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Abstract

For the first time, the matched Longitudinal Education Outcomes has been made available for analysis of qualification attainment and labour market outcomes in England. Using comprehensive information from different school, Further Education and Higher Education data sources, we estimate the association between achieving vocational qualifications at different levels of the Regulated Qualifications Framework and labour market outcomes (earnings, employment and benefits dependency) at the age of 26 for the cohorts of students undertaking Key Stage 4 schooling between 2001/02 and 2003/04. The analysis was undertaken separately for males and females and across different specifications, exploiting the richness of the information available in the matched dataset. The findings suggest that, compared with individuals holding their highest qualification at the level immediately below in the Regulated Qualifications Framework, the association between attaining vocational qualifications and employment or earnings is generally positive and particularly large for Level 4 vocational qualifications, Apprenticeships, and National Vocational Qualifications at Level 3 and 2.

Keywords: Vocational education, Administrative data, Returns to education

JEL codes: I26, J21, J31, J64

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Executive Summary

A variety of studies have investigated the effect of attaining vocational qualifications on labour market outcomes (focusing predominantly on earnings).

Traditionally, data from the Labour Force Survey (LFS) and cohort studies have been available for analysis, and the approaches using these data sources have typically considered individuals holding a specific qualification (as their highest qualification) compared to a counterfactual group of individuals holding qualifications at the level immediately below in the Regulated Qualifications Framework (RQF).

Looking at the differences between these types of study, survey analyses have generally focused on all working age individuals, while cohort studies follow a group of individuals from a specific cohort over time. Furthermore, although the LFS is a large-scale survey and can be pooled across multiple waves, it lacks any detailed information on early scholastic attainment and personal characteristics. In contrast, analyses based on cohort studies typically focus on a relatively small group of individuals, but are very rich in information relating to personal and family characteristics and early scholastic attainment (from a very young age). Findings from these studies have typically highlighted positive returns to high and intermediate level vocational qualifications, but have demonstrated a less clear picture in relation to lower levels qualifications (in particular NVQs at Level 2 and Level 1).

More recently, **matched administrative data** have become available for analysing the relationship between education and training and labour market outcomes. Early studies (e.g. Conlon and Patrignani (2011)) using administrative data focused on Further Education data from the Individualised Learner Record matched to earnings and employment data from HM Revenue and Customs (HMRC) and benefits dependency data from the Department for Work and Pensions (DWP). However, only individuals having some interaction or engagement with the Further Education system were available for analysis, as other educational data were not available in the matched dataset. The counterfactual groups considered typically consisted of learners enrolling in a qualification aim at the same level but failing to achieve the qualification in question (non-achievers) or learners achieving vocational qualifications at the level immediately below. These studies have mostly found positive and persistent labour market returns at different levels within the Regulated Qualifications Framework, including lower level qualification aims.

For the first time, the Longitudinal Education Outcomes dataset is available for analysis, which includes detailed **education data** for English pupils whilst at primary and secondary school and within Further Education settings (including data from early Key Stages all the way to Key Stage 4 and 5); higher education records; and matched HMRC and DWP administrative data containing information on earnings, employment and benefit dependency.

The current study has focused on the cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04 (aged 15 at the start of each respective academic year) and has assessed the impact of qualification attainment on labour market outcomes at the age of 26 (tax years 2012/13 to 2014/15). To undertake the analysis, on one side, the different educational datasets were combined to generate the highest qualification (vocational or academic) attained by each learner. On the outcomes side, the various components of labour market data were cleaned and recoded to generate measures of daily earnings, the proportion of the year spent in employment and the proportion of the year spent in receipt of active labour market benefits.

The analysis focused on learners holding vocational qualifications from Level 4 to Entry Level as their highest recorded qualification (ranking vocational qualifications above academic qualifications at the same level¹), while learners holding only academic qualifications at the same level were retained for comparison.

Two different counterfactual groups were used in the analysis for each qualification: the first counterfactual consisted of learners holding qualifications at the qualification level immediately below (e.g. learners holding vocational qualifications at Level 3 compared with learners holding *any* Level 2 qualifications). The second counterfactual restricted attention to learners holding ‘similar’ qualifications at the level immediately below within the Regulated Qualifications Framework (e.g. learners holding vocational qualifications at Level 3 compared with learners holding Level 2 *vocational* qualifications only).

Each regression was undertaken across **three different specifications**: a **baseline** specification with basic controls only; an **augmented** specification also including Key Stage 2 test scores, eligibility for free school meals and special education needs; and a third specification **further augmented** with academic qualifications held and Key Stage 4 school controls. While the controls available in this data set are an improvement on many of the other data sets available to look at this question, we need to be cautious about the interpretation of the results. This is because omitted variables such as family background, motivation and non-cognitive abilities may influence both the qualification attained (relative to the control group) and earnings (and other labour market outcomes). To the extent such omitted variables are important, it will bias the estimated relationship between qualifications and earnings. Furthermore, we do not have a measure of hours. Ongoing work suggests that this is an important driver of differences between estimates of ‘returns’ using the Labour Force Survey and the administrative data that we use here.

The findings suggest that the association between the vocational qualification achievement and labour market outcomes is positive and significant for most qualification aims at the different levels - for both males and females. Earnings differentials are particularly high for Level 4 vocational qualifications (37% and 26% for males and females respectively in our preferred specification); Advanced apprenticeships (40% and 21%); Intermediate apprenticeships (22% and 12%); NVQs at Level 3 (19% and 11%); and NVQs at Level 2 (16% and 9%)². The estimated earnings differentials for the other vocational qualifications at Level 3 and Level 2 are also positive and significant, with the exception of males holding BTEC qualifications as their highest qualification. Learners in possession of Level 1 vocational qualifications also attain positive earnings differentials, but the estimate becomes small and insignificant once academic qualifications at Level 1 are controlled for (as the majority of these learners also hold 5 or more GCSEs at grades A*-G). The magnitude of the estimates seems to be in line with the estimated differentials for academic qualifications at the same level.

¹ Table 14 reports the results of the regression ranking academic qualifications above vocational qualifications at the same level with very similar estimates.

² All estimates refer to the first counterfactual group unless otherwise specified. We highlight results from the ‘augmented specification’ (which is our preferred specification, though not the most detailed reported here). For earnings (estimated using a log-linear model), in the text we always refer to the percentage effect (computed as $\exp(\beta)-1$), while in the tables, as is standard practice, we report the raw regression coefficients.

The association between vocational qualifications and employment is **positive** and significant across all qualifications (with the exception of Entry Level qualifications). Our findings on the relationship between vocational qualifications and benefit dependency are consistent with this. All results are robust across different specifications and counterfactual groups, with the magnitude of the coefficients typically diminishing as additional control variables were added to the model. Results relating to employment outcomes are less sensitive to the inclusion of controls than for earnings outcomes.

When interpreting the results, and comparing them with previous findings in the area, it should be noted that the group of learners analysed in the current study is much younger on average than the typical samples used in survey or cohort studies. In addition, we are unable to consider hours of work (unlike in the Labour Force Survey which would typically use hourly earnings as the outcome variable). Also, although we have analysed individuals holding qualifications at the level immediately below as the counterfactual, the descriptive statistics presented demonstrate important differences in the prior attainment measures across learners holding vocational qualifications at different levels, which needs to be further investigated.

To address these continuing evidence gaps and what might drive earnings differentials, research is currently being undertaken that will compare findings on earnings differentials using *survey data* with findings from *administrative data* sources using a more consistent methodological approach than has been previously adopted. In addition, we aim to undertake further research that will explore the characteristics and suitability of different possible counterfactual groups in order to ascertain the extent to which it is possible to attribute alternative labour market outcomes to different forms of vocational education and training rather than to the individuals in possession of particular vocational qualifications.

1. Introduction

A number of studies have tried to assess the labour market returns of vocational qualification attainment in the United Kingdom. Traditionally, these studies have used survey data, either from cohort studies (the 1958 NCDS and the 1970 BCS) or from the Labour Force Survey (essentially cross-sectional). Cohort studies capture a wide range of individual and family characteristics over time, but are typically based on small sample sizes when looking at specific qualifications. The LFS is the most comprehensive survey on labour market outcomes, but does not capture sufficient information on either ability, family or socio-economic characteristics, although it does contain information on hours of work, which is not contained in the administrative data. Results using survey data typically showed positive earnings returns for intermediate and higher vocational qualifications but limited evidence of positive returns to low level vocational qualifications (especially NVQs at Level 1 and 2) compared to individuals with no qualifications or lower level qualifications³. These results were also confirmed by the recent study by McIntosh and Morris (2016), with the main findings showing strong positive earnings returns to qualifications at Level 4 and Level 3, but also at lower levels, with the exception of NVQs at Level 2 and Level 1 (both negative).

Relatively recently, data from administrative sources (the Individualised Learner Record matched to HMRC earnings and employment and DWP benefit dependency data) have also become available for analysis. The Individualised Learner Record data are compiled and returned by Further Education providers, and contain comprehensive learner and course characteristics for publicly funded aims in the FE and skills sector. HMRC data on earnings and employment and DWP data on benefits spells can then be used to assess labour market outcomes⁴. The key limitation of these previous types of analyses is the absence of information on: prior attainment; subsequent education and training achievement outside of the FE system; learner socio-economic status; and the fact that we only observe individuals deciding to go through the vocational route. The main counterfactual used in the ILR analysis for qualification holders typically consisted of individuals enrolling in a qualification at the same level, but failing to achieve.

For the first time, comprehensive matched data from administrative data sources are now available to estimate labour market returns to academic and vocational qualification attainment. The data sources cover not only the FE system, but the entire pupil journey through the English educational system, including both school records (between Key Stage 1 and Key Stage 5) and higher education enrolment and attainment (HESA data).

These three educational data sources have been linked together, and then matched with HMRC and DWP data into the Longitudinal Education Outcomes (LEO) dataset to allow a comprehensive assessment of the association between qualifications achieved and various labour market outcomes. In this study we have focused on three cohorts of pupils, namely the cohorts of 2001/02, 2002/03 and 2003/04 Key Stage 4 leavers (aged 15 at the start of the academic year) and followed their education journey and labour market outcomes until the age of 26 (2012/13, 2013/14 and 2014/15)⁵.

³ See for example Dearden et al. 2002, Dearden et al. 2004, McIntosh, 2006, 2010, Conlon and Patrignani, 2011b.

⁴ See for example Bibby et al., 2014; Conlon and Patrignani, 2011a, 2013.

⁵ Age always refers to the age at the start of the academic year (measured on 31st August).

The remainder of this paper is structured as follows: in Section 2 we introduce the data sources and the data cleaning process, while Section 3 describes the classification of qualification aims used in the analysis; Section 4 describes the methodological approach used, while Section 5 presents the findings of the analysis. Finally, conclusions and next steps are presented in Section 6.

2. Data sources

In this section we outline the main characteristics of the data sources and methodology used in the analysis.

2.1 Administrative Data Sources

The analysis undertaken and presented here is based on the Longitudinal Education Outcomes (LEO) dataset, which comprises the following data sources:

- The **Longitudinal Education Outcomes (LEO) Database** containing **National Pupil Database (NPD)** data linked to **Individualised Learner Record** and **Higher Education Statistics Agency (HESA)** data and available for research purposes from the Department for Education (DfE). The three databases are linked by the Department and a lookup dataset is generated, containing the **Pupil Matching Reference (PMR)** identifier. Below we briefly describe the three constituent datasets and explain what type of information we have been able to use.
- The **National Pupil Database** contains detailed information about pupils in schools and colleges in England. The data includes
 - o information from the annual school census,
 - o data on test and exam results,
 - o attainment data for students in non-maintained special schools, sixth-form and Further Education Colleges, and
 - o information on pupils in independent schools (albeit very limited).
- The database also includes information about pupils' characteristics, such as
 - o gender,
 - o ethnicity,
 - o eligibility for Free School Meals, and
 - o whether the pupil has special educational needs (SEN).
- The NPD datasets linked for the relevant cohorts cover Key Stage 2 (age 11 at the start of the academic year) to Key Stage 5 (age 17 at the start of the academic year).
- **HESA** collects data on students in UK Higher Education Providers at the end of each academic year. The data collected reports information on learner, provider and course characteristics, including

- qualification type,
 - qualification level,
 - achievement status,
 - full/part time study,
 - subject area, and
 - learner personal characteristics.
- The **Individualised Learner Record** contains information at learning and learner aim level during each publicly funded training episode. The ILR data received covers the academic years 2002/03 to 2014/15. This information was re-organised from learning aim to learner level, where information on the highest level of FE aim undertaken was retained, as well as learners' personal characteristics.

Further information on data availability and the timeline for the three cohorts is presented in Figure 1.

- The **Work and Pensions Longitudinal Study** combines HMRC data on earnings and employment with DWP data on benefit spells. In particular the data used as part of this analysis includes:
 - **HM Revenue and Customs P14** information between the tax years 2003/04 and 2014/15 containing information on the annual earnings achieved through PAYE employment;
 - **HM Revenue and Customs P45** information between tax year 1998/99 and tax year 2014/15 containing information on employment spells; and
 - DWP information from the **National Benefits Database** between tax year 1998/99 and tax year 2014/15 containing information on benefit spells.

2.1 Cleaning the data

The current analysis focuses on Key Stage 4 leavers attending English secondary schools in three subsequent cohorts: 2001/02, 2002/03 and 2003/04 (aged 15 at the start of the academic year). In total there were 605,000 pupils attending KS4 in 2001/02, 622,000 in 2002/03, and 645,000 in 2003/2004. However, not all records in the 2001/02 cohort were allocated a pupil matching reference number and the population of data items for these individuals was relatively sparse. This meant that they could not be matched to the other datasets used in this analysis, resulting in the loss of 15,760 individuals for this academic year.

Some data cleaning was required when linking the information originally provided with the HMRC and DWP data: after removing those with no record in the HMRC and DWP data or those with inconsistencies in the identifiers (multiple identifiers), we were left with 530,000 pupils for the 2001/02 cohort, 564,000 pupils for the 2002/03 cohort; and 592,000 pupils for the 2003/04 cohort, representing 91% of the total number of pupils across the three cohorts. More specifically, the proportion of pupils not matching to HMRC or DWP was around 10% for the 2001/02 KS4 cohort, declining to 9.4% and 8.3% for the 2002/03 and 2003/04 KS4 cohort respectively. The match rate was higher for male pupils (6.5% unmatched compared to

12% for females) and for higher level qualifications, but the difference was relatively small in aggregate, due to the low incidence of unmatched cases (9% overall). In particular female pupils with academic qualifications (A-levels and GCSEs) were slightly under represented in the group matched to HMRC/DWP data.

3. Classification of qualification aims

Qualifications were assigned to different categories according to the Regulated Qualifications Framework (RQF) using a nine-point scale where 0 corresponds to Entry Level qualifications and 8 is the highest level of achievement (doctoral degrees)⁶. Since the analysis focuses on vocational and academic qualifications at Level 4 and below, Higher National Diplomas and NVQ aims at Level 5 were grouped with Level 4 vocational qualifications. Learners having attained no formally recognised qualifications were assigned to the residual category “KS4 entry but no formal achievement”.

Within these levels, learning aims were then separated into academic and vocational qualifications, or apprenticeships. Hence, for example, Level 1 academic (at least 5 GCSEs but not at grades A*-C) and Level 1 vocational qualifications are considered within different categories for the purposes of this analysis and vocational qualifications are further disaggregated by type (e.g. NVQ at L1, BTEC at L1 etc.). At Levels 2 and 3, the classification of learning aims also distinguishes whether learners achieved a ‘full’ qualification⁷, where Full-Level 3 corresponds to at least 2 GCE A-levels or 4 GCE AS-levels (or equivalent, including Access to HE diplomas), while Full-Level 2 corresponds to 5 GCSEs at grades A*-C (or equivalent). Furthermore, Advanced and Intermediate Apprenticeships are differentiated from other Level 3 and Level 2 vocational courses.

Identifying the highest qualification

Using the available information, the highest learning aim undertaken and achieved by age 22 was identified. Given the presence of multiple categories within each qualification level, learning aims were subsequently ranked so that an apprenticeship was given priority, followed by a full-level vocational qualification (broken down by type), a full-level academic qualification and finally other qualifications at that level (i.e. vocational qualifications which do not constitute a full-level)⁸. The classification distinguished between different types of vocational qualification at each level (NVQs, GNVQs, BTECs and other full-level and non-full-level vocational qualifications). For example someone holding both a NVQ at Level 3 and 2+ A levels would be retained in the treatment group for NVQs at Level 3. To check the robustness of the ranking used, in Table 14 we show the estimates of the regressions ranking academic qualifications above vocational qualifications at the same level⁹. A complete

⁶ The Regulated Qualification Framework replaced the National Qualification Framework and the Qualifications and Credit Framework (which focused on vocational qualifications) in October 2015. The Regulated Qualification Framework is based on a 9 point-scale from Entry Level to Level 8 (similarly to the NQF and QCF), and provides a single system for cataloguing all qualifications regulated by Ofqual.

