LE London Economics

The economic impact of Waltham Forest College

Final Report for Waltham Forest College

December 2024

About London Economics

London Economics is one of Europe's leading specialist economics and policy consultancies headquartered in London. We advise clients in both the public and private sectors on economic and financial analysis, policy development and evaluation, business strategy, and regulatory and competition policy.

Our consultants are highly-qualified economists with experience in applying a wide variety of analytical techniques to assist our work, including cost-benefit analysis, multi-criteria analysis, policy simulation, scenario building, statistical analysis and mathematical modelling. We are also experienced in using a wide range of data collection techniques including literature reviews, survey questionnaires, interviews and focus groups.

Head Office: Somerset House, New Wing, Strand, London, WC2R 1LA, United Kingdom.

w: londoneconomics.co.uk e: info@londoneconomics.co.uk 𝕏: @LE_Education
t: +44 (0)20 3701 7700 @LondonEconomics

Acknowledgements

We would like to acknowledge the useful data, guidance and feedback provided by Waltham Forest College throughout this research, with particular thanks to Janet Gardner, James Webber, Michael Aldridge, and Dave Barden. Responsibility for the contents of this report remains with London Economics.

Authors

Maike Halterbeck, Partner, mhalterbeck@londecon.co.uk
Dr Gavan Conlon, Partner, gconlon@londecon.co.uk

Source of pictures: Waltham Forest College. Source of icons: Microsoft PowerPoint.

Table of Contents

Foreword

Waltham Forest College is proud to have served its local communities as an Anchor Institution for over 85 years. Originally established as one of the country's first new Vocational and Technical Colleges, it has evolved over the years, starting as a Technical College, Military Training Base, School of Art, Further Education College and even regional Covid vaccination and testing centre during the pandemic– the constant theme has always been to support the changing needs of our communities in North East London and the wider region. The College has remained at the heart of the community and has continued to adapt swiftly and readily to meet evolving skills needs.

Waltham Forest College offers a high-quality learning experience and exceptional positive progression for its diverse range of students. Whilst the educational and social impact is recognised, it is also important to highlight the economic impact of Waltham Forest College for its students, local communities, and the broader UK economy. Therefore, we have commissioned London Economics to conduct an independent and detailed analysis, and I am pleased that their analysis spotlights the significant economic impact of Waltham Forest College across the UK.

In 2022/23, the total economic impact of Waltham Forest College's activities stood at £304 million. The report found that Waltham Forest College is extremely efficient in the use of public money. For every £1 spent, the College generated an economic benefit of £11.6, which is significantly higher than many other sectors.

The economic landscape in the UK remains challenging, and yet Waltham Forest College continues to deliver exceptional value for money, as well as high-quality education and training. This is key to meeting the skills needed to drive the economy and boost productivity. We need to continue to invest in developing the future pipeline of talent that employers need, as well as aspirational careers and opportunities that our diverse communities deserve.

I would like to thank London Economics for this impactful report and to particularly thank all the staff and students at Waltham Forest College, both past and present, for their hard work and significant contribution.

Janet Gardner
CEO & Principal, Waltham Forest College

Executive Summary

London Economics were commissioned by Waltham Forest College to analyse the economic impact of the College's activities, focusing on the 2022-23 academic year. Specifically, the analysis considers the economic impact associated with the College's **teaching and learning activities**, as well as the impact associated with Waltham Forest College's **expenditures** (i.e. the College's physical footprint).

The aggregate economic impact of Waltham Forest College

The total economic impact associated with Waltham Forest College's activities in 2022-23 stood at £304 million.

The total economic impact on the UK economy associated with Waltham Forest College's activities in 2022-23 was estimated at approximately **£304 million** (see Table 1).[1] In terms of the components of this impact, the impact of the College's **teaching and learning activities** was estimated at **£221 million** (**73%**), including **£154 million** accrued by students and **£67 million** accrued by the Exchequer. The impact generated by the College's **operating and capital expenditures** was estimated at **£83 million** (**27%**), with **£55 million** of this impact generated in London, and the remaining **£27 million** generated throughout the rest of the UK.

Table 1 Total impact of Waltham Forest College's activities on the UK economy in 2022-23 (£m and % of total)

Type of impact		£m	%
	**Impact of teaching and learning**	**£221m**	**73%**
	Students	£154m	51%
	Exchequer	£67m	22%
	**Impact of the College's spending**	**£83m**	**27%**
	Direct impact	£28m	9%
	Indirect and induced impact	£54m	18%
Total economic impact		**£304m**	**100%**

Note: All estimates are presented in 2022-23 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated.
Source: London Economics' analysis

Compared to the College's relevant operational costs of approximately **£26 million** in 2022-23[2], the total impact of Waltham Forest College's activities on the UK economy was estimated at **£304 million**, which corresponds to a **benefit-to-cost ratio of approximately 11.6:1**. This compares to a median benefit-to-cost ratio of **1.8:1** across almost 600 government regulatory impact assessments that we analysed[3].

[1] All estimates here are presented in terms of economic output (equivalent to income/expenditure). The impact of the College's operating and capital expenditures can also be converted into gross value added (GVA) and full-time (FTE) employment, and these additional findings are provided within Section 3 of this report.
[2] This relates to the College's operating expenditure in 2022-23, excluding depreciation and capital expenditure.
[3] For more details on this comparison, see Section 4.

The impact of Waltham Forest College's teaching and learning activities

The analysis of the impact of Waltham Forest College's teaching and learning activities estimates the **enhanced employment and earnings benefits to learners**, and, separately, the **additional taxation receipts to the public purse** associated with further education (FE) and apprenticeship attainment at the College.[4] The analysis focuses on the **6,795** UK domiciled students who started FE qualifications or apprenticeships at Waltham Forest College in the 2022-23 academic year, and is adjusted for the specific characteristics of these students.

The economic impact of teaching and learning generated by the 2022-23 cohort of Waltham Forest College students stood at £221 million.

Incorporating both the expected costs associated with qualification attainment and the labour market benefits expected to be accrued by students over their working lives, the analysis suggests that there are substantial net learner benefits and net Exchequer benefits associated with qualification attainment at the College. For example, the average net learner benefit achieved by a representative student in the 2022-23 cohort completing a **full-time Level 3 vocational qualification** (with a Level 2 vocational qualification as their highest prior attainment) stands at approximately **£51,000**. Similarly, taking account of the benefits and costs to the public purse, the associated net Exchequer benefit was estimated at **£32,000**[5]. The corresponding net learner benefit per student completing a **full-time Level 2 vocational qualification** at the College (relative to a Level 1 vocational qualification) was estimated at **£48,000**, with a net Exchequer benefit of **£21,000**.

Table 2 Impact of Waltham Forest College's teaching and learning activities associated with the 2022-23 cohort (£m), by beneficiary, mode, and level of study

Beneficiary and study mode	Study level		
	FE qualifications	Apprenticeships	Total
Students	**£151m**	**£3m**	**£154m**
Full-time	£68m	£3m	**£72m**
Part-time	£83m	-	**£83m**
Exchequer	**£64m**	**£2m**	**£67m**
Full-time	£30m	£2m	**£32m**
Part-time	£35m	-	**£35m**
Total	**£216m**	**£5m**	**£221m**
Full-time	£98m	£5m	**£103m**
Part-time	£118m	-	**£118m**

Note: All estimates are presented in 2022-23 prices, discounted to reflect net present values, rounded to the nearest £1m, and may not add up precisely to the totals indicated. For simplicity, in the table, the estimates for apprenticeship learners are included within the results for full-time students. ***Source: London Economics' analysis***

[4] The estimation of the net learner benefit and net Exchequer benefit is based on a detailed econometric analysis of the UK Labour Force Survey. The analysis considers the impact of further education qualification and apprenticeship attainment on earnings and employment outcomes; however, as no information is specifically available on the particular institution attended, the analysis is *not* specific to Waltham Forest College's students. Rather, the analysis is adjusted to reflect the characteristics of the 2022-23 cohort of Waltham Forest College students to the greatest extent possible (e.g. in terms of mode of study, level of study, subject mix, gender, average age at enrolment, or duration of qualification).

[5] The full set of net learner benefits and net Exchequer benefits is presented in Annex A2.2.9.

The net learner benefits and net Exchequer benefits (by gender, study mode, and study level, and adjusted for the subject mix of the cohort where possible) were combined with information on the number of learners starting FE qualifications or apprenticeships at the College in 2022-23, as well as expected completion rates. The resulting aggregate economic impact generated by the College's teaching and learning activities associated with the 2022-23 cohort stood at approximately **£221 million** (see Table 2). Of this total, **£154 million** (**70%**) is accrued by students undertaking FE qualifications or apprenticeships at the College, and the remaining **£67 million** (**30%**) is accrued by the Exchequer.

The impact of Waltham Forest College's expenditures

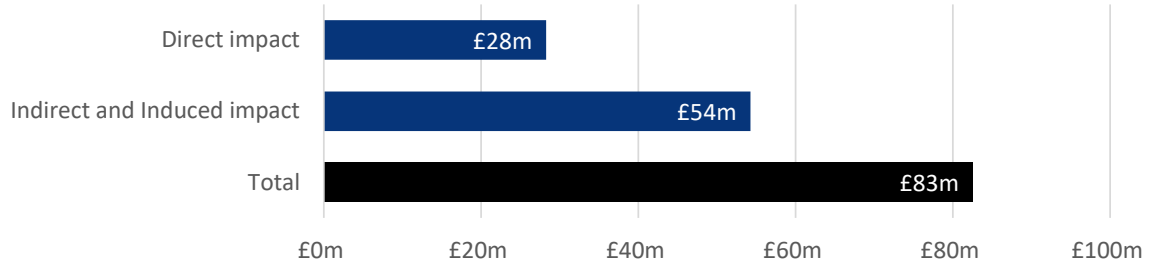
As the third largest employer in the Waltham Forest Borough[6], Waltham Forest College is integral to its local and regional community. The College's physical footprint supports jobs and promotes economic growth throughout North-East London and the wider UK economy. This is captured by the **direct, indirect, and induced impact associated with the College's expenditures**.

The impact of Waltham Forest College's expenditures in 2022-23 stood at £83 million.

The **direct impact** of the College's physical footprint was based on its operating and capital expenditures, standing at **£28 million** in 2022-23 (including **£26 million** of operating expenditure[7] and **£2 million** of capital expenditure). We then assessed the **indirect and induced economic impacts** associated with the College's expenditures, using economic multipliers derived from a (multi-regional) Input-Output model. These effects capture the additional rounds of spending throughout the economy that are generated by the College's expenditures (through the College's supply chain and the spending of its staff). Applying relevant economic multipliers, the **total direct, indirect, and induced impact** associated with the College's expenditures in the 2022-23 academic year was estimated at **£83 million** (see Figure 1). The majority of this impact (**£55 million, 67%**) occurred in **London**, while the remainder (**£27 million**, **33%**) was accrued across the rest of the UK.

In terms of the number of FTE jobs supported, the College's expenditures supported a total of **635** FTE jobs across the UK economy in 2022-23, including **380** jobs supported in **London**.

Figure 1 Impact associated with Waltham Forest College's expenditures in 2022-23 (£m)



Note: All estimates are presented in 2022-23 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated.
Source: London Economics' analysis

[6] See Waltham Forest College (2023).
[7] The total operational expenditure (*excluding* capital expenditure) of Waltham Forest College in 2022-23 stood at **£28 million**. From this total, for the purpose of the analysis, we excluded **£2 million** in depreciation costs (from non-staff expenditure), as it is assumed that these costs are not relevant from a procurement perspective (i.e. these costs are not accounted for as income by other organisations). This results in relevant operating expenditure of **£26 million** in 2022-23. Adding in capital expenditure of **£2 million**, we thus reach the total value of **£28 million** of expenditure included throughout the analysis.

1 Introduction

Waltham Forest College is a medium-sized further education (FE) college based in North-East London, supporting around 8,000 learners each year. As a key anchor institution and the third largest employer in the London Borough of Waltham Forest, the College is an integral part of the local and regional community, equipping local people with the skills that employers need. The College's wide-ranging educational offer has been rated 'Outstanding' by Ofsted, making it one of only 15 General Further Education Colleges across England to achieve this rating, and the only one in London.

London Economics were commissioned to assess the economic impact of Waltham Forest College on the United Kingdom, focusing on the 2022-23 academic year. Specifically, the analysis estimates the College's contribution to the UK's national prosperity through:

- The economic contribution of Waltham Forest College's provision of **teaching and learning**, in terms of the wide range of further education qualifications and apprenticeships offered by the College. In particular, in **Section 2**, we assess the improved labour market earnings and employment outcomes associated with further education and apprenticeship attainment at the College. Through an assessment of the expected lifetime benefits and costs associated with educational attainment, we assess the **net economic benefits of the College's teaching and learning activity to its students and the public purse**, focusing on the cohort of **6,795** UK domiciled students who started FE qualifications or apprenticeship training at Waltham Forest College in the 2022-23 academic year[8]; and
- The impact of Waltham Forest College's **operating and capital expenditures**. Given that the College is the third largest employer in Waltham Forest[9] and supports its core activities through significant expenditures, the College's substantial physical footprint supports jobs and promotes economic growth throughout London and the wider UK economy. **Section 3** presents the estimated **direct, indirect, and induced economic impacts associated with the operating and capital expenditures** incurred by Waltham Forest College in 2022-23.

Finally, **Section 4** of this report **summarises** our main findings.

[8] Out of this total of **6,795** UK domiciled learners in the 2022-23 cohort, **6,775** students started FE qualifications at Waltham Forest College, and the remaining **20** learners started apprenticeship training at the College. FE students here include students who started predominantly vocational qualifications (or a very small number of academic qualifications) at the College, at Entry Level up to Level 5 on the Regulated Qualifications Framework (RQF). Apprenticeships include Intermediate Apprenticeships, Advanced Apprenticeships, and Higher Apprenticeships offered at the College.
[9] See Waltham Forest College (2023).

2 The impact of the College's teaching and learning activities

Waltham Forest College's wide-ranging educational offer has been rated '**Outstanding**' by Ofsted in its most recent inspection[10] (see Figure 2). This makes the College **one of only 15 General Further Education Colleges across England to achieve an 'Outstanding' rating, and the only one in London**.

Figure 2 Key findings from Ofsted's March 2024 inspection of Waltham Forest College

Overall effectiveness:	Outstanding
The quality of education:	Outstanding
Behaviour and attitudes:	Outstanding
Personal development:	Outstanding
Leadership and management:	Outstanding
Education programmes for young people:	Outstanding
Adult learning programmes:	Outstanding
Apprenticeships:	Good
Provision for learners with high needs:	Outstanding

Source: Ofsted (2024)

[10] See Ofsted (2024), based on its March 2024 inspection.

The College's high-quality teaching and learning activities provide significant benefits to the UK economy, by improving the labour market productivity of the College's learners. In this section, we analyse the economic impact of the teaching and learning activities undertaken at the College, by considering the labour market benefits associated with enhanced qualification attainment and skills acquisition – to **both the individual and the public purse**.

2.1 The 2022-23 UK domiciled student cohort studying at Waltham Forest College

The analysis of the economic impact of the teaching and learning activities of Waltham Forest College is based on the **2022-23 cohort of UK domiciled students** studying at the College. In other words, instead of Waltham Forest College's entire student body of **8,055** students in the 2022-23 academic year (irrespective of when these learners may have started their studies), the analysis in this section focuses on the **6,795** UK domiciled[11] (i.e. English domiciled[12]) students who started further education qualifications[13] or apprenticeships in the 2022-23 academic year.[14]

Waltham Forest College offers a wide range of qualifications to fulfil the skills needs of North-East London and beyond, including education programmes for young (16-19) learners, adult learning programmes, apprenticeships, and programmes for learners with high needs - ranging from Entry Level to Level 5. As presented in Figure 3, in terms of **level of study**, approximately **38%** (**2,605** students) in the cohort were undertaking **Level 2 vocational qualifications**[15], with a further **1,400** students (**21%**) undertaking **Level 3 qualifications**, **1,305** (**19%**) undertaking **Level 1 qualifications**, and **1,415** (**21%**) undertaking **Entry Level qualifications**. An additional **40** students (**1%**) were enrolled in **Level 4 or 5 vocational qualifications**, and the remaining **20** learners were undertaking **apprenticeships** (including Intermediate (Level 2), Advanced (Level 3), and Higher Apprenticeships (Level 5))[16].

[11] In addition to these UK domiciled learners, there were **670** non-UK domiciled students who started FE qualifications or apprenticeships at the College in 2022-23. These non-UK students were excluded from the analysis here. A proportion of these non-UK domiciled students will remain in the UK to work following completion of their studies; similarly, a proportion of UK domiciled students will leave the UK to pursue their careers in other countries. Given the uncertainty in predicting the extent to which this is the case and the difficulty in assessing the net labour market returns for students residing outside the UK post-graduation, the analysis here focuses on UK domiciled students only. In other words, for the purpose of this analysis, we assume that all UK domiciled students will enter the UK labour market upon graduation, and that non-UK students will leave the UK upon completing their qualifications at the College.

[12] All UK domiciled learners in the cohort were *English* domiciled prior to starting their qualifications/apprenticeship training (except a single student whose domicile was originally recorded as 'United Kingdom not otherwise specified' and who was assumed to be English domiciled for the purpose of the analysis).

[13] FE students predominantly include students who started vocational qualifications (such as BTECs or vocational diplomas) at Waltham Forest College (but there was also a very small number of students who started academic qualifications (such as GCSEs) at the College).

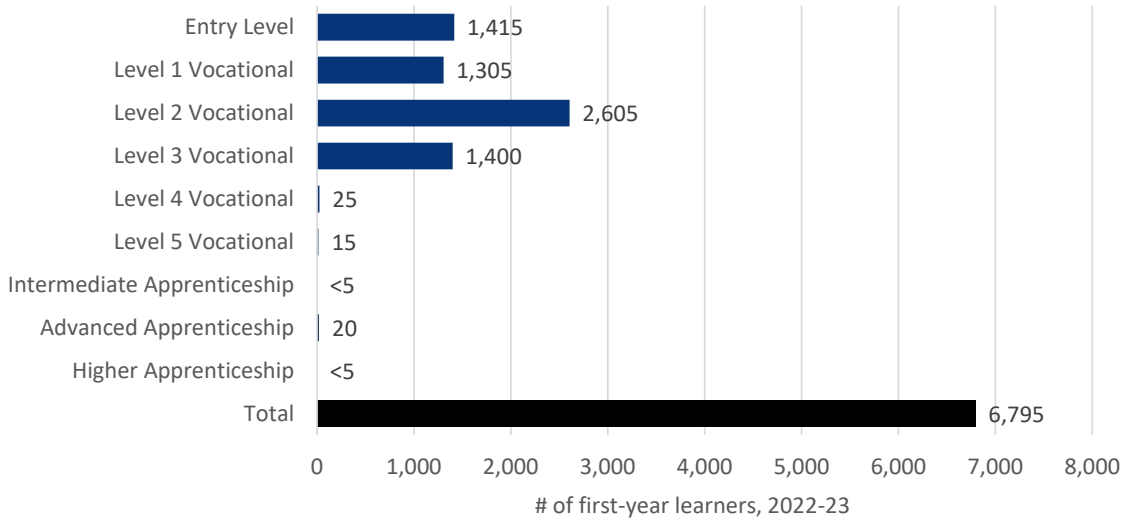
[14] We received Individualised Learner Record (ILR) data on a total of **7,495** first-year students/apprentice learners from Waltham Forest College. From this total, we excluded **30** students with an unspecified qualification level, and **670** students who were domiciled outside the UK prior to starting their learning at the College.

[15] Note again that this also includes a very small number of students who started *academic* qualifications at Level 2 (i.e. GCSEs in English Language or Mathematics).

[16] In relation to students' highest prior educational attainment before starting at Waltham Forest College, the majority of students (**80%**) in the 2022-23 cohort had their prior educational attainment recorded as either 'not known' or 'other qualification level not known' (due to the generally limited coverage of the relevant prior attainment variable within the ILR data). In the absence of more consistent and complete information on students' highest level of prior attainment, we therefore assumed that *all* students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (based on the assumed counterfactual groups presented in Table 11 in Annex A2.2.3Table 11). This potentially results in an *underestimation* of the 'true' economic benefits associated with qualification attainment at Waltham Forest College, as, in reality, it is expected that a number of students in the cohort were in possession of *lower* levels of prior attainment than those assumed here.

