



Department
for Education

The Net Present Value of further education in England

Analytical report

February 2025

Contents

List of figures	3
List of tables	4
Executive summary	6
Introduction	9
This publication in the context of the wider literature	9
Changes compared to the 2021 publication	10
Methodology	12
Overview	12
Statistical approach to wage and employment premia	13
Benefits	15
Costs	17
Assumptions	19
Limitations	25
Methodological changes since the last publication	25
Results	27
Wage and employment premia results	28
NPV estimates	29
NPV estimates by qualification level	30
NPV estimates by age group	31
NPV estimates by sector subject area (SSA tier 1)	34
Sensitivity analysis	43
Sensitivity to apprenticeship achievement rates	43
Relationship between age and economic value	43
Earnings of non-achieving apprentices	45
Changes in estimates since the last publication	48
Conclusion	54
Annex 1: NPVs for 16-18-year-old classroom learners	55
Annex 2: Total NPV in AY21/22 by qualification level	56

List of figures

Figure 1 Chart describing the methodology12

Figure 2 Earnings premia in each tax year, for FE learners exiting learning in 2011/12, by provision and level22

Figure 3 Median annualised earnings for apprenticeship framework/standard achievers and non-achievers24

List of tables

Table 1 NPVs of qualifications started in academic year 2021/22 (2021/22 prices)	7
Table 2 Participation in education and training, AY2023/24.....	11
Table 3 Wage premia for apprenticeship frameworks (2019/20-2020/21) and standards (2019/20-2021/22 tax years).....	23
Table 4 Wage premia (3-5 years after completion).....	28
Table 5 Employment premia (3-5 years after completion)	29
Table 6 NPV estimates by qualification level (classroom (age 19+))	31
Table 7 NPV estimates by qualification level (apprenticeships).....	31
Table 8 NPV estimates by age group	33
Table 9 Premia for classroom-based provision by SSA, full Level 2 (3-5 years after completion)	34
Table 10 Premia for classroom-based provision by SSA, full Level 3 (3-5 years after completion)	35
Table 11 Premia for apprenticeship provision by SSA, Level 2 (3-5 years after completion)	35
Table 12 Premia for apprenticeship provision by SSA, Level 3 (3-5 years after completion)	36
Table 13 NPV estimates by SSA, Classroom Full Level 2 (age 19+).....	39
Table 14 NPV estimates by SSA, Classroom Full Level 3 (age 19+).....	40
Table 15 NPV estimates by SSA, Apprenticeship Level 2 (age 16+).....	41
Table 16 NPV estimates by SSA, Apprenticeship Level 3 (age 16+).....	41
Table 17 Scenario analysis: what impact would a 60% achievement rate have on the apprenticeship NPVs?	43
Table 18 NPV (AY2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: apprenticeships.....	44
Table 19 NPV (2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: full levels in classroom provision	45

Table 20 NPV (2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: non-full levels in classroom provision	45
Table 21 Average raw median earnings 3-5 years later for non-achievers based on duration of training	46
Table 22 Time periods covered by wage and employment premia	48
Table 23 Below L2 estimates for classroom provision in different publications.....	50
Table 24 Full L2 estimates for classroom provision in different publications.....	50
Table 25 Full L3 estimates for classroom provision in different publications.....	51
Table 26 Comparison of apprenticeship premia and NPV per achiever over time	52
Table 27 NPVs for classroom 16-18-year-olds (proxy-based)	55
Table 28 Total NPV in AY21/22 by qualification level (classroom, £bn)	56
Table 29 Total NPV in AY21/22 by qualification level (apprenticeships, £bn).....	57

Executive summary

This report estimates the Net Present Values (NPVs) of Further Education (FE) qualifications started in academic year (AY) 2021/22. It is an update on our 2021 publication that estimated NPVs for learning started in AY2018/19.¹

NPVs estimate the average value of a qualification. They compare the costs to the benefits of classroom-based courses and apprenticeships. This is done over the working lifetime of learners in-line with HMT Green Book principles².

We model the present-day value of the future labour market benefits and upfront costs to training. The benefits and costs in scope of this model are:

Benefits

- Increase in earnings and likelihood of being in employment (wage and employment premia) due to achieving a qualification
- Spillover effect on co-workers and firms

Costs

- Course costs for providing the training
- Economic opportunity costs of time spent training

Our NPV estimates capture the labour productivity impact of training through the increased earnings (a standard proxy for productivity) and the spillover effect.

The costs are upfront, initial investments, whereas the benefits are accrued on an annual basis for the working life of the learner. To accurately measure the benefits, we use a multi-linear regression to estimate the statistical wage and employment premia comparing those who achieve with those who started and did not achieve the same qualification. These premia are then combined with data on economic activity and wages to simulate lifetime increases in earnings. To reach our NPV figures we then subtract the initial costs from the estimated benefits, adjusting for discounting and achievement rates.

We calculate four metrics:

The **NPV per achiever** estimates the value of learners who finish their training and thus the economic value of achieving a qualification.

The **NPV per start** reflects the value of a learner starting a classroom or apprenticeship qualification in FE. The costs and benefits are adjusted to reflect that not all learners

¹ [Measuring the Net Present Value of Further Education in England 2018-19 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

² Estimates are deflated to obtain real values and discounted to take into account social time preference.

complete their training. This describes the value of investment in people starting training, on average.

Benefits per DfE pound is a metric of value for money: the average pounds of benefit (per start) created per £1 of cost to DfE.

The **benefit-cost ratio** is a metric of economic efficiency: the pounds of benefit (per start) generated per £1 of economic cost – both the course cost and the opportunity cost of time spent training rather than working.

This report provides further evidence of a strong return on investment in FE. We see this across age groups, provision types, levels and sector subject areas. Table 1 summarises our estimates split by level and provision type. Further estimates by age and sector subject area are presented in the main report, while the Excel annex includes key model inputs such as average cost and achievement rates.

Table 1 NPVs of qualifications started in academic year 2021/22 (2021/22 prices)

Provision type	NPV per achiever	NPV per start	Benefits per DfE £	Benefit-cost ratio
Below Level 2 excluding English and maths (19+)	£45,000	£39,000	£35	£20
Full Level 2 (19+)	£59,000	£48,000	£20	£10
Non-full Level 2 (19+)	£40,000	£33,000	£36	£15
Full Level 3 (19+)	£78,000	£57,000	£18	£7
Non-full Level 3 (19+)	£47,000	£34,000	£20	£7
Level 2 Apprenticeship (16+)	£77,000	£35,000	£9	£5
Level 3 Apprenticeship (16+)	£89,000	£43,000	£9	£5
Level 4/5 Apprenticeship (19+)	£80,000	£32,000	£7	£3

As a worked example, we estimate that an apprentice achieving a Level 3 apprenticeship in AY21/22 created on average £89,000 of economic value over the working lifetime of the individual. We estimate that the economic value created per individual who *started* a Level 3 apprenticeship in AY21/22 – after accounting for the proportion of learners who

start but do not finish (53% in that year) – is £43,000 on average; with £9 of economic benefit created per £1 of DfE investment; and £5 of economic benefit per £1 of total economic cost (course cost and opportunity cost of time spent training rather than working).

Introduction

The Department for Education (DfE) is responsible for further education (FE) in England, some of which is devolved. Education and training create economic value by giving individuals the knowledge, skills and behaviours needed to fulfil economically valuable roles, to develop smarter ways of working and to reap the benefits of complementary investment in capital and technology.

The analysis in this report updates previously published wage and employment premia and derives new Net Present Values (NPVs) for further education (FE) qualifications started in academic year 2021/22. The previous publication estimated the value of training started in academic year 2018/19³

These NPVs estimate the economic value of classroom-based qualifications and apprenticeships in 2021/22 prices by comparing the present-day value of learners' lifetime benefits and the costs to learning, on average.

Benefits are split into three categories:

1. increased wages – the **wage premium**
2. increased likelihood of employment – the **employment premium**
3. additional non-wage benefits not captured by the wage and employment premia – the **spillover**

The appraisal of costs and benefits follows HM Treasury's Green Book⁴ principles for appraising public spending.

We estimate NPVs per achiever to demonstrate the average value of achieving a qualification. The NPV per start, the benefits per DfE £ and the benefit-cost ratio summarise the value of the investment and reflect that some learners do not complete their course.

This publication in the context of the wider literature

The report is an update of our 2021 paper⁵ which followed a 2015 paper by the Department for Business Innovation and Skills.⁶ This series of publications fits into a wider literature on the value of FE:

³ <https://www.gov.uk/government/publications/further-education-measuring-the-net-present-value-in-england>

⁴ [The Green Book \(2022\) - GOV.UK](#)

⁵ [Measuring the net present value of further education in England 2018 to 2019 - GOV.UK \(www.gov.uk\)](#)

⁶ <https://www.gov.uk/government/publications/further-education-measuring-the-net-present-value-in-england>

- DfE publishes rich and detailed data on the destinations of FE learners – their progression to further learning and/or employment, and their earnings outcomes – in the Further Education Outcomes publication.⁷
- DfE has separately published analysis estimating the link between improving workforce skill levels and labour productivity growth.⁸
- FE has wider benefits than the wage and employment effects estimated in this publication. Further evidence – including learner and employer reported benefits – are assessed as part of a range of surveys, including the Apprenticeship Evaluation Survey.⁹
- There is a rich academic literature estimating the labour market benefits of FE qualifications, for example analysis produced by the Centre for Vocational Education Research.¹⁰

It is important to consider the full range of evidence when assessing the value of FE.

Changes compared to the 2021 publication

For the first time, we are publishing NPVs for non-full level qualifications. The distinction between a “full” Level 2 (L2) or Level 3 (L3) was introduced in the Apprenticeships, Skills, Children and Learning Act (2009). Full level qualifications are listed in the 16-19 performance tables and a key difference is that a non-full qualification is typically shorter than a full level. The majority of adult L2 and L3 qualifications in FE are non-full qualifications (see Table 2 Participation in education and training, AY2023/24) and we can now estimate the value of investment for a much larger group of adult learners.

