



Department  
for Education

# **Costs and behaviours in the 16 to 18 apprenticeship system**

**A report by Frontier Economics and CFE  
Research**

**October 2016**

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# Summary

## Objectives of this study

Anecdotal evidence has suggested that delivering apprenticeships for 16-18 year olds, and employing them in the workplace, leads to higher costs for providers and employers relative to adult apprentices. This has important implications for policy-makers as they consider the appropriate design of apprenticeship funding.

This 6-week study was therefore commissioned by the Department for Education (DfE) to collate evidence on the costs to providers of delivering apprenticeships for 16-18s, and the costs to employers of training them in the workplace, relative to adult apprentices. In particular, we address four objectives in this study:

- To characterise the market for 16-18 apprenticeships in terms of apprentices, providers and employers.
- To explore providers' activities, costs, business models and responses to funding for apprentices aged 16-18 and adults.
- To explore the drivers of employer decisions about employing apprentices and their activities and costs relating to training apprentices aged 16-18, compared to adults, in the workplace.
- To explore the policy implications of different incentives for employing apprentices aged 16-18, including potential unintended effects.

To address these issues, we have collated primary data from a purposive sample of 34 providers of different types that deliver apprenticeships for 16-18s and adults, and 27 employers from across 6 sectors<sup>1</sup>, including large and small firms, that employ 16-18 and adult apprentices. We have complemented this with analysis from secondary and administrative data sources, such as the Individualised Learner Record.

All costs and income reported reflect the current funding system. Changes have been proposed for the apprenticeship funding system from spring 2017 – such changes would therefore not be reflected in this analysis.

## Overview of our approach

Through semi-structured interviews based on bespoke discussion guides designed for this study for each of providers and employers, we elicited two forms of evidence:

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<sup>1</sup> These are: manufacturing, construction, retail and wholesale, health and social care, professional and technical services and ICT.

- **Qualitative evidence on providers' and employers' market behaviours relating to apprentices.** This included for both providers and employers: drivers of decisions to deliver apprenticeships or employ apprentices; recruitment, training and support activities for 16-18 and adult apprentices; cost models; and responsiveness to funding and cost changes.
- **Quantitative evidence on the scale and nature of employer and provider costs associated with apprentices.** This includes the self-reported costs and income for providers and employers as they recruit, train and support 16-18 apprentices, and how these compare with adult apprentices. The differentials between 16-18s and adults were then estimated.

As noted above, the short 6-week timeframe for this study constrained the sample size to a purposive sample of 34 providers and 27 employers. The limitations of using self-reported data from such a small sample must be borne in mind when interpreting the results.

## Findings from our evidence

For providers in our sample, our headline findings are:

1. **The average annual cost to providers of delivering apprenticeships for 16-18s is higher than for adults by around £250<sup>2</sup> per apprentice per year.**

This is largely driven by ancillary support; sub-contracting of external training providers or assessors; and teaching. Therefore if we assume an average duration of an apprenticeship across both age groups and across all frameworks of 20 months<sup>3</sup>, over the course of an entire apprenticeship the overall average cost differential would be approximately £400<sup>4</sup>. One-off recruitment costs are also on average around £50 per apprentice higher for 16-18s compared to adults.

2. **The cost of delivering apprenticeships for 16-18s is similar for both big and small providers but big providers typically have lower costs in delivering apprenticeships for adults.**

Among the providers within our sample, we found that the average annual costs per 16-18 apprenticeship were similar for both big<sup>5</sup> providers and small providers

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<sup>2</sup> This figure and all cost figures have been rounded to the nearest £50.

<sup>3</sup> The average duration is the average across frameworks on which providers in our sample reported. £400 has been derived by multiplying the annual £250 by (20 months /12 months)

<sup>4</sup> This assumes that any apprentice who starts a 16-18 apprenticeship will remain in the 16-18 category throughout their training, which will not necessarily be the case as they would gradually move towards the adult costs.

<sup>5</sup> For this study we define small providers as those with <1,100 total apprentices in total; and big providers as those with >1,100 apprentices.

at just under £4,000 per apprentice per year. We find similar results when we compare colleges, which are typically larger in their scale of operation, with private providers.

We also find that for both big and small providers, the costs of 16-18 apprenticeships (per apprentice) are higher than for adults. For big providers, however, they appear to operate with economies of scale as their costs per adult apprentice are lower than for small providers. Therefore, the difference in recurring costs<sup>6</sup> between 16-18s and adults is larger for big providers (around £350 per apprentice per year) than for small providers (around £150 per apprentice per year).

Alongside likely economies of scale for large providers, our qualitative evidence suggests that costs per apprentice facing all providers are however also likely to be influenced by the business model used along with the nature of apprenticeships being delivered (technical apprenticeships are more costly to deliver than service-based).

For employers in our sample, our headline findings are:

**3. The annual average net cost across all frameworks of employing apprentices aged 16-18 is lower than for adults...**

For the 27 employers in our sample, the annual average (recurring) cost per apprentice is around £650 lower for 16-18s than for adults. Although employers spend on average around £900 per apprentice per year more on supervision for 16-18s than adults, this cost is outweighed by the lower salary typically paid to young apprentices relative to adults (young apprentices are paid on average £1,350 less than adults).

It is also important to consider the net costs for employers, after accounting for other income employers receive per apprentice (such as through grants) and the productive contribution of the apprentice. After accounting for these factors, we find that young apprentices have a lower average productive contribution than adults (by £600 per apprentice per year), though they attract more income for the employer than adults (by £500 per apprentice per year). The average net cost to the employer is therefore £550 more for a young apprentice than for an adult.

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<sup>6</sup> We define recurring costs to be those costs that are incurred each year of the apprenticeship (such as teaching). We contrast this with one-off costs which are incurred just once (just as recruitment).