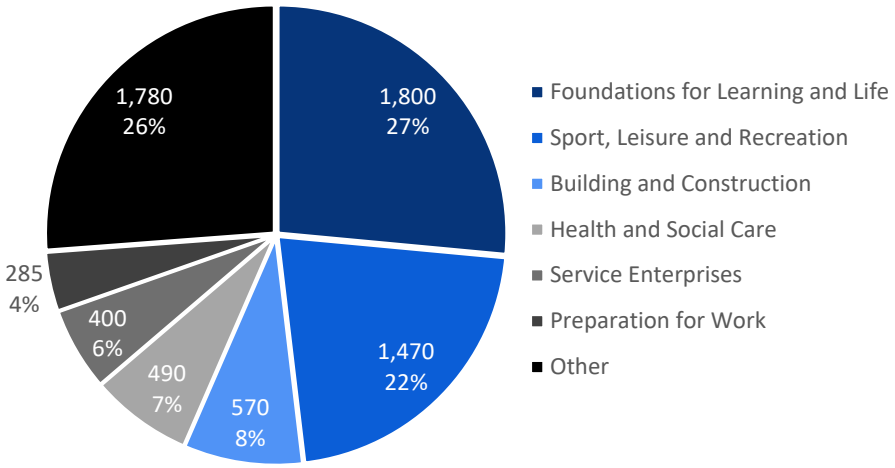
As presented in Figure 4, the College's curriculum also includes a wide range of subject areas, with **1,800** students in the cohort (**27%**) enrolled in courses in **Foundations for Learning and Life**[17], **1,470** (**22%**) undertaking programmes in **Sport, Leisure, and Recreation**, **570** (**8%**) enrolled in **Building and Construction** courses, **490** (**7%**) enrolled in **Health and Social Care courses**, and **400** (**6%**) enrolled in **Service Enterprises**.

Figure 3 UK domiciled students in the 2022-23 cohort of Waltham Forest College students, by level of study



Note: All numbers are rounded to the nearest 5, and the total values may not add up due to this rounding.
Source: London Economics' analysis based on ILR data provided by Waltham Forest College

Figure 4 UK domiciled students in the 2022-23 cohort of Waltham Forest College students, by subject area of study



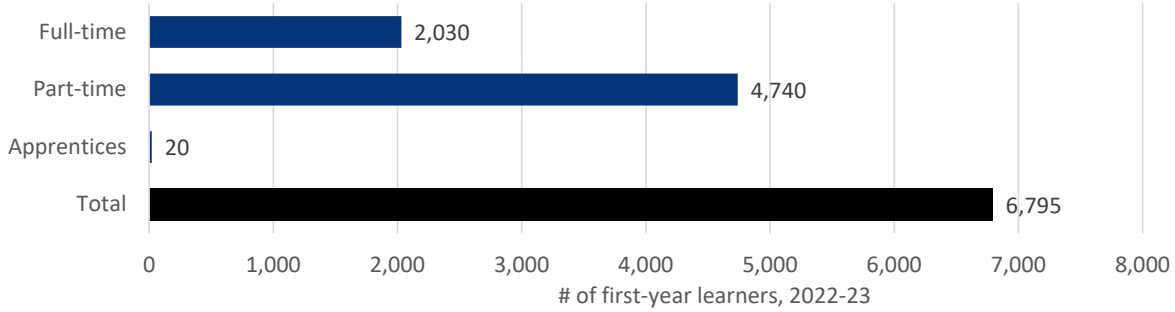
Note: All numbers are rounded to the nearest 5, and the total values may not add up due to this rounding.
Source: London Economics' analysis based on ILR data provided by Waltham Forest College

In relation to **mode of study** (Figure 5), most students in the cohort (**4,740**, **70%**) were undertaking their studies at Waltham Forest College on a **part-time** basis (with these students predominantly

[17] These courses account for most of the College's Entry Level students and are primarily designed for students with special educational needs to allow them to develop skills for independent living and community involvement to prepare them for future life, work, or further study.

being adult learners), while **2,030** (**30%**) were enrolled on a **full-time** basis (predominantly including 16-19 learners). Again, the remaining **20** learners were undertaking **apprenticeships**.

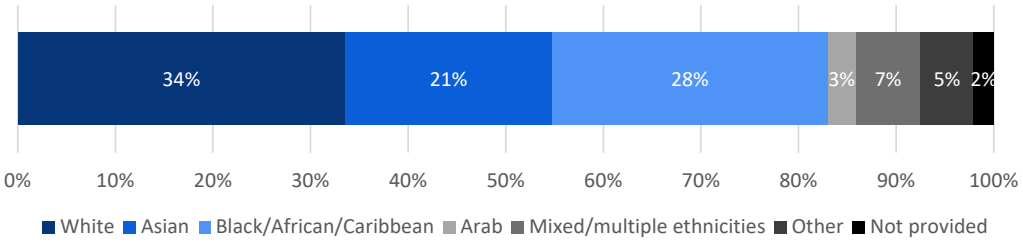
Figure 5 UK domiciled students in the 2022-23 cohort of Waltham Forest College students, by mode of study



Note: All numbers are rounded to the nearest 5, and the total values may not add up due to this rounding.
Source: London Economics' analysis based on ILR data provided by Waltham Forest College

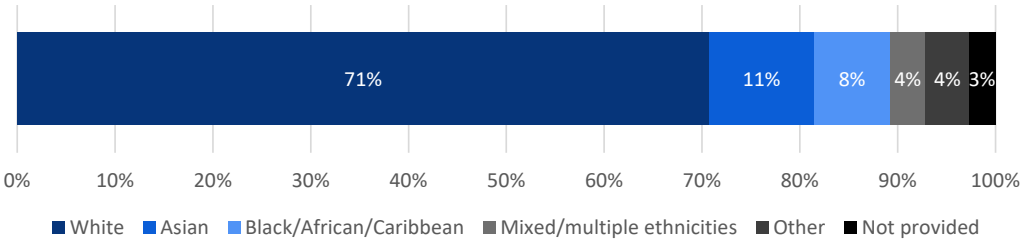
Figure 6 presents a breakdown of the cohort by **ethnicity**. Waltham Forest College is one of the most diverse FE colleges in the country, with the majority (**64%**) of learners in the 2022-23 cohort being of non-White ethnicity, including Asian students (**21%**), Black/African/Caribbean students (**28%**), Arab students (**3%**), mixed ethnicity students (**7%**), and students from other ethnic groups (**5%**). Only **34%** of students in the cohort were White[18]. In comparison, across all Adult (19+) FE learners in England in 2022-23 (see Figure 7), **71%** were White, with only **27%** having non-White ethnicities[19].

Figure 6 UK domiciled students in the 2022-23 cohort of Waltham Forest College students, by ethnicity



Note: All numbers are rounded to the nearest 5, and the total values may not add up due to this rounding. The information includes both adult and 16-19 learners studying at Waltham Forest College.
Source: London Economics' analysis based on ILR data provided by Waltham Forest College

Figure 7 Total Adult (19+) FE and Skills learners in England in 2022-23, by ethnicity

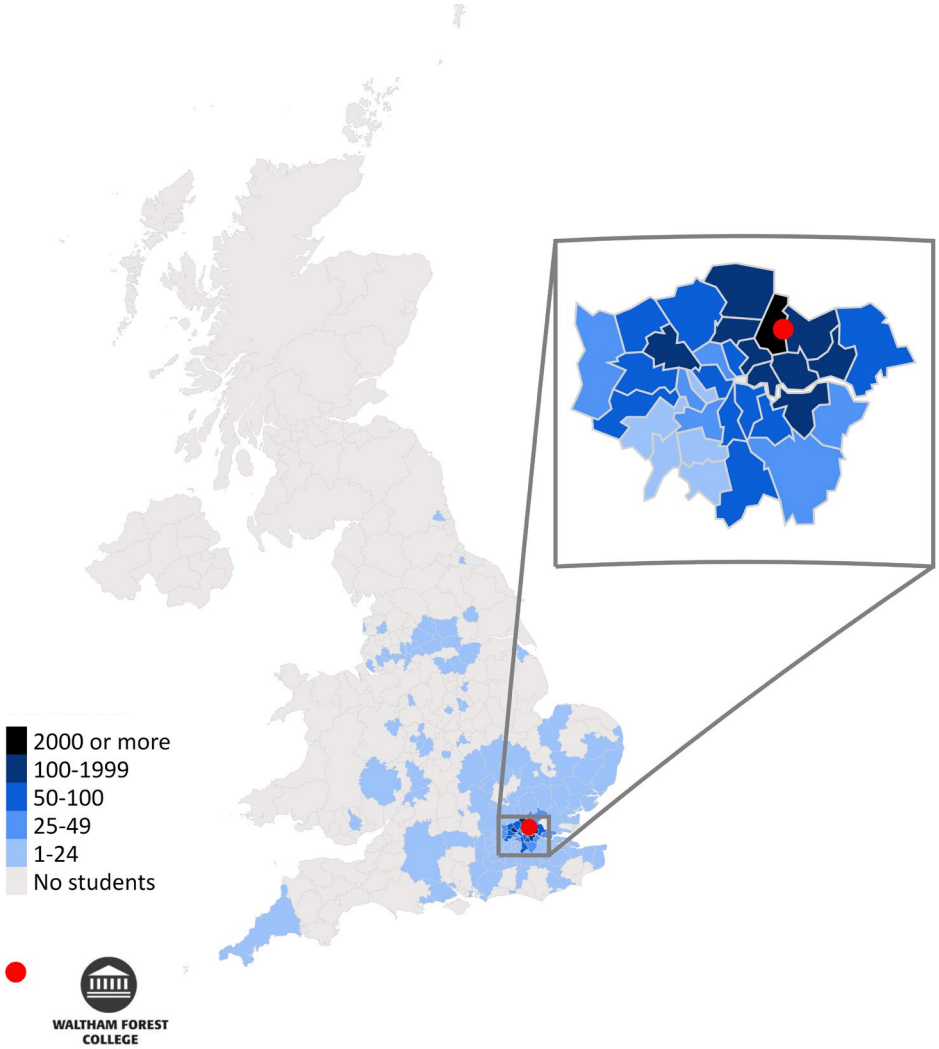


Note: All numbers are rounded to the nearest 10 here, and the total values may not add up due to this rounding. The information here relates to adult (19+) learners only (based on the underlying coverage of the data published by the Department for Education (2024a)).
Source: London Economics' analysis based on Department for Education (2024a)

[18] The remaining 2% had an unknown ethnicity ('not provided').
[19] The remaining 3% had an unknown ethnicity ('not provided').

Finally, Figure 8 presents the distribution of Waltham Forest College's 2022-23 cohort of UK domiciled student starters by Local Authority, based on each learner's permanent/'home' address. The map illustrates the College's importance as a **key local anchor institution in North-East London, with special importance to the London Borough of Waltham Forest**. Among all UK domiciled first-year students studying at the College in 2022-23, the majority were living in Waltham Forest and its surrounding Local Authorities (predominantly in Newham, Redbridge, and Enfield, but also including Haringey, Brent, Hackney, and Barking and Dagenham).

Figure 8 UK domiciled students in the 2022-23 cohort of Waltham Forest College students, by Local Authority of home address



Note: Based on students' home postcodes during their studies at Waltham Forest College (which, in most cases, is expected to be the same as the postcode of their 'domicile' prior to their studies (i.e. their address prior to enrolment at the College)). The figure is based on **6,789** students (excluding **6** learners with an invalid postcode).
Source: London Economics' analysis based on ILR data provided by Waltham Forest College and the Office for National Statistics. Contains National Statistics, OS, Royal Mail, Gridlink, ONS, NISRA, NRS, and Ordnance Survey data © Crown copyright and database right 2024.

The above information provides an overview of the number of UK domiciled students *starting* FE qualifications or apprenticeships at Waltham Forest College in the 2022-23 academic year. As outlined in further detail in the methodological annex (see Annex A2.2.1), to aggregate the individual-level impacts of the College's teaching and learning activity, we adjusted this number of 'starters' to account for **completion rates**. In this respect, as discussed in Box 1, Waltham Forest

College has built a strong reputation for learner success, with its students accomplishing particularly high achievement rates compared to the rest of the FE sector in England.

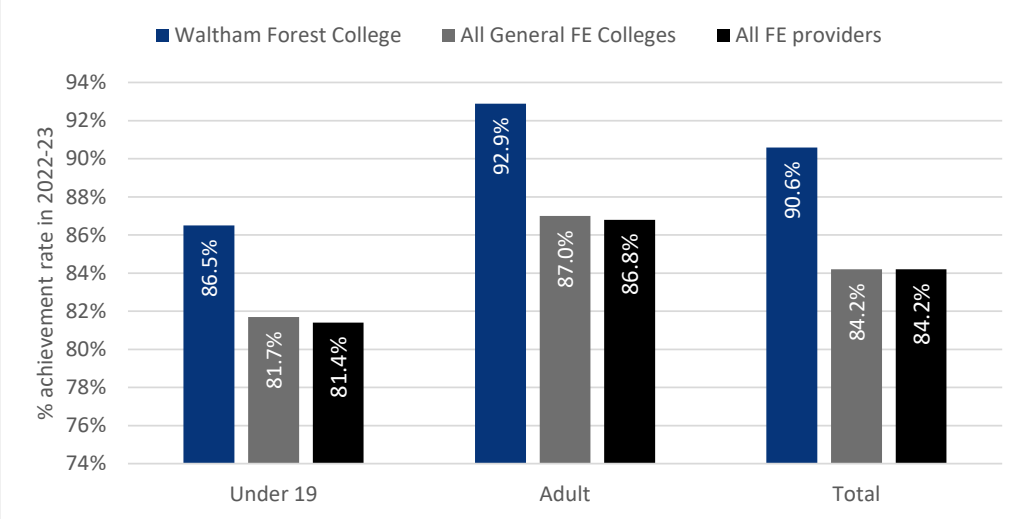
Box 1 Achievement rates among Waltham Forest College's students

The Department for Education's National Achievement Rate Tables[20] provide detailed provider-level achievement rates among further education learners (including adult learners (aged 19+) and learners aged 16-18) studying in England[21].

Presented in Figure 9, these achievement rates for learners at Waltham Forest College are considerably higher than the corresponding national average achievement rates among all General FE Colleges as well as among all FE providers[22] in England. This makes the College a top performer in achievement outcomes. In 2022-23, the overall qualification achievement rate among Waltham Forest College's students stood at **90.6%**. This compares to **84.2%** on average both across all English General FE Colleges and across all English FE providers (respectively). There are also large differences for both adult learners and 16-18 learners: The achievement rate among Waltham Forest College's adult learners stood at **92.9%** in 2022-23 (compared to **87.0%** (all General FE Colleges) and **86.8%** (all FE providers)), with the corresponding achievement rate among 16-18 (under 19) learners standing at **86.5%** (vs. **81.7%** (all General FE Colleges) and **81.4%** (all FE providers)).

Overall, Waltham Forest College ranks in the **top 3% of General FE Colleges in England in the National Achievement Rate Tables**[23].

Figure 9 Achievement rates in 2022-23 among learners at Waltham Forest College vs. all General FE Colleges and all FE providers in England



Note: Achievement rates are based on the individual qualification aims that were completed in the relevant year, calculated as the number of aims achieved divided by the number started (excluding the aims of any learners that transferred onto another qualification within the same provider). The data excludes apprenticeships.
Source: London Economics' analysis of Department for Education (2024a).

[20] See Department for Education (2024a).
[21] Achievement rates are based on the individual qualification aims that were completed in the relevant year, calculated as the number of aims achieved divided by the number started (excluding the aims of any learners that transferred onto another qualification within the same provider). The data excludes apprenticeships.
[22] In addition to General FE Colleges, this also includes FE provision at Schools, Sixth Form Colleges, Special Colleges, private sector providers receiving public funding, and other publicly funded providers.
[23] Based on Waltham Forest College's analysis of 2022-23 National Achievement Rate Tables; see Waltham Forest College (2024).

2.2 Methodological approach

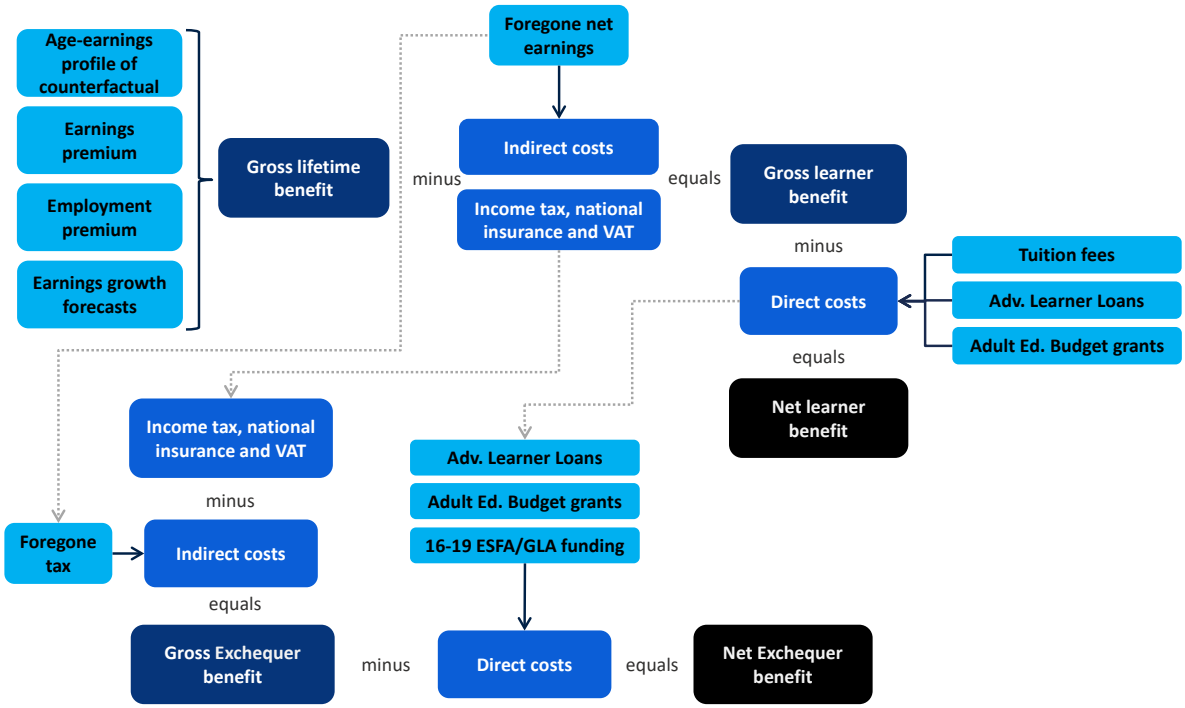
The analysis of the impact of the College's teaching and learning captures the enhanced labour market benefits and taxation receipts (minus the costs of attendance/provision) associated with students in the above cohort completing qualifications at Waltham Forest College. Specifically, the fundamental objective of the analysis is to estimate the **gross and net learner benefit** to the individual and the **gross and net public purse benefit** to the Exchequer associated with FE qualification and apprenticeship attainment at the College. These measures are defined as follows (and presented in Figure 10 and Figure 11 for further education qualifications and apprenticeships, respectively):

- The ***gross* learner benefit** associated with qualification attainment is defined as the **present value of enhanced after-tax earnings** (i.e. after income tax, National Insurance and VAT are removed, and following the deduction of any foregone earnings during study) relative to an individual in possession of the counterfactual qualification;
- The ***gross* benefit to the public purse** is defined as the **present value of enhanced taxation** (i.e. income tax, National Insurance and VAT, following the deduction of the costs of any foregone tax revenues during study) relative to an individual in possession of the counterfactual qualification;
- The ***net* learner benefit** is defined as the gross learner benefit *minus* the present value of the direct costs associated with qualification attainment; and
- Similarly, the ***net* benefit to the public purse** is defined as the gross public purse benefit minus the direct Exchequer costs of provision during the period of attainment.

The analysis examines the benefits of the above-described single cohort of students (i.e. the cohort of 2022-23 starters) across their lifetimes in present value terms (i.e. in today's money). A detailed description of our methodology is presented in Annex A2.2[24].