⁷ [Further education outcomes, Academic year 2021/22 - Explore education statistics - GOV.UK](#)

⁸ [Skills and UK productivity - GOV.UK](#)

⁹ [Apprenticeship evaluation 2023: learner, non-completer and employer surveys - GOV.UK](#)

¹⁰ [The Centre for Vocational Education Research \(CVER\)](#)

Table 2 Participation in education and training, AY2023/24

Education & Training, 19+ (AY23/24)	Participation
Essential skills - English and maths	280,040
Below level 2 (excluding essential skills)	260,940
Full level 2	15,490
Full level 3	35,510
Non-full L2	407,240
Non-full L3	85,070
Level 4+	12,470
No level assigned	167,390

Source: ['Headline - Participation, Achievement by Provision type' from 'Further education and skills', Permanent data table - Explore education statistics - GOV.UK](#)

This report also includes NPV estimates broken down by Sector Subject Area (SSA) Tier 1 across classroom provision and apprenticeships (at Levels 2 and 3). Previously, subject estimates were limited to experimental estimates of a small number of SSAs published in 2014. For the first time, we estimate the NPVs for most SSAs at Full Level 2 and 3 for classroom and apprenticeship provision.

Methodology

Overview

The NPV calculations estimate the future increases in economic value generated by a learner achieving a specific qualification. We capture the increased wages and increased likelihood of employment that a learner experiences after achieving their qualification, along with the expected spillover, which includes the beneficial impacts a more highly skilled worker has on their employer and peers.

We estimate these benefits across learners' working lives. We then subtract the course costs and the economic cost of time spent training rather than working, measured through foregone wages and tax.

We model the present-day value of the future labour market benefits and upfront costs to training. Our methodological approach is consistent with the Green Book's protocols on how to appraise costs and benefits, apply discount rates, deflate values and calculate a benefit-cost ratio: in order to compare costs and benefits that occur over a long period of time on a consistent basis, they are deflated to obtain real values and discounted to take into account social time preference.

The below diagram summarises the components factored into the appraisal when evaluating the costs and benefits of undertaking a qualification.

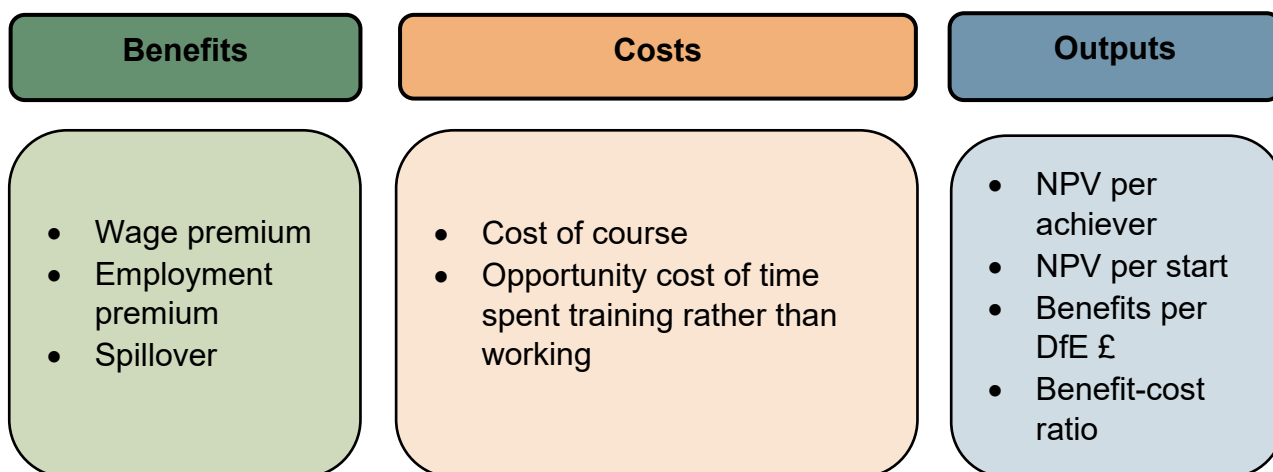


Figure 1 Chart describing the methodology

Statistical approach to wage and employment premia

Econometric approach

We use an established methodology (see Bibby et. al.¹¹) which estimates the impact on earnings and employment by comparing outcomes for learners who achieved an FE qualification against learners with similar characteristics and background that started, but did not achieve, the same qualification.

This “achiever vs. non-achiever” methodology estimates labour market returns using a multiple linear regression model to isolate the effect of achieving a FE qualification, after controlling for other observable characteristics which may influence outcomes.

In the model, we control for the type of learning (e.g. level, duration, subject area, year) as well as certain observable learner characteristics (e.g. ethnicity, region, sex, age, deprivation ranking of home postcode, count of prior FE spells, highest level of prior attainment, employment and benefit record prior to training).

The regression model is run for each qualification level to estimate effects on (logged) earnings and likelihood of employment in each of years 3, 4 and 5 after completion, which are then averaged to provide a final value.

The estimates of impact of achieving a FE qualification are reported against the learners ‘highest and latest’ aim (e.g. Full Level 2, Advanced apprenticeship, etc) and are measured in terms of:

- The percentage increase in earnings – the “earnings premium”
- The percentage point increase in the employment rate – the “employment premium”

Specifically, the model took the following form:

$$y_i = \alpha + Qual_i' \beta + x_i' \gamma + \varepsilon_i \quad 12$$

Where the dependent variable, y_i , is either log deflated daily wages, or propensity to be in employment in the 3-5 years after completing the learning spell.

¹¹ BIS (2014) [Estimation of the labour market returns to qualifications gained in English Further Education \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

¹² The formula describes that the outcome variable y depends on an intercept term α , a vector of qualification levels/provision and coefficients (β), a vector of explanatory variables and their combined effect on outcome variable y as well as an error term.

The qualification dummy indicates if the learner achieved or did not achieve (including withdrawals) their aim. The coefficient β represents an estimate of the return (or premium) to that qualification level.

Robustness of the econometric approach

The ‘achiever vs. non-achiever’ methodology has been thoroughly tested and verified for its suitability in the FE context - including peer review by several leading academics in the field.^{13, 14, 15}

This approach is favoured over the main alternative of comparing the outcomes of all learners at a level to those at a level below mainly because:

- i) It allows us to capture the unique and heterogeneous nature of FE learners and limits the issue of selection bias (whereby there are unobservable differences between those who choose to attempt a qualification at a specific level and those who do not). In fact, it creates a comparison group that better matches achievers on observable characteristics.¹⁶
- ii) It enables us to look at all ages of learner (robust education history data does not cover all ages).

Furthermore, this approach produces more conservative estimates.¹⁷

Data

The dataset underpinning the analysis is constructed by joining a longitudinal view of the Individualised Learner Record (ILR) to relevant data from the Longitudinal Educational Outcomes (LEO) study.

- Learning activity recorded on the ILR is combined into “spells”, so that a learner’s full activity can be connected (including across summer holidays) to allow identification of the highest and latest (or most recent) learning aim for use in the regression.
- Data on earnings, employment and benefits is then taken from LEO data to derive a range of outcome measures at yearly intervals after the completion of that highest and latest learning aim. Within this, earnings are converted to constant prices (2021/22).

¹³ See chapter 6 in BIS (2014) [Estimation of the labour market returns to qualifications gained in English Further Education](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/270441/Estimation_of_the_labour_market_returns_to_qualifications_gained_in_English_Further_Education.pdf) (publishing.service.gov.uk)

¹⁴ CVER (2018) [Settling the counterfactual debate](#)

¹⁵ Cerqua et al (2020) [Evaluation of education and training impacts for the unemployed: Challenges of new data](#), *Labour Economics*

¹⁶ CVER (2018) [Settling the counterfactual debate](#)

¹⁷ CVER (2018) [Settling the counterfactual debate](#)

To produce the updated estimates, we have refreshed the dataset construction process, to make use of the latest LEO data.

We examine ILR data from 2013/14 to 2021/22 to identify learners whose highest and latest (or most recent) FE training spell ended between 2013/14 and 2018/19 tax years – anyone with a subsequent FE training spell or who progress into Higher Education are excluded, to ensure we isolate returns to the qualification in question. The cohort of learners used in the returns estimates only goes as far as 2018/19 as we are trying to capture labour market outcomes at least three years after training and when this analysis was undertaken, the 2021/22 tax year was the latest information held on labour market outcomes.

In terms of coverage, the estimates relate to adult (19+) FE learners and apprenticeships age 16+. We do not estimate returns for 16-18 classroom FE learners because a large proportion progress to further training rather than into the labour market (for example, only 20% of 16-18 classroom FE achievers in 2021/22 progressed to sustained employment in the year after, compared to 68% of 16-18 apprenticeship achievers)¹⁸. Classroom-based learning is included where the learner has at least one aim funded by the ESFA or Advanced Learner Load within the year, whilst all apprenticeships (funded and un-funded) are included. Offender Learning and Skills Service (OLASS) and community learning are excluded from the analysis, as are academic qualifications.

The analysis provides estimates of an average effect across those who may be achieving a qualification at that level for the first time and those who may have retrained or extended their knowledge at the same level.

Using the statistical premia, we produce NPVs which use inputs from FE learners starting in academic year 2021/22.

Benefits

We use the wage and employment premia to estimate the benefits across the working life of the learner.

The wage and employment premia capture the fact that qualifications lead both to higher earnings and a higher likelihood of being employed. This is also a standard proxy for the labour productivity increase.