⁷ For example, at Level 3 vocational the categories are: Advanced Apprenticeship, NVQ at L3, BTEC at L3, other Full-Level 3 Academic, and Level 3 Other (Level 3 vocational qualifications not constituting a Full-Level 3).

⁸ This hierarchy is broadly consistent with that used in the Labour Force Survey. For the full LFS ranking see the Labour Force Survey User Guide – details of LFS variables. Most recent version (volume 3, 2016) available at: http://doc.ukdataservice.ac.uk/doc/8039/mrdoc/pdf/lfs_user_guide_vol3_variabledetails2016.pdf.

⁹ Results (reported for vocational qualifications only) are very similar to the ones presented in the main analysis.

description of the classification of highest qualification used can be found in Table 1, while Table 2 illustrates the proportion of individuals that were retained for the econometric analysis for each qualification (i.e. the proportion achieving their highest qualification by the age of 22).

Counterfactual groups

For each highest qualification, we defined two counterfactual groups: the first counterfactual group was formed of individuals holding any qualification at the level immediately below that qualification under consideration as their highest qualification (e.g. individuals holding any Level 2 qualification are used in the counterfactual group for Level 3 qualifications). The second counterfactual group typically restricts the attention on individuals holding similar qualifications at the level immediately below as highest qualification (e.g. vocational qualifications at Level 2 as highest used as comparison group for Level 3 vocational qualifications)¹⁰. Again, in the composition of the second counterfactual group we retained those holding also academic qualifications at the same level (e.g. individuals holding a vocational qualification at Level 2 as well as 5 GCSEs A*-C were retained in the second counterfactual group). Table 3 shows the two counterfactual groups used for each qualification in detail.

4. Methodological approach

Outcome variables

We considered three different labour market outcome variables using information from the HMRC and DWP data:

- Earnings, expressed as **daily earnings** (total annual gross pay divided by total number of days in employment in the tax year)¹¹;
- Employment, expressed as **proportion of the year in employment** (number of days in employment in the tax year divided by 365 or 366);
- Benefit dependency, expressed as **proportion of the year in receipt of at least one of the following active labour market benefits**: Jobseekers' Allowance (and Job Training Allowance), Income Support and Employment and Support Allowance;

All outcome variables were measured at the age of 26, to avoid any overlap between the academic year and tax year, as well as to account for job search time in the labour market.

Model specification

For each qualification level, we defined two different counterfactuals and used three different specifications: a **baseline specification** with basic controls only; an **augmented specification**

¹⁰ For Intermediate Apprenticeships we used Level 1 vocational as the second counterfactual for consistency with the other qualifications. However, given that having GCSEs in Maths and English (or attaining an equivalent level as part of the Apprenticeship) is a typical entry requirement for Intermediate Apprenticeships, we also estimated earnings differentials compared with individuals holding 5+ GCSEs A*-C and found positive coefficients for males and negative coefficients for females.

¹¹ 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.

including Key Stage 2 test scores and Key Stage 4 control variables (eligibility for Free Schools Meals, Special Education Needs status and IDACI score); and an **augmented-plus** specification that included a robustness check by adding in additional controls for academic qualifications achieved at the same or lower level (2+ A levels and 5 GCSEs A-C or A*-G) and controls for the secondary school attended. We then estimated a model of the form:

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

where

- y_{i26} represents the dependent variable measured at the age of 26 (log daily earnings, proportion of the year in employment, proportion of the year in receipt of benefits);
- ach_{i22} identifies the highest qualification achieved by the age of 22;
- x_{it} contains information on ethnic background, time elapsed since the learner left education¹² and cohort dummies. These variables were included in the **baseline** model;
- z_{it} contains 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 scores¹³. These additional variables were only included in the **augmented** model;
- Given that vocational qualifications were ranked above academic qualifications at the same level, the third specification additionally includes controls for academic qualifications at the same or lower level (2+ A levels and five GCSEs at grades A*-C or A*-G). This specification also includes controls for the secondary school attended.
- All regressions were estimated separately for males and females.
- All specifications were run on a consistent sample to ensure that differences were solely driven by the change in econometric specification;
- The earnings regressions were estimated using Ordinary Least Squares (OLS), while the employment and benefits regressions were estimated using a fractional logit GLM (Generalised linear model) as the dependent variable is expressed as a proportion varying from zero to one¹⁴;

Table 4 provides the description of the variables included in the different specifications (baseline, augmented and augmented plus).

¹² This was measured as the time elapsed since the highest qualification aim was achieved or the highest qualification aim was completed without achievement (the later of the two).

¹³ 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 a separate category.

¹⁴ The GLM model was estimated using the logit link function (that is, the logit transformation of the response variable) and the binomial distribution. For more information on fractional response see “Stata Tip 63: Modelling Proportions” Kit Baum, The Stata Journal, Volume 8 Number 2: pp. 299-303 and <http://www.stata.com/support/faqs/statistics/logit-transformation/>.

5. Findings

Descriptive statistics

In Table 6 we present the average values for Key Stage 2 test scores and number of GCSEs by highest qualification and gender. As expected, these measures are, on average, higher for academic qualifications compared to vocational qualifications at the same level, and decline as we move to lower level qualifications.

Table 7 shows descriptive statistics for labour market outcomes at the age of 26 by highest qualification and gender: median and average annual earnings; the proportion of the year spent in employment; and the proportion of the year in receipt of active labour market benefits. The **median** annual income at age 26 was estimated to be around £19,300 for males and £17,600 for females, while **mean** annual income was estimated to be £21,100 and £16,500 respectively. The overall proportion of the year spent in employment was estimated to be 68%-69% for both males and females¹⁵, while the proportion spent in receipt of active labour market benefits was estimated to be around 9% and 13% respectively. As expected there are relatively poorer labour market outcomes as we move down the qualification spectrum.

Econometric findings

The econometric findings (earnings differentials, employment and benefits effects) are presented in Tables 8 to 13 across the three different specifications and using the counterfactual groups defined in Table 3. Results are presented separately for men and women and tables are split in two for readability purposes. Each table contains the estimated coefficients (or marginal effect) for each highest qualification (from Level 4 to Entry Level) and the sample sizes used in the regression, split by highest qualification (treatment group) and counterfactual groups. It is important to note that the relationship between qualifications and earnings will capture both wages and hours. Hence these estimates are not directly comparable to studies that have analysed this issue using the Labour Force Survey (where hourly earnings is the dependent variable).

Earnings

Tables 8 and 9 show the estimated coefficients for earnings differentials (dependent variable expressed as daily earnings). Below, we discuss the results¹⁶, though predominantly referring to the first counterfactual, however, we also highlight any relevant differences when considering the second counterfactual. In general, and as expected, the coefficients decline in magnitude as additional control variables are added to the model, in particular when moving from the baseline specification to the specification controlling for pupil characteristics and Key Stage 2 test scores. The difference between the second and third specification (including also academic qualifications and establishment controls) is typically small (with some exceptions, particularly for qualifications below Level 2). When interpreting the findings for earnings, it should be noted that we report the (percentage) differential compared with the counterfactual group. Large differentials may also reflect a low level of earnings for the counterfactual group.

¹⁵ Note that the denominator includes all days in the year (rather than all working days).

¹⁶ The tables report the raw coefficients, while in the text we refer to the percentage effect (computed as $\exp(\beta)-1$).

This is especially the case for women in possession of below Level 2 qualifications (see Table 7). It is likely that a proportion of this group are working part-time.

Level 4 and Level 3

The analysis indicates that the results for Level 4 and Level 3 qualifications are generally positive and particularly large for Level 4 qualifications, Advanced Apprenticeships and NVQs at Level 3. For men, earnings differentials associated with possession of Level 4 vocational qualifications declines from 42% in the baseline specification to 36%-37% in the augmented specifications, while the differential for Advanced Apprenticeships drops from 50% to 40% between specifications. When individuals holding Intermediate Apprenticeships as their highest qualification are used as the counterfactual for Advanced Apprenticeships, earnings differentials are still high; 30% in the baseline regression, falling to 25% in the augmented specifications. Earnings differentials are also positive and significant for the other vocational qualifications at Level 3: the association between possession of a NVQ Level 3 and earnings moves from 23% to 17%-19% across specifications, while for other (full and non-full) vocational qualifications at Level 3 is around 7% in the augmented specifications (declining from 10%-13% in the baseline specification). The only exception is the estimated differential for BTECs at Level 3, which falls from 8% in the baseline specification to just 2% in the augmented specification - and to zero in the specification also controlling for academic qualifications¹⁷.

As a comparison, the impact of adding Key Stage 2 test scores is (unsurprisingly) stronger when looking at academic qualifications at Level 3 compared to any qualification at Level 2, with the earnings differential dropping from 21% to 11% and 12% to 5% for 2+ 'A' levels and 1 single 'A' level respectively. Comparing 2+ 'A' levels with 5 GCSEs at grades A*-C yields an earnings differential of around 8% (which is stable across specifications), while there is no significant earnings differentials for men in possession of 1 single 'A' level.

For women, earnings differentials are all large and significant, standing at around 26% for Level 4 qualifications (in the augmented specification); 21% for Advanced Apprenticeships (16% compared to Intermediate Apprenticeships); 17% for BTECs at Level 3 and 11%-12% for NVQs at Level 3, and other vocational qualifications at Level 3. The earnings differential is also very large for women in possession of 2+ 'A' levels as highest qualification earning 31% more than women in possession of any Level 2 qualification and 20% more than women in possession of 5 GCSEs A*-C.

Level 2

Earnings differentials for men in possession of highest qualifications in the Level 2 range are typically positive, even when including the additional control variables: specifically, estimated differentials fall from 27% to 22% for Intermediate Apprenticeships; 16% for men in possession of NVQ Level 2 (only declining slightly across specifications); and 9% for men holding "other" Full Level 2 vocational qualifications. Earnings differentials for the other Level

¹⁷ A potential explanation for the low earnings differentials observed for BTECs is that many learners with BTECs at Level 3 and 2 progress to higher levels of education, thus leaving those relatively less able or motivated with BTECs as their highest qualification. Focusing on males, 41% of individuals with BTEC 3 go on to gain degree level qualifications (or higher), compared with 11% for NVQ at Level 3. Looking at Level 2 qualifications, 17% of males with a BTEC Level 2 go on to achieve at least degree level qualifications, compared with 9% for NVQ at Level 2. This suggests that BTEC qualifications are more likely to serve as a stepping stone for further study compared with more vocationally oriented qualifications such as NVQs.

2 vocational qualifications are around 3% (GNVQ) or zero (BTEC and non-full vocational qualifications) when compared with any qualification at Level 1. The differentials are generally larger (by 3-4 percentage points) when the counterfactual is restricted only to those having a vocational qualification at Level 1 (excluding men with 5 GCSEs A*-G as their highest qualification). Looking at academic qualifications at Level 2, the differential for men in possession of 5 GCSEs A*-C is around 13%-14% (similar across the two counterfactual groups), declining from 19%-23% in the baseline specification.

For women in possession of Level 2 qualifications as their highest qualification, earnings differentials range between 9% and 13% in the augmented specifications for all vocational qualifications, with the exception of other (full and non-full) qualifications (which stand at 4%-7%); however, when using the second counterfactual (vocational qualifications only at Level 1), the estimated differentials are 5-6 percentage points larger. Finally, the earnings differentials for 5 GCSEs A*-C are around 25% in the augmented specifications (and are similar across all counterfactuals).

Below Level 2

For men in possession of Level 1 vocational qualifications as their highest qualification, earnings differentials in the augmented specification are around 10% for NVQ Level 1 and slightly lower for GNVQ (8%) and other vocational qualifications at Level 1 (6%), while there is no significant earnings differential associated with BTECs at Level 1 (although sample sizes are relatively small). The differentials become very small and not statistically significant once we also control for 5 GCSEs A*-G, as the majority of men with vocational qualifications at Level 1 also hold academic qualifications at Level 1 (see Table 6). All earnings differentials are larger when considering only those with Entry-level qualifications as the relevant counterfactual (excluding those with no formally recognised qualifications). The estimated differentials for individuals with a Level 1 academic qualification as their highest (5 GCSEs A*-G) are around 13%-14% in the augmented specifications. Finally, Entry-level qualifications illustrate negative earnings differentials compared with individuals with no formally recognised qualifications (however, this becomes smaller in absolute magnitude across specifications).

Earnings differentials for women holding Level 1 vocational qualifications as their highest qualification are positive and stand at between 9%-13% for NVQs, BTECs and other vocational qualifications at Level 1, while the differential is larger (20%) for GNVQs at Level 1 (all estimates referring to the augmented specification). As with men, the differentials become smaller and lose statistical significance when controls for academic qualifications at Level 1 are added, as most individuals also hold 5 GCSEs A*-G. Also, sample sizes are relatively small for GNVQs and BTECs at Level 1. For females holding 5 GCSEs A*-G as their highest qualification, the earnings differential is around 23% in the augmented specification.

Further robustness checks for earnings

In Tables 14 to 16, we present the results of two further robustness check undertaken for the earnings regressions:

- All earnings regressions for vocational qualifications were undertaken after excluding those also in possession of academic qualifications at the same level (corresponding to ranking academic qualifications above vocational qualifications).

- We then repeated the analysis using the augmented specification keeping all individuals achieving their highest qualification by the age of 24 (instead of 22). This definition covers 97% of learners with Level 4 vocational or below.
- In Table 16 we present the results from the earnings regressions undertaken when removing pupils in independent schools at Key Stage 4; controlling for Key Stage 2 test scores linearly; and entering the GCSEs points score (instead of a binary variable identifying 5 GCSEs).
- In Table 17 we focus on the older cohorts only (pupils undertaking Key Stage 4 in 2001/02) and present results for pupils in this cohort at the age of 26 and the age of 28.
- Finally, in Table 18 we present the results from an aggregate regression including all learners and having individuals with no formal qualifications as the baseline category.

Findings from these additional regressions are presented in Table 14 to Table 17, together with the original earnings coefficients (presented in Tables 8 and 9). In many cases, results are highly consistent with the original results. However, earnings differentials for lower-level qualifications (below Level 2) are sensitive to including the GCSE points score (Table 16). There are also some differences when looking at the 2001/02 cohort only. We plan to explore in greater detail the trends in wage differentials by age (i.e. whether returns to qualifications tend to become smaller, larger or stay constant over time) and cohort (whether there is any significant difference in returns for different cohorts).

Employment

Tables 10 and 11 show how employment (in terms of proportion of the year in employment) is associated with holding a specific qualification as the highest qualification. As with earnings, results are presented separately for males and females, across three different specifications and two counterfactual groups.

Level 4 and Level 3

The employment differentials for men in possession of Level 4 and Level 3 vocational qualifications are strong and significant. Although they decline slightly across specifications (as more control variables are introduced), they range between 6-9 percentage points for Level 4 vocational qualifications, Advanced Apprenticeships, NVQs at Level 3 and BTECs at Level 3, although slightly lower (around 4 percentage points) for other vocational qualifications. Equivalent estimates for 2+ 'A' levels are around 9 percentage points compared to any Level 2 qualification and 7 percentage points compared to 5 or more GCSEs at grades A*-C.

Estimated employment differentials for women are even higher, ranging from 7 to 12 percentage points across most vocational qualifications, and are particularly high for Advanced apprenticeships, BTECs and other full vocational qualifications at Level 3 (although they are slightly lower for non-full vocational qualifications at Level 3). Employment differentials for women in possession of 2+ 'A' levels are between 8 and 12 percentage points (compared to possession of 5 or more GCSEs at grades A*-C and any Level 2 qualification) respectively.

Level 2 and below

For men in possession of Full-Level 2 qualifications, the estimated association between qualifications and employment are positive and range between 6 and 9 percentage points (and are particularly high for BTECs and GNVQs at Level 2), while they are around 6 percentage

points for men in possession of five good GCSEs. Employment differentials for women in possession of Full-Level 2 vocational qualifications are even higher, around or in excess of 10 percentage points. Estimates for 5 GCSEs A*-C are also around 10 percentage points.