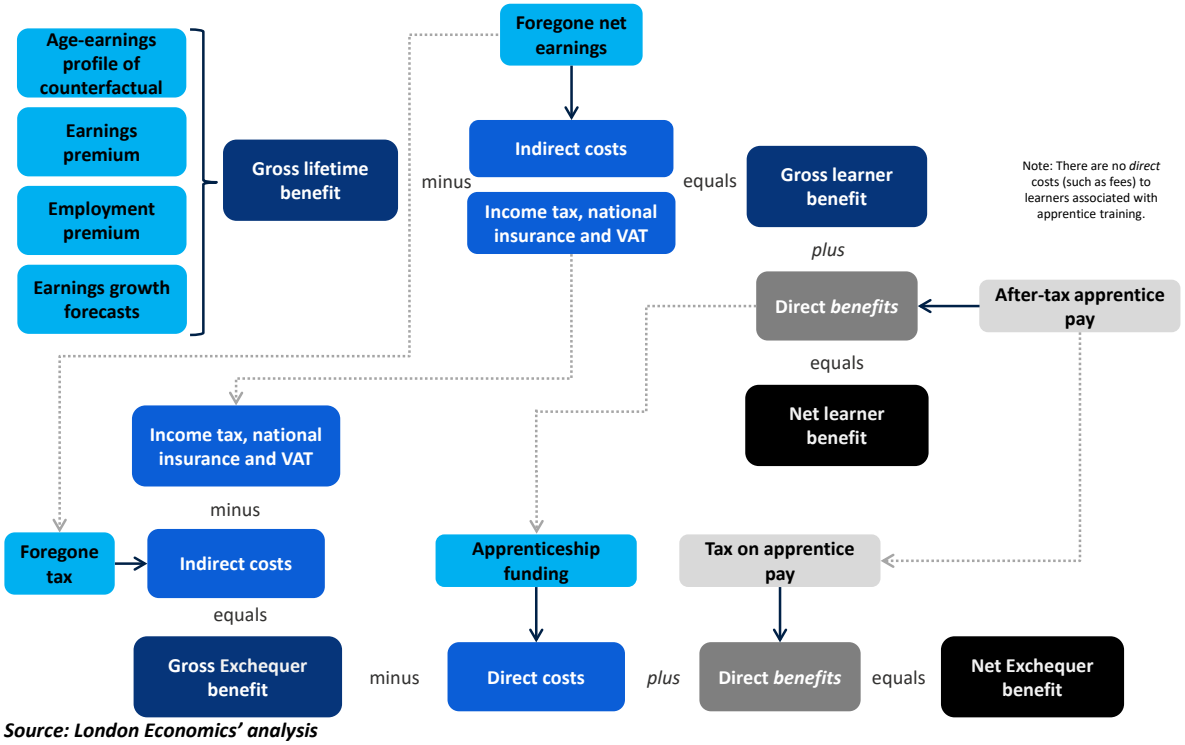
[24] The estimation of the gross and net learner benefit and gross and net Exchequer benefit is based on a detailed econometric analysis of the Labour Force Survey. The analysis considers the impact of further education qualification and apprenticeship attainment on earnings and employment outcomes; however, as no information is specifically available on the particular institution attended, the analysis is *not* specific to Waltham Forest College's students. Rather, the analysis is adjusted to reflect the characteristics of the 2022-23 cohort of Waltham Forest College students to the greatest extent possible (e.g. in terms of mode of study, level of study, subject mix, gender, average age at enrolment, or duration of qualification).

Figure 10 Overview of the gross and net learner benefit, and gross and net Exchequer benefit, for further education qualifications



Source: London Economics' analysis

Figure 11 Overview of the gross and net learner benefit, and gross and net Exchequer benefit, for apprenticeships



Source: London Economics' analysis

Supporting rail sector recruitment: The SWAP programme

Waltham Forest College is particularly agile in adapting the curriculum to meet the evolving needs of employers and communities. The College works in partnership with Job Centre Plus to swiftly develop sector-based work academy programmes (SWAPs) to meet the needs of employers and support local unemployed residents into employment in key shortage industries. This includes bespoke programmes for the Civil Service, the Security Industry Authority, and rail employers.

One example of these programmes is the **SWAP in Rail Track Maintenance**, developed in partnership with Job Centre Plus, the Probation Service, and employers on the Rail Network. The programme has been designed in partnership with rail employers to ensure that training is fit for purpose and meets the demands of a growing skills gap within the industry. Many of the learners come from diverse areas of the community, with challenging backgrounds and experiencing multiple barriers to learning (including no prior qualifications, unemployment, homelessness, and experience of the criminal justice system.) They often lack confidence and have low self-esteem, little support, and little prospect of change. The programme supports their development of skills and confidence as well as real opportunities for progression to employment, to help learners get their lives back on track and become financially independent. It also provides a much-needed pipeline of untapped talent for shortage skills in Rail Track Maintenance and Engineering.

The College has a fully installed rail track on-site, providing learners with the opportunity to gain valuable experience before progressing onto a live track. Learners are supported with motivation, expected behaviours, and attitudes for employment, and with external services such as housing or finance. This ensures that holistic support is in place to enable them to access learning and flourish. By participating in learning and receiving support with key life skills (such as IT skills to access banking and health services), learners are able to gain independence and build on those skills to organise their own lives.

"All signals point to the rail industry facing the next big skills shortage, partly due to an ageing workforce which hasn't diversified in step with other industries. Waltham Forest College is using their excellent facilities and expertise to help get ahead of the issue with this unique course. As a Local Authority, we know our local labour market inside out, which makes us best-placed to help supply good candidates for the course – which also fulfils our key priority to connect residents with high-quality jobs."

Cllr Simon Miller,
Cabinet Member for Economic Growth and Housing Development, London Borough of Waltham Forest (formerly)

By the end of their programmes, learners not only gain confidence, but new skills to access further learning and employment. Learners completing the course achieve qualifications that enable them to progress and achieve recognised industry qualifications, and to continue to progress their careers once they are in employment. At the end of the programme, 97% of learners progress to permanent employment in the Rail Industry.

2.3 Estimated impact of the College's teaching and learning activities

2.3.1 Estimated net learner benefit and net Exchequer benefit per student

Table 3 presents the estimated net learner benefits and net Exchequer benefits achieved by students starting FE qualifications at Waltham Forest College in the 2022-23 academic year (by study mode, on average across men and women[25]).

Table 3 Net learner benefit and net Exchequer benefit per English domiciled student in the 2022-23 Waltham Forest College cohort, by study level and mode

Level of study	Net learner benefit		Net Exchequer benefit	
	Full-time students	Part-time students	Full-time students	Part-time students
Entry Level vocational (vs. no qualifications)	£5,000	£9,000	-£6,000	£0
Level 1 vocational (vs. no qualifications)	£25,000	£16,000	£4,000	£2,000
Level 2 vocational (vs. Level 1 vocational)	£48,000	£22,000	£21,000	£12,000
Level 3 vocational (vs. Level 2 vocational)	£51,000	£24,000	£32,000	£14,000

Note: All estimates constitute weighted averages across men and women (weighted by the estimated number of student completers in the 2022-23 cohort) and are presented in 2022-23 prices, discounted to reflect net present values, and rounded to the nearest £1,000. We assume that the gross learner benefit and Exchequer benefit associated with qualification attainment can never be negative – i.e. students will never incur a wage/employment penalty from achieving additional qualifications. In instances where this would be the case, we instead assume a £0 gross learner benefit and Exchequer benefit (while the costs of qualification attainment would still be incurred).
Estimates for students undertaking Level 4 or 5 vocational qualifications, or apprenticeships (at any level), are not presented here, as there were only few students in the 2022-23 cohort undertaking these qualifications.
Source: London Economics' analysis

The analysis indicates that there are substantial average net learner benefits and net Exchequer benefits associated with FE qualifications offered by Waltham Forest College[26], particularly at RQF Levels 2 and 3. Specifically, for **full-time students**:

- The average net learner benefit achieved by a representative English domiciled[27] student in the 2022-23 cohort completing a **full-time Level 3 vocational qualification** at Waltham Forest College (with a Level 2 vocational qualification as their highest prior attainment) was estimated at **£51,000**, with an associated net Exchequer benefit of **£32,000**.
- The net learner benefit per student completing a **full-time Level 2 vocational qualification** at the College (relative to a Level 1 vocational qualification) was estimated at approximately **£48,000**, with a net Exchequer benefit of **£21,000**.
- There are also large net learner and net Exchequer benefits associated with **full-time Level 1 vocational qualifications** (relative to holding no formal qualifications), where the average

[25] For a breakdown of the results by gender, see Annex A2.2.9. Note that the results for apprenticeships and FE Learners at Level 4 and 5 were not presented here, due to the relatively small number of students undertaking these qualifications in the 2022-23 Waltham Forest College cohort.
[26] Again, these estimates rely on a detailed econometric analysis of the Labour Force Survey of the impact of FE qualification and apprenticeship attainment on earnings and employment outcomes; however, as no information is available in the Labour Force Survey on the particular institution attended, the analysis is *not* specific to Waltham Forest College's students. Rather, the analysis is adjusted to reflect the characteristics of the 2022-23 cohort of Waltham Forest College students to the greatest extent possible (e.g. in terms of mode of study, level of study, subject mix, gender, average age at enrolment, or duration of qualification).
[27] Again, all UK domiciled students in the 2022-23 Waltham Forest College cohort were English domiciled (see Footnote 12). The analysis is based on an average age at completion of 20 for students undertaking full-time Level 3 vocational qualifications at Waltham Forest College in the 2022-23 cohort (also see Annex A2.2.5 for further information).

net learner benefit per student was estimated at **£25,000**, with a corresponding net Exchequer benefit of **£4,000**.

- In contrast, there are relatively low/small negative estimated net benefits associated with **full-time vocational qualifications at Entry Level** (relative to holding no formal qualifications). These results are predominantly driven by the low average marginal earnings and employment returns associated with these qualifications[28] (particularly for men). These reflect the general nature, and typically shorter duration and smaller size, of these qualifications, as they are typically aimed at supporting students to progress to further educational attainment at higher levels (i.e. as 'stepping stones' towards additional qualifications with higher earnings and employment benefits).

Although lower than the corresponding returns for full-time students, there are also considerable net learner benefits achieved by students completing **part-time** FE qualifications at Waltham Forest College. For instance, for a representative part-time student in the 2022-23 cohort completing a **Level 3 vocational qualification**, the estimated net learner benefit and net Exchequer benefit stand at **£24,000** and **£14,000**, respectively. The corresponding net learner benefit and net Exchequer benefit associated with part-time **Level 2 vocational qualifications** were estimated at **£22,000** and **£12,000**, respectively. On the one hand, we assume that part-time students (which include predominantly adult learners) combine work with their studies at Waltham Forest College, and thus do not incur any *opportunity* costs in the form of foregone earnings during their studies. On the other hand, these lower costs of qualification attainment are outweighed by the fact that part-time students tend to complete their studies much later in life[29] (and, therefore, spend fewer years in the labour market post-completion), resulting in a relative reduction in the net learner benefits for part-time students compared to full-time students.

2.3.2 Total impact of the College's teaching and learning activities

The economic impact of teaching and learning generated by the 2022-23 cohort of Waltham Forest College students stood at £221 million.

Combining the information on the number of UK domiciled learners in the 2022-23 Waltham Forest College cohort (see Section 2.1), expected completion rates, and the net learner and net public purse benefits associated with the different qualification levels (relative to students' specific (assumed) prior attainment), the **aggregate economic benefit of Waltham Forest College's teaching and learning activities** associated with the 2022-23 cohort was estimated at approximately **£221 million** (see Table 4).

In terms of the breakdown by beneficiary, **£154 million** (**70%**) of this total impact is accrued by students, and the remaining **£67 million** (**30%**) is accrued by the Exchequer. In terms of the breakdown by study level/type, reflecting the small number of apprentice learners in the cohort, the vast majority (**98%**, **£216 million**) of the estimated economic impact is generated by students undertaking FE qualifications at the College, with the remaining **2%** (**£5 million**) generated by its apprentice learners.

[28] As outlined in further detail in Annex A2.2.4, for vocational qualifications at Entry Level (and Level 1), the underlying marginal earnings and employment returns were *not* adjusted for the specific subject mix of students studying at Waltham Forest College (as the corresponding subject information is not available for these qualifications within the Labour Force Survey data). In other words, these labour market returns constitute 'generic' returns to Entry Level and Level 1 vocational qualifications across the UK, rather than being adjusted for the specific courses (in terms of subjects) offered by Waltham Forest College.
[29] See Annex A2.2.5

It is important to note the following caveats:

- As outlined in Section 2.1, due to the absence of consistent and complete information on students' highest level of prior attainment, we assumed that *all* students starting FE qualifications or apprenticeships at Waltham Forest College in 2022-23 were in possession of the next highest (lower) level of qualification[30]. Given this assumption, the results here likely underestimate the 'true' economic impact associated with the College's teaching and learning activities, as it is expected that a number of students in the cohort were in possession of *lower* levels of prior attainment than those assumed here.
- The analysis does *not* account for the fact that many students starting FE qualifications or apprenticeships at Waltham Forest College in 2022-23 subsequently obtain *additional* qualifications (i.e. instances where students use their qualifications as 'stepping stones' towards subsequent further educational attainment). As discussed in more detail in Box 2, a large proportion of learners who study at Waltham Forest College subsequently go on to undertake further study, and we do not account for the associated additional labour market benefits (and Exchequer tax receipts) that are likely to be achieved as a result. Again, this implies that the analysis likely underestimates the true economic impact associated with the College's teaching and learning activities.

Table 4 Aggregate impact of Waltham Forest College's teaching and learning activities associated with the 2022-23 cohort (£m), by beneficiary, mode, and level of study

Beneficiary and study mode	Study level		
	FE qualifications	Apprenticeships	Total
Students	**£151m**	**£3m**	**£154m**
Full-time	£68m	£3m	**£72m**
Part-time	£83m	-	**£83m**
Exchequer	**£64m**	**£2m**	**£67m**
Full-time	£30m	£2m	**£32m**
Part-time	£35m	-	**£35m**
Total	**£216m**	**£5m**	**£221m**
Full-time	£98m	£5m	**£103m**
Part-time	£118m	-	**£118m**

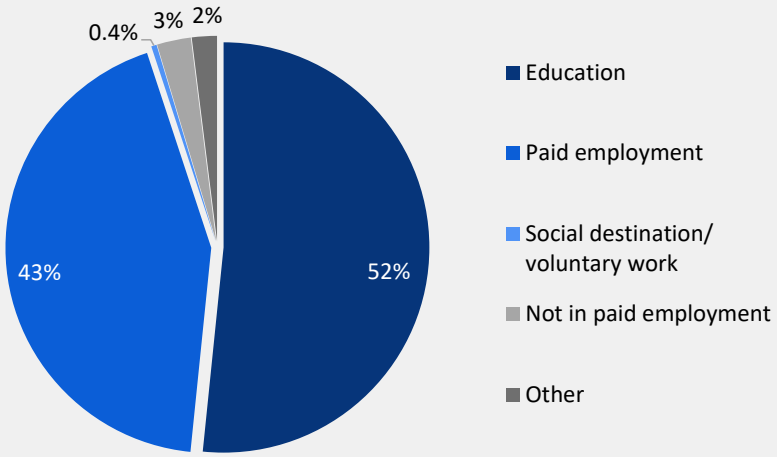
Note: All estimates are presented in 2022-23 prices, discounted to reflect net present values, rounded to the nearest £1m, and may not add up precisely to the totals indicated. For simplicity, in the table, the estimates for apprenticeship learners are included within the results for full-time students. ***Source: London Economics' analysis***

[30] Based on the assumed counterfactual groups presented in Table 11 in Annex A2.2.3Table 11.

Box 2 Learner destination outcomes among Waltham Forest College's students

As presented in Figure 12, the vast majority of Waltham Forest College's learners achieve **positive destination outcomes** after completing at their learning at the College. Among all learners who were enrolled with the College in 2022-23, **52%** subsequently went on to undertake further or higher study (including **32%** who enrolled in additional qualifications at Waltham Forest College itself), while **43%** went into paid employment after completing their studies at the College.

Figure 12 Learner destination outcomes for learners who studied at Waltham Forest College in 2022-23



Note: Based on a total of 8,055 learners studying at Waltham Forest College in the 2022-23 academic year but excluding 935 learners with an unknown destination post-completion.
The information on the destination or progression outcomes of learners is collected after the learner has completed or withdrawn from the activities on their original learning agreement or plan and is required to be returned within two months of the learning being completed.
Source: London Economics' analysis based on ILR data provided by Waltham Forest College

Providing supported internships for young people with special educational needs

Waltham Forest College works with employers and a range of partners to provide young people with special educational needs (SEND) with training and support to progress to permanent employment.

For example, the College works with partners to get young people into employment with the NHS, through a supported internship programme at Whipps Cross Hospital. The programme is aimed at supporting the transition from education to employment for young people with SEND. Each year, a new cohort of interns joins the programme to receive on-the-job training and support, with a rotation of departments around the hospital's estate. Depending on each intern's preferences and career aspirations, the training roles can range from catering, porter services, reception, customer service, or laundry to laboratory technician or IT technician. Participants are supported by job coaches who work closely with the designated line manager and programme coordinators. As well as receiving training and experience in different departments, interns work towards accredited qualifications to support their career progression.

Following the rotation across different areas, interns will choose an area to specialise in and prepare for their transition into employment. On average, at the end of the programme, around 65% of interns progress to permanent employment. This compares to a national average progression rate to employment of approximately 5% for young people with SEND. In addition to providing young people with valuable experience and positive employment and career outcomes, the programme provides a pipeline of young talent drawn from the local area and has been a much-needed boost to recruitment for the hospital workforce, often in hard-to-fill areas.

3 The impact of Waltham Forest College's expenditures

In this section, we assess the **direct, indirect, and induced impacts** associated with the operational and capital expenditures of Waltham Forest College. Analyses of these impacts consider education providers as economic units creating output within their local economies by purchasing products and services from their suppliers and hiring employees. The direct, indirect, and induced economic impacts of the College's expenditures are defined as follows:

- **Direct effect:** This considers the economic output generated directly by Waltham Forest College itself, by purchasing goods and services (including labour) from the economy in which it operates.
- **Indirect effect ('supply chain impacts'):** The College's purchases generate income for its supplying industries, who in turn spend this revenue to purchase inputs to meet the College's demand. This results in a chain reaction of subsequent rounds of spending across industries, often referred to as a 'ripple effect'.
- **Induced effect ('wage spending impacts'):** The employees of Waltham Forest College and of businesses operating in the College's supply chain use their wages to buy consumer goods and services within the economy. This in turn generates wage income for employees within the industries producing these goods and services, again leading to subsequent rounds of spending, i.e. a further 'ripple effect' throughout the economy as a whole.

The total of the direct, indirect, and induced effects constitutes the *gross* economic impact of Waltham Forest College's operating and capital expenditures. An analysis of the *net* economic impact ideally needs to account for two additional factors potentially reducing the size of any of the above effects:

- **Leakage** into other geographical areas, by taking account of how much of the additional economic activity actually occurs in the area of consideration (i.e. the UK); and
- **Displacement** of economic activity within the region of analysis, i.e. taking account of the possibility that the economic activity generated might result in the reduction of activity elsewhere within the region[31].

The direct, indirect, and induced impacts are measured in terms of monetary economic output[32], gross value added (GVA)[33], and full-time equivalent (FTE) employment supported[34], and are estimated using **economic multipliers** derived from an Input-Output model[35]. In addition to measuring these impacts on the UK economy as a whole, the analysis is broken down by geographic region and sector. In line with the impact of the College's teaching and learning activities (discussed in Section 2), the analysis focuses on the 2022-23 academic year.