We model the average learner through the rest of their working life, which takes into account the expected changes in working patterns, hours and wages: at different ages, a worker's wages, median working hours and likelihood of working full time or being

¹⁸ [Further Education Outcomes](#)

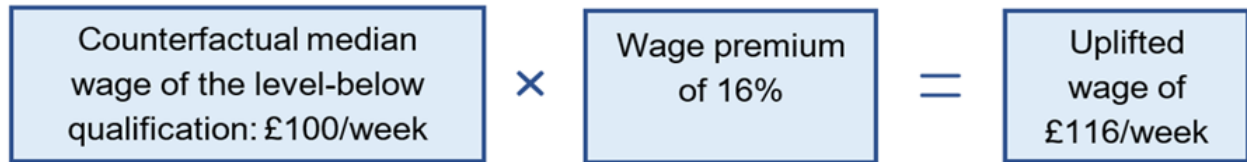
unemployed/inactive change. We therefore use age-specific inputs that reflect the expected differences between learners who leave FE at different ages. This approach reflects that those with higher level qualifications tend to work more hours per week and that full-time work becomes less prevalent with age.¹⁹ We combine these calculations with the age distribution of learners who take the qualification, resulting in a weighted calculation for the expected benefits for the average learner or cohort.

Our NPV calculations do not include a variety of expected beneficial impacts. For example, any crime reduction, physical or mental health and other social benefits are excluded from the model. For these reasons, we expect these NPVs to be underestimates of the true value to society of an individual achieving a new qualification.

Wage benefits

The wage premium is applied to the counterfactual wage to measure the additional income attributable to achieving the qualification.

Simplified wage uplift example, age and level-specific



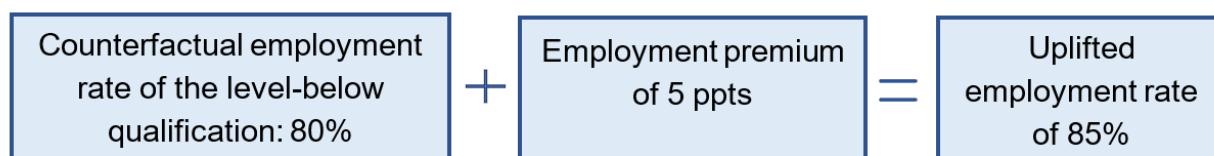
For the NPV, we use the level-below as a counterfactual rather than the non-achiever counterfactual which is used to estimate the premia. This is because we want to model the benefits over a learner's working life. LEO data, which is used to derive the employment rates for achievers and non-achievers, would only allow us to model benefits over the medium term. By using Annual Population Survey (APS) data for the level below, we can create a profile of earnings/employment across the working lifetime and use this as our counterfactual.

Employment benefits

The employment premium estimates a percentage point increase in the likelihood of employment (employment rate).

¹⁹ Annual Population Survey (APS) data, October 2021 to September 2022. [Population statistics and sources guide - Office for National Statistics](#)

Simplified employment rate uplift example, age and level-specific



Both the wage and employment premium contribute to the total increase in income: the employment premium reflects that workers are more likely to work (which increases income) and the wage premium reflects the increased value per hour worked.

Spillover

We further assume that the learning generates additional benefits beyond the increased wages and employment rates – a 35% spillover.

The spillover reflects both (i) the non-wage labour costs to employers²⁰ and (ii) the increase in productivity as a result of achieving the qualification, in addition to what is already captured by the learner in the form of higher wages.

The 2015 estimates assumed a 100% spillover, which was based on a paper by Dearden et al.²¹ and confirmed by London Economics.²² While we believe the evidence around a 100% spillover effect is plausible, we have chosen to take a more conservative estimate of 35% in our publications since 2015.

We apply the spillover to the total increase in wages (i.e. the combined effect of the employment benefit increasing hours worked and the wage benefit increasing the value per hour).

Our approach further aligns with the Schools Policy Appraisal Handbook which also considers a wage and non-wage productivity spillover.²³

Costs

The model accounts for course cost and the opportunity cost of the time spent training rather than working, measured through foregone income while learning and foregone taxes. Course cost estimates are taken from the ILR. The other types of costs are based on assumptions of average wages, taken from the APS, and tax rates.

²⁰ According to economic theory, the value of the output produced per hour worked is the total labour cost per hour to the employer (including e.g. employer taxes) rather than just the wage.

²¹ <https://eprints.lse.ac.uk/779/>

²² [Estimating the impact of publicly funded training on industry and firm-level outcomes](#)

²³ [Schools policy appraisal handbook \(publishing.service.gov.uk\)](#)

Course cost

The modelled course costs are calculated using learner-specific ILR data on the total course costs reported by the provider and the amount of funding DfE provided. These course costs reflect both the government funding costs and the funding contributed by the employer or individual. Using ILR data, we calculate the proportion of the course costs that are covered by DfE.

The course costs do not include amounts of funding for the capital infrastructure or other one-off payments to FE providers that contribute to the ability of a provider to deliver the training. However, we include average Learning Support payments in the average costs, which is funding for those with learning difficulties or a SEND flag.

To calculate the NPVs per start, we account for learners who do not complete the entire qualification. Payments are made monthly and hence learners who study for less time than an achiever incur lower course costs.

We estimate costs for the full duration of the qualification including where this spans multiple years. To calculate the cost per level and SSA, we calculate averages between the levels and subjects. For courses which last two years, Learning Support payments are included in the costs for two years as well.

Providers are not required to ringfence the funding they receive for a qualification to only be used for that qualification; therefore, the modelled course costs are indicative and estimates for the cost of each qualification. They are linked to allocation rather than spend. In theory, providers can cross-subsidise other provision.

For apprenticeships, we assume the average costs for apprenticeship standards. Apprenticeships are funded through the annual apprenticeships budget within DfE. Some apprenticeships are partially co-funded by the employer (up to 5%) and this is accounted for in the analysis.

Opportunity cost of time spent training

Time spent training presents an opportunity cost, as the time is not spent working; economic output is foregone. We value this economic cost by considering the labour cost an employer would be willing to pay for the time spent training (i.e. the wage paid to the employee and the employer taxes associated with this).

To estimate foregone income, we multiply the hours of training by the level-below wage. While training, the learner holds the level below the level they are attempting to achieve; therefore, the foregone income is calculated using the level-below wage and economic activity rate.

Apprentices are paid for their hours of training, but this methodology still holds because we are using wages to estimate the economic value of the foregone output (rather than changes in income per se).

Sector-subject area (SSA)-specific methodology

The SSA NPV estimates broadly follow the same methodology as the core estimates, but with model inputs revised to be specific to each subject. These inputs include:

1. Course costs
2. Wage and employment premia
3. Counterfactual wages
4. Average guided learning hours
5. Age distribution
6. Achievement rates

The counterfactual wages are transformed to be subject-specific by using APS data to calculate the ratio of earnings between each subject and the level average. This ratio is then applied to the counterfactual wage at the level below. The APS data we use for the counterfactual does not include subject information, and calculating the ratio allows us to estimate a counterfactual, level-below wage that is specific to each subject area.

Assumptions

We make several modelling assumptions to calculate our NPV estimates.

16-18-year-old classroom learners

We do not estimate wage and employment premia for 16-18-year-old classroom learners specifically as a large proportion of these learners progress to further study rather than employment. Since progression to further study is not captured in our NPV calculations and learners enter study rather than the labour market, it is difficult to robustly attribute their labour market outcomes 3-5 years after they achieve to their FE qualification.

In order to calculate NPVs for 16-18-year-old classroom learners, we use the premia for 19-24-year-olds as a proxy. Since the results use proxies, they are not presented in our headline tables (see annex).

Unlike classroom learners, most apprentices at age 16-18 continue in employment rather than education after their apprenticeship, so we estimate premia for this group of learners. The sustained employment rate (excluding those in both sustained employment and sustained learning) for apprenticeship achievers aged 18 and under in 2021/22 was

68%. The sustained employment rate for education & training achievers in the same age group was 20%.²⁴

We do not assume any foregone income to 16-18-year-olds, since they are required to be in either education or training.

Deadweight

Deadweight refers to outcomes that would have taken place anyway without the intervention under consideration.²⁵ In the context of FE, it describes that if the intervention did not take place, some benefits from training would be achieved without the Government funding for courses. For example, learners might have participated in other forms of education or training or self-funded the training. A deadweight loss occurs because individuals or employers substitute their own financing for skills acquisition with publicly funded training. Additionality refers to the concept where the government policy specifically induces the desired outcome that would not have occurred in the absence of such intervention.

Deadweight is not applied to derive the NPV estimates of this publication, since it is best assessed on a case-by-case basis for each intervention. Those who use the NPVs should set a deadweight that is appropriate for their appraisal. The premia are not affected by deadweight, since we use regressions to calculate causal estimates and we are isolating the additional value of the qualification and separating this from labour market outcomes learners would have in its absence.

Previous iterations of this report included an adjustment for 30% deadweight. These were based on a study from 2012 that estimated that 30% of benefits could have been achieved without funding.²⁶ This work considered apprenticeships only. A more recent study on the impact of the apprenticeship levy found no evidence of significant deadweight in apprenticeship outcomes.²⁷ This evidence can be considered when assessing deadweight on a case-by-case basis.

²⁴ [Further Education Outcomes](#)

²⁵ <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>

²⁶

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/32281/12-767-assessing-deadweight-loss-with-investment-further-education.pdf

²⁷ [cverdp034.pdf \(lse.ac.uk\)](#)

Achievement rates

The NPV per achiever captures the value of the qualification to those who achieve. The NPV per achiever only considers learners who complete their course and is a measure of the value of the qualification.

Not all learners complete their training. We adjust both the costs and benefits to reflect this. Incorporating withdrawals gives us our NPV per start estimates. To reflect this, the NPV per start calculations include an adjustment for the expected achievement rate. The NPV per start assume that learners who withdraw from their qualification receive no benefits from their training. This is a conservative assumption in the absence of robust evidence of the value of non-completers. This evidence is discussed as part of the sensitivity analysis. Further, the sensitivity analysis considers the impact of higher achievement rates on the apprenticeships NPV estimates in the context of steps toward increasing achievement rates.

