC Nationals	Certificate
		Extended Certificate
		Diploma
		Extended Diploma
		Foundation Diploma
Diploma (tech level)		
Business Tech Levels		
BTEC Specialist and Professional qualifications		
RQF Level 4	BTEC Apprenticeships	
	BTEC Foundation Diploma in Art and Design	
	BTEC Higher Nationals	Certificate
	BTEC Specialist and Professional qualifications	
RQF Level 5	BTEC Apprenticeships	
	BTEC Higher Nationals	Diploma
	BTEC Specialist and Professional qualifications	
RQF Level 6	BTEC Specialist and Professional qualifications	
RQF Level 7	BTEC Specialist and Professional qualifications	

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