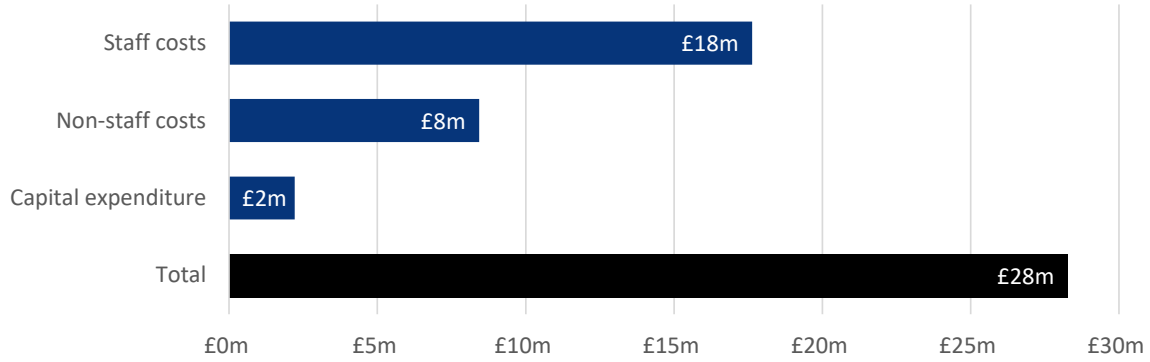
[31] It is important to note that, while the analysis (wherever possible) takes account of *leakage* (e.g. adjusting for the extent to which any additional income for supplying industries might be spent on imports of goods and services from outside the UK), the estimated impacts here are *not* adjusted for *displacement* or additionality. Hence, our analysis effectively estimates the direct, indirect, and induced impacts associated with the College's expenditures in *gross* terms.
[32] In this analysis, economic output is equivalent to income/expenditure.
[33] Gross value added is used in national accounting to measure the economic contribution of different industries or sectors, and is defined as economic output minus intermediate consumption (i.e. minus the cost of goods and services used in the production process).
[34] Full-time equivalent (FTE) jobs represent the total number of full-time jobs supported, accounting for part-time positions on an equivalent full-time basis.
[35] This is described in further detail in Section 3.2 below.

3.1 Direct impact of the College's expenditures

To measure the direct economic impact of the purchases of goods, services, and labour by Waltham Forest College, we used information on the College's operating expenditures (including staff and non-staff spending), capital expenditures, as well as the number of staff employed (in terms of full-time equivalent employees), for the 2022-23 academic year.[36]

Based on this, in terms of monetary economic **output** (measured in terms of expenditure), **the direct economic impact** associated with the College's expenditures stood at **£28 million** in 2022-23 (see Figure 13). This includes **£18 million** of operating expenditure on staff-related costs, **£8 million** of other (non-staff) operating expenses[37], as well as **£2 million** of capital expenditure incurred in that academic year. In terms of **employment**, the College directly employed approximately **250** FTE staff in 2022-23, while the College's direct impact in GVA terms stood at **£22 million**[38].

Figure 13 Direct economic impact (in terms of output) of Waltham Forest College's expenditure in 2022-23, by type of expenditure

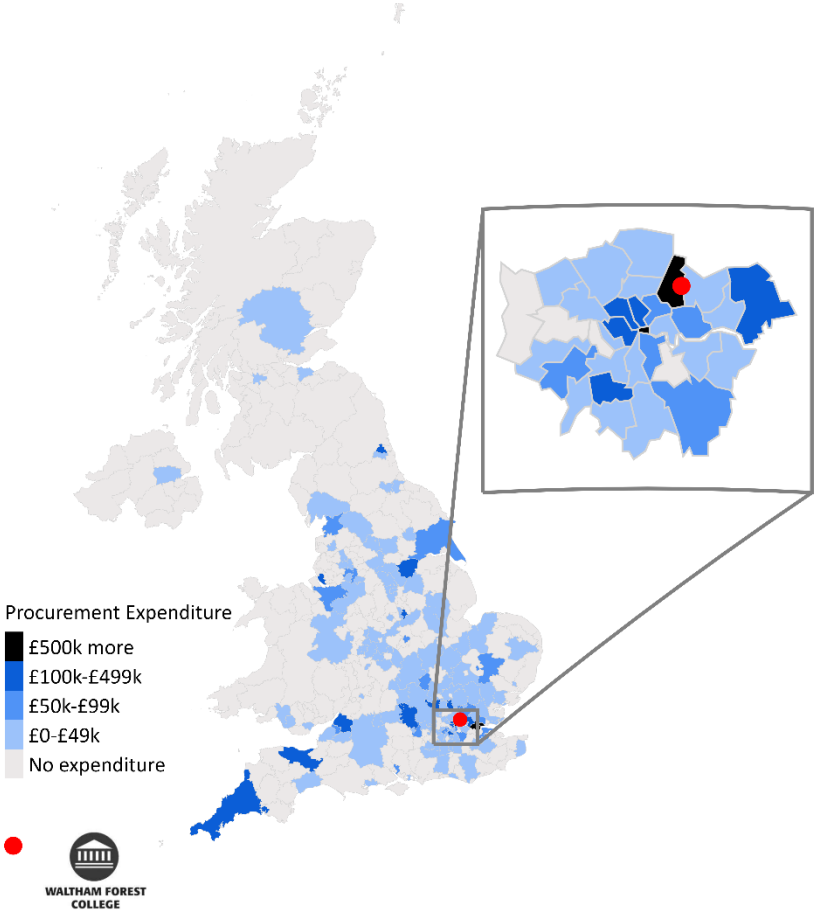


Note: From the College's total operating expenditure (of **£28 million**), we exclude **£2 million** of non-staff costs associated with depreciation, as it is assumed that these costs are not relevant from a procurement perspective (i.e. these costs are not accounted for as income by other organisations). All estimates are presented in 2022-23 prices and rounded to the nearest £1m. ***Source: London Economics' analysis based on Waltham Forest College (2023) and capital expenditure data provided by Waltham Forest College***

In addition to these total expenditures, we investigated the geographical breakdown of Waltham Forest College's procurement and staff (salary) expenditures, to demonstrate the College's impact across North-East London and the rest of the UK. Figure 14 presents the distribution of the College's procurement expenditure (based on invoice data for 2022-23) by Local Authority. The map illustrates the economic significance of the College to North-East London, with **38%** (approximately **£3.8 million**) of its procurement expenditure taking place in London, including **14%** (**£1.4 million**) in Waltham Forest[39].

[36] Based on staff data (with a census date of 31st Jul 2023) and financial data included in Waltham Forest College's financial statements (see Waltham Forest College (2023)), and separate capital expenditure data provided by Waltham Forest College.
[37] The total operational expenditure (*excluding* capital expenditure) of Waltham Forest College in 2022-23 stood at **£28 million**. From this, for the purpose of the analysis, we excluded **£2 million** in depreciation costs (from non-staff expenditure), as it is assumed that these costs are not relevant from a procurement perspective (i.e. these costs are not accounted for as income by other organisations). This results in relevant operating expenditure of approximately **£26 million** in 2022-23. Adding in capital expenditure of **£2 million**, we thus reach the total value of **£28 million** included in Figure 13.
[38] Direct GVA is calculated as the sum of the College's surplus on operations, staff costs, and interest and other finance costs. This is equivalent to income minus non-staff operating expenses (excluding interest and other finance costs).
[39] Note that it is possible that the data somewhat overestimates the level of procurement expenditure occurring in London as compared to other regions, since the invoice data would often reflect suppliers' head office locations, rather than reflecting the location where these activities took place.

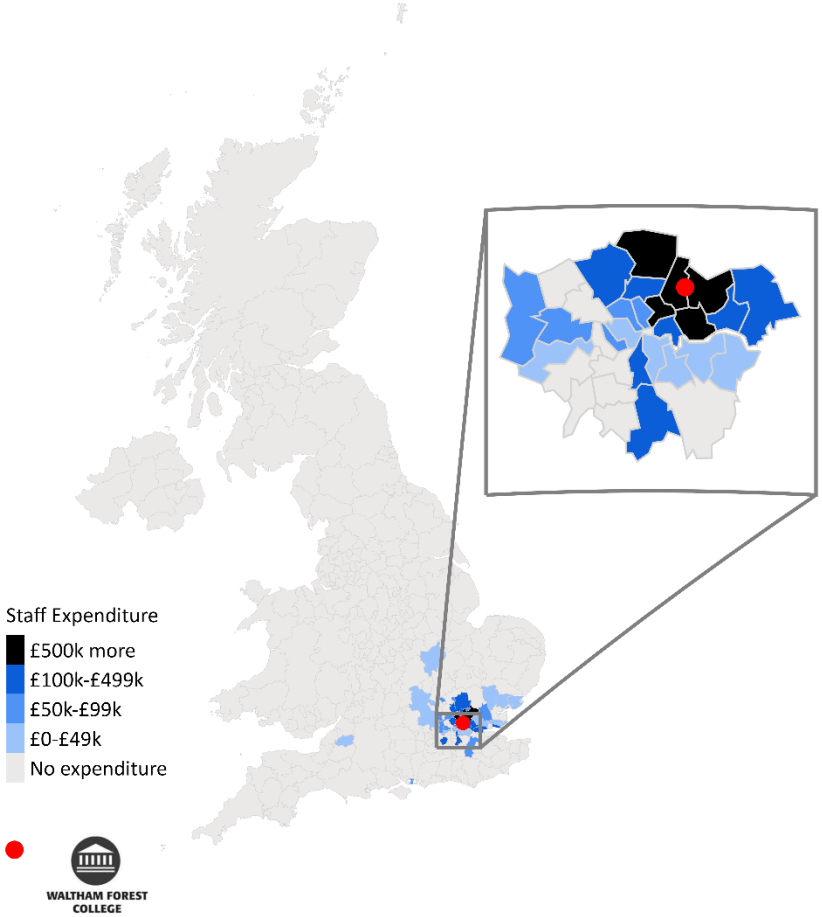
Figure 14 Distribution of Waltham Forest College's procurement expenditure in 2022-23, by Local Authority (of invoice address)



Note: We received data on the invoice postcodes associated with a total of **£10.5 million** of procurement expenditure by Waltham Forest College. From this total, we excluded expenditure records with invalid or missing postcodes (**£0.5 million** of expenditure). As a result of these exclusions, the figure is based on a total of approximately **£10.0 million** of procurement expenditure.

Source: London Economics' analysis based on data from Waltham Forest College and the Office for National Statistics. Contains National Statistics, OS, Royal Mail, Gridlink, ONS, NISRA, NRS and Ordnance Survey data © Crown copyright and database right 2024.

Figure 15 Distribution of Waltham Forest College's staff expenditure in 2022-23, by Local Authority (of staff home address)



Note: Based on the home address postcode associated with a total of **£11 million** of staff (salary) expenditure by Waltham Forest College.

Source: London Economics' analysis based on data from Waltham Forest College and the Office for National Statistics. Contains National Statistics, OS, Royal Mail, Gridlink, ONS, NISRA, NRS and Ordnance Survey data © Crown copyright and database right 2024.

In addition, Figure 15 presents the distribution of the College's staff (salary) spending by Local Authority (again in 2022-23, based on the postcode of employees' home addresses). As expected, compared to Waltham Forest College's procurement expenditure, its staff expenditure is even more concentrated in and around North-East London, again highlighting the College's role as a key anchor institution in its local area. Approximately **80%** (**£8.9 million**) of the College's staff expenditure related to staff living in in London. This includes **29%** (**£3.3 million**) associated with staff living in Waltham Forest itself, **10%** (**£1.1 million**) for staff living in either Redbridge and Enfield, respectively, and **6%** (**£0.7 million**) and **5%** (**£0.6 million**) for staff living in Newham and Hackney, respectively.

3.2 Indirect and induced impacts

The indirect and induced impacts associated with the expenditures of Waltham Forest College were estimated using **economic multipliers** derived from Input-Output tables[40], which measure the total production output of each industry in the UK economy, and the inter-industry (and intra-industry) flows of goods and services consumed and produced by each sector. In other words, these tables capture the degree to which different sectors within the UK economy are connected, i.e. the extent to which changes in the demand for the output of any one sector impact all other sectors of the economy. To be able to achieve a breakdown of the analysis by region, we developed a **multi-regional Input-Output model**, combining UK-level Input-Output tables (published by the Office for National Statistics[41]) with a range of regional-level data to achieve a granular breakdown by sector *and* region.[42]

To estimate the total direct, indirect, and induced impact associated with the College's expenditures, we apply the average economic multipliers associated with organisations in **London's government, health, and education sector**. This approach assumes that the spending patterns of Waltham Forest College reflect the average spending patterns across organisations operating in London's government, health, and education sector. These multipliers (for the impact on London and the UK economy as a whole) are presented in Table 5.

Based on these estimates, in terms of economic output, we assume that every **£1 million** of operating or capital expenditure incurred by Waltham Forest College generates a *total* of **£2.92 million** of impact throughout the UK economy on average, of which **£1.96 million** is accrued in London. In terms of employment, we assume that for every **1,000** FTE staff employed directly by Waltham Forest College, a total of **2,560** staff are supported throughout the UK, of which **1,540** are supported in London.

Table 5 Economic multipliers associated with Waltham Forest College's expenditures

Location of impact	Output	GVA	FTE employment
London	1.96	1.80	1.54
Total UK	2.92	2.86	2.56

Note: All multipliers constitute Type II multipliers, defined as [Direct + indirect + induced impact]/[Direct impact].
Source: London Economics' analysis

[40] Input-Output tables quantify the interdependencies between different sectors and regions of an economy by detailing the origin and destination of resource flows between each sector and region. The analysis makes use of *Type II* multipliers, defined as [Direct + indirect + induced impact]/[Direct impact].
[41] See Office for National Statistics (2023).
[42] See Annex A2.1.1 for more details.

3.3 Aggregate impact of the College's spending

The impact of Waltham Forest College's expenditures in 2022-23 stood at £83 million.

Figure 16 and Figure 17 present the estimated total direct, indirect, and induced impacts associated with the expenditures incurred by Waltham Forest College in the 2022-23 academic year (by region and sector of impact, respectively). This was estimated at approximately **£83 million** in economic output terms:

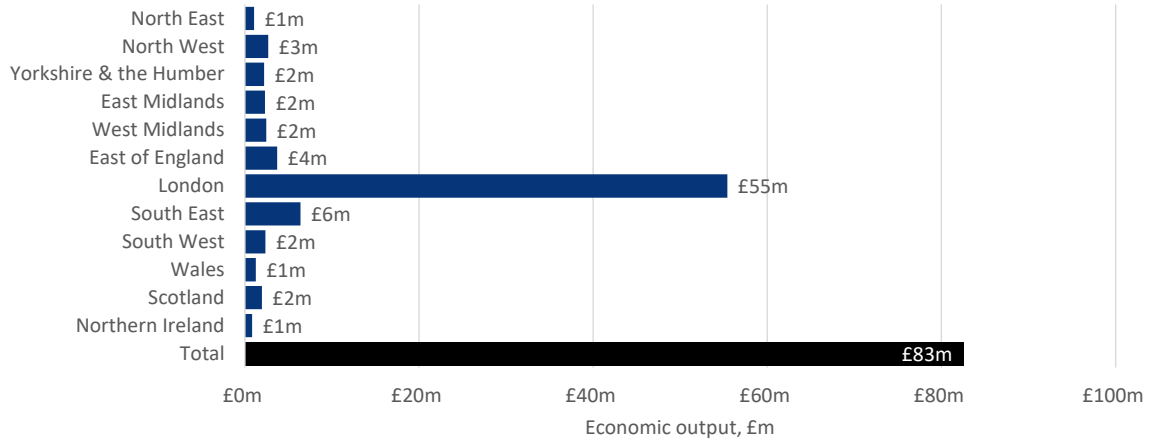
- In terms of type of impact, this includes **£28 million** (**34%**) of direct impact and **£54 million** (**66%**) of indirect and induced impacts.
- In terms of region, the majority of this impact (**£55 million**, **67%**) was generated in London, with the remaining **£27 million** (**33%**) occurring in other regions across the UK.
- In terms of sector, in addition to the impacts occurring in the government, health, and education sector itself (**£33 million**, **40%**), there are also large impacts felt within other sectors, including the distribution, transport, hotels & restaurant sector (**£12 million**, **14%**), the professional and support activities sector (**£9 million**, **11%**), and the production sector (**£8 million**, **10%**).[43]

In terms of employment, the College's spending supported an estimated total of **635** FTE jobs across the UK economy in the 2022-23 academic year (of which **380** were located in London). In addition, the impact in terms of GVA was estimated at **£62 million** across the UK economy as a whole (with **£39 million** accrued in London).

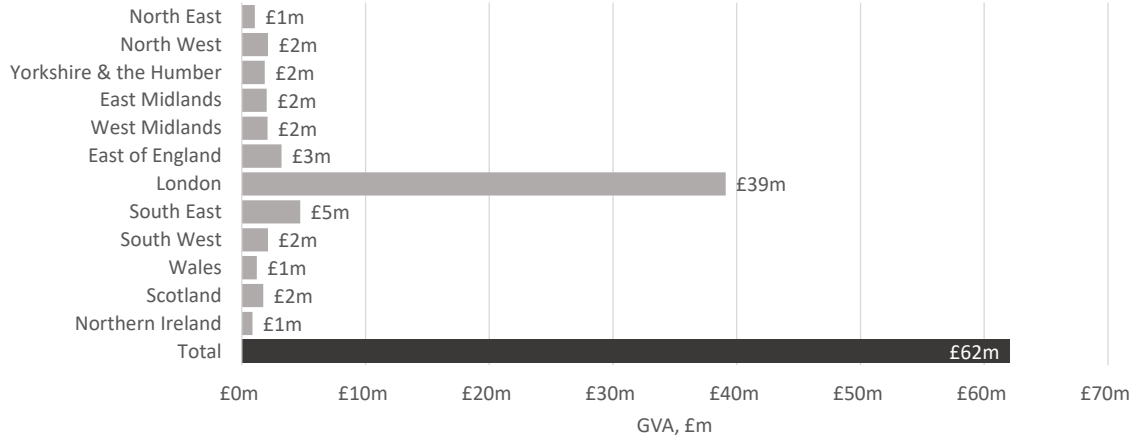
[43] Again, for more detail on which industries are included in this high-level sector classification, please refer to Table 9 in Annex A2.1.2.

Figure 16 Total economic impact associated with Waltham Forest College's expenditures in 2022-23, by region

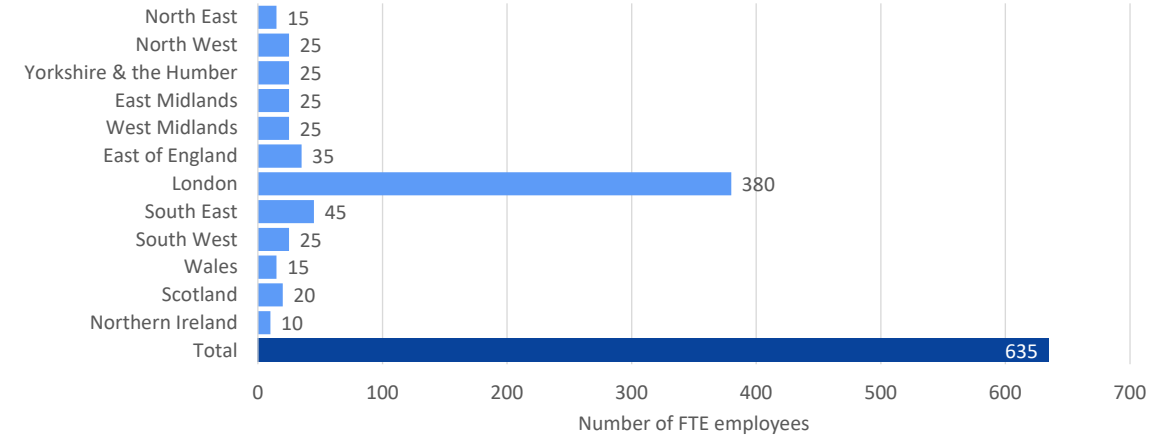
Economic output, £m



GVA, £m



FTE employment

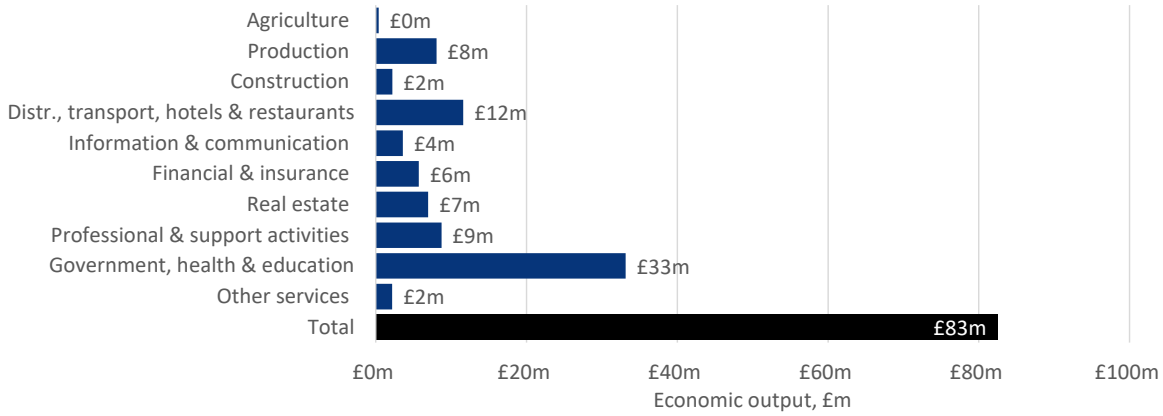


Note: Monetary estimates are presented in 2022-23 prices, rounded to the nearest £1 million, and may not add up precisely to the totals indicated. Employment estimates are rounded to the nearest 5, and again may not add up precisely to the totals indicated.