Lifetime benefits

We estimate benefits over the course of working lifetimes. We are not able to track FE learners across their full working lives but the data available does indicate persistence of benefits for at least 10 years. Further, the lifetime benefits approach aligns with the approach taken by the Institute for Fiscal Studies to estimate the return to undergraduate degrees²⁸ and DfE's GCSE labour market impact estimates.²⁹

We can track outcomes for 10 years after achievement for the earliest cohort of learners within our data (learners who finished in 2011/12). Positive returns persist and are stable for FL2 and FL3 classroom-based provision. After a steep drop in the first two years after training, returns for apprenticeships continue to fall, but at a much slower rate and remain at around 8% even ten years later.

The key insight here is that significant returns persist for at least 10 years. Changes in the precise values should not be over-interpreted because this is a single cohort and the estimates may have been influenced by the particular learning, learner characteristics, and labour market conditions at the time.

²⁸ [The impact of undergraduate degrees on lifetime earnings | Institute for Fiscal Studies](#)

²⁹ [GCSE attainment and lifetime earnings - GOV.UK](#)

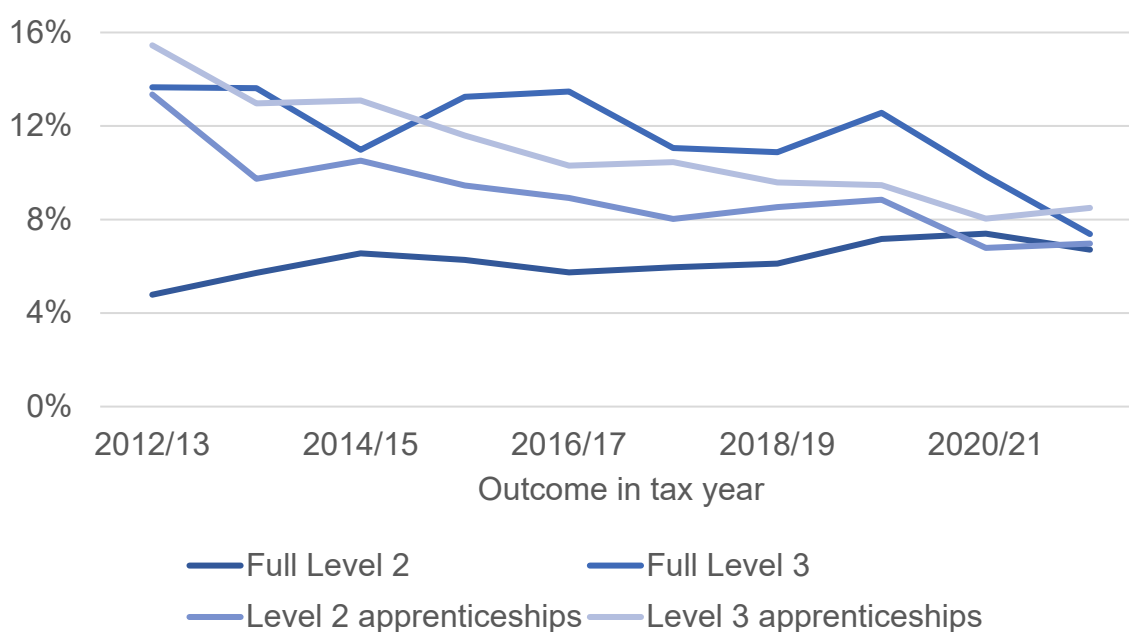


Figure 2 Earnings premia in each tax year, for FE learners exiting learning in 2011/12, by provision and level

Approach to apprenticeships

Apprenticeship standards are occupation-focused qualifications, created by employers based on industry need. They were introduced in April 2016 as an alternative to apprenticeship frameworks that are mainly qualification focused. The move to standards was to ensure that at the end of an apprenticeship, the apprentice had gained the right skills for them to carry out their role.³⁰

The implementation of apprenticeship standards and gradual removal of frameworks began in 2017 and by 2020 almost all apprenticeships were standards.

We use wage and employment premia drawing on outcomes 3 to 5 years after learners finish to test the sustained impact of training. It is too early to estimate this for standards: our premia are based on learning activity that took place between 2013/14 and 2018/19, a period with early cohorts of standards apprentices that are too small to be representative.

³⁰ <https://apprenticeships.blog.gov.uk/2017/08/01/apprenticeship-frameworks-and-standards-the-main-differences/>

To gain an initial insight into the labour market impacts of standards, we estimate the earnings premia over a shorter time period – 1 to 3 years after completion – for learners who completed their training between tax years 2019/20 and 2021/22, the first years with enough standards apprentices to make meaningful estimates. We compare these premia to estimates for frameworks apprentices completing in the same period (see Figure 3 Wage premia for apprenticeship frameworks (2019/20-2020/21) and standards (2019/20-2021/22 tax years)).

This is a tentative and provisional comparison because (i) we can only compare benefits in the short-term; and because (ii) we are comparing the first cohorts of standards apprentices with the last cohorts of frameworks apprentices, and both groups may be ‘atypical’ (e.g. due to standards apprentices being at the early stage of the implementation of the reforms).

This early evidence suggests that the short-term earnings premia for the first cohorts of standards apprentices were broadly similar to the short-term premia of frameworks apprentices (or slightly lower at Level 2). While the earnings of those who achieve their apprenticeship are higher for standards apprentices, so too are the earnings outcomes for those who do not achieve i.e. the comparison group (see Figure 4 Median annualised earnings for apprenticeship framework/standard achievers and non-achievers). This suggests that the individuals who undertook standards would have been more likely than learners who undertook frameworks to secure higher paid employment in the absence of their apprenticeship.

To fully understand the impact of the change from frameworks to standards, we need to consider the impacts over a longer time period – both to assess the sustained benefits over 3-5 years but also to estimate returns to later cohorts when the reforms were more embedded. As such, the picture presented here is provisional and may change in future. For this publication, our NPV estimates - which for consistency require a view of the medium-term impact - use the 3-5 year returns to frameworks.

Table 3 Wage premia for apprenticeship frameworks (2019/20-2020/21) and standards (2019/20-2021/22 tax years)

	Year 1	Year 2	Year 3
L2 Standards	14%	11%	11%
L2 Frameworks	17%	16%	15%
L3 Standards	14%	13%	12%
L3 Frameworks	16%	15%	13%

	Year 1	Year 2	Year 3
L4/5 Standards	7%	9%	11%
L4/5 Frameworks	10%	12%	11%

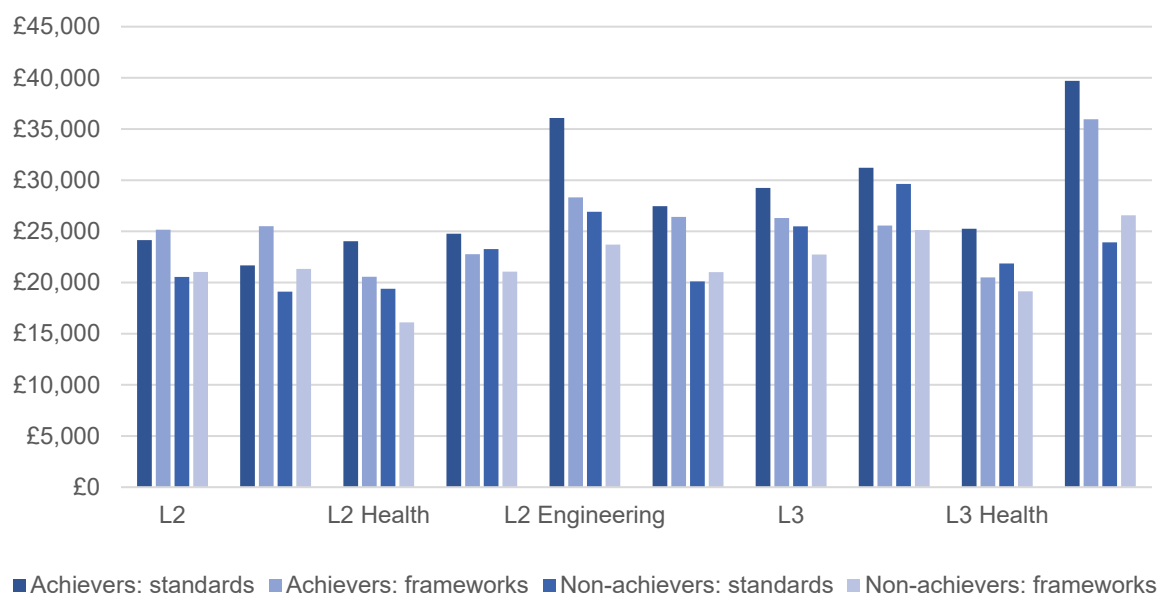


Figure 3 Median annualised earnings for apprenticeship framework/standard achievers and non-achievers

Impact of Covid-19 on the analysis

The labour market outcomes of the analysis cover the time of the Covid-19 pandemic. We therefore investigate how far Covid may have impacted the results.

We observe labour market outcomes between tax years 2016/17 and 2021/22. The inclusion of Covid-19 years does not skew the results: we obtain similar estimates when *excluding* tax years 2020/21 and 2021/22 – though we retain them in our results to increase the sample size and obtain more robust estimates. This suggests that the impact of Covid-19 was similar for those who achieved their qualification and the comparison group, in the time period considered. Our analysis captures only those who trained before Covid and therefore does not provide insight into the impact of Covid on the learners who studied during the pandemic.

The NPV model requires other inputs to estimate the economic value, e.g. the average GLH of provision. For these inputs, we use data from academic year 2021/22. These parameters do not change notably year-on-year and were not impacted by Covid-19.

As such, overall, we are confident that Covid-19 did not impact the results.