Employment differentials for both men and women in possession of Level 1 vocational qualifications are large and positive, ranging from 9 to 14 percentage points. The differentials decline when controlling for 5 GCSEs A*-G but mostly remain significant and in excess of 7 percentage points. Estimated employment differentials for individuals in possession of Level 1 academic (5 GCSEs A*-G) are also around 13-14 percentage points, while there is no significant employment differential for Entry-level qualifications.

Benefits dependency

Tables 12 and 13 report the association between qualifications and benefits dependency (expressed as the proportion of the year in receipt of active labour market benefits). A negative sign of the marginal effects reflects a lower proportion of the year spent in receipt of benefits and all results are reported as a decreased probability of relying on active labour market benefits (unless otherwise stated). The findings for benefits dependency typically mirror those presented for employment, although they are not precisely opposite as some labour market benefits can be received by individuals in part-time employment (e.g. JSA allows people to work up to 16 hours a week), some individuals out of employment may not claim benefits and HMRC and DWP records may differ to some extent:

- Both men and women in possession of Level 4 vocational qualifications spend a 3-4 percentage point lower proportion of the year on benefits compared to individuals with Level 3 qualifications as their highest.
- The association between Level 3 qualifications and a reduced rate of benefit dependency stands at between 4 and 8 percentage points for men in possession of Full-Level 3 qualifications (including 2+ A levels), and between 10 and 13 percentage points for women with Full-Level 3 qualifications as their highest.
- Men in possession of NVQ Level 2, Intermediate Apprenticeships and “other” full vocational qualifications at Level 2 have an estimated lower rate of benefit dependency of between 6 and 10 percentage points, while the benefit dependency differential associated with possession of BTEC and GNVQ Level 2 stands at about 2-3 percentage points. Men in possession of 5 GCSEs A*-C are estimated to be around 5-6 percentage points less likely to depend on benefits.
- For women in possession of Level 2 qualifications, the association with (reduced) benefits dependency was even stronger: the estimated differentials are in excess of 10 percentage points for Intermediate Apprenticeships, NVQ at Level 2 and other Full-Level 2 vocational qualifications, and slightly lower (7-9 percentage points) for BTEC and GNVQ. The association between possession of 5 or more GCSEs at grades A*-C and (reduced) benefit dependency was estimated to be approximately 14 percentage points.
- Finally, the association between holding vocational qualifications at Level 1 and (reduced) benefit dependency are surprisingly strong, especially for women (between 10 and 13 percentage points), but also for men (around 9-10 percentage points for NVQs and GNVQs and between 4-6 percentage points for BTECs and other vocational

qualifications at Level 1). As with all other measures, controlling for 5 GCSEs A*-G has a significant effect on the estimates, as the majority of learners with Level 1 vocational qualifications also hold 5 GCSEs at grades A*-G. Estimates for Level 1 academic (and no vocational qualifications) are around 18 and 11 percentage points for women and men respectively. Estimates also suggest that individuals in possession of Entry-level qualifications experience an increase in the proportion of the year spent in receipt of labour market benefits.

Allowing different effects at the limit values of the employment and benefits distribution

Some points of the employment and benefits dependency distribution have a high mass of individuals, while other points are very sparsely populated. In particular there are high mass points at 1 for employment (for workers who are continuously employed throughout the year) and 0 for benefits (for workers who are never in receipt of benefits). Conversely, some individuals are never in employment during the tax year (0) or are continuously in receipt of labour market benefits (1).

In fact, as shown in Table 19, the proportion of individuals always in employment at the age of 26 ranges from 65% (for those with Level 4 qualifications) to 21% (for females with no formal qualifications), while the proportion never in employment ranges from 15% to 58%. Conversely, the proportion never in receipt of benefits range from 95% (for those with Level 4 and Advanced Apprenticeships) to 29% (females with Entry Level qualifications) and the proportion continuously receiving labour market benefits during the tax year ranges from 0%-1% to 44%.

While the fractional logit model correctly handles values of the dependent variables ranging from 0 to 1, it does not allow for an alternative model of behaviour when most observations are clustered at 0 and/or 1. Therefore we have also used a zero-and-one inflated beta model, which allows for the estimation of the probabilities of having the limit values as separate processes¹⁸.

Results are reported in Table 20 and 21 and show that the effects are typically strong throughout, but particularly large for continuous employment (i.e. individuals with higher level qualifications have a higher probability of being in continuous employment throughout the year), for those never in receipt of benefits and, especially for women, for those continuously receiving labour market benefits (with higher level qualifications associated with a lower probability of being in this category)¹⁹.

Remarks on individuals in possession of Level 1 vocational qualification aims

Special attention is needed when trying to identify a suitable counterfactual for the group of learners in possession of Level 1 vocational qualifications, as this group shows peculiar characteristics:

¹⁸ We used the *zoib* Stata module developed by Buis. See Buis, M., (2012), "ZOIB: Stata module to fit a zero-one inflated beta distribution by maximum likelihood", <http://EconPapers.repec.org/RePEc:boc:bocode:s457156>.

¹⁹ Table 20 and 21 report marginal effects computed after the *zoib* estimation and, as in the previous employment and benefits estimates, represent the percentage point differential associated with holding a vocational qualification compared to the counterfactual.

- As shown in Table 6, around two thirds of learners in possession of Level 1 vocational qualifications as their highest level of qualification also have 5 GCSEs at grades A*-G;
- After removing those with 5 GCSEs A*-G, we are left with a group having a lower level of Key Stage 2 test scores (around 30% lower on average) and a significantly higher incidence of learners with Special Educational Needs compared with the group holding vocational qualifications at Level 1 and 5 GCSEs A*-G (68% vs. 32%).
- As a result, comparing all individuals in possession of Level 1 vocational qualifications as their highest qualification with the group with no formal qualifications is likely to overstate differentials associated with these qualifications (as many learners also have 5 GCSEs A*-G), while if we restrict the attention to learners without GCSEs we would be left with a smaller group with a much higher incidence of pupils with SEN.
- In a separate CVER discussion paper (*forthcoming*), we are investigating the suitability of alternative counterfactuals for the group of learners with Level 1 vocational qualifications, also looking at the group of learners enrolling in comparable qualifications but failing to achieve and using matching techniques to refine the counterfactual group.

6. Conclusions and final remarks

On account of the comprehensive data available in the Longitudinal Education Outcomes (LEO), it was possible to undertake a more comprehensive assessment of the association between vocational qualification attainment and labour market outcomes. LEO brings together educational data from school, further education and higher education, further linked to HMRC earnings and employment records and DWP benefits data. In this study we looked at the effect of possession of vocational qualifications at Level 4 or below (as an individual's highest qualification) on three different labour market outcomes: daily earnings, the proportion of the year in employment and the proportion of the year in receipt of active labour market benefits. The cohorts of students included in this analysis consisted of those engaged in Key Stage 4 learning between 2001/02 and 2003/04, and we assessed their labour market outcomes at the age of 26 (tax years 2012/13 to 2014/15).

The findings from the analysis suggest that earnings differentials are mainly positive and are especially strong for Level 4 vocational qualifications; Advanced and Intermediate apprenticeships; and NVQs at Level 3 and Level 2. It must be borne in mind these differentials reflect hours of work as well as wages. Thus, people with higher qualifications might choose to work for longer hours and this would be captured in the estimates (although this effect would be partially taken into account as we look at daily earnings). Results were robust across different counterfactuals and the inclusion of additional control variables (for instance, early test scores). The main exception were the differentials observed for young men in possession of BTEC qualifications, where earnings differentials fell to zero as additional control variables

were incorporated. Differentials for Level 1 vocational qualifications (compared to individuals with Entry Level or no formally recognised qualifications) were also positive; however, the majority of these learners also held 5 GCSEs at grade A*-G, and the estimated effects become smaller and statistically insignificant once academic achievement was controlled for.

The results also showed strong and positive employment differentials and a lower proportion of the year spent in receipt of active labour market benefits for the different vocational qualifications (at all levels, with the exception of Entry Level qualifications). The results for employment are less sensitive to the inclusion of additional controls than for earnings.

However, two factors should be considered when interpreting the findings and comparing them with evidence from previous studies:

- the group of students analysed in this research are much younger than the typical samples used in survey/cohort analysis;
- in this study, we have used learners with qualifications at the level of qualification immediately below as counterfactual (*any* qualification or *vocational* qualifications only), while earlier research using the ILR matched with HMRC and DWP data has generally considered 'non-achievers' as a counterfactual group;

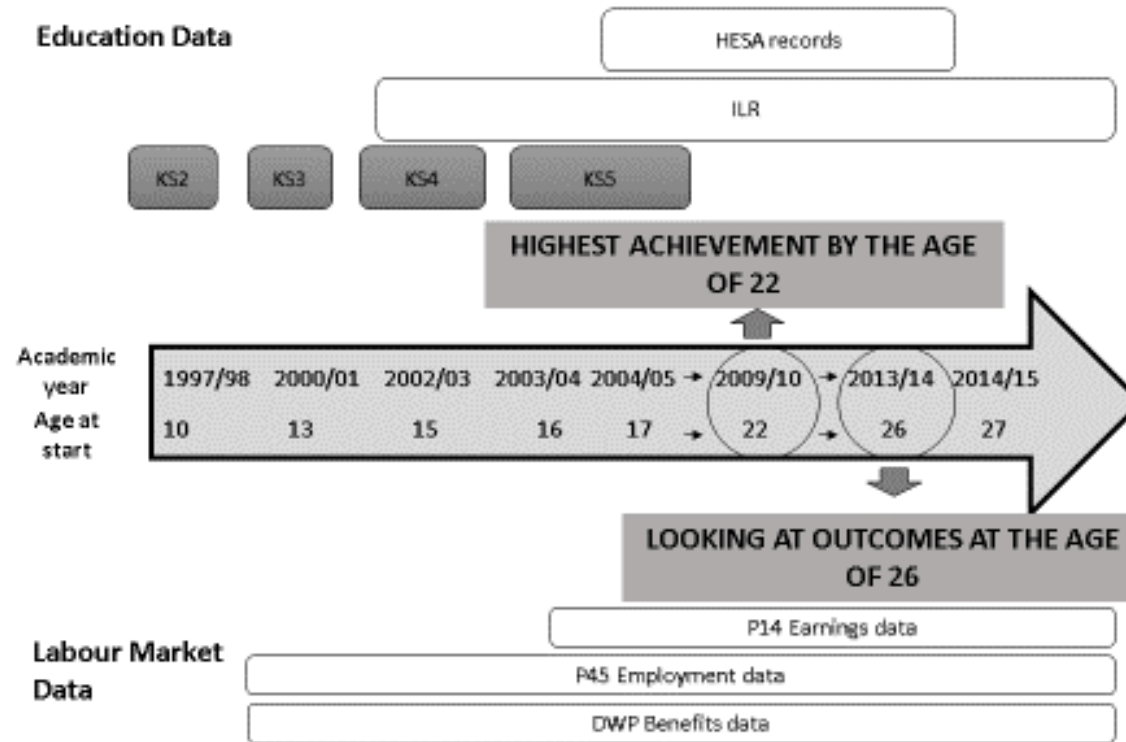
In a joint research paper with the University of Sheffield (*forthcoming*) the traditional LFS approach and the approach used in this study with administrative data sources will be made as consistent as possible to understand whether differences in estimated differentials (e.g. LFS analyses typically failed to observe any positive effect for NVQs at Level 2) are driven by the data source or by the specification used and the age group analysed.

Further analysis is also under way that is examining a variety of possible counterfactuals for each vocational qualification (i.e. learners holding qualifications at the RQF level immediately below, but also learners enrolling in qualification aims at the same level but failing to complete, or completing the qualification but failing to achieve). This research will explore the characteristics and suitability of different possible counterfactual groups in order to ascertain the extent to which it is possible to attribute alternative labour market outcomes to different forms of vocational education and training, rather than to the individual in possession of particular vocational qualifications.

References

- Bibby, D, Buscha, F., Cerqua, A., Thomson, D. and Urwin, P. (2014). Estimation of the labour market returns to qualifications gained in English Further Education. BIS Research Paper No. 195.
- Blundell, R., Dearden, L., and Sianesi, B. (2005). Evaluating the impact of education on earnings: Models, methods and results from the NCDS, *Journal of the Royal Statistical Society Series A*, 168(3): 473-512.
- Conlon, G. and Patrignani, P. (2011). The Long Term Effect of Vocational Qualifications on Labour Market Outcomes. BIS Research Paper No. 47.
- Conlon, G., Patrignani, P. and Chapman, J. (2011), Returns to Intermediate and Low Level Vocational Qualifications, BIS Research Paper No. 53.
- Conlon, G. and Patrignani, P. (2013). A disaggregated analysis of the long-run impact of vocational qualifications. BIS Research Paper No. 106.
- Dearden, L., McIntosh, S., Mychk, M. and Vignoles, A. (2002). The returns to academic and vocational qualifications in the UK, *Bulletin of Economic Research*, 54(3): 249-274.
- Dearden, L., McGranahan, L., and Sianesi, B. (2004). An in-depth analysis of the returns to National Vocational Qualifications obtained at Level 2. CEE Discussion Paper No.46
- Jenkins, A., Greenwood, C. and Vignoles, A. (2007) The Returns to Qualifications in England: Updating the Evidence Base on Level 2 and Level 3 Vocational Qualifications. Centre for the Economics of Education Discussion Paper 89
- McIntosh, S. (2006). Further Analysis of the Returns to Academic and Vocational Qualifications. *Oxford Bulletin of Economics and Statistics*. 68(2): 0305-9049.
- McIntosh, S. (2007). A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications. Research Report RR834. Department for Education and Skills.
- McIntosh, S. (2010). The Economic Value of Intermediate Vocational Education and Qualifications. UKCES Evidence Report 11.
- McIntosh, S. and Morris, D. (2016). Labour Market Returns to Vocational Qualifications in the Labour Force Survey. CVER Research Discussion Paper 002.
- Papke, L.E. and Wooldridge, J.M. (1996). Econometric Methods for Fractional Response Variables with an Application to 401(k) Plan Participation Rates. *Journal of Applied Econometrics* 11(6): 619-632.

Figure 1: Timeline for the 2002/03 Key Stage 4 cohort



Note: Provided relative to the 2002/03 KS4 cohort only for illustration purposes

Table 1: Classification of highest qualifications used

Level of RQF	Highest Qualification	Examples
<i>Level 7/8</i>	Postgraduate education	PhD, Masters, PGCE
<i>Level 5/6</i>	First and foundation degrees, other Higher education, professional qualifications at level 5	BA, BSc, Foundation degrees, Teaching and Nursing qualifications
<i>Level 4</i>	Level 4 vocational (including Higher Apprenticeships)	NVQ at Level 4 and 5, HNC/HND, Higher Apprenticeships
<i>L3 Apprenticeships</i>	Advanced Apprenticeship	
<i>Full Level 3</i>	NVQ Level 3	NVQ diplomas at Level 3
<i>Full Level 3</i>	BTEC Level 3	BTEC Level 3 Certificates and Diplomas
<i>Full Level 3</i>	Other full Level 3 vocational	Certificates and Diplomas at Level 3
<i>Full Level 3</i>	GCE A/AS/A2 level(Full Level 3 achieved)	At least 2 A-levels or 4 AS-levels (including Vocational A-Levels)
<i>L3 other</i>	Level 3 other vocational qualifications	Awards and certificates at Level 3 (not constituting a full level)
<i>L3 other</i>	1 GCE A level or equivalent	Single A-level or equivalent
<i>L2 Apprenticeships</i>	Intermediate Apprenticeship	
<i>Full Level 2</i>	NVQ Level 2	NVQ diplomas at Level 2
<i>Full Level 2</i>	GNVQ Level 2	Intermediate GNVQ
<i>Full Level 2</i>	BTEC Level 2	BTEC Level 2 Certificates and Diplomas
<i>Full Level 2</i>	Other full Level 2 vocational	Certificates and Diplomas at Level 2
<i>Full Level 2</i>	5 GCSEs A*-C (full Level 2 achieved)	GCSEs, applied GCSEs, short course GCSEs, double award GCSEs
<i>L2 other</i>	Level 2 other vocational	Key skills aims, awards and certificates at Level 2 (not constituting a full level)
<i>Level 1</i>	NVQ Level 1	NVQ qualifications at Level 1
<i>Level 1</i>	GNVQ Level 1	Foundation GNVQ
<i>Level 1</i>	BTEC Level 1	BTEC Level 1 Awards, Certificates and Diplomas
<i>Level 1</i>	Other Level 1 vocational	Key skills aims, award and certificates at Level 1
<i>Level 1</i>	Level 1 academic (5 GCSEs A*-G)	GCSEs, applied GCSEs, short course GCSEs, double award GCSEs
<i>Entry level</i>	Entry/Other Level	Basic Award/Certificate; Entry to Employment; Functional Skills; Key Skills at entry level;
<i>No formal achievement</i>	KS4 record but no formal achievement	Less than 5 GCSEs at grades A*-G