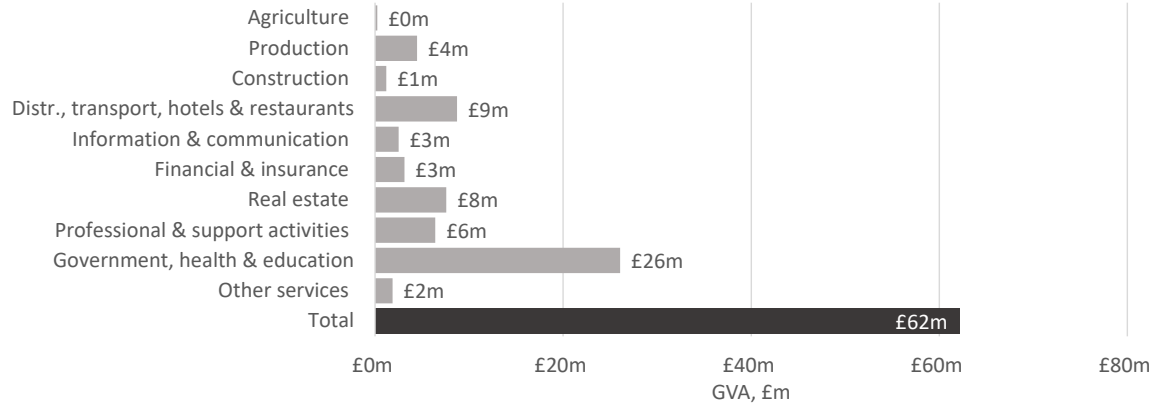
Source: London Economics' analysis

Figure 17 Total economic impact associated with Waltham Forest College's expenditures in 2022-23, by sector

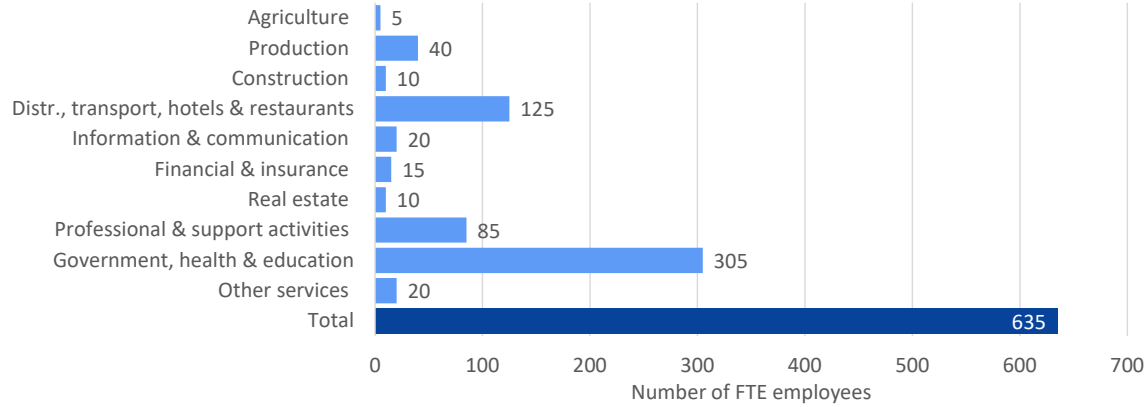
Economic output, £m



GVA, £m



FTE employment



Note: Monetary estimates are presented in 2022-23 prices, rounded to the nearest £1 million, and may not add up precisely to the totals indicated. Employment estimates are rounded to the nearest 5, and again may not add up precisely to the totals indicated.
Source: London Economics' analysis

Meeting local skills needs

Waltham Forest College is a core anchor institution in North-East London, responding to the needs of employers and people in its local area. Through its strategic partnerships with a wide range of local employers and other stakeholders, the College is making a key contribution to supporting London's Local Skills Improvement Plan.

First introduced in the Skills for Jobs White Paper in 2021[44], Local Skills Improvement Plans (LSIPs) are aimed at identifying, articulating, and delivering on the long-term skills that are needed within a local area. LSIPS are led by designated regional employer representative bodies, with the ambitions of putting employers at the heart of the skills system, realising a place-based approach to skills planning, and enabling a collaborative and collective response to local skills priorities and needs. Each LSIP is a strategic document that provides a three-year plan with an agreed set of actionable priorities that local employers, learning providers, and other stakeholders can get behind to drive change. All 38 current LSIPs were approved and published in August 2023[45].

The **London Local Skills Improvement Plan**, led by BusinessLDN[46], outlines a range of detailed recommendations to improve London's skills system for employers, job-seekers, and training and education providers. Waltham Forest College contributed to the development of the London LSIP, and the College has repositioned its curriculum to align to the LSIP's key priority areas. This has led to a growth in enrolments to meet local demand, particularly in priority sectors such as Construction, Engineering and the Built Environment; Creative Industries; Health and Care; Hospitality; and Digital.

A cross-cutting theme for the London LSIP is **labour market inclusion, with a focus on developing skills for disadvantaged groups of Londoners**. The College has swiftly responded, and targeted provision has further increased the number of adult learners from disadvantaged groups supported with training and skills over the past year, including newly unemployed learners (+351 learners) and unemployed learners (12 months or more; +346 learners); learners with disabilities (+231 learners); older learners aged 50 and over (+269 learners); and low-income learners (+800 learners). Furthermore, given the growing number of refugees and asylum seekers (with currently around 350 learners seeking asylum), the College has increased its provision to accommodate the growing numbers coming into the region (including courses for 16–18-year-old ESOL[47] refugees). In addition, in response to the increasing number of young people not in education, employment, or training (NEET) in the region, the College has added bespoke employability study programmes at Levels 1 and 2 which support progression to vocational and technical routes.

The College is **represented on several key strategic boards** to help inform the College's strategic and curriculum planning, influence policy, and respond to skills needs. These include:

[44] See Department for Education (2021).
[45] For more information, also see Association of Colleges (2024).
[46] See BusinessLDN (2024).
[47] English for Speakers of Other Languages (ESOL).

- The Hiring and Skills Group (part of the London Anchor Institutions Network), encouraging key employers in London to improve employment and career opportunities for Londoners;
- The Mayor of London's Partnership Board, contributing to policy priorities and direction for the Greater London Authority;
- The CBI London Council, representing and lobbying on behalf of businesses, and the CBI Education and Skills Working Group, working with employers and educational providers to influence policy and assess impact;
- The London Borough of Waltham Forest Adults Skills Strategy Board and the Borough of Sanctuary Strategy Group;
- The Association of College's London Regional Committee and National Board; and
- The British Association of Construction Heads.

The College works with a range of **employers and employer representative bodies** on a macro scale (to shape and influence policy, e.g. in relation to migration rules, skills shortage areas, or the London economy) and on a micro scale (e.g. to help co-design training to upskill the workforce). As noted in Ofsted's 2024 college inspection report, "senior leaders play a crucial role as members of local, regional and national skills forums. They have a significant impact in shaping the policies related to skills needs. Leaders engage exceptionally well with a broad range of stakeholders, such as employer representative bodies, sub-regional partners, local authorities and funding authorities. They work collaboratively with the Greater London Authority and other local further education providers to plan courses carefully that provide a rich choice for learners across Waltham Forest. […] Leaders have created a broad curriculum offer that aligns exceptionally well with the skills needs in their local and regional areas. […] They use labour market information to identify the key strategic priorities of the region. Leaders are highly effective at making sure that the courses they offer meet the needs of the growing number of vulnerable and disadvantaged groups in their local borough" (see Ofsted, 2024).

In addition, the College has developed a **strategic partnership with Job Centre Plus and the London Borough of Waltham Forest to inform strategic planning**. Sharing of information and joint planning is facilitated through annual strategy days where staff from all three organisations meet and collaboratively work together to ensure that the needs of the region are met. In addition, the College participates in monthly meetings with Job Centre Plus to review employer feedback, identify emerging gaps from employers, and ensure that the College responds swiftly to meet new demand.

The College has also developed **collaborative partnerships with colleges and other providers in the local London sub-region**. This includes its role as a partner in the Mayor of London's Academies Programme, aimed at delivering the Mayor's priorities for Londoners. The programme is aimed at supporting Londoners to access a range of new jobs and opportunities across the region, focusing on priority sectors including creative, digital, green, health, and hospitality. The College is collaborating with local colleges and other providers across the local London sub-region in the delivery of joint projects supporting LSIP priorities through the Local Skills Improvement Fund. Projects include joint training with colleges and employers for green skill technologies, installation of digital immersive suites, and retro-fit centre.

4 Total economic impact of Waltham Forest College on the UK economy in 2022-23

The total economic impact associated with Waltham Forest College's activities in 2022-23 stood at £304 million.

Combining the above strands of analysis, the total economic impact on the UK economy associated with Waltham Forest College's activities in the 2022-23 academic year was estimated at approximately **£304 million** (see Table 6). In terms of the components of this impact:

- The impact of the College's **teaching and learning activities** stood at **£221 million** (**73%**), including **£154 million** accrued by students and **£67 million** accrued by the Exchequer; and
- The impact generated by the College's **operating and capital expenditures** stood at **£83 million** (**27%**), including **£28 million** of direct impact, and **£54 million** of indirect and induced impact. In terms of location of impact, **£55 million** of the impact of the College's spending was generated in London, with the remaining **£27 million** generated throughout the rest of the UK[48].

Table 6 Total impact of Waltham Forest College's activities on the UK economy in 2022-23 (£m and % of total)

Type of impact		£m	%
	**Impact of teaching and learning**	**£221m**	**73%**
	Students	£154m	51%
	Exchequer	£67m	22%
	**Impact of the College's spending**	**£83m**	**27%**
	Direct impact	£28m	9%
	Indirect and induced impact	£54m	18%
Total economic impact		**£304m**	**100%**

Note: All estimates are presented in 2022-23 prices, rounded to the nearest £1m, and may not add up precisely to the totals indicated.
Source: London Economics' analysis

Compared to the College's total relevant operational costs of approximately **£26 million** in 2022-23[49], the total impact of the College's activities on the UK economy was estimated at **£304 million**, which corresponds to a **benefit-to-cost ratio of approximately 11.6:1**.

To place these findings into a wider context, we provide a number of comparisons.

Firstly, in its framework for economic evaluation guidance, TASO (which is funded by the Office for Students)[50] indicates that **a benefit-to-cost ratio greater than or equal to 4 would be considered**

[48] Note that a similar breakdown by region for the impact of the College's teaching and learning activities was not possible due to learners' geographic mobility (as it is very difficult to determine the specific region that the College's students end up in after they complete their qualifications with the College (over the entirety of their working lives)).
[49] This again relates to the College's operating expenditure in 2022-23, excluding depreciation and capital expenditure.
[50] See Transforming Access and Student Outcomes in Higher Education (TASO, 2024).

to be delivering 'very high' value for money[51]. As such, according to these wider benchmarks used by UK Central Government, the College's activities generate very high levels of value for money.

Secondly, we consider the 'value for money' generated by the College compared to a number of other educational institutions where a comparable methodology has been applied. Table 7 presents the benefit-to-cost ratio for Waltham Forest College compared to the corresponding ratios for a number of UK higher education institutions for which London Economics has previously conducted similar economic impact analyses[52]. These ratios have been calculated by comparing each institution's total relevant operational costs to the total impact of its activities on the UK economy[53]. As can be seen from this comparison, the benefit-to-cost ratio associated with Waltham Forest College's activities (of approximately **11.6:1**) is considerably higher than for most of these comparator institutions.

Table 7 Comparison with benefit-to-cost ratios for other institutions

Institution	Academic year covered	Link to study	Benefit-to-cost ratio
Waltham Forest College	**2022-23**	**-**	**11.6**
Queen Mary University of London[1]	2021-22	here	7.0
University of Birmingham	2021-22	here	5.7
University of Edinburgh	2021-22	here	6.9
Leeds Trinity University[1]	2021-22	here	13.7
University of Southampton[1]	2020-21	here	7.4
Cardiff University[1]	2020-21	here	6.4
University College Birmingham[1]	2020-21	here	6.7
University of Warwick[1]	2019-20	here	5.8
University of Glasgow[1]	2018-19	here	5.8
University College London[1]	2018-19	here	5.9

Note: [1] The analysis for these institutions *included* depreciation costs (as well as movements in pension provisions) in their operational costs when calculating the benefit-to-cost ratio.
Source: London Economics' analysis

Finally, to further contextualise the findings, given Waltham Forest College's reliance on public funding to deliver its activities, it is important to also consider the potential impact that might be achieved with alternative uses of public funding. To understand the relative economic contribution of Waltham Forest College, we undertook an **analysis of the costs and benefits associated with almost 600 UK government regulatory impact assessments**, in order to compare the return on investment (measured using the benefit-to-cost ratio) associated with these alternative publicly funded government interventions with that of the College[54].

[51] Based on value for money (VfM) categories used by the Department for Levelling Up, Housing and Communities' appraisal guide (see Department for Levelling Up, Housing and Communities (2023), Section 3.32). As acknowledged by TASO, these categories should only be considered as example categories, since the range of benefit-to-cost ratios associated with each category can vary across different sectors.
[52] Unfortunately, given the general lack of comparable economic impact assessments for further education colleges, it was not possible to undertake a similar comparison with other *further* education institutions.
[53] Note that these ratios are not *exactly* comparable across different institutions, as the total impact of some institutions' activities may include additional strands of impact or exclude certain strands of analysis that have been included here. Additionally, there have been improvements to our methodology over time.
[54] Estimates of the total economic benefit and total economic costs were web-scraped from the individual regulatory impact assessments published by a number of UK government departments and public sector agencies (including the Cabinet Office; the Department for Business, Energy & Industrial Strategy; the Department for Business, Innovation and Skills; the Department for Digital, Culture, Media & Sport; the Department for Education; the Department for International Trade; the Department for Transport; the Department of Energy

Table 8 presents summary results for the benefit-cost ratio and total benefit across this wide range of regulatory impact assessments. The median economic benefit across all of these government programmes/projects stands at **£65 million**, with a median benefit-to-cost ratio of **1.8**. In comparison, Waltham Forest College's activities generate an estimated economic benefit of **£304 million**, with a benefit-to-cost ratio of **11.6**.

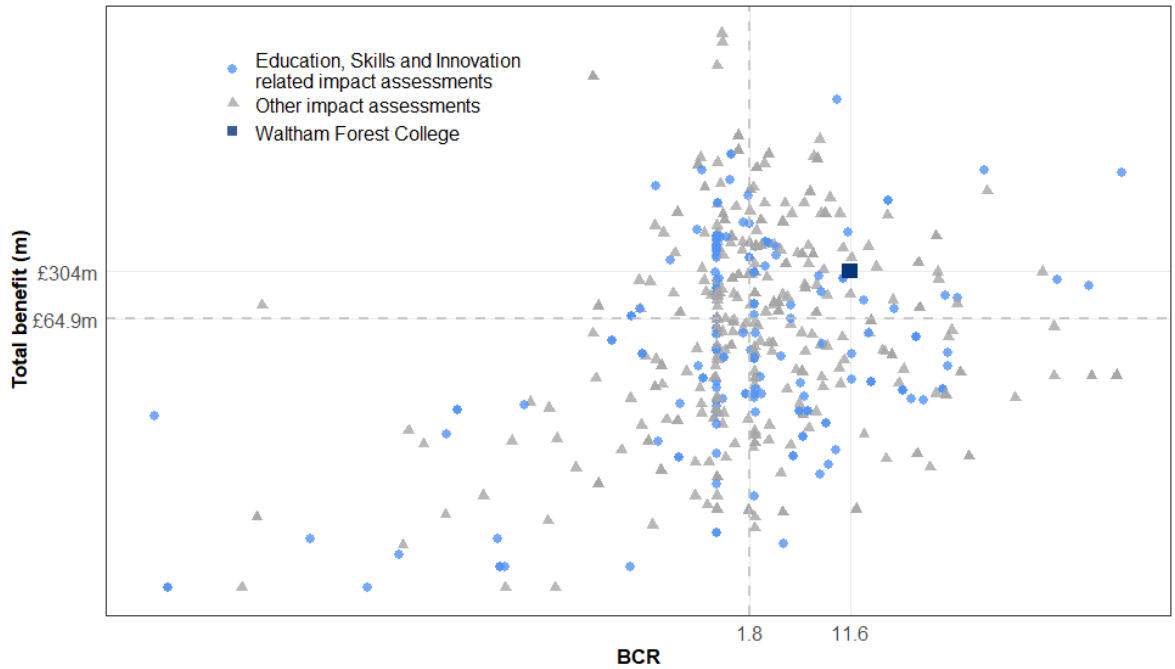
In addition, Figure 18 plots the benefit-to-cost ratio and total benefit for each of the almost 600 regulatory impact assessments, alongside the equivalent metrics for Waltham Forest College. Relative to other government interventions, Waltham Forest College is located in the top right-hand quadrant of the chart, indicating both relatively large economic benefits for the UK economy and a relatively high return on investment (i.e. benefit-to-cost ratio).

Table 8 Comparison with benefit-to-cost ratios for UK government interventions

Measure	Minimum	Median	Maximum
Benefit-to-cost ratio	0	1.8	1,772.7
Total benefit	£0.01m	£65m	£528,122m

Note: Based on a total of 579 UK government regulatory impact assessments published between 2010 and 2022.
Source: London Economics' analysis of published UK government regulatory impact assessments (here)

Figure 18 Comparison with benefit-to-cost ratios for UK government interventions



Note: Based on a total of 579 UK government regulatory impact assessments published between 2010 and 2022.
Total benefits and BCRs are depicted on a logarithmic scale. Quadrants are marked using dotted lines at the *median*, such that half of the points sit to the left and right of the line BCR =1.8 and half the points sit above and below the line Total benefits = £64.9m.
Source: London Economics' analysis of published UK government regulatory impact assessments (here)

and Climate Change; the Department of Health & Social Care; the Education Funding Agency; the Highways Agency; HM Revenue and Customs; HM Treasury; the Ministry of Defense; and the Office of Communications). In total, 579 regulatory impact assessments published on the UK government's website (here) between 2010 and 2022 were identified as being machine readable and containing non-missing best estimates for total costs and total benefits (thereby allowing for the calculation of a benefit-to-cost ratio).

Helping teachers become 'dual professionals'

Waltham Forest College led a year-long project working with over 100 employers, training providers, and other stakeholders to support 'dual professionalism', helping teachers and trainers to hold a dual professional identity as both occupational specialists and pedagogical experts.

Funded by the Department of Education and working in collaboration with Capital City Colleges Group, the project **supported dual professionalism and further developed teaching, learning and assessment skills**, while incorporating the latest industry developments and technical skills, supporting job readiness, and supporting progression to employment opportunities for learners. The project initially delivered training in Construction, Engineering, Creative Arts, Digital, and Hospitality, and, following its success, it was later expanded across all curriculum areas.

Using an evidence-based approach, teachers were supported to improve their subject specialist pedagogic knowledge and its delivery, based on current and ever-changing industry developments. In collaboration with the Education and Training Foundation and 118 employers, the project delivered set objectives for teachers to develop their application and adaption of generic pedagogic practices to specific subject areas, thus improving their dual professional skills. A range of collaborative peer-to-peer support, subject networks, employer events, meetings, and industry placements helped achieve the set objectives, leading to overall improvement in both teacher productivity and learner experience.