#### **4. ...but for technical apprenticeship frameworks, 16-18 apprentices cost the employer more than adults.**

We find that the type of apprenticeship is a more important driver of costs for employers than the age of the apprentice *per se*. Technical frameworks<sup>7</sup> in our sample typically cost employers more overall than service-based frameworks<sup>8</sup>, and for 16-18s relative to adults. This is largely driven by the higher costs to the employer of supervision, particularly for 16-18s. For employers in our sample, technical apprenticeships for 16-18s cost employers on average around £500 more per apprentice per year than for adult apprentices. After accounting for other income employers receive per apprentice (such as through grants) and the productive contribution of the apprentice, 16-18s impose a net cost on employers of on average around £350 more per apprentice per year than adult apprentices.

Across the whole duration of an apprenticeship, the difference in costs between technical and service-based frameworks is even greater. This is because the average duration of technical apprenticeships is longer (35 months) than for services frameworks (15 months). For illustration, a 16-18 apprentice on a technical apprenticeship could cost the employer (in terms of recurring costs) around £1,500 more than an adult apprentice on the same framework, or around £1,000 more than an adult in net cost terms.

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<sup>7</sup> We define 'technical apprenticeships as those covering construction, engineering and electrical apprenticeships. The tuition involved with such apprenticeships is typically complex, requires apprentices to learn a large number of new skills and include significant amounts of theoretical and practical training.

<sup>8</sup> We define service apprenticeships as those covering childcare, health, business and administration and digital marketing. The amount of new skills acquired, theoretical tuition and hence guided training away from the workplace is less than that required for technical apprenticeships.



## Glossary of terms

A number of phrases and short-hand abbreviated terms are used in the report. The table below describes their meaning.

| Term                                | Description  |
|-------------------------------------|--|
| Assessor provider model             | Where an apprenticeship is primarily delivered in the workplace by assessors (i.e. teaching is minimal). Prevalent with private providers delivering pathways on service frameworks, often with a short duration.  |
| Employer Data Service (EDS)         | A single, high quality source of employer data collected for the Skills Funding Agency to help describe employers using state-funded training. This was used to help us characterise the market and also to identify employers for our fieldwork sample frame.                       |
| Generalist provision                | Provision in which a large range of frameworks is offered. Providers using this model are often Further Education Colleges and/or providers in areas in which competition is limited i.e. rural / sparsely populated locations.  |
| Individualised Learner Record (ILR) | The main data for England about further education and work-based learning. This was used to help us characterise the market and also to identify providers for our fieldwork sample frame.   |
| Labour Force Survey (LFS)           | A survey of the employment circumstances of the UK population. Used here used as a filtering tool to identify the sectors on which to focus our fieldwork.   |
| Large employers – for this analysis | Organisations employing a self-reported total of more than 45 apprentices in at the time of the interview.   |
| Large providers – for this analysis | Training providers who were recorded as training more than 1,100 apprentices in the 2014/15 ILR data used for sampling.  |
| Release provider model              | Where an apprentice spends a significant amount of time away from the work-station in separate training, often off-site. This is essential for pathways/ frameworks in which a lot of new skills are acquired and require practice – most of which have longer durations (2+ years). |
| Service-based                       | Service apprenticeships covered childcare, health, business and administration and digital marketing. These required less  |

|                                |  |
|--------------------------------|--|
| framework                      | practical and/or theoretical training that technical apprenticeships. They often required less tuition and where shorter duration.   |
| Small employers – for analysis | Organisations employing a self-reported total 45 or fewer apprentices in at the time of the interview.   |
| Small providers – for analysis | Training providers who were recorded as training 1,100 or fewer apprentices in the 2014/15 ILR data used for sampling.   |
| Specialist provision           | Provision limited to a small number or single frameworks / pathways targeting a specific market / sector or social need. Such providers tend to be smaller and are generally market-led.   |
| Sub-contracting provision      | When a main provider is both delivering training and using a wide network of providers to offer specific aspects of the apprenticeship. This often involves cooperation between Colleges and private providers.  |
| Technical framework            | Technical apprenticeships covered construction, engineering and electrical apprenticeships. 'Traditional' technical apprenticeships all demand some significant training and subsequent assessment along with investment in facilities and/or equipment. |

# Introduction

## Background

The Government has set a target of achieving 3 million quality apprenticeship starts by 2020, with no decline in the number of 16-18 apprentices. As a result, reforms have been proposed to ensure that appropriate incentives are in place to meet this target, with a shift to a more employer-led approach. One aspect of this is to replace apprenticeship 'frameworks' with employer-led 'standards', another aspect is to move to a new funding system.

Under the new funding system, funds will be routed via the employer and not (as currently happens) via the provider. Large employers, who have an annual pay bill of over £3 million, will pay an apprenticeship levy equivalent to 0.5% of their pay bill. This levy will go into the employer's 'digital account' with the Government topping this up by 10%<sup>9</sup> and offering an allowance of £15,000 per annum<sup>10</sup>. Employers can then use these funds to purchase apprenticeship training from approved providers and assessors.

The Government has also proposed to introduce 15 funding band caps ranging from £1,500 to £27,000 per framework, within which all existing and new apprenticeship frameworks and standards will be placed. These bands set the cap on the amount that government will fund for each framework delivered by an approved provider. Prices actually charged by providers are negotiated between employers and providers.

In addition, to encourage the employment of apprentices aged 16-18, the Government has proposed to provide an additional one-off payment of £1,000<sup>11</sup> per apprentice to both employers and providers.

## Objectives of this study

Anecdotal evidence has suggested that delivering apprenticeships for 16-18 year olds, and employing them in the workplace, leads to higher costs for providers and employers than for adult apprentices. This has important implications for policy-makers as they consider the appropriate design of apprenticeship funding.

This study short 6-week study was therefore commissioned by the Department for Education (DfE) to collate evidence to explore the costs to providers of delivering

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<sup>9</sup> In our analysis we assume that 10% of the employer contribution to the levy is the amount by which the Government tops-up an employer's account

<sup>10</sup> As a result, effectively, the 0.5% levy is calculated on the amount of the pay bill in excess of £3 million.