Limitations

The wage and employment premia are inevitably backward-looking: we estimate the labour market returns to learning that happened between tax years 2013/14 and 2018/19 and observe labour market outcomes between tax years 2016/17 and 2021/22. We look backward so we can estimate the sustained impact of training 3-5 years after completion, but this means our estimates do not reflect changes in provision since then. Further, they are averages across a great range of qualification offers and providers.

We would expect that the wages of non-achievers would be higher than those of individuals who never attempted the qualification level. This applies a downward bias in the NPVs. Further, the NPVs do not capture any of the skills, and therefore benefits, that non-achievers might attain through completing only a portion of the course and withdrawing.

The NPVs capture average returns for whole programmes. Investment decisions typically concern the marginal impact of increasing or decreasing learner volumes. This requires a judgement about how far the returns of new learners in the future will be similar to the average return observed in the past.

The NPVs represent the value of an average learner who attempts the qualification in a specific subject area and at a certain level. A learner on the fringes of choice between different training options or a learner impacted by a particular policy might receive different returns to the training. Different learners might choose classroom learning and apprenticeships. Ultimately, these are comparisons of averages, not an estimate of how learner outcomes would differ if someone studied e.g. an apprenticeship instead of a classroom FE qualification.

Finally, NPVs do not quantify all the benefits to learning. They focus on work-related economic benefits and do not capture wider social/personal benefits of training, nor the impact of progressing from one qualification to another.

Methodological changes since the last publication

We regularly review our approach to estimating the NPV estimates. For this publication, we have made improvements across the analysis.

Modelling the profile of benefits over the learners' working lives

As set out above, we model how wages and rates of fulltime/parttime working and other activity rates vary across the working lifetime. This is a key methodological improvement on the previous publication.

Learners who have achieved are expected to work the average full-time/part-time rates of the level they achieve.

Previously, we assumed that their APS inputs of full-time/part-time rates and hours worked were those of the level below. We have now changed this to reflect the rates of the level which the learner achieves.

The APS indicates full-time rates increasing with qualification level in most cases. We reflect this pattern in the analysis.

Multiple aims of study

Learners who study Below L2 and non-full L2 qualifications often study multiple aims concurrently. All or any of these aims might contribute to the labour market outcomes of the learner. This raises the question of comparing benefits based on a package of aims a learner undertakes to the costs of just one aim.

Both the achiever and non-achiever groups study multiple aims, which means that the regression to calculate the wage and employment premia remain valid. However, to calculate the NPVs, we make an adjustment to the costs at Below L2 and non-full L2 qualification: we use the total cost of the average number of aims studied concurrently. At all other levels, we assume that learners only incur the course cost of their highest and latest aim.

Results

Our findings continue to show strong economic returns across FE and apprenticeships.

Wage and employment premia results

The wage premium describes the increased wages that can be attributed to achieving the qualification. The employment premium describes the increased likelihood of employment that can be attributed to achieving the qualification.

Provision across FE leads to notable increases in earnings and the likelihood of employment – including shorter, non-full classroom provision. Two broad patterns, consistent with previous literature,³¹ emerge:

- Apprenticeships at levels 2-5 generally have greater labour market premia than classroom learning.
- Younger learners see greater labour market impacts than older learners.

Table 4 Wage premia (3-5 years after completion)

	Age	Apprenticeships	Classroom: full	Classroom: non-full
Level 2	16-18	13%		
	19-23	11%	9%	5%
	24+	8%	7%	6%
	19+	9%	7%	6%
Level 3	16-18	18%		
	19-23	11%	6%	5%
	24+	6%	7%	3% ³²
	19+	8%	7%	3%
Level 4/5	19-23	15%		
	24+	10%		
	19+	11%		

³¹ See for example [CVER](#) and [CVER](#) .

³² Please treat with caution because estimates are not statistically significant in two instances across outcome years 3-5.

Table 5 Employment premia (3-5 years after completion)

	Age	Apprenticeships	Classroom: full	Classroom: non-full
Level 2	16-18	7 pts		
	19-23	6 pts	5 pts	4 pts
	24+	4 pts	4 pts	3 pts
	19+	4 pts	5 pts	4 pts
Level 3	16-18	7 pts		
	19-23	5 pts	4 pts	2 pts
	24+	3 pts	3 pts	3 pts
	19+	3 pts	3 pts	3 pts
Level 4/5	19-23	2 pts		
	24+	2 pts		
	19+	2 pts		

These are comparisons of averages, not an estimate of how learner outcomes would differ if someone studied e.g. an apprenticeship instead of a classroom FE qualification or vice versa.

NPV estimates

The NPV estimates can be understood as the overall economic value of learning. They should be interpreted with the following points in mind:

- The NPV per achiever reflects the value of a qualification. The NPV per start, the benefits per DfE pound and the benefit-cost ratio reflect the value of investment in the qualification.

- Benefits per DfE pound estimate the pounds of benefit per start generated per £1 of cost to DfE³³.
- The benefit-cost ratio estimates the pounds of benefit per start generated per £1 of cost – both the course cost and the opportunity cost of time spent training rather than working.
- Level 3 (full and non-full) provision is funded through a mixture of loans and grants. We take a conservative approach and assume the course costs fall on DfE rather than the learner.³⁴ However, for loan-funded learners, the cost to DfE will be lower, and conversely, the benefit per DfE £ will be higher.
- Classroom NPVs for ages 16-18 are calculated using the premia for ages 19-23 as a proxy. This is explained in the methodology section.
- While both classroom and apprenticeships provision are funded by DfE (and these costs are captured as the 'DfE costs'), it is important to remember that apprenticeships are supported through the apprenticeship levy.

NPV estimates by qualification level

NPV per achiever, per start and return on investment remain high.

We are publishing non-full L3/L3 results for the first time. Previously, we only had NPVs for full L2/L3. Over time, the proportion of adult classroom FE provision made up of 'Full' levels has declined³⁵, and now the majority of provision at L2 and L3 is 'non-full'. We find that non-full levels deliver substantial value. The NPV per achiever is lower than their 'full' equivalents, but their return on investment is similar or higher due to their lower cost.

³³ We described "NPVs per cost" in the last publication. We now describe benefits per costs as we believe these are a clearer description of value for money and align with HMT Green Book.

³⁴ A proportion of Advanced Learner Loan (ALL) outlay is not repaid and this falls as a cost to government. For FY23-24, the estimated RAB charge for ALLs is 48% for Plan 2 loans and 37% for Plan 5 loans.

³⁵ <https://questions-statements.parliament.uk/written-questions/detail/2024-04-15/hl3758>

<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F5ddc463fe5274a79625affe8%2FFurther-education-and-skills-November-2019-main-tables-final.ods&wdOrigin=BROWSELINK>

Table 6 NPV estimates by qualification level (classroom (age 19+))

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio
Below Level 2 excluding English & maths	£45,000	£39,000	£35	£20
Full Level 2	£59,000	£48,000	£20	£10
Non-full Level 2	£40,000	£33,000	£36	£15
Full Level 3	£78,000	£57,000	£18	£7
Non-full Level 3	£47,000	£34,000	£20	£7

Table 7 NPV estimates by qualification level (apprenticeships)

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio
Level 2 (16+)	£77,000	£35,000	£9	£5
Level 3 (16+)	£89,000	£43,000	£9	£5
Level 4/5 (19+)	£80,000	£32,000	£7	£3

NPV estimates by age group

When comparing adult apprenticeships and classroom FE at Levels 2 and 3, we find that the NPV per achiever – the value of the qualification – is considerably greater for apprentices aged 19-23 compared to classroom, while similar for learners aged 24+. The highest NPV per achiever estimates overall are for apprentices aged 16-18.

As we extrapolate lifetime earnings over the time a learner has left in the workforce before retiring, younger learners benefit from the qualification for a longer period of time.

We explore the significance of this effect in the sensitivity analysis below by estimating NPVs over a 10-year time period.

Table 8 NPV estimates by age group

	Apprenticeship: NPV per achiever	Apprenticeship: NPV per start	Apprenticeship: Benefits per DfE £	Classroom: full NPV per achiever	Classroom: full NPV per start	Classroom: full Benefits per DfE £	Classroom: non-full NPV per achiever	Classroom: non-full NPV per start	Classroom: non-full Benefits per DfE £
Level 2									
16-18	£120,000	£56,000	£10						
19-23	£93,000	£46,000	£15	£76,000	£62,000	£25	£59,000	£48,000	£44
24+	£45,000	£18,000	£7	£51,000	£41,000	£18	£36,000	£30,000	£33
19+	£62,000	£28,000	£10	£59,000	£48,000	£20	£40,000	£33,000	£36
Level 3									
16-18	£190,000	£104,000	£12						
19-23	£122,000	£67,000	£13	£82,000	£61,000	£19	£64,000	£47,000	£22
24+	£55,000	£22,000	£7	£63,000	£46,000	£15	£41,000	£30,000	£18
19+	£76,000	£36,000	£9	£78,000	£57,000	£18	£47,000	£34,000	£20

NPV estimates by sector subject area (SSA tier 1)

For the first time, we are publishing premia and NPVs for full L2 and full L3 classroom provision and L2 and L3 apprenticeships by sector subject areas (SSA tier 1).

The wage and employment premia show the variation of returns by subject. For some SSAs and some premia, we have large enough sample sizes but are unable to detect a statistically significant effect; in these instances, the premium reported here is 0%.³⁶

Table 9 Premia for classroom-based provision by SSA, full Level 2 (3-5 years after completion)

Subject	Wage premium	Employment premium
Retail and Commercial Enterprise	11%	6 pts
Engineering and Manufacturing Technologies	10%	4 pts
Construction, Planning and the Built Environment	10%	0 pts
Health, Public Services and Care	8%	6 pts
Information and Communication Technology	8%	4 pts
Agriculture, Horticulture and Animal Care	7%	1 pts ³⁷
Leisure, Travel and Tourism	6%	4 pts
Business, Administration and Law	6%	4 pts

³⁶ In particular, we detect no wage or employment effect for classroom FL3 Leisure, Travel and Tourism despite large sample sizes. This subject is therefore excluded from our NPV estimates.