The collaboration with employers and other stakeholders resulted in a significant and sustained positive impact on teachers' practise, as well as learners' experience and progression/employability opportunities. The key outcomes were as follows:

- In 12 months, 174 teachers completed external industry work placements (minimum of 3 days each), acquiring and refreshing skills and knowledge of behaviours currently required in their relevant industry.
- 88% of participating teachers reported that they were more confident in delivering their teaching, advice, and support to learners, resulting in an improved learner experience and positive progression (92% learner satisfaction, and 95% positive progression).
- 118 employers took part in the project, to support staff with updating their vocational and specialist skills and knowledge of employer expectations of young professionals in the workplace, which were incorporated into curriculum delivery.
- The project benefitted around 5,000 learners. 96% of learners surveyed as part of the project felt they were learning up-to-date skills and behaviours relevant to current industry practice, thus enhancing their progression opportunities.

"The training enabled me and my team to gain up-to-date industry knowledge and better support our students in becoming work-ready."

Thamilarasi Jasitharan, Hospitality Lecturer

Index of Tables, Figures and Boxes

Tables

Figures

Boxes

ANNEXES

Annex 1 References

Association of Colleges (2024). 'Local skills improvement plans: A review of their impact and opportunities for the future'.
https://d4hfzltwt4wv7.cloudfront.net/uploads/files/AoC-LSIPs-report.pdf

BusinessLDN (2023). 'The London Local Skills Improvement Plan'.
https://www.businessldn.co.uk/what-we-do/people/the-london-local-skills-improvement-plan

Callender, C., Wilkinson, D., Gibson, A., and Perkins, C. (2011). 'The impact of higher education for part-time students'.
http://webarchive.nationalarchives.gov.uk/20140108090250/http://www.ukces.org.uk/assets/ukces/docs/publications/evidence-report-36-impact-of-he-for-pt-students.pdf

Department for Education (2021). 'Skills for jobs: Lifelong learning for opportunity and growth'.
https://www.gov.uk/government/publications/skills-for-jobs-lifelong-learning-for-opportunity-and-growth

Department for Education (2022). 'Apprenticeship evaluation 2021: Learner and employer surveys'.
https://www.gov.uk/government/publications/apprenticeship-evaluation-2021-learner-and-employer-surveys

Department for Education (2024a). 'Further Education and skills: Academic year 2023/24'.
https://explore-education-statistics.service.gov.uk/find-statistics/further-education-and-skills

Department for Education (2024b). 'Apprenticeships: Academic Year 2023/24'.
https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships

Department for Education (2024c). 'Student loan forecasts for England: financial year 2023-24'.
https://explore-education-statistics.service.gov.uk/find-statistics/student-loan-forecasts-for-england/2023-24

Department for Levelling Up, Housing and Communities (2023). 'DLUHC appraisal guide'.
https://www.gov.uk/government/publications/dluhc-appraisal-guide

HM Treasury (2022). 'The Green Book. Central Government Guidance on Appraisal and Evaluation'.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf

Office for Budget Responsibility (2024). 'Economic and fiscal outlook – March 2024'
https://obr.uk/efo/economic-and-fiscal-outlook-march-2024/

Office for National Statistics (2022). 'UK SIC 2007'.
https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007

Office for National Statistics (2023). 'UK input-output analytical tables - industry by industry'.
https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesindustrybyindustry

Ofsted (2024). 'Further education and skills inspection report: Inspection of Waltham Forest College'.
https://reports.ofsted.gov.uk/provider/31/130456

TASO (2024). 'Framework for economic evaluation: Guidance'.
https://cdn.taso.org.uk/wp-content/uploads/2024_Guidance_Framework_for_economic_evaluation.pdf

Walker, I., & Zhu, Y. (2013), 'The impact of university degrees on the lifecycle of earnings: Some further analysis'. Department for Business Innovation and Skills Research Report 112.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229498/bis-13-899-the-impact-of-university-degrees-on-the-lifecycle-of-earnings-further-analysis.pdf

Waltham Forest College (2023). 'Members' Report and Financial Statements for the Year Ended 31 July 2023'.
https://www.waltham.ac.uk/images/documents/keydocuments/Waltham_Forest_College_financial_statements_2023_SIGNED.pdf

Waltham Forest College (2024). 'Waltham Forest College rising up the rankings'.
https://www.waltham.ac.uk/news/2010-waltham-forest-college-rising-up-the-rankings

Annex 2 Technical Annex

A2.1 Multi-regional Input-Output analysis

A2.1.1 Derivation of economic multipliers from multi-regional Input-Output tables

This section provides further detail on the economic multipliers utilised in the analysis of the economic impact of Waltham Forest College's operating and capital expenditures (see Section 3).

The fundamental idea of the multi-regional Input-Output analysis is that region *i*'s demand for region *j*'s output is related to the friction involved in shipments from one region to another (which we proxy by the distance between the two regions), and that cross-regional trade can be explained by the relative gross value added of the sector in all regions. The multi-regional Input-Output model was derived by combining UK-level Input-Output tables with data on geographical distances between regions; GVA and compensation of employees by sector and region (here); employment by sector and region (here); gross disposable household income by region (here); population by region (here); mean weekly total paid hours worked by industry, for full-time vs. part-time employees (here); employed residents by region of usual residence and region of workplace (here); and UK imports into each region and exports by each region, by commodity (here).

In terms of a sector breakdown, the original UK Input-Output tables are broken down into 105 relatively granular sectors. However, the wide range of regional-level data required to generate the multi-regional Input-Output model is not available for such a granular sector breakdown. Therefore, the multi-regional Input-Output model was broken down into 10 more high-level sector groups (see Table 9 below).

While Input-Output analyses are a useful tool to assess the total economic impacts generated by a wide range of activities, it is important to note several key limitations associated with this type of analysis. Input-Output analyses assume that inputs are complements, and that there are constant returns to scale in the production function (i.e., that there are no economies of scale). The interpretation of these assumptions is that the prevailing breakdown of inputs from all sectors (employees, and imports) is a good approximation of the breakdown that would prevail if total demand (and therefore output) were marginally different. In addition, Input-Output analyses do not account for any price effects resulting from a change in demand for a given industry/output.

A2.1.2 Industry classifications for multi-regional Input-Output analysis

Table 9 provides an overview of the high-level industry classifications used throughout the multi-regional Input-Output analysis.

Table 9 Industry grouping used as part of the multi-regional Input-Output analysis

Industries included in original UK Input-Output table	High-level industry group [and UK SIC Codes]
Crop and animal production, hunting and related service activities	Agriculture [1-3]
Forestry and logging	
Fishing and aquaculture	
Mining and quarrying	Production [5-39]
Manufacture of food products, beverages, and tobacco products	
Manufacture of textiles, wearing apparel and leather products	
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	
Manufacture of paper and paper products	
Printing and reproduction of recorded media	
Manufacture of coke and refined petroleum products	
Manufacture of chemicals and chemical products	
Manufacture of basic pharmaceutical products and pharmaceutical preparations	
Manufacture of rubber and plastic products	
Manufacture of other non-metallic mineral products	
Manufacture of basic metals	
Manufacture of fabricated metal products, except machinery and equipment	
Manufacture of computer, electronic and optical products	
Manufacture of electrical equipment	
Manufacture of machinery and equipment n.e.c.	
Manufacture of motor vehicles, trailers and semi-trailers	
Manufacture of other transport equipment	
Manufacture of furniture; other manufacturing	
Repair and installation of machinery and equipment	
Electricity, gas, steam, and air conditioning supply	
Water collection, treatment and supply	
Sewerage; waste collection, treatment, and disposal activities; materials recovery; remediation activities and other waste management services	
Construction	Construction [41-43]
Wholesale and retail trade and repair of motor vehicles and motorcycles	Distribution, transport, hotels, and restaurants [45-56]
Wholesale trade, except of motor vehicles and motorcycles	
Retail trade, except of motor vehicles and motorcycles	
Land transport and transport via pipelines	
Water transport	
Air transport	
Warehousing and support activities for transportation	
Postal and courier activities	
Accommodation and food service activities	
Publishing activities	Information and communication [58-63]
Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities	
Telecommunications	
Computer programming, consultancy and related activities; information service activities	
Financial service activities, except insurance and pension funding	Financial and insurance [64-66]
Insurance, reinsurance and pension funding, except compulsory social security	
Activities auxiliary to financial services and insurance activities	
Real estate activities excluding imputed rents	Real estate [68.1-2-68.3]
Imputed rents of owner-occupied dwellings	
Legal and accounting activities; activities of head offices; management consultancy activities	Professional and support activities [69.1-82]
Architectural and engineering activities; technical testing and analysis	
Scientific research and development	
Advertising and market research	
Other professional, scientific, and technical activities; veterinary activities	

Industries included in original UK Input-Output table	High-level industry group [and UK SIC Codes]
Rental and leasing activities	
Employment activities	
Travel agency, tour operator reservation service and related activities	
Security and investigation activities; services to buildings and landscape activities; office administrative, office support and other business support activities	
Public administration and defence; compulsory social security	Government, health & education [84-88]
Education	
Human health activities	
Social work activities	
Creative, arts and entertainment activities; libraries, archives, museums, and other cultural activities; gambling and betting activities	Other services [90-97]
Sports activities and amusement and recreation activities	
Activities of membership organisations	
Repair of computers and personal and household goods	
Other personal service activities	
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	

Note: 'n.e.c.' = not elsewhere classified

Source: London Economics' analysis, based on Office for National Statistics (2023) and UK SIC Codes (see Office for National Statistics, 2022)

A2.2 Impact of the College's teaching and learning activities

Section 2 above outlines our analysis of the **economic impact of teaching and learning activities** associated with the cohort of first-year UK domiciled students who started further education qualifications or apprenticeships at Waltham Forest College in 2022-23. In the following, we provide further details on the underlying methodological approach used to arrive at the estimated impact of these activities.

A2.2.1 Adjusting for completion rates

Section 2.1 above provides an overview of the number of UK domiciled students *starting* FE qualifications or apprenticeships at the College in the 2022-23 academic year. However, to aggregate individual-level impacts of the College's teaching and learning activity, it is necessary to adjust the number of student 'starters' to account for **completion rates**.

For **further education students,** we made use of completion information (for 2023-24, in terms of completion outcomes[55] for the cohort of FE students who started their qualifications in 2023-24) provided by Waltham Forest College, broken down by level of study (including RQF Entry Level to Level 5) and study mode[56]. For **apprenticeships**, we applied the corresponding completion rates for full-time students from the equivalent FE RQF Levels (i.e. we assume the same completion rates for apprentice learners as for corresponding full-time FE learners)[57].

[55] Specifically, the information relates to the proportion of student 'starters' in 2023-24 which, by the end of that academic year, were continuing or had completed their qualifications.

[56] The data included no information on completion outcomes for (the very small number of) full-time Level 5 FE students studying at Waltham Forest College. In the absence of this information, we instead applied the average completion rate across *all* full-time students (at any RQF level) to this group.

[57] We applied the completion rates for RQF Level 2 FE students to Intermediate Apprenticeships, for Level 3 FE students to Advanced Apprenticeships, and for Level 5 FE students to Higher Apprenticeships (since all learners starting Higher Apprenticeships in the 2022-23 Waltham Forest College cohort were undertaking Higher Apprenticeships at RQF Level 5).

Table 10 presents the resulting completion rates for further education students and apprenticeship learners applied throughout the analysis[58]. For example, we assume that, of those students starting a full-time Level 2 vocational qualification (or an Intermediate Apprenticeship) at Waltham Forest College in 2022-23, **91%** complete the qualification/training as intended. The assumed completion rate for students starting a part-time Level 2 vocational qualification stands at **95%**, and the corresponding assumed completion rate for Level 3 vocational qualifications (and Advanced Apprenticeships) stands at approximately **96%** for both full-time and part-time learners.

Table 10 Assumed completion rates for Waltham Forest College FE students and apprenticeship learners

Level of study	Full-time FE students	Part-time FE students	Apprentices
Entry Level	95%	97%	Not applicable
Level 1 Vocational	98%	98%	Not applicable
Level 2 Vocational	91%	95%	Not applicable
Level 3 Vocational	96%	96%	Not applicable
Level 4 Vocational	-	100%	Not applicable
Level 5 Vocational	95%	75%	Not applicable
Intermediate Apprenticeship	Not applicable	Not applicable	91%
Advanced Apprenticeship	Not applicable	Not applicable	96%
Higher Apprenticeship	Not applicable	Not applicable	95%

Note: Gaps arise where there are no corresponding learners in the 2022-23 cohort of UK domiciled Waltham Forest College students (e.g. there were no students in this cohort undertaking full-time vocational qualifications at RQF Level 4).
Source: London Economics' analysis based on completion outcomes data provided by Waltham Forest College

A2.2.2 Defining the gross learner benefit and gross Exchequer benefit

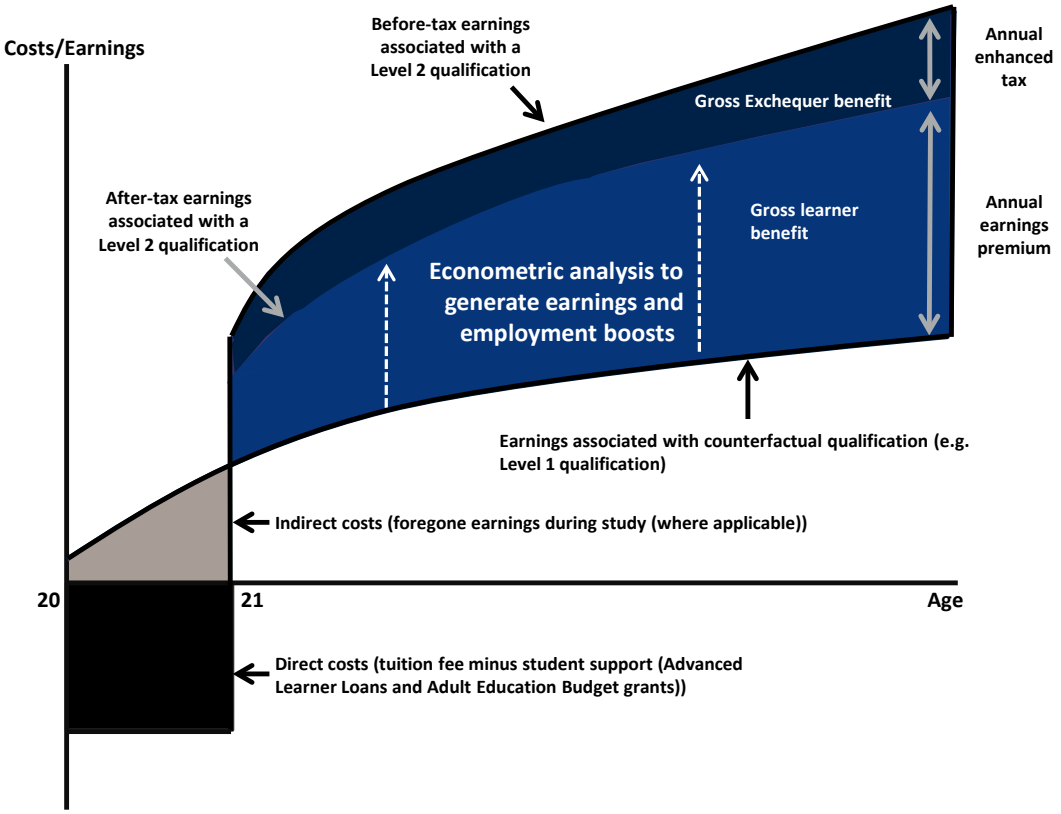
As summarised in Section 2.2, to measure the economic benefits of FE qualifications and apprenticeships, we assess the **labour market value associated with these qualifications**, rather than simply assessing the labour market outcomes achieved by individuals *in possession* of these qualifications. The standard approach to estimating this labour market value is to undertake an **econometric analysis** where the 'treatment' group consists of those individuals in possession of the qualification of interest, and the 'counterfactual' group consists of individuals with comparable personal and socioeconomic characteristics but with the next highest (lower) level of qualification. The rationale for adopting this approach is that the comparison of the earnings and employment outcomes of the treatment group and the counterfactual group 'strips away' (to the greatest extent possible with the relevant data) those other personal and socioeconomic characteristics that might affect labour market earnings and employment (such as gender, age, or sector of employment), leaving just the labour market gains attributable to the qualification itself (see Figure 19 for an illustration of this). The treatment and counterfactual groups, and details of the econometric approach, are presented in Annex A2.2.3 and Annex A2.2.4, respectively.

Throughout the analysis, the assessment of earnings and employment outcomes associated with qualification attainment (at all levels) is undertaken **separately by gender**, reflecting the different labour market outcomes between men and women. Further, where possible, the analysis is adjusted for the specific **subject composition** of students studying at Waltham Forest College[59], to reflect the

[58] Note that these completion rates here differ from the overall achievement rates for Waltham Forest College presented in Box 1 in Section 2.1 (where we compare the achievement rates for Waltham Forest College to the average achievement rates across all English General FE Colleges, and all English FE providers as a whole).
[59] This adjustment for subject composition was *only* feasible for FE qualifications at Levels 2 to 5. For students studying towards vocational qualifications at Entry Level and Level 1, it was not possible to condition on subject area of study, since the corresponding subject information is not available for these qualifications within the Labour Force Survey data that was used for the estimation of marginal

fact that the qualifications offered by the College focus on specific subject areas, and that there is significant variation in post-graduation labour market outcomes depending on the subject of study. In addition, given the fact that part-time students (i.e. predominantly adult learners) generally undertake and complete FE qualifications later in life than full-time students, the analysis for part-time students applies a **'decay function'** to the returns associated with qualification attainment, to reflect the shorter period of time in the labour market[60].

Figure 19 Estimating the gross learner benefit and gross Exchequer benefit (example for full-time Level 2 vocational qualifications)



Note: The analysis assumes that the opportunity costs of foregone earnings associated with qualification attainment are applicable to full-time students only. For part-time students (i.e. predominantly adult learners), we have assumed that these students are able to combine work with their studies and as such, do not incur any opportunity costs in the form of foregone earnings. This illustration is based on an analysis of Waltham Forest College's UK domiciled student cohort data for 2022-23, where the mean age at enrolment for full-time students undertaking vocational qualifications at Level 2 stands at 20, with an average study duration of 1 year.
Source: London Economics

To estimate the **gross learner benefit**, based on the results from the econometric analysis, we then estimate the **present value of the enhanced post-tax earnings** of individuals in possession of different FE qualifications and apprenticeships (i.e. after income tax, National Insurance and VAT are removed, and following the deduction of foregone earnings (where applicable)) relative to an individual in possession of the counterfactual qualification (see Annex A2.2.6 for more detail).

The **gross benefits to the Exchequer** from the provision of FE qualifications and apprenticeships are derived from the enhanced taxation receipts that are associated with a higher likelihood of being

labour market returns. In addition, it was also not possible to condition on subject area for learners undertaking apprenticeships, as the resulting sample size within the Labour Force Survey data would have been too small to produce meaningful results (since the few learners in the Waltham Forest College cohort undertaking apprenticeships are concentrated across a small number of specific subject areas).
[60] See Annex A2.2.5 for more information.

employed, as well as the enhanced earnings associated with more highly skilled and productive employees. Based on the analysis of the lifetime earnings and employment benefits associated with qualification attainment and combined with administrative information on the relevant taxation rates and bands (from HM Revenue and Customs[61]), we estimate the **present value of additional income tax, National Insurance and VAT associated with FE qualification and apprenticeship attainment** (by gender, level of study, mode of study, and prior attainment). Again, please refer to Annex A2.2.6 for more detailed information on the calculation of the gross Exchequer benefit.

A2.2.3 Qualifications and counterfactuals considered in the econometric analysis

Our econometric analysis of the earnings and employment returns to FE qualifications and apprenticeships (described in more detail in Annex A2.2.4) considered:

- **Six different further education qualification groups** (i.e. six **'treatment' groups** for FE qualifications), separately for Entry Level, Level 1, Level 2, Level 3, Level 4, and Level 5 vocational qualifications[62]; and
- **Three different apprenticeship levels**, including Intermediate Apprenticeships, Advanced Apprenticeships, and Higher Apprenticeships.

Table 11 presents these different FE qualifications and apprenticeships (i.e. treatment groups) considered in the analysis, along with the associated **counterfactual group** used for the marginal returns analysis in each case[63]. As outlined above, we compare the earnings of the group of individuals in possession of each FE qualification or apprenticeship to the relevant counterfactual group, to ensure that (to the greatest extent possible) we assess the economic benefit associated with the qualification itself (rather than the economic returns generated by the specific characteristics of the individual in possession of the qualification). This is a common approach in the literature and allows us to control for other personal, regional, or socioeconomic characteristics that might influence *both* the determinants of qualification attainment as well as earnings/employment.