<sup>11</sup> At the time of writing (early October 2016), this value is being consulted on.

apprenticeships for 16-18s, and the costs to employers of training them in the workplace, relative to adults. In particular, the four objectives of this study were:

- To characterise the market for 16-18 apprenticeships in terms of apprentices, providers and employers.
- To explore providers' activities, costs, business models and responses to funding for apprentices aged 16-18 and adults.
- To explore the drivers of employer decisions about employing apprentices and their activities and costs relating to employing and training apprentices aged 16-18, compared to adults, in the workplace.
- To explore the policy implications of different incentives for employing apprentices aged 16-18, including potential unintended effects.

## Approach

This work has been carried out over a 6-week period. There were three main stages to the study.

The first involved characterising the 16-18 apprenticeship market from the perspective of apprentices, providers and employers. This work used data from the Individualised Learner Record (ILR) and the Employer Data Service (EDS) and included analysis of the following:

- For apprentices: we examined annual apprenticeship starts, demographic characteristics of apprentices, and frameworks chosen.
- For providers: we explored the number and types of providers active in the market and the distribution in the delivery of apprenticeships across providers (market concentration).
- For employers: we explored the number of employers active in the market; the age profile of apprentices they employ; and the variation of apprentice employment by size and sector of firm.

Key findings of our characterisation of the 16-18 apprenticeship market are presented in the section on page 15.

The second and third stages of our work involved an intensive fieldwork programme undertaken over the short period of this study. The fieldwork involved 61 semi-structured interviews with 34 providers (of different types and sizes) and 27 employers across 6

sectors of the economy<sup>12</sup> (page 20 describes how these were selected). A discussion guide was developed to elicit information and data from providers and employers. This evidence was both qualitative and quantitative and underpinned the analysis for this study. Two forms of analysis were carried out using this evidence in stages two and three of the work.

- Stage two focused on **providers** and investigated the costs and behaviours in delivering apprenticeships and how these compared for 16-18 and adults. In particular, we derived evidence on activities to recruit, train and support apprentices; costs faced and their magnitudes; business models used; and provider responsiveness to costs and funding. Our analysis is described in “Drivers of behaviour and costs for providers” (page 25).
- Stage three focused on **employers** and investigated, for both large and small employers, the costs and behaviours in employing apprentices and how these compared for 16-18s and adults. In particular, we explored the reasons for employing apprentices; activities to recruit, train and support apprentices; costs faced and their magnitudes; and responsiveness to costs. Our analysis is described in “Drivers of behaviour and costs for employers” (page 48).

## Evidence sources

To inform our analysis, we have used a range of evidence sources. These include secondary data sources and primary data (from fieldwork).

Several secondary data sources were used. These included:

1. **The Labour Force Survey:** this was used as a filtering tool to identify the sectors on which to focus our fieldwork. This data set was used to identify the sectors with the highest levels of employment of 16-18 apprentices and also sectors which we have identified as offering ‘high potential’ to employ a greater share of 16-18 apprentices in the future. Although we have not used this data set for detailed work on apprenticeship provision and apprentice employment (given the definition of an apprenticeship is likely to differ a little from the ILR), it serves as a valuable source of evidence for our work as it allows us to look at apprenticeships within the wider context of employment patterns in the sectors more widely, therefore was fit for purpose for our needs.

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<sup>12</sup> These sectors are: construction, wholesale retail and repair of vehicles, manufacturing, information and communication, health and social work, and professional scientific and technical activity.

2. **The Individualised Learner Record (ILR):** we obtained approval from the Skills Funding Agency to use this highly detailed dataset as it records the details associated with all publically funded further education, including work-place learning in England, for learners aged 16+. This includes information on the learners (apprentices) and the providers. This was used to help us characterise the market and also to identify providers for our fieldwork sample frame.
3. **The Employer Data Service (EDS):** we obtained approval from the Skills Funding Agency to gain access to the EDS which, when linked to the ILR, allows us to explore characteristics of employers of 16-18 and adult apprentices. This was used to help us characterise the market and also to identify employers for our fieldwork sample frame.

Primary data were gathered from our programme of fieldwork. As described in more detail on page 20, in the 6-week period of this study we were able to carry out semi-structured interviews with 34 providers and 27 employers. Primary data was both qualitative and quantitative.

The remainder of this report presents:

- An overview of the 16-18 apprenticeship market (page 15);
- The programme of fieldwork we have carried out to underpin the analysis (page 20);
- The drivers of behaviours and costs for providers (page 25); and
- The drivers of behaviours and costs for employers (page 48).

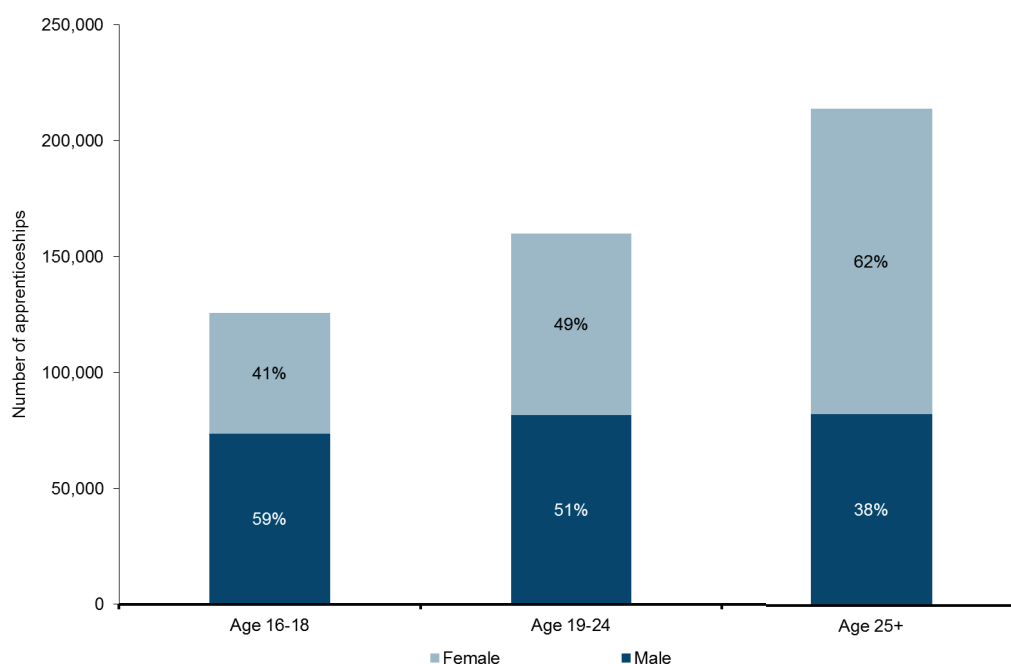
# Overview of the 16-18 apprenticeship market