³⁷ These SSAs had premia that weren't statistically significant in one of the outcome years – these were set to zero and the average recalculated.

Table 10 Premia for classroom-based provision by SSA, full Level 3 (3-5 years after completion)

Subject	Wage premium	Employment premium
Construction, Planning and the Built Environment	14%	1 pts
Engineering and Manufacturing Technologies	13%	5 pts
Information and Communication Technology	11%	5 pts
Education and Training	8%	10 pts
Arts, Media and Publishing	7%	4 pts
Retail and Commercial Enterprise	7%	2 pts
Health, Public Services and Care	4%	5 pts
Business, Administration and Law	4%	1 pts
Agriculture, Horticulture and Animal Care	3% ³⁶	2 pts
Leisure, Travel and Tourism	0%	0 pts

Table 11 Premia for apprenticeship provision by SSA, Level 2 (3-5 years after completion)

Subject	Wage premium	Employment premium
Construction, Planning and the Built Environment	22%	0 pts
Engineering and Manufacturing Technologies	13%	6 pts
Health, Public Services and Care	11%	8 pts
Agriculture, Horticulture and Animal Care	10%	7 pts
Retail and Commercial Enterprise	10%	4 pts
Business, Administration and Law	8%	5 pts

Subject	Wage premium	Employment premium
Leisure, Travel and Tourism	0%	3 pts

Table 12 Premia for apprenticeship provision by SSA, Level 3 (3-5 years after completion)

Subject	Wage premium	Employment premium
Engineering and Manufacturing Technologies	22%	8 pts
Arts, Media and Publishing	19% ³⁸	8 pts ³⁷
Information and Communication Technology	17%	8 pts
Construction, Planning and the Built Environment	14%	2 pts
Agriculture, Horticulture and Animal Care	11%	2 pts ³⁸
Health, Public Services and Care	8%	6 pts
Business, Administration and Law	7%	3 pts
Education and Training	5%	5 pts
Retail and Commercial Enterprise	4%	0 pts ³⁹
Leisure, Travel and Tourism	0%	2 pts

The premia for *Construction, Planning, and Built Environment* need cautious consideration. Self-employment is a key feature of the construction industry. This impacts the destinations of FE learners: 24% of construction achievers go into self-employment (compared to 5% for other subjects)⁴⁰. Self-employed individuals are excluded from our

³⁸ Treat with caution – these estimates are based on fewer than three thousand learners in each outcome year.

³⁹ Two years of significant negative employment return estimates. The interpretation of this in the context of training is unclear. Therefore, 0ppt is reported overall to reflect no indication of a positive impact on employment.

⁴⁰ <https://explore-education-statistics.service.gov.uk/data-tables/permalink/9d90eac5-9f9f-4773-e906-08dce3ab260a>

wage and employment premia for data and methodological reasons. In particular, this may lead to an artificially low employment premium estimate (i.e. the 0% at L2).

The subject-specific model has several limitations:

- We do not have access to subject-specific data for several model inputs. This includes unemployment rates and rates of full-time/part-time working. While these likely differ by subject in practice, we use qualification level-specific averages in the absence of more detailed data.
- The number of observations is lower than for the NPV estimates by qualification level. This results in a higher level of uncertainty.
- The mix of provision has changed between the period of learning covered by the estimates (tax years 2012/13 and 2017/18) and the inputs (academic year 2021/22). We have only included estimates for subjects on which learners continued to enrol in the academic year 2021/22 – excluding subjects which had wage and employment premia but low enrolments from the estimates.
- We only include NPV estimates for which we have premia have sufficient data over sufficient years to test for a causal impact.
- For classroom provision, this assessment is limited to full qualifications only. The insights produced about the relative value of different subjects may not apply to ‘non-full’ qualifications – which make up the majority of L2/3 adult classroom provision.

Further, the estimates need to be interpreted with greater caution than the other NPV estimates:

- We can compare NPVs within the same level to give an indication of which subjects are relatively more/less valuable.
- However, due to the method (using different counterfactuals for each subject): (i) we cannot compare provision between levels; and (ii) learners self-select into subjects and the estimates will reflect this self-selection bias. If a learner were to be moved from their chosen subject to an alternative subject, they would not necessarily achieve the average NPV in the alternative subject.
- Given these caveats, the results should be seen as a broad indication of variation in value by subject for an average learner – all NPVs are averages and individual results will vary. Small differences should not be over-interpreted.

We also report the proportion of enrolments that each subject accounts for. This allows us to consider how far learning is focused on higher value subjects. The enrolment percentages included are across all 15 subject areas within the specific level for

AY2022/23. Note that enrolment percentage figures cannot be compared between levels to give an indication of the popularity of courses across levels (i.e. a 50% enrolment percentage in FL2 Health does not mean there are more enrolments in that subject than a 20% enrolment figure in an FL3 Health as the total number of FL2 and FL3 learners will differ).

The estimates for wage and employment premia and the associated NPV estimates tend to be higher for Science, Technology, Engineering and Maths (STEM) subjects, with variability across non-STEM subjects.

Typically, classroom-based subjects with higher absolute value (i.e. NPV per start) also have higher return on investment (i.e. benefit per £ of DfE cost). This indicates that focusing on higher value subjects also improves the efficiency of spending – despite higher value subjects often being higher cost.

Across apprenticeship provision, the relationship between a subject's NPV per start/achiever and return per £ investment is weaker. Several subjects including *Business, Administration and Law* and *Health, Public Services and Care* have lower NPV values but a high return per £ investment, which is largely due to differences in course costs.

For apprenticeships in particular, these estimates may change going forward:

- We rely on premia from apprenticeship frameworks. This picture may change as outcomes data for more recent cohorts who studied apprenticeship standards becomes available and rich enough to compare between subjects.
- Achievement rates have increased since AY21/22, which would increase our NPV per start estimates.

These estimates quantify the direct economic benefits of training and do not capture the wider benefits of the skills acquired, such as the health benefits of having qualified health staff.

As set out above, the premia for *Construction* need treating with caution. For the same reason, the corresponding NPV estimates potentially underestimate the value of construction provision.

Table 13 NPV estimates by SSA, Classroom Full Level 2 (age 19+)

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio	Enrolment percentage
Engineering and Manufacturing Technologies	£74,000	£68,000	£22	£10	4%
Information and Communication Technology	£62,000	£51,000	£22	£12	3%
Health, Public Services and Care	£61,000	£52,000	£23	£12	1%
Leisure, Travel and Tourism	£58,000	£50,000	£26	£12	1%
Retail and Commercial Enterprise	£54,000	£47,000	£18	£10	35%
Business, Administration and Law	£53,000	£44,000	£44	£14	6%
Construction, Planning and the Built Environment	£39,000	£32,000	£13	£6	42%
Agriculture, Horticulture and Animal Care	£27,000	£21,000	£8	£5	8%

Table 14 NPV estimates by SSA, Classroom Full Level 3 (age 19+)

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio	Enrolment percentage
Engineering and Manufacturing Technologies	£137,000	£101,000	£24	£11	6%
Construction, Planning and the Built Environment	£110,000	£82,000	£23	£9	7%
Information and Communication Technology	£109,000	£75,000	£22	£9	8%
Education and Training	£85,000	£72,000	£25	£10	1%
Arts, Media and Publishing	£69,000	£55,000	£14	£6	8%
Health, Public Services and Care	£61,000	£47,000	£17	£6	32%
Retail and Commercial Enterprise	£43,000	£34,000	£11	£6	6%
Business, Administration and Law	£42,000	£23,000	£11	£4	9%
Agriculture, Horticulture and Animal Care	£38,000	£25,000	£7	£3	5%

Table 15 NPV estimates by SSA, Apprenticeship Level 2 (age 16+)

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio	Enrolment percentage
Engineering and Manufacturing Technologies	£103,000	£48,000	£11	£6	19%
Agriculture, Horticulture and Animal Care	£90,000	£44,000	£9	£6	5%
Construction, Planning and the Built Environment	£84,000	£37,000	£7	£4	18%
Health, Public Services and Care	£77,000	£32,000	£12	£7	27%
Business, Administration and Law	£71,000	£34,000	£11	£7	9%
Retail and Commercial Enterprise	£62,000	£29,000	£8	£5	22%
Leisure, Travel and Tourism	£12,000	£5,000	£2	£2	1%

Table 16 NPV estimates by SSA, Apprenticeship Level 3 (age 16+)

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit-cost ratio	Enrolment percentage
Engineering and Manufacturing Technologies	£248,000	£124,000	£11	£6	26%
Information and Communication Technology	£194,000	£111,000	£13	£9	7%
Arts, Media and Publishing	£161,000	£91,000	£13	£10	1%

	NPV per achiever (21/22 prices)	NPV per start (21/22 prices)	Benefits per DfE £	Benefit- cost ratio	Enrolment percentage
Construction, Planning and the Built Environment	£118,000	£67,000	£9	£4	6%
Health, Public Services and Care	£77,000	£35,000	£11	£6	26%
Agriculture, Horticulture and Animal Care	£76,000	£52,000	£7	£4	2%
Business, Administration and Law	£76,000	£38,000	£11	£5	23%
Education and Training	£51,000	£30,000	£8	£5	3%
Retail and Commercial Enterprise	£27,000	£8,000	£4	£2	6%
Leisure, Travel and Tourism	£15,000	£6,000	£3	£2	1%

Sensitivity analysis

Sensitivity to apprenticeship achievement rates

Our NPV per start estimates assume that learners who withdraw from their qualification receive no benefits from their training. This is a conservative assumption in the absence of sufficiently robust evidence of the value of learning for non-achievers.

This assumption impacts apprenticeships more than classroom-based provision because of the lower achievement rate. The apprenticeship achievement rate dropped from 67% to 53% between academic years 2017/18 and 21/22 with the introduction of more rigorous standards and the embedding of a range of apprenticeship reforms – and it has improved since, which is not reflected in the NPV estimates. Consistent with other model inputs, we use the average achievement rates in academic year 21/22.