[61] The analysis makes use of relevant tax rates and thresholds applicable to individuals living in England, Wales, and Northern Ireland.
[62] Again, note that students in the 2022-23 Waltham Forest College cohort starting FE qualifications at Level 2 include a very small number of students who started *academic* qualifications at Level 2 (i.e. GCSEs in English Language or Mathematics). For simplicity, these are implicitly treated as vocational qualifications throughout the analysis here.
[63] In this respect, the majority of students (**80%**) in Waltham Forest College's 2022-23 cohort had their prior educational attainment recorded as either 'not known' or 'other qualification level not known' (due to the generally limited coverage of the relevant prior attainment variable within the Individualised Learner Record data). In the absence of more consistent and complete information on students' prior attainment, we therefore assumed that *all* students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (based on the assumed counterfactual groups presented in Table 11). This potentially results in an *underestimation* of the 'true' economic benefits associated with qualification attainment at Waltham Forest College, as, in reality, it is expected that a number of students in the cohort were in possession of lower levels of prior attainment than those assumed here.

Table 11 Treatment and comparison groups used to assess the marginal earnings and employment returns to FE qualifications and apprenticeships

Treatment group – highest qualification	Comparison group - highest qualification
FE qualifications	
Level 5 vocational qualifications	Level 3 vocational qualifications
Level 4 vocational qualifications	Level 3 vocational qualifications
Level 3 vocational qualifications	Level 2 vocational qualifications
Level 2 vocational qualifications	Level 1 vocational qualifications
Level 1 vocational qualifications	No qualifications
Entry Level vocational qualifications	No qualifications
Apprenticeships	
Higher Apprenticeships	Level 3 vocational qualifications
Advanced Apprenticeships	Level 2 vocational qualifications
Intermediate Apprenticeships	Level 1 vocational qualifications

Source: London Economics

A2.2.4 Marginal earnings and employment returns to FE qualifications and apprenticeships

To estimate the impact of qualification attainment on **earnings**, using information from the Labour Force Survey (LFS), we estimated a standard **ordinary least squares** linear regression model, where the dependent variable is the natural logarithm of hourly earnings, and the independent variables include the full range of qualifications held alongside a range of personal, regional, and job-related characteristics that might be expected to influence earnings. In this model specification, we included individuals who were employed on either a full-time or a part-time basis. This approach has been used widely in the academic literature.

The basic specification of the model was as follows:

$$ln\ (\omega_i) = \alpha + \beta X_i + \epsilon_i \quad \text{for } i = 1 \text{ to n}$$

where ln(ω_i) represents the natural logarithm of hourly earnings, $\epsilon_i$represents an error term, α represents a constant term, i is an individual LFS respondent, and X_i provides the independent variables included in the analysis, as follows:

- Highest qualification held;
- Age;
- Age squared;
- Ethnic origin;
- Disability status;
- Region of work;
- Marital status;
- Number of dependent children under the age of 16;
- Full-time / part-time employment;
- Temporary or permanent contract;
- Public or private sector employment;
- Workplace size; and
- Yearly dummies.

Using the above specification, we assessed the earnings returns in aggregate and **for men and women separately**. Further, to analyse the benefits associated with different education qualifications over the lifetime of individuals holding these qualifications, where possible, the regressions were **estimated separately across a range of different age bands** for the working age population, depending on the qualification considered[64]. Where possible, the estimated marginal earnings returns also **take account of the specific subject mix of UK domiciled students in the 2022-23 Waltham Forest College cohort**[65]. Further note that the analysis of earnings premiums was undertaken at a national (UK-wide) level.

To estimate the impact of FE qualifications and apprenticeships on labour market outcomes using this methodology, we used information from **pooled Quarterly UK Labour Force Surveys between Q1 2010 and Q4 2023**.

The resulting estimated marginal wage returns to the different qualifications of interest are presented in Table 12. In the earnings regressions, the coefficients provide an indication of the additional effect on hourly earnings associated with possession of the respective qualification/apprenticeship relative to the counterfactual level of qualification:

- For **Level 2 and Level 3 vocational qualifications** (only), it was possible to estimate separate marginal earnings (and employment) returns by age band. For example, the analysis suggests that men aged between 31 and 35 in possession of a Level 3 vocational qualification achieve a **9.4%** hourly earnings premium compared to comparable men holding a Level 2 vocational qualification as their highest level of attainment. The comparable estimate for women aged between 31 and 35 stands at **8.7%**.
- For **all other FE qualifications and all apprenticeships**, the underlying sample sizes within the LFS data were too small to disaggregate the estimates by age band. Therefore, for all other qualifications (*except* Level 2 and Level 3 vocational qualifications), we instead estimate and apply *average* marginal earnings and employment returns across all ages/age bands. For example, the analysis suggests that men in possession of a Level 1 vocational qualification achieve a **1.3%** hourly earnings premium (on average across all ages/age bands) compared to comparable men with no formal qualifications. The corresponding estimate for women stands at **4.8%**.

To estimate the impact of qualification attainment on **employment**, we adopted a **probit model** to assess the likelihood of different qualification holders being in employment or otherwise. The basic specification defines an individual's labour market outcome to be either in employment (working for payment or profit for more than 1 hour in the reference week (using the standard International Labour Organisation definition) or not in employment (being either unemployed or economically inactive)). The specification of the probit model was as follows:

$$Probit(EMPNOT_i) = \alpha + \gamma Z_i + \epsilon_i \quad \text{for } i = 1 \text{ to n}$$[66]

[64] This breakdown of marginal earnings (and employment) returns by age band was *only* possible for the estimation of the returns to Level 2 and Level 3 vocational qualifications. For all other FE qualifications (and apprenticeships), the underlying sample sizes within the Labour Force Survey data were too small to produce a breakdown by age band. Therefore, for all other qualifications *except* Level 2 and Level 3 vocational qualifications, we instead use *average* marginal earnings and employment returns across individuals of all ages.

[65] This subject mix adjustment was made by applying weights within in the LFS regressions reflecting the proportion of students in the cohort enrolled in each subject area. Note again that this adjustment for subject composition was *only* feasible for FE qualifications at Levels 2 to 5. For Entry Level and Level 1 qualifications, the corresponding subject information is not available from the LFS data. In addition, it was also not possible to condition on subject area for learners undertaking apprenticeships, as the resulting sample size within the LFS data would have been too small to produce any meaningful results (since the few learners in the Waltham Forest College cohort undertaking apprenticeships are concentrated across a very small number of specific subject areas).

[66] Where i is again an individual LFS respondent.

Table 12 Marginal earnings returns to FE qualifications and apprenticeships, in % (following exponentiation), by gender and age band

Qualification level (vs. counterfactual)	Age band									
	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65
Men										
Entry Level vocational (vs. no quals)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Level 1 Vocational (vs. no quals)	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Level 2 Vocational (vs. Level 1 vocational)[1]		10.6%		10.4%		15.6%				-15.9%
Level 3 Vocational (vs. Level 2 vocational)[1]		5.2%	9.4%	9.4%	14.1%	20.2%	14.5%	11.6%	14.6%	10.4%
Level 4 Vocational (vs. Level 3 vocational)[2]										
Level 5 Vocational (vs. Level 3 vocational)	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%	16.6%
Intermediate App. (vs. Level 1 vocational)	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%
Advanced App. (vs. Level 2 vocational)	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%
Higher App. (vs. Level 3 vocational)	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%	24.1%
Women										
Entry Level vocational (vs. no quals)	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
Level 1 Vocational (vs. no quals)	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Level 2 Vocational (vs. Level 1 vocational)[1]	18.4%							9.6%	-4.9%	
Level 3 Vocational (vs. Level 2 vocational)[1]	7.1%	6.9%	7.5%	8.7%	10.2%	9.1%	9.2%	7.5%	9.1%	5.3%
Level 4 Vocational (vs. Level 3 vocational)[2]	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%
Level 5 Vocational (vs. Level 3 vocational)	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%
Intermediate App. (vs. Level 1 vocational)	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Advanced App. (vs. Level 2 vocational)	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%	9.7%
Higher App. (vs. Level 3 vocational)	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%	21.2%

Note: Regression coefficients have been exponentiated to reflect percentage wage returns. In cases where the estimated coefficients are not statistically significantly different from zero (at the 10% level), the coefficient is assumed to be zero; these are displayed as gaps in the table. The only exception to this rule was made for Entry Level and Level 1 vocational qualifications, where we used all estimates irrespective of their statistical significance.

[1] The returns to Level 2 and Level 3 vocational qualifications were estimated separately across different age bands. For all other qualifications, we instead estimated average returns across all ages/age bands, due to relatively limited underlying sample sizes within the LFS data.

[2] There are no estimated returns for Level 4 vocational qualifications for *men*, as there are no such students included in the 2022-23 cohort of UK domiciled students studying at Waltham Forest College.

Source: London Economics' analysis of pooled Quarterly Labour Force Survey data for 2010 Q1 - 2023 Q4

The dependent variable adopted represents the binary variable $EMPNOT_i$, which is coded 1 if the individual is in employment and 0 otherwise.[67] We specified the model to contain a constant term (α) as well as a number of standard independent variables, including the qualifications held by an individual (represented by Z_i in the above equation), as follows:

- Highest qualification held;
- Age;
- Age squared;
- Ethnic origin;
- Disability status;
- Region of usual residence;
- Marital status;
- Number of dependent children under the age of 16; and
- Yearly dummies.

Again, ϵ_i represents an error term. Similar to the methodology for estimating earnings returns, the above-described probit model was estimated in aggregate and **separately for men and women**, with the analysis further split by respective **age bands** (again, for Level 2 and Level 3 qualifications only), and adjusted for the specific **subject mix** of students in the 2022-23 cohort of UK domiciled students attending Waltham Forest College (again, where possible). Further, and again similar to the analysis of earnings returns, employment returns were estimated at the national (i.e. UK-wide) level.

The resulting estimated marginal employment returns are presented in Table 13. The returns here provide estimates of the impact of each qualification on the probability of being in employment (expressed in percentage points):

- Again, for **Level 2 and Level 3 vocational qualifications** (only), we estimated separate returns by age band. For example, the analysis estimates that a man aged between 31 and 35 in possession of a Level 3 vocational qualification is **6.5 percentage points** more likely to be in employment than a man of similar age holding only a Level 2 vocational qualification as their highest level of attainment. The comparable estimate for women aged between 31 and 35 stands at **6.6 percentage points**.
- For **all other FE qualifications and all apprenticeships**, we again instead estimate and apply *average* marginal earnings and employment returns across all ages/age bands. For example, the analysis suggests that men in possession of a Level 1 vocational qualification are **3.3 percentage points** more likely to be in employment (on average across all ages/age bands) than comparable men with no formal qualifications. The corresponding estimate for women stands at **9.0 percentage points**.

[67] The probit function reflects the cumulative distribution function of the standard normal distribution.

Table 13 Marginal employment returns to FE qualifications and apprenticeships, in percentage points, by gender and age band

Qualification level (vs. counterfactual)	Age band									
	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65
Men										
Entry Level vocational (vs. no quals)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Level 1 Vocational (vs. no quals)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Level 2 Vocational (vs. Level 1 vocational)[1]	20.7	23.7	13.7	6.1	10.7	10.1	6.5			
Level 3 Vocational (vs. Level 2 vocational)[1]		6.5	7.9	6.5	3.8		5.8	5.0		
Level 4 Vocational (vs. Level 3 vocational)[2]										
Level 5 Vocational (vs. Level 3 vocational)[3]										
Intermediate App. (vs. Level 1 vocational)	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
Advanced App. (vs. Level 2 vocational)	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Higher App. (vs. Level 3 vocational)	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Women										
Entry Level vocational (vs. no quals)	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Level 1 Vocational (vs. no quals)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Level 2 Vocational (vs. Level 1 vocational)[1]	18.3	14.4	13.0	22.7	18.7	16.9	10.1	7.2		9.7
Level 3 Vocational (vs. Level 2 vocational)[1]	12.1	14.7	9.1	6.6	7.7	3.8	3.4			
Level 4 Vocational (vs. Level 3 vocational)[2]										
Level 5 Vocational (vs. Level 3 vocational)[3]										
Intermediate App. (vs. Level 1 vocational)	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Advanced App. (vs. Level 2 vocational)	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2
Higher App. (vs. Level 3 vocational)	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5

Note: In cases where the estimated coefficients are not statistically significantly different from zero (at the 10% level), the coefficient is assumed to be zero; these are displayed as gaps in the table. The only exception to this rule was made for Entry Level and Level 1 vocational qualifications, where we used all estimates irrespective of their statistical significance.

[1] The returns to Level 2 and Level 3 vocational qualifications were estimated separately across different age bands. For all other qualifications, we instead estimated average returns across all ages/age bands, due to relatively limited underlying sample sizes within the LFS data.

[2] There are no estimated returns for Level 4 vocational qualifications for *men*, as there are no such students included in the 2022-23 cohort of UK domiciled students studying at Waltham Forest College. For women, the gaps in the table are driven by the fact that the estimated returns are not statistically significant.

[3] The marginal employment returns for Level 5 vocational qualifications were statistically insignificant for both men and women, resulting in the gaps in the table here. Note that there were only very few students in the 2022-23 Waltham Forest College student cohort undertaking qualifications at this level (see Section 2.1), so these gaps have only a very limited effect on the total estimated economic impact here.

Source: London Economics' analysis of pooled Quarterly Labour Force Survey data for 2010 Q1 - 2023 Q4

A2.2.5 'Age-decay' function

Many existing economic analyses of the lifetime benefits associated with education qualifications to date (e.g. Walker and Zhu (2013), who focus on higher education qualifications) have focused on the returns associated with the 'traditional path' of post-16 education qualification attainment – e.g. progression directly from secondary level education and completion of a three- or four-year undergraduate degree from the age of 18 onwards (completing by the age of 21 or 22). These analyses assume that there are **direct costs** as well as an **opportunity cost** (the foregone earnings while undertaking the qualification full-time) associated with qualification attainment. More importantly, these analyses make the implicit assumption that *all* of the estimated earnings and/or employment benefit achieved accrues to the individual.

However, **the labour market outcomes associated with the attainment of qualifications on a part-time basis are fundamentally different to those achieved by full-time students**. In particular, part-time students typically undertake their qualifications much later than full-time students (e.g. the estimated average age at enrolment among students in the 2022-23 cohort completing Level 2 vocational qualifications at Waltham Forest College on a part-time basis is **33**, compared to **20** for corresponding full-time students – since the College's part-time learners are predominantly adult learners); often undertake their studies over an extended period of time; and often combine their studies with full-time employment. Table 14 presents the assumed average age at enrolment, study duration, and age at completion for students in the 2022-23 Waltham Forest College cohort[68].

Given these characteristics, we adjust the methodology when estimating the returns to part-time education (and any later full-time education) attainment at Waltham Forest College, through the use of an **'age-decay' function**. This approach assumes that possession of a particular education qualification is associated with a certain earnings or employment premium, and that this entire labour market benefit accrues to the individual *if* the FE qualification or apprenticeship is attained before the age of **24**.

However, as the age of attainment increases, it is expected that a declining proportion of the potential value of the estimated earnings and employment benefit accrues to the individual.[69] This calibration ensures that those individuals completing qualifications at a relatively older age will see relatively lower earnings and employment benefits associated with qualification attainment, while those individuals attaining qualifications earlier in their working life will see a greater economic benefit.

[68] The assumed average duration of study for FE students (by qualification level and mode) is based on information on the average planned total hours per learner in the 2022-23 cohort of UK domiciled students provided by Waltham Forest College. In each instance, since the underlying model is undertaken on a per-annum basis, any students undertaking qualifications that are shorter than 1 year have been assigned a (maximum) 1-year study duration.
For apprenticeships, the assumed average duration (again by level) is based on data on the average expected apprenticeship training duration (by level) in 2022-23 published by the Department for Education (2024b).

[69] E.g. Callender et al. (2011), focusing on higher education qualifications, suggest that the evidence points to decreasing employment returns with age at qualification: older graduates are less likely to be employed than younger graduates three and a half years after graduation; however, there are no differences in the likelihood of graduates undertaking part-time and full-time study being employed according to their age or motivations to study.

Table 14 Average age at enrolment, study duration, and age at completion for students in the 2022-23 Waltham Forest College cohort

Qualification level	Full-time students			Part-time students		
	Age at enrolment	Duration (years)	Age at completion	Age at enrolment	Duration (years)	Age at completion
Entry Level vocational	17	1	18	37	1	38
Level 1 Vocational	17	1	18	37	1	38
Level 2 Vocational	20	1	21	33	1	34
Level 3 Vocational	19	1	20	36	1	37
Level 4 Vocational	-	-		34	1	35
Level 5 Vocational	45	1	46	40	1	41
Intermediate Apprenticeships	18	1	19	-	-	-
Advanced Apprenticeships	23	2	25	-	-	-
Higher Apprenticeships	32	2	34	-	-	-

Note: All values have been rounded to the nearest integer. In the table, for simplicity (for presentational purposes), apprenticeship learners have been included in the same columns as full-time students.
Again, note that there were no students in the cohort undertaking full-time Level 4 vocational qualifications.
Source: London Economics' analysis based on Waltham Forest College data

Table 15 presents the assumed age-decay adjustment factors that we apply to the marginal earnings and employment returns to full-time and part-time students undertaking qualifications at Waltham Forest College in the 2022-23 cohort. To take an example, we have assumed that a student undertaking a Level 2 vocational qualification on a full-time basis achieves the full earnings and employment premium identified in the econometric analysis (for their entire working life). However, for a part-time Level 2 student, we assume that because of the late attainment (at age **34** (on average)), these students recoup only **73%** of the corresponding earnings and employment premiums from that age (of attainment).