Table 2: Proportion of learners achieving their highest qualification by the age of 22

	Not achieved by the age of 22 (including still enrolled)	Achieved by the age of 22
	%	%
Postgraduate education	70.3%	29.7%
First degree/Other HE/Lev 5 professional qualifications	15.9%	84.1%
Level 4 vocational (including Higher Apprenticeships)	30.0%	70.0%
<i>Level 3 qualifications</i>		
Advanced Apprenticeship	21.9%	78.1%
NVQ Level 3	18.2%	81.8%
BTEC Level 3	2.2%	97.8%
Other full Level 3 vocational	26.2%	73.8%
2+ GCE A levels or equivalent	3.0%	97.0%
Level 3 other vocational	8.2%	91.8%
1 GCE A level or equivalent	0.2%	99.8%
<i>Level 2 qualifications</i>		
Intermediate Apprenticeship	11.4%	88.6%
NVQ Level 2	16.0%	84.0%
GNVQ Level 2	0.0%	100.0%
BTEC Level 2	4.5%	95.5%
Other full Level 2 vocational	32.3%	67.7%
5 GCSEs A*-C	0.2%	99.8%
Level 2 other vocational	11.3%	88.7%
<i>Level 1 and below</i>		
NVQ Level 1	2.2%	97.8%
GNVQ Level 1	0.0%	100.0%
BTEC Level 1	21.4%	78.6%
Other Level 1 vocational	9.4%	90.6%
5 GCSEs A*-G	0.0%	100.0%
Entry/Other Level	5.1%	94.9%
KS4 record but no formal achievement	0.0%	100.0%
Total	14.4%	85.6%

Note: cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04; Source: London Economics based on LEO data. The "Not achieved by the age of 22" column also contains learners still enrolled in the education course at the age of 22

Table 3: Counterfactual groups

Level of RQF	Qualification	Counterfactual 1	Counterfactual 2
<i>Level 4</i>	Level 4 vocational & Higher Apprenticeships	Level 3 (excluding 1 single GCE A Level and L3 Apprenticeships)	Full Level 3 vocational
<i>L3 Apprenticeships</i>	Advanced Apprenticeship	Level 2 (excluding L2 Apprenticeships)	L2 Apprenticeships
<i>Full Level 3</i>	NVQ Level 3	Level 2 (excluding L2 Apprenticeships)	Level 2 vocational
<i>Full Level 3</i>	BTEC Level 3	Level 2 (excluding L2 Apprenticeships)	Level 2 vocational
<i>Full Level 3</i>	Other full Level 3 vocational	Level 2 (excluding L2 Apprenticeships)	Level 2 vocational
<i>Full Level 3</i>	2+ GCE A levels or equivalent	Level 2 (excluding L2 Apprenticeships)	5 GCSEs A*-C
<i>L3 other</i>	Level 3 other vocational qualifications	Level 2 (excluding L2 Apprenticeships)	Level 2 vocational
<i>L3 other</i>	1 GCE A level or equivalent	Level 2 (excluding L2 Apprenticeships)	5 GCSEs A*-C
<i>L2 Apprenticeships</i>	Intermediate Apprenticeship	Level 1 (all)	Level 1 vocational
<i>Full Level 2</i>	NVQ Level 2	Level 1 (all)	Level 1 vocational
<i>Full Level 2</i>	GNVQ Level 2	Level 1 (all)	Level 1 vocational
<i>Full Level 2</i>	BTEC Level 2	Level 1 (all)	Level 1 vocational
<i>Full Level 2</i>	Other full Level 2 vocational	Level 1 (all)	Level 1 vocational
<i>Full Level 2</i>	5 GCSEs A*-C	Level 1 (all)	5 GCSEs A*-G
<i>L2 other</i>	Level 2 other vocational	Level 1 (all)	Level 1 vocational
<i>Level 1</i>	NVQ Level 1	Below Level 1	Entry/other level
<i>Level 1</i>	GNVQ Level 1	Below Level 1	Entry/other level
<i>Level 1</i>	BTEC Level 1	Below Level 1	Entry/other level
<i>Level 1</i>	Other Level 1 vocational	Below Level 1	Entry/other level
<i>Level 1</i>	5 GCSEs A*-G	Below Level 1	KS4 entry but no formal achievement
<i>Entry level</i>	Entry/Other Level	KS4 entry but no formal achievement	na

Table 4: Specifications and control variables

	Baseline	Augmented	Augmented plus
Ethnic origin	x	x	x
Time elapsed since left education	x	x	x
Eligibility for Free School Meals		x	x
Special Education Needs status		x	x
IDACI (area deprivation) score		x	x
Key Stage 2 test scores (Maths and English)		x	x
2+ GCE A levels			x
5 GCSEs A*-C/5GCSEs A*-G			x
Key Stage 4 establishment controls			x
Cohort dummies	x	x	x

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

Table 5: Proportion of learners by highest qualification and gender

	Males	Females
	%	%
Postgraduate education	1.5%	2.9%
First degree/Other HE/Lev 5 professional qualifications	25.1%	33.2%
Level 4 vocational (including Higher Apprenticeships)	1.1%	0.8%
<i>Level 3 qualifications</i>		
Advanced Apprenticeship	6.0%	3.6%
NVQ Level 3	0.8%	3.1%
BTEC Level 3	4.1%	3.6%
Other full Level 3 vocational	0.8%	1.7%
2+ GCE A levels or equivalent	9.5%	10.2%
Level 3 other vocational	2.3%	2.4%
1 GCE A level or equivalent	1.8%	1.7%
<i>Level 2 qualifications</i>		
Intermediate Apprenticeship	6.1%	5.8%
NVQ Level 2	3.7%	3.5%
GNVQ Level 2	0.9%	0.8%
BTEC Level 2	1.0%	0.8%
Other full Level 2 vocational	1.7%	1.1%
5 GCSEs A*-C	4.5%	4.5%
Level 2 other vocational	3.5%	2.4%
<i>Level 1 and below</i>		
NVQ Level 1	0.6%	0.7%
GNVQ Level 1	0.3%	0.2%
BTEC Level 1	0.1%	0.1%
Other Level 1 vocational	4.7%	2.9%
5 GCSEs A*-G	13.3%	9.7%
Entry/Other Level	2.0%	1.2%
KS4 record but no formal achievement	4.7%	3.2%
Total number of individuals	762,785	679,250

Note: Learners achieving by the age of 22 only; cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04

Source: London Economics based on LEO data

Table 6: Characteristics of learners by highest qualification and gender

	Males								Females							
	KS2 English test score (mean)	KS2 Maths test score (mean)	% with 5 GCSEs passes A*-C	Number of GCSEs passes A*-C (mean)	% with 5 GCSEs passes A*-G	Number of GCSEs passes A*-G (mean)	% with SEN	% eligible for FSM	KS2 English test score (mean)	KS2 Maths test score (mean)	% with 5 GCSEs passes A*-C	Number of GCSEs passes A*-C (mean)	% with 5 GCSEs passes A*-G	Number of GCSEs passes A*-G (mean)	% with SEN	% eligible for FSM
Postgraduate education	68.3	73.9	98%	9.4	100%	10.0	4%	4%	71.3	70.3	99%	9.6	100%	10.1	2%	5%
First degree/Other HE/Lev 5 professional qualifications	64.4	69.3	91%	8.5	99%	9.9	6%	6%	67.7	65.5	93%	8.8	99%	10.0	3%	7%
Level 4 vocational (including Higher Apprenticeships)	58.7	63.8	77%	6.6	99%	9.6	8%	6%	62.4	60.4	77%	7.1	99%	9.7	5%	8%
Advanced Apprenticeship	53.3	57.5	45%	4.3	98%	9.0	13%	6%	57.2	53.0	47%	4.6	97%	9.2	8%	10%
NVQ Level 3	49.3	52.5	34%	3.3	94%	8.6	23%	11%	53.8	48.9	36%	3.7	96%	8.9	12%	13%
BTEC Level 3	53.0	56.6	48%	4.5	97%	9.4	16%	12%	56.3	53.5	54%	5.1	98%	9.6	10%	13%
Other full Level 3 vocational	54.6	50.7	52%	4.8	97%	9.2	14%	10%	56.0	48.2	53%	5.0	99%	9.5	9%	12%
2+ GCE A levels or equivalent	62.1	65.4	86%	7.5	99%	9.9	7%	8%	64.8	60.9	86%	7.8	99%	9.9	4%	9%
Level 3 other vocational	50.7	52.5	33%	3.3	93%	8.7	21%	14%	55.4	49.1	41%	4.0	94%	9.0	12%	14%
1 GCE A level or equivalent	58.7	62.6	73%	6.1	99%	9.7	9%	10%	61.9	58.5	74%	6.5	99%	9.7	6%	12%
Intermediate Apprenticeship	48.0	50.0	18%	2.1	91%	8.1	23%	12%	52.6	47.1	23%	2.6	93%	8.4	14%	14%
NVQ Level 2	44.4	45.5	11%	1.4	82%	7.2	33%	18%	48.8	42.8	15%	1.9	88%	7.8	22%	20%
GNVQ Level 2	47.2	44.5	8%	1.6	95%	9.3	25%	21%	49.8	41.2	7%	1.7	94%	9.1	19%	23%
BTEC Level 2	44.0	46.4	5%	1.1	86%	7.8	35%	21%	46.3	42.9	6%	1.3	87%	8.0	27%	25%
Other full Level 2 vocational	45.3	47.3	10%	1.5	88%	7.8	29%	19%	47.4	40.3	8%	1.5	92%	8.3	23%	22%
5 GCSEs A*-C	60.9	64.4	100%	6.9	100%	9.7	7%	10%	64.3	60.3	100%	7.2	100%	9.8	4%	12%
Level 2 other vocational	44.2	44.4	0%	0.8	75%	6.6	37%	23%	48.1	40.8	0%	1.1	79%	7.0	27%	25%
NVQ Level 1	37.7	35.9	0%	0.4	66%	5.6	52%	26%	40.7	33.6	0%	0.5	70%	5.9	42%	30%
GNVQ Level 1	38.7	35.4	0%	0.3	77%	6.5	47%	31%	40.4	31.8	0%	0.3	77%	6.5	40%	36%
BTEC Level 1	32.6	29.8	0%	0.2	53%	4.5	66%	31%	35.8	29.9	0%	0.2	54%	4.9	56%	34%
Other Level 1 vocational	40.1	39.8	0%	0.5	63%	5.5	47%	27%	43.8	36.9	0%	0.7	67%	5.9	36%	30%
5 GCSEs A*-G	46.1	46.0	0%	1.0	100%	7.9	28%	17%	49.6	42.3	0%	1.2	100%	8.1	20%	23%
Entry/Other Level	30.7	28.7	0%	0.0	0%	1.2	77%	35%	33.5	26.1	0%	0.1	0%	1.1	67%	38%
KS4 record but no formal achievement	36.9	36.8	0%	0.1	0%	1.5	63%	30%	42.3	35.7	0%	0.1	0%	1.5	47%	36%
Total	53.2	55.6	47%	4.5	88%	8.3	21%	13%	58.9	54.6	57%	5.6	92%	8.9	12%	14%

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
Source: London Economics based on LEO data

Table 7: Labour market characteristics at the age of 26 by highest qualification and gender

	Males				Females			
	Median annual earnings	Mean annual earnings	Proportion of the year in employment	Proportion of the year on active labour market benefits	Median annual earnings	Mean annual earnings	Proportion of the year in employment	Proportion of the year on active labour market benefits
Postgraduate education	£26,600	£27,800	80%	1%	£24,600	£25,600	84%	1%
First degree/Other HE/Lev 5 professional qualifications	£23,800	£26,000	77%	2%	£22,700	£22,100	80%	2%
Level 4 vocational (including Higher Apprenticeships)	£27,000	£27,500	79%	2%	£19,500	£19,100	79%	3%
Advanced Apprenticeship	£24,900	£25,800	70%	2%	£14,800	£14,500	73%	5%
NVQ Level 3	£20,000	£20,500	71%	4%	£13,500	£13,200	70%	8%
BTEC Level 3	£17,500	£18,500	72%	6%	£14,300	£14,100	72%	9%
Other full Level 3 vocational	£19,200	£20,200	68%	5%	£13,800	£13,600	74%	7%
2+ GCE A levels or equivalent	£20,100	£21,800	73%	4%	£18,200	£17,700	73%	6%
Level 3 other vocational	£18,000	£19,100	68%	8%	£14,200	£13,600	66%	13%
1 GCE A level or equivalent	£19,000	£20,100	72%	5%	£16,200	£15,900	70%	9%
Intermediate Apprenticeship	£18,900	£19,500	66%	6%	£12,400	£11,500	63%	13%
NVQ Level 2	£17,300	£17,800	64%	10%	£11,500	£10,400	60%	20%
GNVQ Level 2	£16,000	£16,200	66%	14%	£12,300	£11,300	59%	22%
BTEC Level 2	£14,600	£14,900	66%	16%	£10,800	£9,800	57%	26%
Other full Level 2 vocational	£16,500	£16,800	64%	10%	£11,200	£10,300	59%	21%
5 GCSEs A*-C	£19,500	£21,800	67%	6%	£15,900	£15,200	66%	11%
Level 2 other vocational	£14,400	£15,400	57%	20%	£10,700	£9,100	51%	31%
NVQ Level 1	£13,700	£13,900	57%	22%	£8,500	£6,900	42%	40%
GNVQ Level 1	£12,800	£13,000	55%	22%	£9,300	£8,000	43%	39%
BTEC Level 1	£9,300	£10,800	56%	35%	£7,900	£6,400	44%	46%
Other Level 1 vocational	£13,400	£14,000	53%	25%	£9,200	£7,200	44%	40%
5 GCSEs A*-G	£16,500	£17,200	61%	12%	£11,200	£9,600	51%	28%
Entry/Other Level	£6,000	£9,700	41%	42%	£6,600	£5,800	31%	60%
KS4 record but no formal achievement	£11,400	£13,400	44%	27%	£7,600	£5,800	32%	50%
Total	£19,300	£21,100	68%	9%	£17,600	£16,500	69%	13%

Note: Learners achieving by the age of 22 only; cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04. Earnings rounded to the nearest 100; Source: London Economics based on LEO data