If the achievement rate for apprenticeships rose to 60% across all apprenticeships, the NPV per start and the benefits per DfE £ would increase and the gap between the NPV per start in apprenticeship and classroom-based provision would become smaller. By definition, the NPV per achiever would be unaffected.

Table 17 Scenario analysis: what impact would a 60% achievement rate have on the apprenticeship NPVs?

Provision	Return on investment estimates	Updated with achievement rate of 60%
Apprenticeships Level 2 age 16+	NPV per start: £35,000 Benefits per DfE £: £9	NPV per start: £44,000 Benefits per DfE £: £11
Apprenticeships Level 3 age 16+	NPV per start: £43,000 Benefits per DfE £: £9	NPV per start: £50,000 Benefits per DfE £: £10
Apprenticeships Level 4/5 age 19+	NPV per start: £32,000 Benefits per DfE £: £7	NPV per start: £44,000 Benefits per DfE £: £9

Relationship between age and economic value

In the long-run, investment in younger learners generates greater value – in part because of their longer time in the workforce.

The benefits of qualifications to learners vary by age. Generally speaking, younger learners benefit more from their qualification for two reasons:

1. The percentage increase in wages and likelihood of employment three to five years after training are generally higher for younger learners, which is a finding backed up by wider academic literature.⁴¹
2. Younger learners also benefit more because they remain in the labour market longer. Our data finds that the benefits to training persist in the long run: returns to FE persist at least 10 years after learners finish.

To test how far the higher value is driven by younger learners staying in the labour market for longer, we run the analysis for a 10-year appraisal period rather than over a lifetime: with a shorter appraisal period, the benefits would be reduced while the costs would remain unaffected.

Considering a 10-year appraisal period, we find that:

- For apprenticeships, the NPV per start is still greater for younger learners. However, for classroom provision, the NPV per start – and benefits per DfE pound – are similar across ages or greater for learners aged 24+.
- This is because, unlike for apprenticeships, the returns for classroom adults are much more similar across age groups and older adults are more likely to work full-time at a higher wage.
- This indicates that – when considering impacts in the medium term rather than long-run and when looking at classroom provision specifically – the investment in older adult learners can offer as much or an even greater return than younger learners, depending on the provision type.

Table 18 NPV (AY2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: apprenticeships

Provision	Age	NPV per start (lifetime)	NPV per start (10-year)	Benefits per DfE £ (lifetime)	Benefits per DfE £ (10-year)
Level 2	16-18	£56,000	£7,000	£10	£2
	19-23	£46,000	£5,000	£15	£3
	24+	£18,000	£3,000	£7	£3
Level 3	16-18	£104,000	£15,000	£12	£3
	19-23	£67,000	£8,000	£13	£3
	24+	£22,000	£4,000	£7	£3
Level 4/5	19-23	£76,000	£10,000	£12	£3
	24+	£23,000	£3,000	£6	£3

⁴¹ See for example [cverdp016.pdf \(lse.ac.uk\)](#) and [cverdp030.pdf \(lse.ac.uk\)](#).

Table 19 NPV (2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: full levels in classroom provision

Provision	Age	NPV per start (lifetime)	NPV per start (10-year)	Benefits per DfE £ (lifetime)	Benefits per DfE £ (10-year)
Level 2	19-23	£62,000	£10,000	£25	£6
	24+	£41,000	£13,000	£18	£7
Level 3	19-23	£61,000	£8,000	£19	£5
	24+	£46,000	£15,000	£15	£8

Table 20 NPV (2021/22 prices): comparing estimates using the learners' full working life versus benefits only over a 10-year period: non-full levels in classroom provision

Provision	Age	NPV per start (lifetime)	NPV per start (10-year)	Benefits per DfE £ (lifetime)	Benefits per DfE £ (10-year)
Level 2	19-23	£48,000	£9,000	£44	£10
	24+	£30,000	£12,000	£33	£15
Level 3	19-23	£47,000	£7,000	£22	£5
	24+	£30,000	£11,000	£18	£8

Earnings of non-achieving apprentices

Our analysis attributes no value to qualifications which learners start and do not achieve, due to the absence of a robust counterfactual to test for any value derived from undertaking only some of a qualification. We think it is reasonable that even non-achievers gain some benefit from their on-the-job and off-the-job training and our estimates likely underestimate some of the value of training to non-achievers.

The reasons for not completing an apprenticeship vary widely, as captured in figures 9-4 and 9-5 in the Apprenticeship Evaluation Survey 2023⁴² (AEvS 2023). They vary across levels, subjects and demographic grouping, such as age and gender.

Non-completers that withdrew more than halfway through their apprenticeships were more likely to report that they were offered another job or felt they could progress well without continuing the apprenticeship and this is especially true for those who stayed with their employer, which could suggest that they gained some benefit from the incomplete apprenticeship.

When looking at the average raw median earnings outcomes of non-achievers by how long they trained, we see an increase as the number of months of study increases. This analysis looks at the average raw median wages (i.e. no adjustments are made to control for differences in learner characteristics) for non-achievers 3-5 years after exiting, by level and the duration of their learning spell.

More months on the apprenticeship are associated with higher median earnings on average, 3-5 years later.

However, we do not have a clear counterfactual and cannot attribute causality to the apprenticeship. It is possible that some or all of the increase in earnings might have occurred anyway in the absence of the apprenticeship.

Table 21 Average raw median earnings 3-5 years later for non-achievers based on duration of training

	Less than 2 months	2-5 months	6-11 months	12-15 months	Over 18 months
Level 2 Apprenticeship (16+)	£17,700	£18,000	£18,800	£19,400	£20,700
Level 3 Apprenticeship (16+)	£19,400	£19,800	£20,200	£20,800	£21,400

⁴²

https://assets.publishing.service.gov.uk/media/66e98fd9c069f68b7681bc90/Apprenticeship_evaluation_2023_learner_and_non-completer_surveys_research_report.pdf

The current NPV estimates indicate strong returns to provision even without capturing the benefits of those who only complete part of their training.

Changes in estimates since the last publication

This is the third in a series of publications of NPV estimates for FE qualifications. Comparisons with previous publications need to be treated with caution: we have continually updated our methodology, the estimates covered different time periods and learner characteristics and reflect the learning provision and labour market of the period.

Table 22 Time periods covered by wage and employment premia

Publication	Years in which learners finished (tax year)	Years of labour market outcomes (tax year)
<u>2014</u>	2004/5 to 2010/11	2007/8 to 2011/12
<u>2021</u>	2008/9 to 2013/14	2011/12 to 2016/17
2025 – this update	2013/14 to 2018/19	2016/17 to 2021/22

There are several key differences between publications that need considering:

We have updated our methodology

We have undertaken a root-and-branch review of the methodology that underlies our NPV estimates and we have made several improvements that make our NPV estimates more robust than the 2021 publication. In turn, the 2021 publication made methodological changes compared to the 2014 publication.

Data quality has improved

While the broad methodology for wage and employment premia is unchanged from the 2021 publication, improved data quality in LEO means we capture more learner destinations and earnings outcomes – yielding more robust estimates. In particular, the 2014 publication was based on a predecessor to LEO, with limited ability to match to Higher Education destinations, so the data underpinning both the 2021 and this publication is much more robust.

The policy context and learner mix has changed

FE has undergone wide-ranging reforms – including, but not limited to, the apprenticeships reforms mentioned above. Further the FE learner population has also

changed in several key respects (as set out below). This means we need to consider how far we are comparing 'like with like' across time.

The labour market has changed

The premia cover labour market outcomes between tax years 2016/17 and 2021/22. The 2021 publication covered labour market outcomes between 2011/12 and 2016/17.

Three important labour market changes occurred across the periods covered by the 2021 publication and the 2024 update:

- **Falling unemployment.** The post-2008 UK unemployment rate peaked at 8.1% in 2011 (during the period covered by the 2021 publication) before dropping steadily to 3.9% in 2019.
- **Real wage growth.** Average real terms annual growth in regular pay was -0.2% over calendar years 2011 to 2016, whereas it was +0.7% for 2017 to 2019 and +2% across 2020 and 2021.
- **Introduction of the National Living Wage (2016).** This disproportionately increased earnings of those on the lowest incomes the most, closing the gap between those and others higher up the earnings distribution

The following sections consider how the estimates have changed compared to previous publications. To enable consistent comparison, we have derived NPV per achiever estimates for the previous publications, and all values are expressed in 21/22 prices.⁴³

Given changes in data quality and method, small differences in estimates should not be interpreted as evidence of changes in the real-world value of FE.

Changes in estimates for classroom-based provision

For **Below L2 qualifications**, wage returns have increased slightly compared to the 2021 publication (but are notably larger than 2014) while employment returns have increased more notably.

The small changes in returns (1-2ppt changes across both sets of estimates) are within the bounds of variation we would expect from improvements to data quality.

The NPV per achiever for Below L2 (exc. English & Maths) has increased substantially, driven by the NPV methodology better capturing the increased likelihood of full-time working among those who achieve relatively lower-level qualifications.

⁴³ Furthermore, the employment premia reported in the 2021 publication are reported differently here due to subsequent revisions.

Table 23 Below L2 estimates for classroom provision in different publications

	2014 publication	2021 publication	2024 update
Below L2 exc E&M (19+) Wage premium	2%	5%	6%
Below L2 exc E&M (19+) Employment premium	n/a	2ppt	4ppt
Below L2 exc E&M (19+) NPV per achiever (2021/22 prices)	£6,000	£14,000	£45,000

For **Full L2 qualifications**, our estimated wage premium is slightly lower than the 2021 publication and the employment premium is slightly higher. The NPV per achiever has increased compared to the 2021 publication and is now similar to the NPV as per the 2014 publication.

Again, small changes in returns are to be expected given improvements to data quality.