## Introduction

In order to inform our assessment of the behaviours and costs in the 16-18 apprenticeship system, we carried out an overarching assessment of three key players: apprentices; providers; and employers. This section presents this analysis, drawing on ILR and EDS data. The period for the analysis covers the academic year 1<sup>st</sup> August 2014 to 31<sup>st</sup> July 2015.

## Apprentices

Over the 12 months from August 2014 to July 2015, there were 499,900 apprenticeship starts, of which 125,900 (25%) were aged 16-18. This is shown in Figure 1. The vast majority of 16-18 apprentices were undertaking level 2 and 3 apprenticeships.



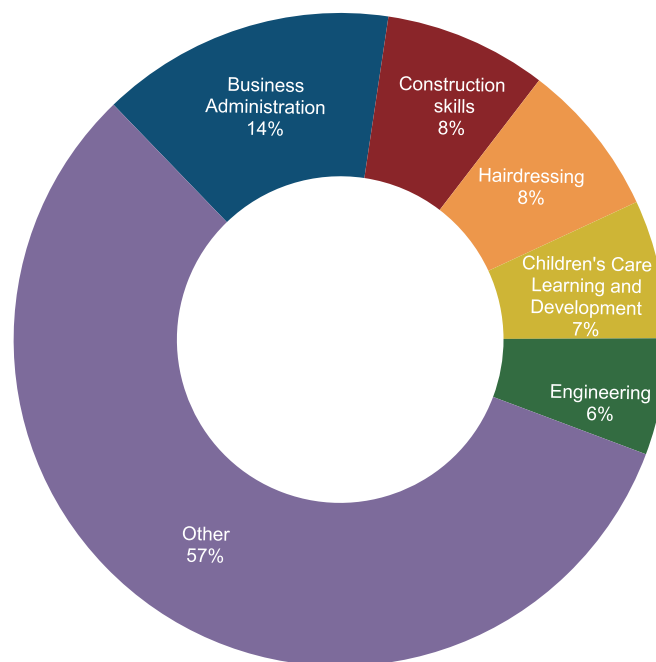
**Figure 1: Number of apprenticeship starts in 2014-15, by age and gender**

Source: Skills Funding Agency, Department for Business Innovation and Skills & ILR

As Figure 1 shows, adult apprentices outnumber 16-18 apprentices by almost 3:1. The proportion of female apprentices increases by the age band, such that females account for a higher proportion (62%) of apprentices aged 25 and above compared to 41% of young (aged 16-18) apprentices.

When looking at the average age of apprentices by age band, the average age of those aged 16-18 was towards the upper end of the band at 17.6 while for those aged 19 – 24 the average age was 21 and for the over 25s, the average age was 37.3. This suggests that apprenticeships support both initial training and re-training.

Figure 2 shows that the most popular frameworks for 16-18 apprenticeships were business and administration (14%); construction skills (8%); hairdressing (8%); children’s care learning and development (7%); and engineering (6%). As such, the top 5 frameworks account for 43% of all apprentices, with the remainder spread among other framework types.



**Figure 2: Most popular frameworks in 2014-15 for apprentices aged 16-18**

Source: Skills Funding Agency, Department for Business Innovation and Skills & ILR

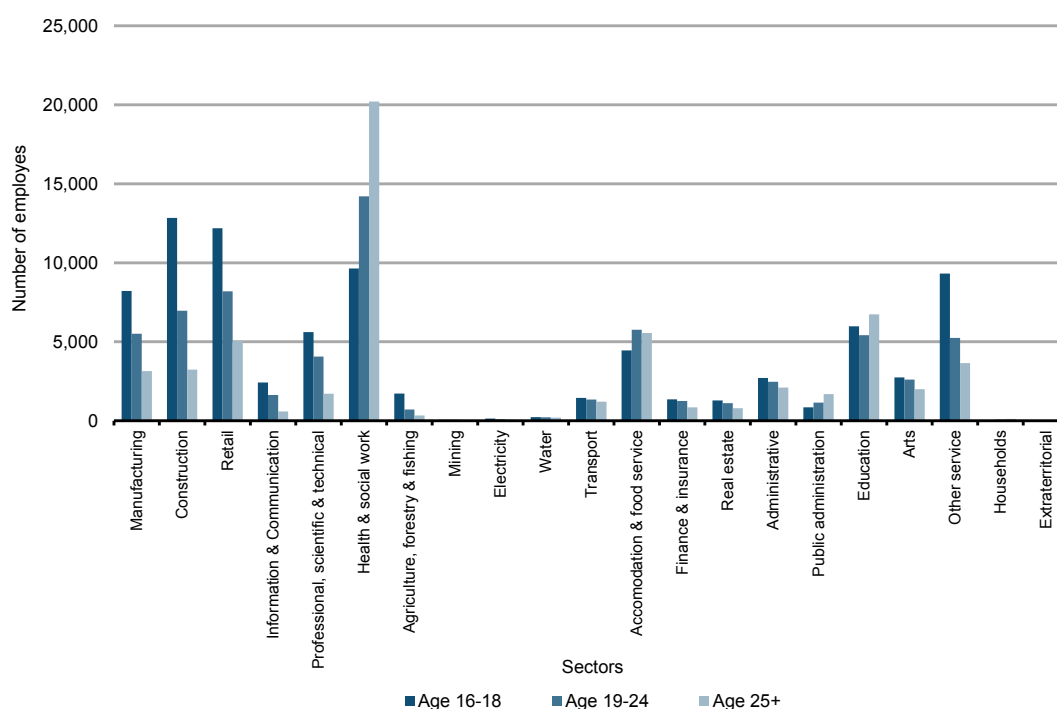
We also find that the proportion of learners withdrawing from apprenticeships generally fell with age but the difference was not significant. The average withdrawal rate for 16-18s was 22.2% whereas for adults over 25 it was slightly lower at 20.5%.