Table 15 Assumed age decay adjustment factors for students in the 2022-23 Waltham Forest College cohort

Age	Entry Level vocational	Level 1 vocational	Level 2 vocational	Level 3 vocational	Level 4 vocational	Level 5 vocational	Intermediate App.	Advanced App.	Higher App.
18	100%	100%	100%	100%	100%	100%	100%	100%	100%
19	100%	100%	100%	100%	100%	100%	100%	100%	100%
20	100%	100%	100%	100%	100%	100%	100%	100%	100%
21	100%	100%	100%	100%	100%	100%	100%	100%	100%
22	100%	100%	100%	100%	100%	100%	100%	100%	100%
23	100%	100%	100%	100%	100%	100%	100%	100%	100%
24	98%	98%	98%	98%	98%	98%	98%	98%	98%
25	95%	95%	95%	95%	95%	95%	95%	95%	95%
26	93%	93%	93%	93%	93%	93%	93%	93%	93%
27	90%	90%	90%	90%	90%	90%	90%	90%	90%
28	88%	88%	88%	88%	88%	88%	88%	88%	88%
29	85%	85%	85%	85%	85%	85%	85%	85%	85%
30	83%	83%	83%	83%	83%	83%	83%	83%	83%
31	80%	80%	80%	80%	80%	80%	80%	80%	80%
32	78%	78%	78%	78%	78%	78%	78%	78%	78%
33	75%	75%	75%	75%	75%	75%	75%	75%	75%
34	73%	73%	73%	73%	73%	73%	73%	73%	73%
35	70%	70%	70%	70%	70%	70%	70%	70%	70%
36	68%	68%	68%	68%	68%	68%	68%	68%	68%
37	65%	65%	65%	65%	65%	65%	65%	65%	65%
38	63%	63%	63%	63%	63%	63%	63%	63%	63%
39	60%	60%	60%	60%	60%	60%	60%	60%	60%
40	58%	58%	58%	58%	58%	58%	58%	58%	58%
41	55%	55%	55%	55%	55%	55%	55%	55%	55%
42	53%	53%	53%	53%	53%	53%	53%	53%	53%
43	50%	50%	50%	50%	50%	50%	50%	50%	50%
44	48%	48%	48%	48%	48%	48%	48%	48%	48%
45	45%	45%	45%	45%	45%	45%	45%	45%	45%
46	42%	42%	42%	42%	42%	42%	42%	42%	42%
47	40%	40%	40%	40%	40%	40%	40%	40%	40%
48	37%	37%	37%	37%	37%	37%	37%	37%	37%
49	35%	35%	35%	35%	35%	35%	35%	35%	35%
50	32%	32%	32%	32%	32%	32%	32%	32%	32%
51	30%	30%	30%	30%	30%	30%	30%	30%	30%
52	27%	27%	27%	27%	27%	27%	27%	27%	27%
53	25%	25%	25%	25%	25%	25%	25%	25%	25%
54	22%	22%	22%	22%	22%	22%	22%	22%	22%
55	20%	20%	20%	20%	20%	20%	20%	20%	20%
56	17%	17%	17%	17%	17%	17%	17%	17%	17%
57	15%	15%	15%	15%	15%	15%	15%	15%	15%
58	12%	12%	12%	12%	12%	12%	12%	12%	12%
59	10%	10%	10%	10%	10%	10%	10%	10%	10%
60	7%	7%	7%	7%	7%	7%	7%	7%	7%
61	5%	5%	5%	5%	5%	5%	5%	5%	5%
62	2%	2%	2%	2%	2%	2%	2%	2%	2%
63	0%	0%	0%	0%	0%	0%	0%	0%	0%
64	0%	0%	0%	0%	0%	0%	0%	0%	0%
65	0%	0%	0%	0%	0%	0%	0%	0%	0%

Note: Shaded areas indicate relevant average age at completion per full-time/part-time student at each level of study at Waltham Forest College: ■ Full-time students ■ Part-time students.
In the table, for simplicity (for presentational purposes), apprenticeship learners have been categorised as full-time students.
Again, note that there were no students in the cohort undertaking full-time Level 4 vocational qualifications.
Source: London Economics' analysis based on Waltham Forest College data

A2.2.6 Estimating the gross learner benefit and gross Exchequer benefit

The gross learner associated with qualification attainment is defined as the **present value of enhanced post-tax earnings** (i.e. after income tax, National Insurance and VAT are removed and following the deduction of foregone earnings) relative to an individual in possession of the

counterfactual qualification. To estimate the value of the gross learner benefit, it is necessary to extend the econometric analysis (presented in Annex A2.2.4) by undertaking the following elements of analysis (separately by qualification level, gender, and study mode):

1. We estimated the employment-adjusted **annual earnings** achieved by individuals in the counterfactual groups (see Annex A2.2.3 for more detail), again using pooled Quarterly UK Labour Force Survey data between Q1 2010 and Q4 2023.
2. We inflated these baseline or counterfactual earnings using the marginal earnings premiums and employment premiums (presented in Table 12 and Table 13 in Annex A2.2.4), adjusted to reflect late attainment (as outlined in Annex A2.2.5), to produce **annual age-earnings** profiles associated with the possession of each particular qualification.
3. We adjusted these age-earnings profiles to account for the fact that earnings are expected to increase over time (based on average annual earnings growth rate forecasts estimated by the Office for Budget Responsibility (2024)[70]).
4. Based on the earnings profiles generated for individuals in possession of each particular qualification of interest, and income tax and National Insurance rates and allowances for the relevant year[71], we computed the future stream of net (i.e. post-tax) earnings[72]. Using similar assumptions, we further calculated the stream of (employment-adjusted) foregone earnings (based on earnings in the relevant counterfactual group[73]) during the period of study, again net of tax, for full-time students (as well as apprentices) only.
5. We then calculated the **discounted** stream of additional (employment-adjusted) future earnings compared to the relevant counterfactual group (using a standard real discount rate of **3.5%** (Years 1-30) and **3.0%** (Years 31+) as outlined in HM Treasury Green Book (HM Treasury, 2022)), and the discounted stream of foregone earnings during qualification attainment (for full-time students), to generate a present value figure. We thus arrive at the **gross learner benefit**.
6. The **discounted** stream of enhanced taxation revenues minus the tax income foregone during students' qualification attainment (where relevant) derived in element 4 provides an estimate of the **gross public benefit** associated with qualification attainment.

[70] Specifically, we make use of the Office for Budget Responsibility's most recent short-term forecasts (for 2023-24 to 2028-29) and long-term forecasts (for 2029-30 onwards) of nominal average earnings growth.

[71] i.e. 2022-23. Note that the analysis assumes fiscal neutrality, i.e. it is asserted that, in subsequent years, the earnings tax and National Insurance income thresholds/bands grow at the same rates of average annual earnings growth (again based on Office for Budget Responsibility forecasts). Further note that different thresholds and rates for National Insurance contributions applied throughout different parts of the 2022-23 tax year. Here, for simplicity, we use the rates and threshold that applied at the end of 2022-23 (i.e. the rates and thresholds applicable between 6th November 2022 and 5th April 2023 (the last 5 months of the 2022-23 tax year)).

[72] The tax adjustment also takes account of increased VAT revenues for HMT, by assuming that individuals consume 91.3% of their annual income, and that approximately 50% of their consumption is subject to VAT at a rate of 20%. The assumed proportion of income consumed and the proportion of consumption subject to VAT are both based on forecasts by the Office for Budget Responsibility (2024) (where the proportion of income consumed is calculated as 100% minus the forecast household savings rate).

[73] The foregone earnings calculations are based on the relevant earnings among individuals in the relevant counterfactual group (again, see Table 11 in Annex A2.2.3 for more detail). In this respect, note again that the majority of students in Waltham Forest College's 2022-23 cohort had their prior educational attainment recorded as either 'not known' or 'other qualification level not known', and we therefore assumed that *all* students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification. Again, this potentially results in an *underestimation* of the 'true' economic benefits associated with qualification attainment at Waltham Forest College, as, in reality, it is expected that a number of students in the cohort were in possession of lower levels of prior attainment than those assumed here.

A2.2.7 Estimating the net learner benefit and net Exchequer benefit

The difference between the gross and net learner benefit relates to **students' direct costs** of qualification acquisition[74]:

- For **further education qualifications**, the direct costs to students associated with attaining these qualifications include any **tuition fees paid by students themselves**[75], offset against any **Advanced Learner Loans** (provided to students by the Student Loans Company[76]) and **Adult Education Budget grants** (provided to students by the Education and Skills Funding Agency (ESFA) and the Greater London Authority (GLA))[77]. In this respect, the student benefit/Exchequer cost associated with Advanced Learner Loans equals the Resource Accounting and Budgeting charge (RAB charge), capturing the proportion of the loan that is expected not to be repaid[78];
- For **apprenticeships**, these learners incur the *indirect* costs of foregone earnings associated with the counterfactual level of qualification during their training (which are already accounted for in the above-described *gross* learner benefit); however, **there are no *direct* costs incurred by apprentices associated with their training**. Instead, these learners ***benefit*** from receiving apprentice wages during their training, and these net (after-tax) wages constitute a significant benefit component associated with apprentice training[79]. For more information on our methodological approach for estimating apprentice pay during training, please refer to Annex A2.2.8.

Similarly, the difference between the gross and net Exchequer benefit relates to the **direct costs to the public purse** associated with funding education provision:

- For **FE qualifications**, the direct Exchequer costs of funding these qualifications include the (above-mentioned) costs of providing **Advanced Learner Loans**[80] and **Adult Education Budget grants** (by the ESFA/GLA) to students, as well as the **ESFA grant funding** provided to Waltham Forest College to subsidise the provision of FE teaching to 16-19 learners.[81]
- Finally, for **apprenticeships**, in addition to the *indirect* costs of foregone tax revenues during the training (associated with the counterfactual, and again already accounted for in the *gross* public purse benefit), we deduct the **Exchequer costs of Apprentice Levy funding**.[82] In addition, and as a key **Exchequer *benefit*** during training (rather than a cost),

[74] Note again that the *indirect* costs associated with qualification attainment, in terms of the foregone earnings during the period of study (for full-time students only), are already deducted from the *gross* learner benefit.
[75] i.e. for the (relatively small) number of full cost (fee-paying) students studying at the College (for whom no public funding is provided).
[76] Advanced Leaner Loans are available to students aged 19 and over, studying at RQF Levels 3 to 6.
[77] The average level of funding per student per year for each of these types of FE funding (as well as for the corresponding direct Exchequer costs of provision, outlined below) was estimated by dividing the total amount of funding associated with FE students in the 2022-23 cohort (by type of funding, mode of study, and level of study) by the corresponding total number of students in the cohort – all based on ILR data provided by Waltham Forest College.
[78] We assumed a RAB charge of **45%** for Advanced Learner Loans, based on RAB charge estimates (for Plan 2 Advanced Learner Loans) published by the Department for Education (2024c).
[79] As a result of these in-training benefits, for apprentice learners, the estimated 'net' learner benefits are consistently *larger* than the estimated 'gross' learner benefits.
[80] Again, adjusted for the RAB charge – i.e. the cost to the Exchequer of providing Advanced Learner Loans is captured by the proportion of the loan outlay that is expected *not* to be repaid by students.
[81] Again, this is based on detailed ILR data provided by Waltham Forest College (see Footnote 77 for more information).
[82] The average cost of Apprentice Levy funding per learner is again based on ILR data provided by Waltham Forest College (see Footnote 77 for more information). The Apprentice Levy is a levy placed on employers with an annual pay bill in excess of £3 million; however, for small employers that do not meet this threshold, as well as for Levy-paying employers that want to invest more in apprenticeship training than they have available in their levy accounts, the Exchequer 'co-invests' 95% of the costs of provision, paid directly to the training provider (so that employers only have to cover the remaining 5% of the costs). For simplicity (and given the very small number of apprentice learners in the 2022-23 cohort), in the absence of a breakdown of how much of the total negotiated price (negotiated between the employer and Waltham Forest College) per apprenticeship standard for learners in the 2022-23 cohort was provided through

the Exchequer accrues the tax receipts (again including income tax, National Insurance employee and employer contributions, and VAT), associated with the apprentice wages received by learners during their training[83].

These direct costs (and direct benefits, for apprentices) to both students and the Exchequer (by qualification level and study mode) are calculated from start to completion of a student's learning aim (i.e. over the entire expected study/training duration). Throughout the analysis, to ensure that the economic impacts are computed in **present value** terms (i.e. in 2022-23 money terms), all benefits and costs occurring at points in the future were **discounted** using the standard HM Treasury Green Book real discount rates of **3.5%/3.0%** (see HM Treasury, 2022).

Deducting the resulting individual and Exchequer costs from the estimated gross learner and gross public purse benefit[84], respectively, we arrive at the estimated **net learner benefit** and **net public purse benefit** per student (presented in Annex A2.2.9).

A2.2.8 Estimating net apprentice pay during training

While incurring the (indirect) *costs* of foregone earnings associated with the baseline/counterfactual group level of qualification, apprentice learners receive **apprentice wages during their training**.

To estimate these benefits for the 2022-23 cohort of learners starting apprenticeships at Waltham Forest College, we made use of the Department for Education's **2021 Apprenticeship Evaluation Learner Survey**[85]. The survey provides detailed information on the average hourly pay[86] and number of actual hours worked per week[87] among apprentices in England in 2021, with separate breakdowns available by gender, age band (16-18, 19-24, and 25+), and RQF level.

Given that the original survey results are only published separately by *either* gender, age band, or level, we **estimated a combined breakdown** of apprentice wages across all three of these dimensions. Specifically, we first estimated a breakdown *by age band and level*, by multiplying the pay rates by level by the ratio of overall average hourly pay for each age band relative to the overall average hourly pay for all apprentices (i.e. we assume the same pay distribution by age band across all apprenticeship levels[88]). We then proceeded similarly to estimate the breakdown *by level, age band, and gender*, assuming the same pay distribution by gender across all age bands and levels.

To estimate learners' aggregate (net) apprentice pay over the total training duration, we then undertook the following calculation steps:

1. By combining the above average hourly pay rates with the associated average number of hours worked per week (again based on the 2021 Apprenticeship Evaluation Learner Survey) and the average number of weeks per year (52.2), we calculated **average *annual* earnings** in 2022-23 (adjusted to 2022-23 values using information on the UK average nominal earnings growth rate in 2022-23 published by the Office for Budget Responsibility

employers' Levy accounts vs. co-invested by the government, we have included the entirety of the negotiated price per apprenticeship standard as a cost to the Exchequer.

[83] Again, see Annex A2.2.8 for more information on the methodological approach for estimating apprentice wages during training.

[84] And, for apprentices, adding the benefits of apprentice pay (and associated tax receipts) during training.

[85] Department for Education (2022).

[86] We use information on gross hourly pay, including any overtime pay (or other income).

[87] Actual hours per week includes contracted hours as well as any paid or unpaid overtime.

[88] For the 16-18 age band specifically, we apply the ratio of overall average hourly pay for each age band relative to the overall average hourly pay *for Level 2 and 3 apprentices only*. This is because individuals aged 16-18 generally do not undertake Level 4+ apprenticeships.

(2024)). Table 16 presents our resulting estimated annual apprentice pay rates in 2022-23 values by gender, age band and level.

2. Using the assumptions on the average age at which apprentice learners in the 2022-23 Waltham Forest College cohort start their training and the assumed average duration of training (by level)[89], we estimated the **total gross (i.e. pre-tax) apprentice earnings per learner over the total training duration**.
3. As with earnings post-completion, we adjusted the estimates to account for Office for Budget Responsibility **forecasts of average nominal earnings growth** for the UK[90].
4. Based on the relevant income tax and National Insurance employee contribution rates and thresholds, we then computed the stream of **net (post-tax) apprentice earnings**.

Finally, we again discounted the results to **NPV terms in 2022-23 prices**.

Table 16 Average apprentice pay in England: Estimated annual pay by gender, age band, and apprenticeship level

Age band	Male			Female		
	Level 2 (Intermediate)	Level 3 (Advanced)	Level 5 (Higher)	Level 2 (Intermediate)	Level 3 (Advanced)	Level 5 (Higher)
16-18	£13,100	£14,700	-	£12,100	£13,600	-
19-24	£16,900	£18,900	£27,200	£15,700	£17,600	£25,300
25+	£20,800	£23,400	£33,600	£19,300	£21,700	£31,200

Note: All pay rates are presented in 2022-23 values and rounded to the nearest £100.

Source: London Economics' analysis based on Department for Education (2022), adjusted to 2022-23 levels using average earnings nominal earnings growth data for 2022-23 published by the Office for Budget Responsibility (2024)

A2.2.9 Estimated gross and net learner and Exchequer benefit

Table 17 and Table 18 present the estimated *gross* learner benefits and public purse benefits (respectively) per student associated with FE qualification and apprenticeship attainment at Waltham Forest College (based on the 2022-23 cohort, and broken down by study mode, level of study[91], gender, and prior attainment) resulting from the above-outlined analysis. Table 19 and Table 20 provide corresponding information on the associated *net* learner benefits and public benefits per student, respectively.

[89] See Annex A2.2.5 for more detail.

[90] Again, see Office for Budget Responsibility (2024).

[91] Due to the small number of learners undertaking these qualifications in the 2022-23 cohort, the results for FE learners at Levels 4/5 and apprentices have not been presented here (see the grey shaded cells in the tables).

Table 17 Gross learner benefits per student associated with FE qualification and apprenticeship attainment at Waltham Forest College, by study mode, level, gender, and prior attainment

Level of study	Previous qualification and gender							
	No qualifications		Level 1 vocational		Level 2 vocational		Level 3 vocational	
	Men	Women	Men	Women	Men	Women	Men	Women
Full-time students								
Entry Level vocational	-£2,000	£24,000						
Level 1 Vocational	£18,000	£42,000						
Level 2 Vocational			£47,000	£47,000				
Level 3 Vocational					£62,000	£39,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								
Part-time students								
Entry Level vocational	£0	£11,000						
Level 1 Vocational	£9,000	£19,000						
Level 2 Vocational			£18,000	£27,000				
Level 3 Vocational					£37,000	£15,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								

Note: All values are rounded to the nearest £1,000. Gaps may arise where there are no students in the 2022-23 Waltham Forest College cohort expected to complete the given qualification (with the given characteristics). In terms of prior attainment, note again that there was only very limited/incomplete prior attainment information available for students in the cohort, so we assumed that all students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (again, see Annex A2.2.3).
Due to the underlying small sample sizes (in terms of the small number of learners undertaking these qualifications), the results for FE learners at Levels 4/5 and apprentices have not been presented here (see the grey shaded cells).
Source: London Economics' analysis

Table 18 Gross Exchequer benefits per student associated with FE qualification and apprenticeship attainment at Waltham Forest College, by study mode, level, gender, and prior attainment

Level of study	Previous qualification and gender							
	No qualifications		Level 1 vocational		Level 2 vocational		Level 3 vocational	
	Men	Women	Men	Women	Men	Women	Men	Women
Full-time students								
Entry Level vocational	£0	£2,000						
Level 1 Vocational	£12,000	£4,000						
Level 2 Vocational			£36,000	£8,000				
Level 3 Vocational					£59,000	£18,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								
Part-time students								
Entry Level vocational	£0	£1,000						
Level 1 Vocational	£7,000	£2,000						
Level 2 Vocational			£16,000	£5,000				
Level 3 Vocational					£31,000	£9,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								

Note: All values are rounded to the nearest £1,000. Gaps may arise where there are no students in the 2022-23 Waltham Forest College cohort expected to complete the given qualification (with the given characteristics). In terms of prior attainment, note again that there was only very limited/incomplete prior attainment information available for students in the cohort, so we assumed that all students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (again, see Annex A2.2.3).
Due to the underlying small sample sizes (in terms of the small number of learners undertaking these qualifications), the results for FE learners at Levels 4/5 and apprentices have not been presented here (see the grey shaded cells).
Source: London Economics' analysis

Table 19 Net learner benefits per student associated with FE qualification and apprenticeship attainment at Waltham Forest College, by study mode, level, gender, and prior attainment

Level of study	Previous qualification and gender							
	No qualifications		Level 1 vocational		Level 2 vocational		Level 3 vocational	
	Men	Women	Men	Women	Men	Women	Men	Women
Full-time students								
Entry Level vocational	-£2,000	£24,000						
Level 1 Vocational	£18,000	£42,000						
Level 2 Vocational			£48,000	£47,000				
Level 3 Vocational					£62,000	£39,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								
Part-time students								
Entry Level vocational	£1,000	£12,000						
Level 1 Vocational	£10,000	£20,000						
Level 2 Vocational			£19,000	£29,000				
Level 3 Vocational					£39,000	£17,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								

Note: All values are rounded to the nearest £1,000. Gaps may arise where there are no students in the 2022-23 Waltham Forest College cohort expected to complete the given qualification (with the given characteristics). In terms of prior attainment, note again that there was only very limited/incomplete prior attainment information available for students in the cohort, so we assumed that all students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (again, see Annex A2.2.3).
Due to the underlying small sample sizes (in terms of the small number of learners undertaking these qualifications), the results for FE learners at Levels 4/5 and apprentices have not been presented here (see the grey shaded cells).
Source: London Economics' analysis

Table 20 Net Exchequer benefits per student associated with FE qualification and apprenticeship attainment at Waltham Forest College, by study mode, level, gender, and prior attainment

Level of study	Previous qualification and gender							
	No qualifications		Level 1 vocational		Level 2 vocational		Level 3 vocational	
	Men	Women	Men	Women	Men	Women	Men	Women
Full-time students								
Entry Level vocational	-£7,000	-£4,000						
Level 1 Vocational	£6,000	-£2,000						
Level 2 Vocational			£30,000	£2,000				
Level 3 Vocational					£53,000	£12,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								
Part-time students								
Entry Level vocational	-£1,000	£0						
Level 1 Vocational	£5,000	£1,000						
Level 2 Vocational			£15,000	£4,000				
Level 3 Vocational					£29,000	£7,000		
Level 4 Vocational								
Level 5 Vocational								
Intermediate Apprenticeships								
Advanced Apprenticeships								
Higher Apprenticeships								

Note: All values are rounded to the nearest £1,000. Gaps may arise where there are no students in the 2022-23 Waltham Forest College cohort expected to complete the given qualification (with the given characteristics). In terms of prior attainment, note again that there was only very limited/incomplete prior attainment information available for students in the cohort, so we assumed that all students starting a given level of FE qualification/apprenticeship at the College in 2022-23 were in possession of the next highest (lower) level of qualification (again, see Annex A2.2.3).
Due to the underlying small sample sizes (in terms of the small number of learners undertaking these qualifications), the results for FE learners at Levels 4/5 and apprentices have not been presented here (see the grey shaded cells).
Source: London Economics' analysis

LE London Economics

Somerset House, New Wing, Strand
London, WC2R 1LA, United Kingdom
info@londoneconomics.co.uk
londoneconomics.co.uk
@LE_Education | @LondonEconomics
+44 (0)20 3701 7700