Table 8a: Earnings Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	0.348*** (0.008)	0.314*** (0.008)	0.309*** (0.008)	0.371*** (0.009)	0.324*** (0.009)	0.313*** (0.010)
<i>Level 3</i>						
Advanced Apprenticeship	0.403*** (0.004)	0.338*** (0.005)	0.329*** (0.005)	0.261*** (0.005)	0.226*** (0.005)	0.215*** (0.005)
NVQ Level 3	0.209*** (0.009)	0.173*** (0.008)	0.155*** (0.010)	0.224*** (0.009)	0.179*** (0.009)	0.150*** (0.010)
BTEC Level 3	0.073*** (0.005)	0.021*** (0.005)	0.002 (0.005)	0.092*** (0.005)	0.029*** (0.005)	-0.002 (0.006)
Other full Level 3 vocational	0.120*** (0.010)	0.067*** (0.010)	0.061*** (0.010)	0.145*** (0.010)	0.081*** (0.010)	0.054*** (0.011)
2+ GCE A levels or equivalent	0.192*** (0.004)	0.106*** (0.004)	0.063*** (0.005)	0.084*** (0.007)	0.074*** (0.007)	0.074*** (0.007)
Level 3 other vocational	0.098*** (0.006)	0.072*** (0.006)	0.064*** (0.006)	0.129*** (0.006)	0.087*** (0.006)	0.062*** (0.007)
1 GCE A level or equivalent	0.109*** (0.006)	0.053*** (0.006)	0.025*** (0.007)	0.005 (0.008)	0.013 (0.009)	0.010 (0.009)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	6,108		90,090	29,548		
Advanced Apprenticeship	31,134		74,261	30,233		
NVQ Level 3	4,241		74,261	51,865		
BTEC Level 3	21,545		74,261	51,865		
Other full Level 3 vocational	3,762		74,261	51,865		
2+ GCE A levels or equivalent	49,081		74,261	22,396		
Level 3 other vocational	11,461		74,261	51,865		
1 GCE A level or equivalent	9,717		74,261	22,396		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 8b: Earnings Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	0.242*** (0.005)	0.202*** (0.005)	0.197*** (0.005)	0.312*** (0.006)	0.245*** (0.006)	0.236*** (0.006)
NVQ Level 2	0.157*** (0.006)	0.147*** (0.006)	0.142*** (0.006)	0.223*** (0.007)	0.183*** (0.007)	0.176*** (0.007)
GNVQ Level 2	0.057*** (0.009)	0.034*** (0.009)	0.034*** (0.010)	0.115*** (0.010)	0.058*** (0.010)	0.047*** (0.011)
BTEC Level 2	0.002 (0.009)	-0.006 (0.009)	-0.011 (0.009)	0.068*** (0.010)	0.027*** (0.010)	0.017 (0.011)
Other full Level 2 vocational	0.109*** (0.007)	0.090*** (0.007)	0.082*** (0.007)	0.177*** (0.008)	0.125*** (0.008)	0.113*** (0.009)
5 GCSEs A*-C	0.208*** (0.004)	0.134*** (0.005)	0.133*** (0.005)	0.174*** (0.005)	0.124*** (0.005)	0.126*** (0.006)
Level 2 other vocational	-0.001 (0.006)	-0.003 (0.006)	0.008 (0.006)	0.067*** (0.007)	0.032*** (0.007)	0.027*** (0.007)
<i>Below Level 2</i>						
NVQ Level 1	0.120*** (0.014)	0.087*** (0.014)	0.040 (0.029)	0.184*** (0.016)	0.117*** (0.017)	0.089** (0.035)
GNVQ Level 1	0.091*** (0.019)	0.051*** (0.019)	0.009 (0.050)	0.142*** (0.020)	0.073*** (0.021)	0.055 (0.065)
BTEC Level 1	-0.009 (0.033)	-0.006 (0.033)	-0.011 (0.062)	0.047 (0.035)	0.034 (0.035)	0.090 (0.084)
Other Level 1 vocational	0.126*** (0.008)	0.070*** (0.008)	-0.010 (0.012)	0.183*** (0.011)	0.085*** (0.011)	0.017 (0.014)
5 GCSEs A*-G	0.218*** (0.005)	0.128*** (0.006)	0.124*** (0.006)	0.187*** (0.006)	0.114*** (0.006)	0.111*** (0.007)
Entry/Other Level	-0.107*** (0.012)	-0.058*** (0.012)	-0.043*** (0.014)			
Observations	Highest qualification	Counterfactual 1		Counterfactual 2		
Intermediate Apprenticeship	30,233	87,879		23,776		
NVQ Level 2	17,903	87,879		23,776		
GNVQ Level 2	4,532	87,879		23,776		
BTEC Level 2	5,043	87,879		23,776		
Other full Level 2 vocational	8,491	87,879		23,776		
5 GCSEs A*-C	22,396	87,879		64,103		
Level 2 other vocational	15,896	87,879		23,776		
NVQ Level 1	2,681	21,547		5,719		
GNVQ Level 1	1,317	21,547		5,719		
BTEC Level 1	433	21,547		5,719		
Other Level 1 vocational	19,345	21,547		5,719		
5 GCSEs A*-G	64,103	21,547		15,828		
Entry/Other Level	5,719	15,828		na		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 9a: Earnings Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	0.288*** (0.010)	0.229*** (0.010)	0.232*** (0.010)	0.361*** (0.011)	0.286*** (0.011)	0.256*** (0.011)
<i>Level 3</i>						
Advanced Apprenticeship	0.256*** (0.007)	0.187*** (0.007)	0.165*** (0.008)	0.201*** (0.007)	0.151*** (0.007)	0.121*** (0.008)
NVQ Level 3	0.140*** (0.007)	0.106*** (0.007)	0.089*** (0.007)	0.185*** (0.007)	0.131*** (0.007)	0.093*** (0.008)
BTEC Level 3	0.216*** (0.006)	0.158*** (0.006)	0.128*** (0.007)	0.261*** (0.007)	0.190*** (0.007)	0.145*** (0.008)
Other full Level 3 vocational	0.150*** (0.008)	0.105*** (0.008)	0.070*** (0.009)	0.200*** (0.008)	0.138*** (0.008)	0.088*** (0.010)
2+ GCE A levels or equivalent	0.397*** (0.005)	0.273*** (0.005)	0.208*** (0.006)	0.206*** (0.008)	0.184*** (0.008)	0.181*** (0.008)
Level 3 other vocational	0.147*** (0.007)	0.111*** (0.007)	0.100*** (0.008)	0.213*** (0.008)	0.150*** (0.008)	0.103*** (0.009)
1 GCE A level or equivalent	0.233*** (0.008)	0.155*** (0.008)	0.117*** (0.009)	0.066*** (0.010)	0.004 (0.010)	0.012 (0.011)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	3,934		95,247	38,054		
Advanced Apprenticeship	16,357		51,806	24,400		
NVQ Level 3	13,882		51,806	32,420		
BTEC Level 3	16,335		51,806	32,420		
Other full Level 3 vocational	7,837		51,806	32,420		
2+ GCE A levels or equivalent	46,793		51,806	19,386		
Level 3 other vocational	10,400		51,806	32,420		
1 GCE A level or equivalent	7,527		51,806	19,386		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 9b: Earnings Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	0.165*** (0.007)	0.112*** (0.007)	0.100*** (0.008)	0.248*** (0.009)	0.173*** (0.009)	0.147*** (0.010)
NVQ Level 2	0.100*** (0.008)	0.085*** (0.008)	0.073*** (0.008)	0.184*** (0.010)	0.142*** (0.010)	0.118*** (0.011)
GNVQ Level 2	0.139*** (0.013)	0.123*** (0.013)	0.118*** (0.014)	0.214*** (0.014)	0.170*** (0.014)	0.145*** (0.018)
BTEC Level 2	0.088*** (0.013)	0.093*** (0.013)	0.102*** (0.014)	0.186*** (0.015)	0.162*** (0.015)	0.151*** (0.018)
Other full Level 2 vocational	0.062*** (0.011)	0.065*** (0.011)	0.056*** (0.012)	0.144*** (0.013)	0.117*** (0.013)	0.100*** (0.015)
5 GCSEs A*-C	0.360*** (0.006)	0.220*** (0.007)	0.218*** (0.007)	0.329*** (0.006)	0.204*** (0.007)	0.207*** (0.008)
Level 2 other vocational	0.040*** (0.009)	0.036*** (0.009)	0.049*** (0.009)	0.122*** (0.011)	0.088*** (0.010)	0.068*** (0.012)
<i>Below Level 2</i>						
NVQ Level 1	0.093*** (0.021)	0.093*** (0.021)	0.023 (0.048)	0.104*** (0.025)	0.092*** (0.026)	-0.006 (0.074)
GNVQ Level 1	0.172*** (0.028)	0.185*** (0.028)	0.053 (0.078)	0.187*** (0.033)	0.186*** (0.034)	-0.032 (0.146)
BTEC Level 1	0.053 (0.041)	0.081* (0.042)	-0.017 (0.073)	0.065 (0.045)	0.082* (0.046)	-0.017 (0.075)
Other Level 1 vocational	0.161*** (0.014)	0.121*** (0.014)	0.006 (0.024)	0.177*** (0.020)	0.108*** (0.020)	-0.003 (0.031)
5 GCSEs A*-G	0.276*** (0.009)	0.205*** (0.010)	0.203*** (0.010)	0.265*** (0.010)	0.203*** (0.011)	0.205*** (0.011)
Entry/Other Level	-0.039* (0.022)	-0.008 (0.022)	-0.010 (0.030)			
<i>Observations</i>	Highest qualification	Counterfactual 1		Counterfactual 2		
Intermediate Apprenticeship	24,400	45,093		10,692		
NVQ Level 2	13,922	45,093		10,692		
GNVQ Level 2	3,125	45,093		10,692		
BTEC Level 2	3,008	45,093		10,692		
Other full Level 2 vocational	4,455	45,093		10,692		
5 GCSEs A*-C	19,386	45,093		34,401		
Level 2 other vocational	7,910	45,093		10,692		
NVQ Level 1	1,799	8,151		1,803		
GNVQ Level 1	704	8,151		1,803		
BTEC Level 1	301	8,151		1,803		
Other Level 1 vocational	7,888	8,151		1,803		
5 GCSEs A*-G	34,401	8,151		6,348		
Entry/Other Level	1,803	6,348		na		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 10a: Employment Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	0.082*** (0.005)	0.078*** (0.005)	0.078*** (0.005)	0.076*** (0.005)	0.072*** (0.005)	0.067*** (0.006)
<i>Level 3</i>						
Advanced Apprenticeship	0.079*** (0.003)	0.066*** (0.003)	0.053*** (0.003)	0.040*** (0.003)	0.040*** (0.003)	0.029*** (0.004)
NVQ Level 3	0.087*** (0.006)	0.079*** (0.006)	0.069*** (0.006)	0.094*** (0.006)	0.084*** (0.006)	0.070*** (0.007)
BTEC Level 3	0.098*** (0.003)	0.090*** (0.003)	0.083*** (0.003)	0.104*** (0.003)	0.096*** (0.003)	0.088*** (0.004)
Other full Level 3 vocational	0.049*** (0.006)	0.038*** (0.006)	0.030*** (0.007)	0.056*** (0.006)	0.045*** (0.007)	0.026*** (0.007)
2+ GCE A levels or equivalent	0.097*** (0.002)	0.091*** (0.003)	0.080*** (0.003)	0.063*** (0.004)	0.066*** (0.004)	0.066*** (0.004)
Level 3 other vocational	0.051*** (0.004)	0.045*** (0.004)	0.043*** (0.004)	0.058*** (0.004)	0.051*** (0.004)	0.043*** (0.004)
1 GCE A level or equivalent	0.074*** (0.004)	0.067*** (0.004)	0.059*** (0.004)	0.048*** (0.005)	0.016*** (0.005)	0.016*** (0.005)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	7,362		116,807	38,225		
Advanced Apprenticeship	41,859		104,718	42,057		
NVQ Level 3	5,531		104,718	73,818		
BTEC Level 3	27,515		104,718	73,818		
Other full Level 3 vocational	5,179		104,718	73,818		
2+ GCE A levels or equivalent	63,213		104,718	30,900		
Level 3 other vocational	15,369		104,718	73,818		
1 GCE A level or equivalent	12,555		104,718	30,900		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in employment. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 10b: Employment Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	0.086*** (0.003)	0.070*** (0.003)	0.066*** (0.003)	0.121*** (0.004)	0.099*** (0.004)	0.093*** (0.004)
NVQ Level 2	0.079*** (0.003)	0.074*** (0.003)	0.071*** (0.004)	0.115*** (0.004)	0.100*** (0.004)	0.095*** (0.004)
GNVQ Level 2	0.096*** (0.006)	0.086*** (0.006)	0.084*** (0.006)	0.122*** (0.006)	0.099*** (0.006)	0.097*** (0.007)
BTEC Level 2	0.091*** (0.005)	0.086*** (0.005)	0.083*** (0.006)	0.122*** (0.006)	0.105*** (0.006)	0.101*** (0.006)
Other full Level 2 vocational	0.065*** (0.004)	0.057*** (0.004)	0.056*** (0.005)	0.097*** (0.005)	0.077*** (0.005)	0.075*** (0.005)
5 GCSEs A*-C	0.081*** (0.003)	0.064*** (0.003)	0.061*** (0.003)	0.063*** (0.003)	0.057*** (0.003)	0.056*** (0.003)
Level 2 other vocational	0.014*** (0.003)	0.014*** (0.003)	0.022*** (0.003)	0.047*** (0.004)	0.034*** (0.004)	0.026*** (0.004)
<i>Below Level 2</i>						
NVQ Level 1	0.158*** (0.008)	0.141*** (0.008)	0.076*** (0.013)	0.164*** (0.009)	0.143*** (0.009)	0.076*** (0.014)
GNVQ Level 1	0.146*** (0.011)	0.129*** (0.011)	0.070*** (0.023)	0.152*** (0.011)	0.134*** (0.012)	0.068*** (0.023)
BTEC Level 1	0.144*** (0.018)	0.133*** (0.018)	0.118*** (0.028)	0.154*** (0.019)	0.140*** (0.019)	0.118*** (0.029)
Other Level 1 vocational	0.113*** (0.004)	0.089*** (0.004)	0.005 (0.005)	0.119*** (0.005)	0.085*** (0.005)	0.009 (0.006)
5 GCSEs A*-G	0.176*** (0.003)	0.142*** (0.003)	0.137*** (0.003)	0.170*** (0.003)	0.138*** (0.003)	0.133*** (0.003)
Entry/Other Level	-0.016*** (0.006)	-0.006 (0.006)	-0.003 (0.006)			
<i>Observations</i>	Highest qualification	Counterfactual 1		Counterfactual 2		
Intermediate Apprenticeship	42,057	131,616		37,719		
NVQ Level 2	25,032	131,616		37,719		
GNVQ Level 2	6,188	131,616		37,719		
BTEC Level 2	6,788	131,616		37,719		
Other full Level 2 vocational	11,929	131,616		37,719		
5 GCSEs A*-C	30,900	131,616		93,897		
Level 2 other vocational	23,881	131,616		37,719		
NVQ Level 1	4,044	40,910		11,073		
GNVQ Level 1	2,053	40,910		11,073		
BTEC Level 1	651	40,910		11,073		
Other Level 1 vocational	30,971	40,910		11,073		
5 GCSEs A*-G	93,897	40,910		29,837		
Entry/Other Level	11,073	29,837		na		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in employment. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 11a: Employment Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	0.082*** (0.006)	0.073*** (0.006)	0.072*** (0.006)	0.081*** (0.006)	0.071*** (0.006)	0.063*** (0.007)
<i>Level 3</i>						
Advanced Apprenticeship	0.138*** (0.004)	0.110*** (0.004)	0.097*** (0.004)	0.088*** (0.004)	0.073*** (0.004)	0.060*** (0.005)
NVQ Level 3	0.104*** (0.004)	0.086*** (0.004)	0.076*** (0.004)	0.119*** (0.004)	0.095*** (0.004)	0.080*** (0.004)
BTEC Level 3	0.135*** (0.003)	0.112*** (0.004)	0.101*** (0.004)	0.151*** (0.004)	0.125*** (0.004)	0.111*** (0.004)
Other full Level 3 vocational	0.146*** (0.004)	0.125*** (0.005)	0.116*** (0.005)	0.164*** (0.005)	0.139*** (0.005)	0.123*** (0.006)
2+ GCE A levels or equivalent	0.148*** (0.003)	0.117*** (0.003)	0.096*** (0.003)	0.080*** (0.004)	0.079*** (0.004)	0.079*** (0.004)
Level 3 other vocational	0.072*** (0.004)	0.056*** (0.004)	0.053*** (0.004)	0.093*** (0.004)	0.070*** (0.004)	0.053*** (0.005)
1 GCE A level or equivalent	0.098*** (0.005)	0.073*** (0.005)	0.059*** (0.005)	0.039*** (0.005)	0.020*** (0.006)	0.022*** (0.006)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	4,709		124,649	49,954		
Advanced Apprenticeship	21,283		78,685	35,922		
NVQ Level 3	18,725		78,685	51,438		
BTEC Level 3	21,140		78,685	51,438		
Other full Level 3 vocational	10,089		78,685	51,438		
2+ GCE A levels or equivalent	60,211		78,685	27,247		
Level 3 other vocational	14,484		78,685	51,438		
1 GCE A level or equivalent	10,144		78,685	27,247		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in employment. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 11b: Employment Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	0.148*** (0.004)	0.116*** (0.004)	0.108*** (0.004)	0.196*** (0.004)	0.152*** (0.005)	0.144*** (0.005)
NVQ Level 2	0.115*** (0.004)	0.101*** (0.004)	0.097*** (0.004)	0.161*** (0.005)	0.132*** (0.005)	0.126*** (0.005)
GNVQ Level 2	0.125*** (0.007)	0.110*** (0.007)	0.107*** (0.007)	0.165*** (0.007)	0.130*** (0.008)	0.127*** (0.008)
BTEC Level 2	0.096*** (0.007)	0.090*** (0.007)	0.088*** (0.007)	0.146*** (0.008)	0.121*** (0.008)	0.118*** (0.008)
Other full Level 2 vocational	0.114*** (0.006)	0.106*** (0.006)	0.102*** (0.006)	0.159*** (0.006)	0.132*** (0.006)	0.126*** (0.007)
5 GCSEs A*-C	0.173*** (0.003)	0.111*** (0.004)	0.109*** (0.004)	0.153*** (0.003)	0.104*** (0.004)	0.103*** (0.004)
Level 2 other vocational	0.036*** (0.005)	0.033*** (0.004)	0.040*** (0.004)	0.082*** (0.005)	0.059*** (0.005)	0.052*** (0.005)
<i>Below Level 2</i>						
NVQ Level 1	0.110*** (0.009)	0.102*** (0.009)	0.033** (0.014)	0.115*** (0.010)	0.095*** (0.010)	0.031** (0.015)
GNVQ Level 1	0.122*** (0.013)	0.120*** (0.013)	0.069*** (0.026)	0.124*** (0.014)	0.112*** (0.014)	0.063** (0.027)
BTEC Level 1	0.113*** (0.020)	0.116*** (0.020)	0.081** (0.032)	0.124*** (0.021)	0.116*** (0.021)	0.075** (0.032)
Other Level 1 vocational	0.124*** (0.005)	0.099*** (0.005)	0.013* (0.008)	0.126*** (0.007)	0.085*** (0.008)	0.010 (0.010)
5 GCSEs A*-G	0.194*** (0.003)	0.152*** (0.004)	0.149*** (0.004)	0.191*** (0.004)	0.152*** (0.004)	0.148*** (0.004)
Entry/Other Level	-0.012 (0.008)	0.002 (0.008)	0.003 (0.008)			
<i>Observations</i>	Highest qualification	Counterfactual 1		Counterfactual 2		
Intermediate Apprenticeship	35,922	82,146		21,563		
NVQ Level 2	21,399	82,146		21,563		
GNVQ Level 2	4,759	82,146		21,563		
BTEC Level 2	4,622	82,146		21,563		
Other full Level 2 vocational	6,838	82,146		21,563		
5 GCSEs A*-C	27,247	82,146		60,583		
Level 2 other vocational	13,820	82,146		21,563		
NVQ Level 1	3,711	21,674		5,011		
GNVQ Level 1	1,417	21,674		5,011		
BTEC Level 1	575	21,674		5,011		
Other Level 1 vocational	15,860	21,674		5,011		
5 GCSEs A*-G	60,583	21,674		16,663		
Entry/Other Level	5,011	16,663		na		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in employment. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 12a: Benefits Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	-0.035*** (0.001)	-0.031*** (0.001)	-0.029*** (0.001)	-0.040*** (0.002)	-0.034*** (0.002)	-0.030*** (0.002)
<i>Level 3</i>						
Advanced Apprenticeship	-0.100*** (0.001)	-0.084*** (0.001)	-0.078*** (0.001)	-0.036*** (0.001)	-0.029*** (0.001)	-0.025*** (0.001)
NVQ Level 3	-0.076*** (0.002)	-0.067*** (0.002)	-0.063*** (0.003)	-0.093*** (0.002)	-0.081*** (0.003)	-0.073*** (0.003)
BTEC Level 3	-0.060*** (0.001)	-0.042*** (0.002)	-0.035*** (0.002)	-0.074*** (0.002)	-0.051*** (0.002)	-0.036*** (0.002)
Other full Level 3 vocational	-0.066*** (0.002)	-0.052*** (0.003)	-0.047*** (0.003)	-0.083*** (0.003)	-0.065*** (0.003)	-0.051*** (0.004)
2+ GCE A levels or equivalent	-0.073*** (0.001)	-0.050*** (0.001)	-0.034*** (0.001)	-0.029*** (0.002)	-0.027*** (0.002)	-0.027*** (0.002)
Level 3 other vocational	-0.041*** (0.002)	-0.029*** (0.002)	-0.027*** (0.002)	-0.056*** (0.002)	-0.038*** (0.002)	-0.028*** (0.002)
1 GCE A level or equivalent	-0.057*** (0.002)	-0.040*** (0.002)	-0.028*** (0.002)	-0.014*** (0.002)	-0.007*** (0.002)	-0.008*** (0.002)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	7,504		120,660	39,340		
Advanced Apprenticeship	42,686		109,820	43,088		
NVQ Level 3	5,660		109,820	77,193		
BTEC Level 3	28,337		109,820	77,193		
Other full Level 3 vocational	5,343		109,820	77,193		
2+ GCE A levels or equivalent	65,421		109,820	32,627		
Level 3 other vocational	15,899		109,820	77,193		
1 GCE A level or equivalent	13,016		109,820	32,627		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in receipt of labour market benefits. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 12b: Benefits Regressions, males