## Employers

In 2014-15, there were approximately 160,000<sup>13</sup> employers of apprentices of all ages, of which 87,000 employed apprentices aged 16-18. Whilst the number of employers<sup>14</sup> employing those aged 19-24 or 25 and above was lower, they typically employed more apprentices, suggesting that older apprentices tend to be in firms that each take on numerous apprentices.

The sectors with most employers of 16-18 apprentices are construction (12,800) and retail (12,200). Employers of older age group apprentices, particularly 25 and above are more concentrated in the health and social work sector. This is shown in Figure 3 below,



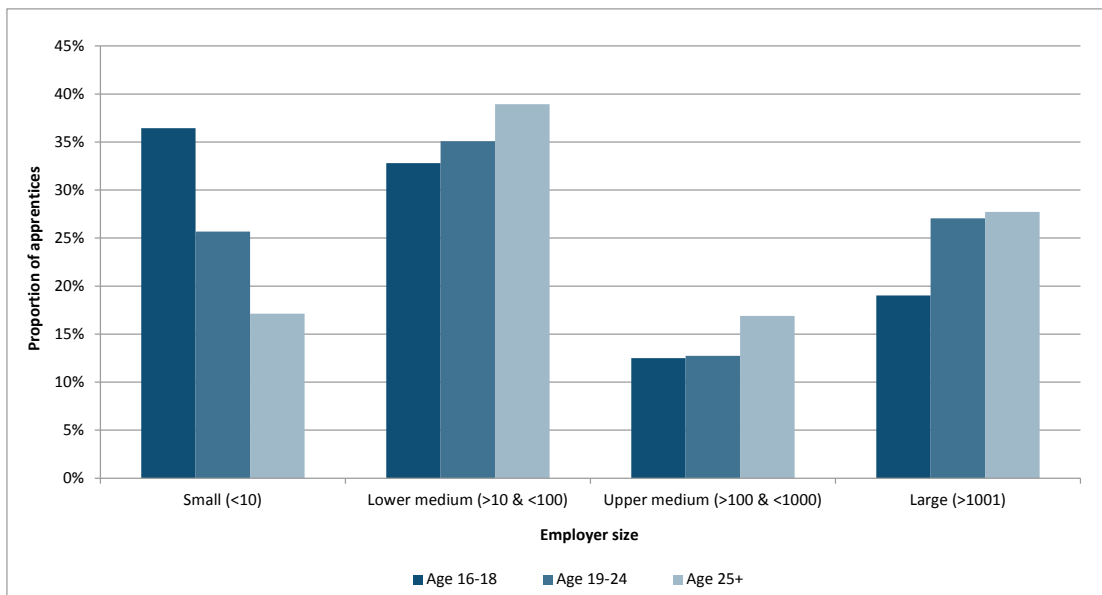
**Figure 3: Number of employers with apprentices, by age, in 2014-15**

Source: ILR

When looking at the types of firms that typically employ young apprentices, we find that young apprentices are typically employed in smaller firms. This is shown in Figure 4.

<sup>13</sup> All employer information is based on linking ILR data to the EDS database. Due to the short timescale available for the project it was not possible to access ONS data such as the Inter-departmental Business register. Our results therefore are not directly comparable to recently published DfE work in this area: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/555052/Size\\_and\\_Industry\\_of\\_Businesses\\_with\\_Apprentices\\_Final\\_Pdf.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/555052/Size_and_Industry_of_Businesses_with_Apprentices_Final_Pdf.pdf)

<sup>14</sup> Employers here refer to distinct business entities rather than workplaces. We undertook an involved cleaning process to convert the EDS workplace data to employer level information. This required us to combine sites that shared a common parent company identification number and also in some cases to combine sites which shared a trading name and were in the same sector of the economy.



**Figure 4: Percentage of apprentices based on employer size in 2014-15**

Source: ILR, EDS

As shown in Figure 4, 68% of apprentices aged 16-18 were employed in small and lower-medium sized firms<sup>15</sup> in 2014-15.

Looking at the distribution of apprentices across employers, we found that the largest 10 employers accounted for only 6% of apprentice starts aged 16-18 and the largest 100 employers only account for 11% of apprentice starts aged 16-18.