The volume of Full L2 adult learners fell substantially over the period: in 2010/11, c.240,000 participated in Education & Training at Full L2 compared to c.36,000 in 2018/19.⁴⁴ Concurrently, the proportion of learners who were previously employed decreased while the proportion previously on benefits increased. This means that there were notable changes in the characteristics of learners studying FL2.

As with Below L2, the increase in NPV is driven by better capturing the increased likelihood of fulltime working at higher qualification levels.

Table 24 Full L2 estimates for classroom provision in different publications

	2014 publication	2021 publication	2024 update
Full L2 (19+) Wage premium	11%	9%	7%
Full L2 (19+) Employment premium	2ppt	4ppt	5ppt
Full L2 (19+) NPV per achiever (2021/22 prices)	£58,000	£47,000	£59,000

⁴⁴ <https://explore-education-statistics.service.gov.uk/data-tables/permalink/46333d33-8b0a-422e-2df9-08dcdd2501be>

Full L3 qualifications have both lower wage and employment premia in this update, although they are similar to the estimates in the 2014 publication. The NPV per achiever has fallen but remains higher than in the 2014 publication.

The reduction in premia is mainly driven by the change in time period: holding data and methodology constant, we see lower wage premia for those who finished between 2013/14 and 2018/19 than for those who finished between 2008/09 and 2013/14.

Wage and employment premia are the result of an interaction between (i) the labour market context, (ii) the learner characteristics and (iii) the learning undertaken.

The labour market changes described at the beginning of the section (declining unemployment, a return to real wage growth and the introduction of the National Living Wage) may have especially impacted the 2021 results: the time period analysed included the peak in unemployment post-2008, which could have led to especially high returns to further education in the period that the estimates cover. Since then, the strengthening labour market may have meant that lower qualified individuals were better able to secure employment at relatively good wages – narrowing the gap in labour market outcomes between lower and higher qualified workers (i.e. between those who hold a L2 and below qualification versus those who hold a L3 respectively) and causing the wage premia to reduce.

Full L3 learner characteristics in our sample have also changed over the period. A higher proportion of learners claimed benefits: the proportion of Full L3 achievers with a spell on conditional benefits increased from 13% to 22%. They also had higher prior attainment: in the 2021 publication, 16% of achievers of a Full L3 already held a Full L3 – increasing to 29% in the new estimates – although this may in part be improved LEO data which more accurately captures prior attainment.

As with Full L2, learner volumes at Full L3 have also decreased substantially, reflecting changes to the FE system. In 2010/11 c.160,000 adults participated in Full 3 Education & Training – down to c.70,000 in 2018/19.⁴⁵

Table 25 Full L3 estimates for classroom provision in different publications

	2014 publication	2021 publication	2024 update
Full L3 (19+) Wage premium	9%	16%	7%
Full L3 (19+) Employment premium	4ppt	5ppt	3ppt

⁴⁵ [Further-education-and-skills-November-2019-main-tables-final.ods](#)

Full L3 (19+) NPV per achiever (2021/22 prices)	£66,000	£111,000	£78,000
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Changes in estimates for apprenticeship provision

Across all levels, both wage and employment premia of apprenticeship provision and the NPVs per achiever are lower than in the 2014 and 2021 publications.

The drop in returns to apprenticeships at L4/5 is due to the fact that the 2021 publication captured the very first, very small cohorts of L4/5 apprentices (finishing 2011/12 and 2012/13) who had much higher wage and employment premia than subsequent cohorts. For subsequent cohorts, the wage premium is stable at c.12%. The 2021 publication therefore reflected outliers: the first learners on new provision were not representative and the number of achievers in the sample for this publication is nine times as large as in the 2021 publication.

The majority of the reduction in returns at L2/3 is driven by the change in time period. The reduction is greater for L3 than for L2. The drivers set out above for classroom provision are also relevant here: i.e. the changing labour market context as well as learner characteristics (e.g. higher prior attainment).

While lower, the updated premia continue to demonstrate substantial value to apprenticeship provision. Further, it is important to note that the premia presented here are for frameworks, as explained in the methodology section. It is possible that this picture may change in future years as more data on the standards becomes available.

Table 26 Comparison of apprenticeship premia and NPV per achiever over time

	2014 publication	2021 publication	2024 update
L2 (16+) ⁴⁶ Wage premium	11%	14%	10%
L2 (16+) Employment premium	0ppt	6ppt	5ppt
L2 (16+) NPV per achiever (2021/22 prices)	£59,000	£89,000	£77,000
L3 (16+) Wage premium	16%	17%	9%
L3 (16+) Employment premium	0ppt	5ppt	4ppt

⁴⁶ Our headline apprenticeship estimates are for learners aged 16+. However, the 2014 publication only estimated for 19+: hence, the 2014 estimates in this table are not directly comparable and therefore greyed out.

L3 (16+) NPV per achiever (2021/22 prices)	£83,000	£112,000	£89,000
L4/5 (19+) Wage premium	n/a	22%	12%
L4/5 (19+) Employment premium	n/a	4ppt	2ppt
L4/5 (19+) NPV per achiever (2021/22 prices)	n/a	£133,000	£80,000

The 2014 publication column is in the second column from the left and in grey. Our headline apprenticeship estimates are for learners aged 16+. However, the 2014 publication only estimated for 19+, so the 2014 estimates in this table are not directly comparable.

Conclusion

This report updates the estimates of the Net Present Values (NPVs) of Further Education (FE) qualifications, and shows continuing high return on investment across provision types, levels, age, and subject areas.

We set out the wage and employment premia for education, training and apprenticeships for learners whose learning finished between tax years 2013/14 and 2018/19 and for whom we had labour market outcomes between tax years 2016/17 to 2021/22. We calculate the resulting NPV estimates for AY21/22. We consider learners in England aged 19+ for classroom-based provision and 16+ for apprenticeship provision.

We use improved LEO data to estimate the premia and have updated the methodology for estimating NPVs to take into account the age distribution of learners and more detailed, age-specific characteristics such as the likelihood of working fulltime and the average number of hours worked. This has allowed us to build more reliable estimates.

For the first time, we publish premia and NPV estimates for classroom-based provision at non-full L2 and L3 and subject-specific estimates, covering a broader range of DfE provision than ever before. We show that non-full levels provide good value for learners and good value for money for the taxpayer's investment in them.

We have investigated the impact of changing apprenticeship achievement rates and the relationship between age and economic value, and explored how earnings for non-achieving apprentices increase over the course of their apprenticeship.

These NPV estimates remain an underestimate of the social benefits, since we do not account for wider social benefits, such as improved health or reduced crime rates linked to education and training.

Annex 1: NPVs for 16-18-year-old classroom learners

We do not estimate wage and employment premia for 16-18-year-old classroom learners directly, as a large proportion of these learners progress to further study rather than employment. The sustained employment rate for 16–18-year-old education & training FE learners in 2021/22 was 20%.⁴⁷ Given high progression to further study rather than the labour market, it is difficult to robustly attribute their labour market outcomes 3-5 years after they achieve to their FE qualification specifically.

In order to calculate NPVs for 16-18-year-old classroom learners, we use the premia for 19-24-year-olds as a proxy. Since the estimates use this key proxy, they are not presented in our headline tables.

Table 27 NPVs for classroom 16-18-year-olds (proxy-based)

	NPV per achiever	NPV per start	Benefits per DfE £	Benefit-cost ratio
Full Level 2	£72,000	£54,000	£6	£6
Full Level 3	£84,000	£67,000	£8	£8

⁴⁷ [Further Education Outcomes](#)

Annex 2: Total NPV in AY21/22 by qualification level

We estimate the total NPV for learning undertaken in AY21/22 by multiplying the number of unique learners who participated in learning and their average NPV per start.

The number of learners participating in AY21/22 includes both those who started in AY21/22 and those studying courses longer than one year who started previously. They are the number of unique DfE-funded learners who are not studying a higher level of any type and therefore do not match the participation figures published on Explore Education Statistics. This allows us to estimate the total lifetime value of courses being studied in AY21/22.

These estimates should not be compared to analogous estimates in Tables 1 and A2.9 of the [2021 publication](#). Firstly, the 2021 publication estimates were based on learner starts rather than participation. Secondly, the learning in scope is different: for the first time, we are able to report the value of learning undertaken at non-full Level 2 and Level 3.

Table 28 Total NPV in AY21/22 by qualification level (classroom, £bn)

	Number of unique learners participating (learners counted in the highest aim studied, AY21/22)	NPV per start (21/22 prices)	Total NPV (£bn)
Below Level 2 excluding English & maths (19+)	208,000	£39,000	£8
Full Level 2 (19+)	23,000	£48,000	£1
Full Level 2 (16-18)	47,000	£54,000	£3
Non-full Level 2 (19+)	342,000	£33,000	£11
Full Level 3 (19+)	51,000	£57,000	£3

	Number of unique learners participating (learners counted in the highest aim studied, AY21/22)	NPV per start (21/22 prices)	Total NPV (£bn)
Full Level 3 (16-18)	235,000	£67,000	£16
Non-full Level 3 (19+)	69,000	£34,000	£2

Note: For 16-18-year-old learners, we only estimate the NPV per start for full Level 2 and full Level 3. Around 39,000 learners in this age group were studying a non-full Level 2 and around 108,000 learners in this age group were studying a non-full Level 3 in AY21/22.

Table 29 Total NPV in AY21/22 by qualification level (apprenticeships, £bn)

	Number of unique learners participating (learners counted in the highest aim studied, AY 21/22)	NPV per start (21/22 prices)	Total NPV (£bn, 21/22 prices)
Level 2 (19+)	109,000	£28,000	£3
Level 2 (16-18)	57,000	£56,000	£3
Level 3 (19+)	261,000	£36,000	£9
Level 3 (16-18)	60,000	£104,000	£6
Level 4/5 (19+)	127,000	£32,000	£4



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