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	-0.117*** (0.001)	-0.096*** (0.001)	-0.089*** (0.001)	-0.190*** (0.002)	-0.138*** (0.002)	-0.128*** (0.002)
NVQ Level 2	-0.088*** (0.002)	-0.078*** (0.002)	-0.072*** (0.002)	-0.156*** (0.003)	-0.123*** (0.003)	-0.114*** (0.003)
GNVQ Level 2	-0.047*** (0.003)	-0.030*** (0.004)	-0.027*** (0.004)	-0.102*** (0.004)	-0.058*** (0.005)	-0.053*** (0.005)
BTEC Level 2	-0.028*** (0.003)	-0.021*** (0.003)	-0.017*** (0.004)	-0.084*** (0.004)	-0.055*** (0.005)	-0.047*** (0.005)
Other full Level 2 vocational	-0.076*** (0.002)	-0.063*** (0.002)	-0.058*** (0.002)	-0.141*** (0.003)	-0.106*** (0.003)	-0.097*** (0.003)
5 GCSEs A*-C	-0.094*** (0.001)	-0.066*** (0.002)	-0.059*** (0.002)	-0.060*** (0.001)	-0.045*** (0.002)	-0.043*** (0.002)
Level 2 other vocational	-0.007*** (0.002)	-0.004* (0.002)	-0.009*** (0.002)	-0.062*** (0.003)	-0.032*** (0.003)	-0.023*** (0.003)
<i>Below Level 2</i>						
NVQ Level 1	-0.131*** (0.005)	-0.096*** (0.006)	-0.034*** (0.010)	-0.203*** (0.007)	-0.130*** (0.007)	-0.062*** (0.011)
GNVQ Level 1	-0.131*** (0.007)	-0.089*** (0.008)	-0.032* (0.017)	-0.198*** (0.009)	-0.117*** (0.010)	-0.057*** (0.019)
BTEC Level 1	-0.037*** (0.014)	-0.041*** (0.013)	-0.004 (0.020)	-0.099*** (0.016)	-0.081*** (0.015)	-0.040* (0.022)
Other Level 1 vocational	-0.113*** (0.003)	-0.057*** (0.003)	0.009** (0.004)	-0.180*** (0.004)	-0.078*** (0.004)	-0.014*** (0.004)
5 GCSEs A*-G	-0.196*** (0.002)	-0.110*** (0.002)	-0.094*** (0.002)	-0.159*** (0.002)	-0.092*** (0.002)	-0.080*** (0.002)
Entry/Other Level	0.126*** (0.005)	0.067*** (0.005)	0.052*** (0.005)			
<i>Observations</i>						
Intermediate Apprenticeship	43,088		139,944		41,266	
NVQ Level 2	25,811		139,944		41,266	
GNVQ Level 2	6,426		139,944		41,266	
BTEC Level 2	7,221		139,944		41,266	
Other full Level 2 vocational	12,435		139,944		41,266	
5 GCSEs A*-C	32,627		139,944		98,678	
Level 2 other vocational	25,300		139,944		41,266	
NVQ Level 1	4,342		50,191		14,714	
GNVQ Level 1	2,229		50,191		14,714	
BTEC Level 1	805		50,191		14,714	
Other Level 1 vocational	33,890		50,191		14,714	
5 GCSEs A*-G	98,678		50,191		35,477	
Entry/Other Level	14,714		35,477		na	

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in receipt of labour market benefits. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 13a: Benefits Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 4</i>						
Level 4 vocational	-0.048*** (0.002)	-0.041*** (0.002)	-0.040*** (0.002)	-0.051*** (0.002)	-0.044*** (0.003)	-0.039*** (0.003)
<i>Level 3</i>						
Advanced Apprenticeship	-0.152*** (0.002)	-0.130*** (0.002)	-0.119*** (0.002)	-0.079*** (0.002)	-0.066*** (0.002)	-0.055*** (0.003)
NVQ Level 3	-0.125*** (0.002)	-0.108*** (0.002)	-0.100*** (0.002)	-0.155*** (0.002)	-0.130*** (0.003)	-0.112*** (0.003)
BTEC Level 3	-0.122*** (0.002)	-0.097*** (0.002)	-0.086*** (0.002)	-0.151*** (0.002)	-0.119*** (0.003)	-0.096*** (0.003)
Other full Level 3 vocational	-0.128*** (0.002)	-0.110*** (0.003)	-0.101*** (0.003)	-0.160*** (0.003)	-0.137*** (0.003)	-0.116*** (0.004)
2+ GCE A levels or equivalent	-0.144*** (0.002)	-0.104*** (0.002)	-0.082*** (0.002)	-0.066*** (0.003)	-0.060*** (0.002)	-0.060*** (0.002)
Level 3 other vocational	-0.073*** (0.003)	-0.053*** (0.003)	-0.049*** (0.003)	-0.103*** (0.003)	-0.074*** (0.003)	-0.052*** (0.004)
1 GCE A level or equivalent	-0.100*** (0.003)	-0.074*** (0.003)	-0.057*** (0.004)	-0.027*** (0.003)	-0.012*** (0.003)	-0.014*** (0.003)
<i>Observations</i>	Highest qualification		Counterfactual 1	Counterfactual 2		
Level 4 vocational	4,775		127,616	50,862		
Advanced Apprenticeship	21,559		82,493	36,567		
NVQ Level 3	19,050		82,493	53,922		
BTEC Level 3	21,561		82,493	39,019		
Other full Level 3 vocational	10,251		82,493	39,019		
2+ GCE A levels or equivalent	61,833		82,493	28,571		
Level 3 other vocational	14,921		82,493	53,922		
1 GCE A level or equivalent	10,477		82,493	28,571		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in receipt of labour market benefits. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 13b: Benefits Regressions, females

Highest qualification	Counterfactual 1			Counterfactual 2		
	Baseline	Augmented	Augmented plus	Baseline	Augmented	Augmented plus
<i>Level 2</i>						
Intermediate Apprenticeship	-0.200*** (0.002)	-0.161*** (0.003)	-0.143*** (0.003)	-0.275*** (0.004)	-0.199*** (0.004)	-0.177*** (0.004)
NVQ Level 2	-0.140*** (0.003)	-0.121*** (0.003)	-0.107*** (0.003)	-0.212*** (0.004)	-0.163*** (0.004)	-0.146*** (0.004)
GNVQ Level 2	-0.111*** (0.005)	-0.089*** (0.006)	-0.086*** (0.006)	-0.176*** (0.006)	-0.127*** (0.007)	-0.121*** (0.007)
BTEC Level 2	-0.081*** (0.006)	-0.072*** (0.006)	-0.068*** (0.006)	-0.157*** (0.006)	-0.122*** (0.007)	-0.116*** (0.007)
Other full Level 2 vocational	-0.120*** (0.004)	-0.106*** (0.005)	-0.099*** (0.005)	-0.191*** (0.005)	-0.149*** (0.006)	-0.140*** (0.006)
5 GCSEs A*-C	-0.201*** (0.002)	-0.143*** (0.003)	-0.136*** (0.003)	-0.167*** (0.002)	-0.121*** (0.003)	-0.119*** (0.003)
Level 2 other vocational	-0.034*** (0.004)	-0.029*** (0.004)	-0.038*** (0.004)	-0.103*** (0.005)	-0.067*** (0.004)	-0.057*** (0.004)
<i>Below Level 2</i>						
NVQ Level 1	-0.153*** (0.008)	-0.127*** (0.008)	-0.048*** (0.013)	-0.203*** (0.009)	-0.137*** (0.009)	-0.063*** (0.014)
GNVQ Level 1	-0.151*** (0.012)	-0.125*** (0.012)	-0.040* (0.024)	-0.196*** (0.013)	-0.127*** (0.013)	-0.047* (0.025)
BTEC Level 1	-0.115*** (0.017)	-0.119*** (0.017)	-0.035 (0.026)	-0.184*** (0.018)	-0.154*** (0.018)	-0.072*** (0.026)
Other Level 1 vocational	-0.147*** (0.005)	-0.098*** (0.005)	-0.000 (0.007)	-0.195*** (0.006)	-0.100*** (0.007)	-0.017** (0.007)
5 GCSEs A*-G	-0.257*** (0.003)	-0.177*** (0.004)	-0.166*** (0.004)	-0.230*** (0.004)	-0.168*** (0.004)	-0.158*** (0.004)
Entry/Other Level	0.101*** (0.007)	0.048*** (0.007)	0.037*** (0.007)			
<i>Observations</i>						
Intermediate Apprenticeship	36,567		89,114	24,775		
NVQ Level 2	22,044		89,114	24,775		
GNVQ Level 2	4,936		89,114	24,775		
BTEC Level 2	4,939		89,114	24,775		
Other full Level 2 vocational	7,100		89,114	24,775		
5 GCSEs A*-C	28,571		89,114	64,339		
Level 2 other vocational	14,903		89,114	24,775		
NVQ Level 1	4,194		29,620	7,898		
GNVQ Level 1	1,599		29,620	7,898		
BTEC Level 1	719		29,620	7,898		
Other Level 1 vocational	18,263		29,620	7,898		
5 GCSEs A*-G	64,339		29,620	21,722		
Entry/Other Level	7,898		21,722	na		

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in receipt of labour market benefits. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4.

Table 14: Earnings – testing the robustness of the ranking used for vocational qualifications

Highest qualification	Male				Female			
	Counterfactual 1				Counterfactual 1			
	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus
<i>Ranking Priority</i>	<i>vocational</i>	<i>vocational</i>	<i>academic</i>	<i>academic</i>	<i>vocational</i>	<i>vocational</i>	<i>academic</i>	<i>academic</i>
<i>Level 3</i>								
Advanced Apprenticeship	0.338*** (0.005)	0.329*** (0.005)	0.340*** (0.005)	0.327*** (0.005)	0.187*** (0.007)	0.165*** (0.008)	0.172*** (0.007)	0.164*** (0.008)
NVQ Level 3	0.173*** (0.008)	0.155*** (0.010)	0.171*** (0.009)	0.155*** (0.010)	0.106*** (0.007)	0.089*** (0.007)	0.090*** (0.007)	0.089*** (0.007)
BTEC Level 3	0.021*** (0.005)	0.002 (0.005)	0.024*** (0.005)	0.002 (0.005)	0.158*** (0.006)	0.128*** (0.007)	0.160*** (0.007)	0.129*** (0.007)
Other full Level 3 vocational	0.067*** (0.010)	0.061*** (0.010)	0.080*** (0.010)	0.060*** (0.010)	0.105*** (0.008)	0.070*** (0.009)	0.096*** (0.008)	0.070*** (0.009)
<i>Level 2</i>								
Intermediate Apprenticeship	0.202*** (0.005)	0.197*** (0.005)	0.193*** (0.005)	0.197*** (0.005)	0.112*** (0.007)	0.100*** (0.008)	0.083*** (0.007)	0.099*** (0.008)
NVQ Level 2	0.147*** (0.006)	0.142*** (0.006)	0.139*** (0.006)	0.143*** (0.006)	0.085*** (0.008)	0.073*** (0.008)	0.065*** (0.008)	0.073*** (0.009)
GNVQ Level 2	0.034*** (0.009)	0.034*** (0.010)	0.035*** (0.009)	0.034*** (0.010)	0.123*** (0.013)	0.118*** (0.014)	0.116*** (0.013)	0.117*** (0.014)
BTEC Level 2	-0.006 (0.009)	-0.011 (0.009)	-0.007 (0.009)	-0.011 (0.009)	0.093*** (0.013)	0.102*** (0.014)	0.095*** (0.014)	0.102*** (0.014)
Other full Level 2 vocational	0.090*** (0.007)	0.082*** (0.007)	0.085*** (0.007)	0.082*** (0.007)	0.065*** (0.011)	0.056*** (0.012)	0.051*** (0.012)	0.056*** (0.012)
<i>Below Level 2</i>								
NVQ Level 1	0.087*** (0.014)	0.040 (0.029)	0.014 (0.026)	0.039 (0.029)	0.093*** (0.021)	0.023 (0.048)	0.009 (0.036)	0.023 (0.050)
GNVQ Level 1	0.051*** (0.019)	0.009 (0.050)	0.016 (0.044)	0.009 (0.051)	0.185*** (0.028)	0.053 (0.078)	0.041 (0.059)	0.066 (0.078)
BTEC Level 1	-0.006 (0.033)	-0.011 (0.062)	-0.070 (0.054)	-0.011 (0.062)	0.081* (0.042)	-0.017 (0.073)	-0.021 (0.073)	-0.018 (0.073)
Other Level 1 vocational	0.070*** (0.008)	-0.010 (0.012)	-0.027** (0.011)	-0.008 (0.012)	0.121*** (0.014)	0.006 (0.024)	-0.006 (0.021)	0.003 (0.026)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4. For each gender, the first and second columns present the coefficients from the original regressions (table 8 and table 9), while the third and fourth columns report the coefficients for the regressions ranking vocational qualifications below academic qualifications at the same level (only results for vocational qualifications using counterfactual 1 are reported).