## Providers

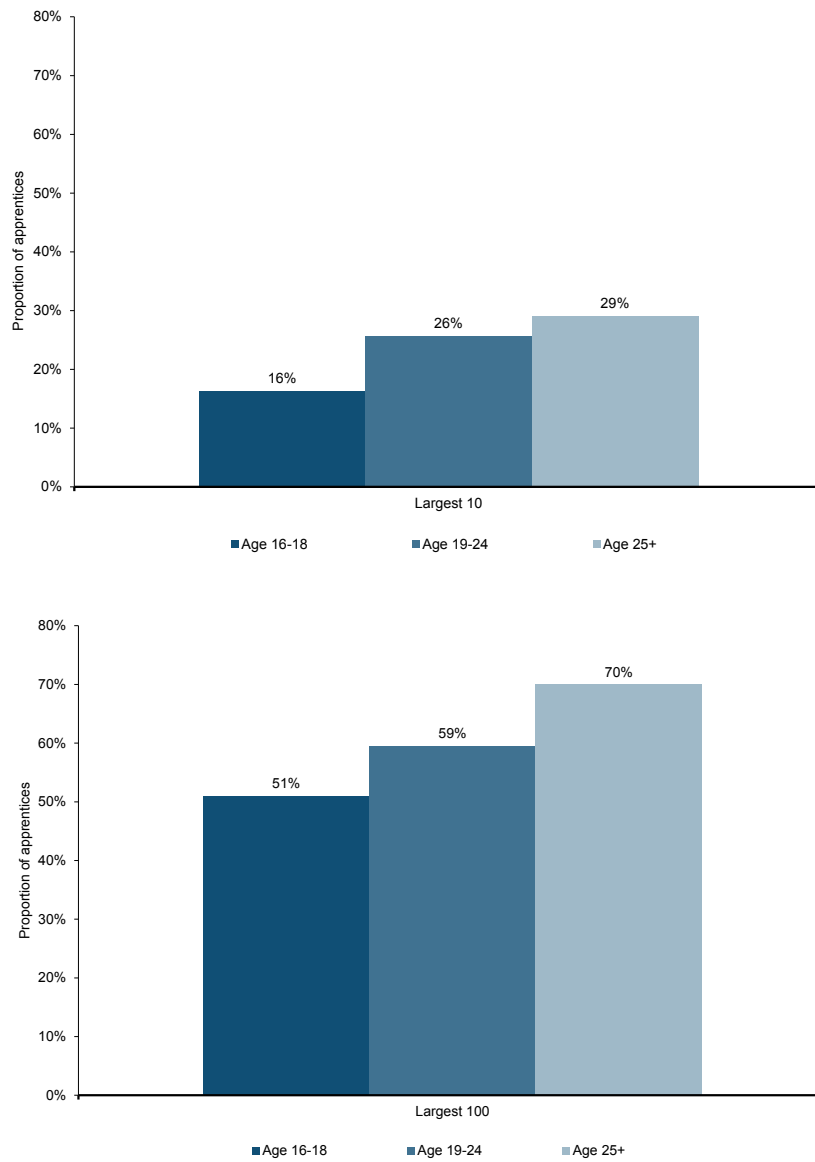
In 2014-15, there were 1,200 apprenticeship providers in total, of which 800 delivered apprenticeships for 16-18s. More than half of providers for 16-18s were private providers and a third were Further Education Colleges. A similar pattern was true for adult apprentices.

This implies that apprentices play an important part of the business models for private providers, accounting for 46% of their learners in 2014-15. In contrast, apprentices accounted for only 8% of all learners at Further Education Colleges.

When looking at the distribution of apprentices across providers, we find that in 2014-15, the 10 providers with the largest numbers of apprentices accounted for 16% of 16-18 apprenticeship starts. This compares with the 10 providers with the largest number of

<sup>15</sup> Small firms are defined as having <10 employees and lower medium as having >10 and <100 employees

apprentices accounting for 29% of apprenticeship starts for the over 25s. This is show in Figure 5 below.



**Figure 5: Proportion of apprenticeship starts for the largest 10 and largest 100 providers, by age, in 2014-15**

Source: ILR

# Fieldwork underpinning our primary evidence

## Sample frame

We employed the approach described below to obtain the sample from which to recruit employers and providers to interview for this 6-week study.

### Providers

Individualised Learner Record (ILR) data was used to identify around 100 of the largest providers of apprenticeships for 16-18 year olds. These providers also delivered apprenticeships to adult learners aged 19 and over (to allow for comparison). A further 100 randomly selected small providers<sup>16</sup> were also identified. The sample included different types of provider (FE colleges; independent providers; other) and ensured those providers delivered the breadth of apprenticeship frameworks.

Table 1 illustrates our *target* sampling frame for recruiting providers to be interviewed for this study. The target was to interview 30 providers in the 6-week period of this study.

| Provider type | Number of 16 to 18 year old apprentices |            |            |            |               | Total in sample frame | Target for interview |
|---------------|---|------------|------------|------------|---------------|-----------------------|----------------------|
|               | 975+                                    | 500 to 974 | 300 to 499 | 100 to 299 | Less than 100 |                       |                      |
| College       | 2                                       | 24         | 36         | 23         | 16            | 101                   | 10                   |
| Private       | 12                                      | 14         | 28         | 24         | 29            | 107                   | 15                   |
| Other         | 5                                       | 1          | 4          | 6          | 14            | 30                    | 5                    |
| Total         | 19                                      | 39         | 68         | 53         | 59            | 238                   |                      |
| Target        | 7                                       | 10         | 8          | 5          |               |                       | 30                   |

Table 1: Sample frame for providers

### Employers

Given the 6-week timeframe of this project, we focused our attention on six sectors of employers. Using the Labour Force Survey we first identified three sectors in which 16-18 apprentices are currently most prevalent. These are:

- Construction
- Wholesale Retail and Repair of Vehicles
- Manufacturing

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<sup>16</sup> Size defined by number of apprentices aged 16-18 they train.

We then identified three ‘high potential’ sectors defined in three ways:

- 1) The sector with the fastest rate of growth in 16-18 apprentices over 2010-2016. This suggested Information and Communication;
- 2) The largest sector for total employment (overall) and strong recent growth in 16-18 apprentices. This suggested Health and Social Care; and
- 3) The sector with the highest absolute growth in total employment over 2010-2016 including solid growth in 16-18 apprentices. This suggested Professional Scientific and Technical Activity.

Having identified the sectors, we then used the ILR linked to the Employer Data Service (EDS) to identify 150 employers in each of the six sectors: 100 of which were the largest employers of 16-18 apprentices and 50 small.<sup>17</sup>

Table 2 outlines our target sampling frame for recruiting employers to be interviewed for this project<sup>18</sup>. Our target was 30 employers across sectors and sizes.

| Type   | Number of 16 to 18 year old apprentices |           | Total in the sample frame | Target for interview |
|--|---|-----------|---------------------------|----------------------|
|  | Large                                   | Small     |                           |                      |
| Construction                                   | 100                                     | 50        | 150                       | 5                    |
| Wholesale Retail and Repair of Vehicles        | 100                                     | 50        | 150                       | 5                    |
| Manufacturing                                  | 100                                     | 50        | 150                       | 5                    |
| Information and Communication                  | 100                                     | 50        | 150                       | 5                    |
| Health and Social Care                         | 100                                     | 50        | 150                       | 5                    |
| Professional Scientific and Technical Activity | 100                                     | 50        | 150                       | 5                    |
| <b>Total</b>                                   | 600                                     | 300       | 900                       | 5                    |
| <b>Target</b>                                  | <b>18</b>                               | <b>12</b> |                           | <b>30</b>            |

**Table 2: Sampling frame for employers**

## Recruitment procedure

The providers and employers we interviewed were selected from the sample frame to try to achieve representation across the six employer sectors, type of providers, and size of firms/organisations.

The employer and provider interviewees were recruited in the following way:

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<sup>17</sup> Size is defined by number of apprentices aged 16-18 they employ.

<sup>18</sup> The sample frame is skewed towards large providers but the actual sample interviewed was not.

- Organisations in the sample were contacted by telephone and a screener questionnaire was used to identify the right contact in the organisation and the preferred interview method (telephone or face-to-face); and
- Willing participants were sent an email confirmation alongside a summary of the discussion guide and list of data to collect in advance of the interview.

The interviews were carried out either on the telephone or face to face, according to the preference of the interviewee. Interviewers recorded the interviews, collated the data and then the interviews were transcribed and data were logged for processing. We monitored our progress against the sample targets throughout the recruitment process.

## Sample

We interviewed 34 providers and 27 employers. The samples of providers and employers interviewed are set out in Table 3 and Table 4 below.

### Providers

The 34 providers interviewed were fairly evenly split in terms of private providers and colleges and size of these organisations. 17 of our sample were in the largest 100 providers (based on number of 16-18 apprenticeships); seven were in the largest 50 and one was in the top ten.

| Type              | Total     | Large<br>(>1100<br>apprentices in<br>total) | Small<br>(≤1100<br>apprentices<br>in total) | Number of<br>providers<br>in Top 10<br><br>(by number<br>of 16-18<br>apprentices<br>trained) |
|-------------------|-----------|---|---|--|
| Private providers | 17        | 6   | 11  | 1  |
| Colleges          | 15        | 10  | 5   | 0  |
| Other             | 2         | 0   | 2   | 0  |
| <b>Total</b>      | <b>34</b> | <b>16</b>                                   | <b>18</b>                                   | <b>1</b>   |

Table 3: Sample of providers interviewed

### Employers

Our sample of 27 employers interviewed is over-represented by firms within the construction sector and under-represented by firms in the Information and Communication as well as Wholesale and Retail sectors. Four of our sample were in the top ten of their sector (in terms of number of apprentices employed) and almost half of our sample employed more than 45 apprentices. This is shown in Table 4.

| Sector                         | Total     | Large<br>(>45<br>apprentices<br>in total) | Small<br>(≤45<br>apprentices<br>in total) | Employers<br>in Top 10<br>(by number<br>of 16-18<br>apprentices<br>employed) | Employers<br>providing<br>data on<br>technical<br>apprentice-<br>ships | Employers<br>providing<br>data on<br>services<br>apprentice-<br>ships |
|--------------------------------|-----------|---|---|--|--|---|
| Construction                   | 9         | 4   | 5   | 0  | 8  | 1   |
| Manufacturing                  | 5         | 4   | 1   | 2  | 5  | 0   |
| Health & Social<br>Work        | 4         | 3   | 1   | 1  | 0  | 4   |
| Scientific<br>Research         | 4         | 1   | 3   | 1  | 2  | 2   |
| Information &<br>Communication | 2         | 0   | 2   | 0  | 1  | 1   |
| Wholesale &<br>Retail          | 2         | 0   | 2   | 0  | 1  | 1   |
| Other                          | 1         | 1   | 0   | 0  | 0  | 1   |
| <b>Total</b>                   | <b>27</b> | <b>13</b>                                 | <b>14</b>                                 | <b>4</b>   | <b>17</b>  | <b>10</b>   |

**Table 4: Sample of employers interviewed**

## Discussion guides

Both the qualitative and quantitative data for this study were collected through 61 semi-structured interviews exploring several key topics. The discussion guides for both types of interviews were discussed and agreed with DfE.

For the detailed quantitative data collated during this study, both providers and employers were asked to focus upon and provide information about a typical apprentice on their most popular apprenticeship framework.

The coverage of the discussion guides for providers and employers is outlined in Table 5.

|             | Provider   | Employer  |
|-------------|--|---|
| Qualitative | <p>Drivers of decisions to deliver apprenticeships (both young and adult)</p> <p>Recruitment, training and support activities for apprentices</p> <p>Cost models</p> <p>Responsiveness to funding and cost changes</p> | <p>Drivers of decisions to employ apprentices (both young and adult)</p> <p>Recruitment, training and supervision activities for apprentices</p> <p>Cost models</p> <p>Responsiveness to funding and cost changes</p> |

|              |  |   |
|--------------|--|---|
| Quantitative | Number and type of apprenticeships delivered<br><br>Cost estimates for: <ul style="list-style-type: none"> <li>• Recruitment and marketing</li> <li>• External training and assessment fees</li> <li>• Teaching</li> <li>• Support</li> <li>• Materials and equipment</li> <li>• Administration</li> <li>• Premises</li> </ul> | Number and type of apprentices employed<br><br>Cost estimates for: <ul style="list-style-type: none"> <li>• Recruitment</li> <li>• External training and assessment fees</li> <li>• Salary</li> <li>• Supervision</li> <li>• Materials and equipment</li> <li>• Administration</li> <li>• Premises</li> </ul> |
|--------------|--|---|

**Table 5: Coverage of provider and employer discussion guides**



# Drivers of behaviour and costs for providers

## Qualitative evidence

### Summary of main findings from our qualitative interviews

From our sample of 34 providers, our main findings are below:

#### **1. Costs for providers of delivering apprenticeships for all ages depend on the business model.**

Providers' delivery models are a key determinant of their costs. Two main models were identified although, in practice, most providers deploy a mixture depending on the content of a framework, standard or individual pathway.