Table 15: Earnings at age 26 for those achieving at age 24

	Males				Females			
	Counterfactual 1				Counterfactual 1			
	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus
Highest qualification <i>Achieved by the age of:</i>	22	22	24	24	22	22	24	24
Level 4 vocational	0.314*** (0.008)	0.309*** (0.008)	0.309*** (0.007)	0.299*** (0.007)	0.229*** (0.010)	0.232*** (0.010)	0.231*** (0.009)	0.225*** (0.009)
Advanced Apprenticeship	0.338*** (0.005)	0.329*** (0.005)	0.337*** (0.004)	0.323*** (0.004)	0.187*** (0.007)	0.165*** (0.008)	0.200*** (0.006)	0.169*** (0.007)
NVQ Level 3	0.173*** (0.008)	0.155*** (0.010)	0.187*** (0.008)	0.176*** (0.009)	0.106*** (0.007)	0.089*** (0.007)	0.109*** (0.006)	0.084*** (0.007)
BTEC Level 3	0.021*** (0.005)	0.002 (0.005)	0.023*** (0.005)	0.002 (0.005)	0.158*** (0.006)	0.128*** (0.007)	0.160*** (0.006)	0.128*** (0.007)
Other full Level 3 vocational	0.067*** (0.010)	0.061*** (0.010)	0.058*** (0.009)	0.043*** (0.009)	0.105*** (0.008)	0.070*** (0.009)	0.107*** (0.007)	0.069*** (0.008)
2+ GCE A levels or equivalent	0.106*** (0.004)	0.063*** (0.005)	0.111*** (0.004)	0.068*** (0.005)	0.273*** (0.005)	0.208*** (0.006)	0.276*** (0.005)	0.215*** (0.005)
Level 3 other vocational	0.072*** (0.006)	0.064*** (0.006)	0.079*** (0.006)	0.073*** (0.006)	0.111*** (0.007)	0.100*** (0.008)	0.111*** (0.007)	0.100*** (0.007)
1 GCE A level or equivalent	0.053*** (0.006)	0.025*** (0.007)	0.058*** (0.006)	0.030*** (0.007)	0.155*** (0.008)	0.117*** (0.009)	0.162*** (0.008)	0.121*** (0.008)
Intermediate Apprenticeship	0.202*** (0.005)	0.197*** (0.005)	0.206*** (0.005)	0.192*** (0.005)	0.112*** (0.007)	0.100*** (0.008)	0.115*** (0.007)	0.089*** (0.007)
NVQ Level 2	0.147*** (0.006)	0.142*** (0.006)	0.160*** (0.006)	0.149*** (0.006)	0.085*** (0.008)	0.073*** (0.008)	0.084*** (0.008)	0.064*** (0.008)
GNVQ Level 2	0.034*** (0.009)	0.034*** (0.010)	0.037*** (0.009)	0.038*** (0.009)	0.123*** (0.013)	0.118*** (0.014)	0.123*** (0.013)	0.117*** (0.013)
BTEC Level 2	-0.006 (0.009)	-0.011 (0.009)	-0.005 (0.009)	-0.007 (0.009)	0.093*** (0.013)	0.102*** (0.014)	0.091*** (0.013)	0.094*** (0.014)
Other full Level 2 vocational	0.090*** (0.007)	0.082*** (0.007)	0.086*** (0.007)	0.077*** (0.007)	0.065*** (0.011)	0.056*** (0.012)	0.056*** (0.010)	0.044*** (0.011)
5 GCSEs A*-C	0.134*** (0.005)	0.133*** (0.005)	0.140*** (0.005)	0.135*** (0.005)	0.220*** (0.007)	0.218*** (0.007)	0.227*** (0.007)	0.220*** (0.007)
Level 2 other vocational	-0.003 (0.006)	0.008 (0.006)	-0.005 (0.006)	0.004 (0.006)	0.036*** (0.009)	0.049*** (0.009)	0.027*** (0.009)	0.039*** (0.009)
NVQ Level 1	0.087*** (0.014)	0.040 (0.029)	0.092*** (0.014)	0.019 (0.026)	0.093*** (0.021)	0.023 (0.048)	0.092*** (0.021)	0.005 (0.036)
GNVQ Level 1	0.051*** (0.019)	0.009 (0.050)	0.061*** (0.019)	0.026 (0.044)	0.185*** (0.028)	0.053 (0.078)	0.185*** (0.028)	0.039 (0.058)
BTEC Level 1	-0.006 (0.033)	-0.011 (0.062)	-0.030 (0.032)	-0.071 (0.054)	0.081* (0.042)	-0.017 (0.073)	0.082** (0.040)	-0.011 (0.071)
Other Level 1 vocational	0.070*** (0.008)	-0.010 (0.012)	0.070*** (0.008)	-0.029*** (0.011)	0.121*** (0.014)	0.006 (0.024)	0.121*** (0.014)	-0.005 (0.020)
5 GCSEs A*-G	0.128*** (0.006)	0.124*** (0.006)	0.140*** (0.006)	0.129*** (0.006)	0.205*** (0.010)	0.203*** (0.010)	0.210*** (0.010)	0.206*** (0.010)
Entry/Other Level	-0.058*** (0.012)	-0.043*** (0.014)	-0.071*** (0.012)	-0.059*** (0.012)	-0.008 (0.022)	-0.010 (0.030)	-0.013 (0.022)	-0.007 (0.022)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4. Counterfactual 1 only.

Table 16: Earnings – controlling for test scores linearly

Highest qualification	Male				Female			
	Counterfactual 1				Counterfactual 1			
	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus	Augmented	Augmented plus
<i>Specification</i>	<i>Original</i>	<i>Original</i>	<i>Sensitivity check</i>	<i>Sensitivity check</i>	<i>Original</i>	<i>Original</i>	<i>Sensitivity check</i>	<i>Sensitivity check</i>
Level 4 vocational	0.314*** (0.008)	0.309*** (0.008)	0.309*** (0.008)	0.290*** (0.008)	0.229*** (0.010)	0.232*** (0.010)	0.220*** (0.010)	0.205*** (0.010)
<i>Level 3</i>								
Advanced Apprenticeship	0.338*** (0.005)	0.329*** (0.005)	0.333*** (0.005)	0.298*** (0.005)	0.187*** (0.007)	0.165*** (0.008)	0.182*** (0.007)	0.129*** (0.008)
NVQ Level 3	0.173*** (0.008)	0.155*** (0.010)	0.171*** (0.009)	0.139*** (0.010)	0.106*** (0.007)	0.089*** (0.007)	0.104*** (0.007)	0.061*** (0.007)
BTEC Level 3	0.021*** (0.005)	0.002 (0.005)	0.018*** (0.005)	-0.024*** (0.005)	0.158*** (0.006)	0.128*** (0.007)	0.152*** (0.007)	0.100*** (0.007)
Other full Level 3 vocational	0.067*** (0.010)	0.061*** (0.010)	0.068*** (0.010)	0.037*** (0.010)	0.105*** (0.008)	0.070*** (0.009)	0.102*** (0.008)	0.042*** (0.008)
Level 3 other vocational	0.072*** (0.006)	0.064*** (0.006)	0.073*** (0.006)	0.052*** (0.006)	0.111*** (0.007)	0.100*** (0.008)	0.112*** (0.007)	0.085*** (0.007)
<i>Level 2</i>								
Intermediate Apprenticeship	0.202*** (0.005)	0.197*** (0.005)	0.197*** (0.005)	0.165*** (0.005)	0.112*** (0.007)	0.100*** (0.008)	0.109*** (0.007)	0.062*** (0.007)
NVQ Level 2	0.147*** (0.006)	0.142*** (0.006)	0.145*** (0.006)	0.127*** (0.006)	0.085*** (0.008)	0.073*** (0.008)	0.084*** (0.008)	0.047*** (0.008)
GNVQ Level 2	0.034*** (0.009)	0.034*** (0.010)	0.027*** (0.009)	-0.001 (0.009)	0.123*** (0.013)	0.118*** (0.014)	0.117*** (0.013)	0.085*** (0.013)
BTEC Level 2	-0.006 (0.009)	-0.011 (0.009)	-0.015* (0.009)	-0.039*** (0.009)	0.093*** (0.013)	0.102*** (0.014)	0.099*** (0.014)	0.072*** (0.014)
Other full Level 2 vocational	0.090*** (0.007)	0.082*** (0.007)	0.090*** (0.007)	0.062*** (0.007)	0.065*** (0.011)	0.056*** (0.012)	0.067*** (0.011)	0.029*** (0.011)
Level 2 other vocational	-0.003 (0.006)	0.008 (0.006)	-0.011* (0.006)	-0.009 (0.006)	0.036*** (0.009)	0.049*** (0.009)	0.036*** (0.009)	0.035*** (0.009)
<i>Below Level 2</i>								
NVQ Level 1	0.087*** (0.014)	0.040 (0.029)	0.094*** (0.015)	-0.016 (0.018)	0.093*** (0.021)	0.023 (0.048)	0.098*** (0.021)	-0.021 (0.026)
GNVQ Level 1	0.051*** (0.019)	0.009 (0.050)	0.068*** (0.019)	-0.075*** (0.023)	0.185*** (0.028)	0.053 (0.078)	0.195*** (0.029)	0.061* (0.035)
BTEC Level 1	-0.006 (0.033)	-0.011 (0.062)	0.008 (0.035)	-0.096*** (0.037)	0.081* (0.042)	-0.017 (0.073)	0.066 (0.045)	-0.057 (0.048)
Other Level 1 vocational	0.070*** (0.008)	-0.010 (0.012)	0.077*** (0.009)	-0.021** (0.010)	0.121*** (0.014)	0.006 (0.024)	0.130*** (0.014)	0.003 (0.018)
Entry/Other Level	-0.058*** (0.012)	-0.043*** (0.014)	-0.061*** (0.013)	-0.048*** (0.013)	-0.008 (0.022)	-0.010 (0.030)	0.000 (0.023)	0.011 (0.023)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3. The “original” regressions reported in tables 8 and 9 enter Key Stage 2 test scores in Maths and English non-linearly (with bands defined by quintiles) and control for whether the learner holds 5 GCSEs A*-C (or A*-G). The regressions labelled “sensitivity checks” exclude independents schools, enter KS2 test scores linearly and control for the GCSE points score (linearly). Counterfactual 1 only.

Table 17: Earnings at age 26 and 28 for the 2001/02 cohort

Highest qualification <i>Outcomes at the age of:</i>	Males				Females			
	Counterfactual 1				Counterfactual 1			
	Augmented 26	Augmented plus 26	Augmented 28	Augmented plus 28	Augmented 26	Augmented plus 26	Augmented 28	Augmented plus 28
Level 4 vocational	0.289*** (0.014)	0.279*** (0.014)	0.273*** (0.012)	0.265*** (0.012)	0.207*** (0.018)	0.207*** (0.017)	0.233*** (0.015)	0.226*** (0.015)
Advanced Apprenticeship	0.323*** (0.009)	0.310*** (0.009)	0.310*** (0.007)	0.294*** (0.008)	0.182*** (0.007)	0.129*** (0.008)	0.182*** (0.007)	0.129*** (0.008)
NVQ Level 3	0.153*** (0.017)	0.139*** (0.019)	0.172*** (0.013)	0.160*** (0.014)	0.109*** (0.013)	0.088*** (0.014)	0.100*** (0.012)	0.073*** (0.012)
BTEC Level 3	-0.008 (0.012)	-0.018 (0.012)	0.008 (0.011)	-0.003 (0.011)	0.163*** (0.016)	0.146*** (0.017)	0.149*** (0.016)	0.131*** (0.017)
Other full Level 3 vocational	0.065*** (0.013)	0.046*** (0.013)	0.086*** (0.012)	0.066*** (0.012)	0.130*** (0.013)	0.096*** (0.014)	0.112*** (0.012)	0.072*** (0.013)
2+ GCE A levels or equivalent	0.112*** (0.007)	0.068*** (0.008)	0.144*** (0.007)	0.099*** (0.008)	0.280*** (0.009)	0.223*** (0.010)	0.301*** (0.009)	0.229*** (0.010)
Level 3 other vocational	0.056*** (0.011)	0.050*** (0.011)	0.091*** (0.010)	0.085*** (0.010)	0.103*** (0.013)	0.095*** (0.013)	0.102*** (0.012)	0.090*** (0.012)
1 GCE A level or equivalent	0.039*** (0.012)	0.013 (0.012)	0.060*** (0.012)	0.029** (0.012)	0.150*** (0.016)	0.117*** (0.016)	0.161*** (0.016)	0.117*** (0.017)
Intermediate Apprenticeship	0.197*** (0.009)	0.179*** (0.010)	0.189*** (0.008)	0.172*** (0.009)	0.085*** (0.013)	0.055*** (0.014)	0.113*** (0.013)	0.088*** (0.013)
NVQ Level 2	0.152*** (0.010)	0.134*** (0.011)	0.148*** (0.009)	0.138*** (0.009)	0.055*** (0.015)	0.033** (0.015)	0.087*** (0.014)	0.061*** (0.014)
GNVQ Level 2	0.038*** (0.014)	0.038*** (0.014)	0.031** (0.013)	0.026* (0.014)	0.110*** (0.020)	0.113*** (0.021)	0.166*** (0.020)	0.158*** (0.021)
BTEC Level 2	-0.053 (0.035)	-0.041 (0.036)	-0.069** (0.033)	-0.051 (0.033)	-0.017 (0.051)	-0.019 (0.054)	0.007 (0.047)	-0.003 (0.049)
Other full Level 2 vocational	0.076*** (0.014)	0.066*** (0.014)	0.064*** (0.012)	0.046*** (0.012)	0.043** (0.021)	0.034 (0.022)	0.057*** (0.018)	0.037** (0.019)
5 GCSEs A*-C	0.150*** (0.009)	0.146*** (0.009)	0.138*** (0.008)	0.133*** (0.008)	0.235*** (0.012)	0.231*** (0.012)	0.272*** (0.012)	0.267*** (0.012)
Level 2 other vocational	0.003 (0.010)	0.010 (0.010)	-0.003 (0.009)	0.004 (0.009)	0.040*** (0.015)	0.047*** (0.015)	0.037** (0.015)	0.044*** (0.015)
NVQ Level 1	0.024 (0.026)	-0.052 (0.046)	0.073*** (0.024)	-0.001 (0.044)	0.114*** (0.043)	-0.001 (0.083)	0.106*** (0.036)	0.107 (0.065)
GNVQ Level 1	0.005 (0.033)	-0.009 (0.085)	0.089*** (0.028)	0.038 (0.075)	0.233*** (0.051)	0.125 (0.095)	0.234*** (0.044)	0.234** (0.110)
BTEC Level 1	-0.082 (0.137)	0.041 (0.155)	-0.149** (0.073)	-0.122 (0.105)	-0.199 (0.128)	-0.363** (0.152)	0.127 (0.114)	-0.133 (0.157)
Other Level 1 vocational	0.071*** (0.016)	-0.038 (0.024)	0.085*** (0.015)	-0.031 (0.021)	0.177*** (0.028)	0.034 (0.045)	0.157*** (0.024)	0.042 (0.038)
5 GCSEs A*-G	0.120*** (0.011)	0.107*** (0.011)	0.158*** (0.010)	0.146*** (0.010)	0.183*** (0.020)	0.179*** (0.020)	0.212*** (0.017)	0.196*** (0.017)
Entry/Other Level	-0.092*** (0.027)	-0.078*** (0.027)	-0.065*** (0.025)	-0.055** (0.025)	-0.085* (0.048)	-0.085* (0.048)	-0.043 (0.041)	-0.034 (0.041)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4. Counterfactual 1 only.

Table 18: Earnings – aggregate regressions

	Males			Females		
	Baseline	Augmented	Augmented + school controls	Baseline	Augmented	Augmented + school controls
Highest qualification						
Postgraduate education	0.847*** (0.014)	0.626*** (0.014)	0.577*** (0.014)	1.230*** (0.022)	0.924*** (0.022)	0.905*** (0.022)
First degree/Other HE/Level 5 professional qualifications	0.687*** (0.013)	0.490*** (0.013)	0.443*** (0.013)	1.068*** (0.021)	0.798*** (0.021)	0.774*** (0.021)
Level 4 vocational	0.763*** (0.014)	0.592*** (0.014)	0.575*** (0.014)	0.931*** (0.023)	0.703*** (0.023)	0.708*** (0.023)
Advanced Apprenticeship	0.722*** (0.013)	0.583*** (0.013)	0.564*** (0.013)	0.657*** (0.022)	0.490*** (0.021)	0.500*** (0.021)
NVQ Level 3	0.527*** (0.015)	0.416*** (0.015)	0.393*** (0.015)	0.547*** (0.022)	0.412*** (0.022)	0.419*** (0.021)
BTEC Level 3	0.367*** (0.013)	0.241*** (0.013)	0.218*** (0.013)	0.616*** (0.021)	0.457*** (0.021)	0.459*** (0.021)
Other full Level 3 vocational	0.417*** (0.016)	0.290*** (0.016)	0.268*** (0.016)	0.551*** (0.022)	0.406*** (0.022)	0.407*** (0.022)
2+ GCE A levels or equivalent	0.465*** (0.013)	0.297*** (0.013)	0.263*** (0.013)	0.788*** (0.021)	0.569*** (0.021)	0.555*** (0.021)
Level 3 other vocational	0.396*** (0.014)	0.290*** (0.014)	0.269*** (0.014)	0.562*** (0.022)	0.422*** (0.022)	0.423*** (0.022)
1 GCE A level or equivalent	0.393*** (0.014)	0.250*** (0.014)	0.222*** (0.014)	0.652*** (0.022)	0.469*** (0.022)	0.462*** (0.022)
Intermediate Apprenticeship	0.447*** (0.013)	0.354*** (0.013)	0.343*** (0.013)	0.445*** (0.021)	0.326*** (0.021)	0.335*** (0.021)
NVQ Level 2	0.359*** (0.013)	0.295*** (0.013)	0.285*** (0.013)	0.371*** (0.022)	0.288*** (0.021)	0.296*** (0.021)
GNVQ Level 2	0.215*** (0.015)	0.145*** (0.015)	0.126*** (0.015)	0.379*** (0.024)	0.307*** (0.024)	0.301*** (0.024)
BTEC Level 2	0.172*** (0.015)	0.112*** (0.015)	0.094*** (0.015)	0.335*** (0.024)	0.270*** (0.024)	0.276*** (0.024)
Other full Level 2 vocational	0.292*** (0.014)	0.225*** (0.014)	0.204*** (0.014)	0.308*** (0.023)	0.251*** (0.023)	0.248*** (0.023)
5 GCSEs A*-C	0.365*** (0.007)	0.219*** (0.007)	0.181*** (0.007)	0.601*** (0.011)	0.429*** (0.011)	0.401*** (0.011)
Level 2 other vocational	0.183*** (0.013)	0.123*** (0.013)	0.116*** (0.013)	0.299*** (0.022)	0.226*** (0.022)	0.233*** (0.022)
NVQ Level 1	0.101*** (0.017)	0.090*** (0.017)	0.090*** (0.017)	0.097*** (0.026)	0.085*** (0.026)	0.105*** (0.026)
GNVQ Level 1	0.051** (0.021)	0.031 (0.021)	0.015 (0.020)	0.180*** (0.032)	0.172*** (0.032)	0.171*** (0.032)
BTEC Level 1	-0.039 (0.034)	-0.035 (0.034)	-0.027 (0.033)	0.094** (0.044)	0.088** (0.044)	0.111** (0.044)
Other Level 1 vocational	0.116*** (0.013)	0.085*** (0.013)	0.082*** (0.013)	0.183*** (0.022)	0.134*** (0.022)	0.152*** (0.021)
5 GCSEs A*-G	0.194*** (0.006)	0.132*** (0.006)	0.097*** (0.006)	0.275*** (0.010)	0.228*** (0.010)	0.202*** (0.010)
Entry/Other Level	-0.079*** (0.014)	-0.054*** (0.014)	-0.023* (0.014)	-0.007 (0.025)	-0.012 (0.025)	0.016 (0.025)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log daily earnings. Omitted category: individuals with no formal qualifications.

Table 19: Distribution of proportion of the year spent in employment/benefits at age 26

	Males			Females		
	0%	Between 0% and 100%	100%	0%	Between 0% and 100%	100%
Employment						
Level 4 vocational	15%	20%	65%	15%	21%	64%
Advanced Apprenticeship	22%	22%	56%	20%	21%	59%
NVQ Level 3	21%	25%	54%	22%	22%	56%
BTEC Level 3	19%	25%	56%	20%	24%	56%
Other full Level 3 vocational	23%	23%	54%	19%	22%	59%
2+ GCE A levels or equivalent	19%	23%	58%	20%	22%	58%
Level 3 other vocational	22%	26%	52%	25%	24%	52%
1 GCE A level or equivalent	19%	24%	57%	23%	22%	55%
Intermediate Apprenticeship	25%	25%	50%	28%	23%	49%
NVQ Level 2	25%	27%	48%	31%	23%	46%
GNVQ Level 2	23%	26%	50%	31%	24%	45%
BTEC Level 2	23%	29%	48%	32%	25%	43%
Other full Level 2 vocational	26%	26%	48%	31%	23%	45%
5 GCSEs A*-C	24%	24%	52%	26%	23%	51%
Level 2 other vocational	30%	30%	40%	39%	23%	38%
NVQ Level 1	30%	29%	41%	47%	23%	30%
GNVQ Level 1	32%	27%	41%	46%	23%	30%
BTEC Level 1	30%	30%	39%	45%	24%	31%
Other Level 1 vocational	34%	29%	37%	46%	24%	31%
5 GCSEs A*-G	28%	27%	45%	39%	23%	38%
Entry/Other Level	43%	30%	27%	58%	20%	21%
KS4 record but no formal achievement	42%	29%	29%	57%	22%	21%
Labour market benefits						
Level 4 vocational	95%	4%	1%	93%	5%	2%
Advanced Apprenticeship	95%	5%	0%	90%	7%	3%
NVQ Level 3	90%	8%	1%	87%	9%	4%
BTEC Level 3	87%	10%	2%	85%	10%	5%
Other full Level 3 vocational	89%	9%	2%	88%	8%	4%
2+ GCE A levels or equivalent	91%	7%	2%	90%	7%	3%
Level 3 other vocational	84%	13%	3%	80%	13%	8%
1 GCE A level or equivalent	88%	10%	2%	85%	10%	5%
Intermediate Apprenticeship	87%	12%	2%	79%	13%	8%
NVQ Level 2	80%	16%	4%	72%	16%	12%
GNVQ Level 2	76%	18%	6%	68%	19%	13%
BTEC Level 2	73%	19%	8%	64%	19%	16%
Other full Level 2 vocational	81%	15%	4%	70%	17%	13%
5 GCSEs A*-C	88%	10%	2%	82%	11%	7%
Level 2 other vocational	67%	24%	9%	59%	22%	20%
NVQ Level 1	65%	25%	11%	50%	22%	28%
GNVQ Level 1	65%	25%	10%	50%	24%	26%
BTEC Level 1	53%	25%	22%	42%	27%	31%
Other Level 1 vocational	61%	27%	12%	49%	24%	27%
5 GCSEs A*-G	78%	18%	4%	62%	20%	18%
Entry/Other Level	42%	32%	25%	29%	27%	44%
KS4 record but no formal achievement	58%	28%	13%	39%	27%	35%

Note: Employment: proportion of the year in employment. Benefits: proportion of the year in receipt of at least one active labour market benefit. Learners achieving by the age of 22 only; cohorts undertaking Key Stage 4 in 2001/02, 2002/03 and 2003/04.

Source: London Economics based on LEO data

Table 20: Allowing different effects at the limit values for employment (age 26)

	Males			Females		
	Counterfactual 1			Counterfactual 1		
	Augmented plus	Augmented plus	Augmented plus	Augmented plus	Augmented plus	Augmented plus
	0%	Between 0% and 100%	100%	0%	Between 0% and 100%	100%
Highest qualification						
<i>Proportion</i>						
Level 4 vocational	-0.013 (0.011)	0.055*** (0.007)	0.076*** (0.006)	-0.045*** (0.013)	0.052*** (0.007)	0.044*** (0.007)
Advanced Apprenticeship	0.028*** (0.005)	0.046*** (0.004)	0.077*** (0.004)	-0.041*** (0.007)	0.040*** (0.005)	0.071*** (0.005)
NVQ Level 3	-0.030*** (0.011)	0.065*** (0.007)	0.043*** (0.008)	-0.035*** (0.007)	0.034*** (0.005)	0.055*** (0.005)
BTEC Level 3	-0.044*** (0.006)	0.036*** (0.004)	0.062*** (0.004)	-0.076*** (0.007)	0.041*** (0.005)	0.047*** (0.005)
Other full Level 3 vocational	0.028** (0.011)	0.034*** (0.008)	0.050*** (0.008)	-0.078*** (0.009)	0.038*** (0.006)	0.063*** (0.006)
2+ GCE A levels or equivalent	-0.022*** (0.005)	0.039*** (0.004)	0.072*** (0.004)	-0.055*** (0.005)	0.044*** (0.004)	0.057*** (0.004)
Level 3 other vocational	-0.020*** (0.006)	0.012** (0.005)	0.037*** (0.005)	-0.042*** (0.007)	0.020*** (0.005)	0.022*** (0.005)
1 GCE A level or equivalent	-0.029*** (0.008)	0.020*** (0.005)	0.046*** (0.005)	-0.025*** (0.008)	0.021*** (0.006)	0.041*** (0.006)
Intermediate Apprenticeship	-0.003 (0.005)	0.039*** (0.004)	0.072*** (0.004)	-0.037*** (0.005)	0.038*** (0.005)	0.086*** (0.005)
NVQ Level 2	-0.021*** (0.006)	0.034*** (0.004)	0.063*** (0.005)	-0.030*** (0.006)	0.031*** (0.005)	0.081*** (0.005)
GNVQ Level 2	-0.037*** (0.010)	0.023*** (0.007)	0.070*** (0.007)	-0.065*** (0.010)	0.036*** (0.009)	0.057*** (0.009)
BTEC Level 2	-0.056*** (0.009)	0.017** (0.007)	0.058*** (0.007)	-0.038*** (0.010)	0.020** (0.009)	0.065*** (0.009)
Other full Level 2 vocational	-0.011 (0.007)	0.019*** (0.006)	0.060*** (0.006)	-0.044*** (0.009)	0.035*** (0.008)	0.070*** (0.008)
5 GCSEs A*-C	-0.008 (0.005)	0.022*** (0.004)	0.064*** (0.004)	-0.048*** (0.005)	0.040*** (0.005)	0.072*** (0.005)
Level 2 other vocational	-0.017*** (0.005)	0.002 (0.004)	0.013*** (0.004)	0.003 (0.006)	0.020*** (0.006)	0.047*** (0.006)
NVQ Level 1	-0.032* (0.018)	0.026* (0.016)	0.059*** (0.018)	-0.033* (0.017)	-0.022 (0.019)	0.002 (0.024)
GNVQ Level 1	0.007 (0.030)	0.056** (0.026)	0.087*** (0.031)	-0.053 (0.033)	0.066* (0.036)	0.027 (0.043)
BTEC Level 1	-0.081** (0.040)	0.027 (0.035)	0.080** (0.038)	-0.005 (0.038)	0.072* (0.039)	0.071 (0.050)
Other Level 1 vocational	0.001 (0.007)	0.005 (0.006)	0.006 (0.008)	-0.014 (0.009)	-0.005 (0.010)	0.003 (0.013)
5 GCSEs A*-G	-0.069*** (0.004)	0.060*** (0.004)	0.097*** (0.004)	-0.068*** (0.005)	0.050*** (0.005)	0.112*** (0.006)
Entry/Other Level	0.003 (0.007)	-0.017** (0.007)	0.005 (0.009)	0.020** (0.009)	0.011 (0.011)	0.034** (0.014)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in employment. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4. Counterfactual 1 only. Estimated using a zero and one inflated beta model.

Table 21: Allowing different effects at the limit values for benefits (age 26)

	Males			Females		
	Counterfactual 1			Counterfactual 1		
	Augmented plus	Augmented plus	Augmented plus	Augmented plus	Augmented plus	Augmented plus
	0%	Between 0% and 100%	100%	0%	Between 0% and 100%	100%
Highest qualification						
<i>Proportion</i>						
Level 4 vocational	0.051*** (0.002)	-0.042*** (0.013)	-0.025 (0.018)	0.043*** (0.003)	-0.049*** (0.015)	-0.056** (0.025)
Advanced Apprenticeship	0.100*** (0.002)	-0.091*** (0.005)	-0.122*** (0.007)	0.097*** (0.003)	-0.063*** (0.008)	-0.127*** (0.012)
NVQ Level 3	0.079*** (0.004)	-0.067*** (0.010)	-0.055*** (0.017)	0.082*** (0.003)	-0.048*** (0.007)	-0.080*** (0.011)
BTEC Level 3	0.047*** (0.002)	-0.022*** (0.005)	-0.021*** (0.008)	0.061*** (0.003)	-0.056*** (0.007)	-0.090*** (0.010)
Other full Level 3 vocational	0.060*** (0.005)	-0.043*** (0.011)	-0.033* (0.017)	0.078*** (0.004)	-0.060*** (0.010)	-0.091*** (0.015)
2+ GCE A levels or equivalent	0.052*** (0.002)	-0.029*** (0.005)	0.001 (0.008)	0.067*** (0.002)	-0.058*** (0.006)	-0.079*** (0.008)
Level 3 other vocational	0.039*** (0.003)	-0.009 (0.006)	-0.011 (0.008)	0.036*** (0.003)	-0.018*** (0.007)	-0.047*** (0.009)
1 GCE A level or equivalent	0.032*** (0.004)	-0.028*** (0.007)	-0.020* (0.011)	0.041*** (0.004)	-0.030*** (0.009)	-0.050*** (0.013)
Intermediate Apprenticeship	0.101*** (0.002)	-0.072*** (0.004)	-0.087*** (0.006)	0.114*** (0.003)	-0.061*** (0.006)	-0.071*** (0.007)
NVQ Level 2	0.085*** (0.003)	-0.046*** (0.005)	-0.057*** (0.006)	0.091*** (0.004)	-0.035*** (0.006)	-0.035*** (0.008)
GNVQ Level 2	0.044*** (0.005)	-0.014 (0.008)	0.015 (0.012)	0.057*** (0.007)	-0.039*** (0.010)	-0.058*** (0.013)
BTEC Level 2	0.036*** (0.005)	0.002 (0.008)	0.023** (0.010)	0.053*** (0.007)	-0.023** (0.010)	-0.032** (0.013)
Other full Level 2 vocational	0.074*** (0.004)	-0.028*** (0.007)	-0.031*** (0.009)	0.080*** (0.006)	-0.046*** (0.009)	-0.037*** (0.012)
5 GCSEs A*-C	0.080*** (0.003)	-0.033*** (0.005)	-0.005 (0.008)	0.108*** (0.003)	-0.049*** (0.006)	-0.055*** (0.008)
Level 2 other vocational	0.016*** (0.003)	-0.005 (0.004)	0.005 (0.005)	0.032*** (0.004)	-0.019*** (0.006)	-0.011 (0.007)
NVQ Level 1	0.047*** (0.013)	0.038*** (0.014)	0.002 (0.017)	0.069*** (0.018)	-0.045*** (0.016)	0.028 (0.018)
GNVQ Level 1	0.060*** (0.022)	0.014 (0.024)	0.020 (0.031)	0.087*** (0.031)	-0.016 (0.033)	0.049 (0.034)
BTEC Level 1	0.060** (0.027)	0.028 (0.030)	0.085*** (0.032)	0.001 (0.038)	-0.048 (0.032)	-0.027 (0.035)
Other Level 1 vocational	-0.007 (0.005)	0.011** (0.005)	0.011* (0.006)	-0.000 (0.009)	0.013* (0.008)	-0.007 (0.009)
5 GCSEs A*-G	0.108*** (0.003)	-0.039*** (0.004)	-0.047*** (0.005)	0.133*** (0.005)	-0.056*** (0.005)	-0.062*** (0.006)
Entry/Other Level	-0.032*** (0.006)	0.025*** (0.006)	0.051*** (0.008)	-0.026** (0.010)	0.004 (0.008)	0.022** (0.010)

Note: Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Reporting marginal effects. Dependent variable: proportion of the year in receipt of labour market benefits. Definitions of counterfactuals used are presented in Table 3, while the control variables included in the different specification are presented in Table 4. Counterfactual 1 only. Estimated using a zero and one inflated beta model.

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