- **Assessor model:** The apprenticeship is primarily delivered in the workplace by assessors (teaching is minimal). This appears to be prevalent with private providers delivering pathways on service frameworks, often with a short duration.
- **Release model:** Much more time is spent by the apprentice away from the workplace in separate training, often off-site. This is essential for pathways/frameworks in which a lot of new skills are acquired and require practice – most of which have longer durations (2+ years).

#### **2. The type of apprenticeship (service-based or technical<sup>19</sup>) drives provider costs more than age.**

The evidence from our interviews highlights a clear difference between technical and service-based apprenticeships. Technical apprenticeships covered construction, engineering and electrical apprenticeships. Service apprenticeships covered childcare, health, business and administration and digital marketing. Technical apprenticeships all demand some significant training and subsequent assessment along with investment in facilities and/or equipment. The acquisition of skills was not usually age-dependent (i.e. all ages need to learn new skills) though duration could be slightly longer for younger apprentices.

#### **3. Providers' recruitment and support activities for apprentices – and the associated costs - vary most by age**

In terms of recruitment, providers noted that apprentices aged 16 to 18 years were much more likely to be transitioning from education to work so the range of activities needed

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<sup>19</sup> These are: manufacturing, construction, retail and wholesale, health and social care, professional and technical services and ICT.

during the recruitment process is larger. Providers also said adult apprentices were more likely to already be employed, so recruitment activity tended to be via an employer rather than the individual apprentice (which costs less).

We also found that local economic conditions had an impact on recruitment costs. Areas with low unemployment struggled to recruit 16-18s given the other options available for young people; and apprenticeship salaries were lower for this age group and so less attractive to potential recruits.

In terms of support for apprentices, providers said the support required to manage the transition from compulsory education to work for 16-18s was sometimes quite extensive. Providers said that before entering employment, young peoples' experience of workplaces was often confined to work placements. Many had no experience at all. Therefore support was needed from providers (and some employers) to manage this.

## Introduction to our evidence on apprenticeship providers

This section describes the qualitative evidence we collated from the providers in our sample and presents our quantitative analysis of their costs of delivering apprenticeships.

We first describe the types of business models providers tend to use, and how these affect the nature of costs they face in delivering apprenticeships. We then focus on the costs of delivering apprenticeships in terms of the activities they carry out (recruitment, provision of support for apprentices, teaching and tuition, equipment and premises, and we highlight some wider factors that can affect their costs), before describing how provider behaviour is typically affected by funding.

Quantitative evidence on the costs is then presented in terms of how the costs of delivering apprenticeships vary by age of the apprentices, and the type of provider.

We also highlight the key assumptions made in our analysis and the limitations that must be borne in mind when interpreting the analysis.

### Provider business models

Based on analysis of the evidence from our interviews, several different business models appear to operate in the sector. The models can be defined in two main ways:

- Delivery models: the way in which an apprenticeship is delivered (Table 6); and
- Organisational models: the structural organisational model of the provider (Table 7).

As outlined below, the models are not necessarily mutually exclusive.

| <b>Assessor model</b>   | <b>Release model</b>  |
|---|---|
| <p>The apprenticeship is primarily delivered in the workplace by assessors. Tuition is a small part, often limited to providing support (such as English and maths).</p> <p>This appears to be prevalent with private providers delivering pathways on service frameworks, often with a short duration.</p> | <p>Much more time is spent by the apprentice away from the workplace in separate training, often off-site. This is essential for pathways / frameworks in which a lot of new skills are acquired and require practice.</p> <p>This model is used on traditional frameworks which are also those that typically run for two or more years.</p> |

**Table 6: Delivery models**

In practice, larger providers, especially FE Colleges, will operate a model that combines the assessor model and release model on a pathway-by-pathway basis. The stronger driver for the choice of model is the curriculum mix of technical and service-based apprenticeships.

The choice of organisational model (Table 7) tends to be related to the ability to achieve economies of scale. In the main, providers operating Generalist and Sub-contracting models are able to achieve economies of scale that specialist providers cannot. This is because larger student cohorts, including non-apprentice provision, can be supported more efficiently (especially in the case of additional tuition such as maths and English).

| Generalist   | Specialist  | Sub-contracting  |
|--|---|--|
| <p>The range of frameworks offered is large. Providers using this model are often Further Education Colleges and/or providers in areas in which competition is limited i.e. rural / sparsely populated locations.</p> <p>Such providers are trying to service a diverse employer-base and use speed of response / flexibility to meet this need.</p> | <p>Limited or single frameworks / pathways targeting a specific market / sector or social need. These providers tend to be smaller, although that is not always the case and they can operate over the whole country.</p> | <p>The main provider is both delivering training and using a wide network of providers to offer specific aspects of the apprenticeship. This often involves cooperation between Colleges and private providers. Private subcontractors are often used to deliver specialist vocational training; Colleges often deliver supplementary provision i.e. English and Maths, Key Skills, etc.</p> |

**Table 7: Organisational models**

## Variation in costs for providers related to the delivery model

Our interviews revealed three particular factors relating to how apprenticeships are delivered that affect costs. Firstly, there was some reported **variation in salaries for “teaching” activity**. In the case of Generalist and Release models, the individual delivering training was typically a lecturer or professional tutor. Their salary was typically larger than those delivering “tuition” aspects in the Assessor model. In the case of the latter, the main role of the assessor was to visit the workplace to monitor an apprentice’s progress and provide guidance and support. Furthermore, some assessors are paid on an hourly basis, or per apprentice, rather than a salary. In the Assessor model, a lot of the apprentice’s knowledge acquisition was self-guided and this was typically said to be cheaper to deliver. There is also variation in costs by pathway content: technical trainers and those teaching IT reported higher salaries than staff delivering service-based apprenticeships.

Similarly, there was **variation in salaries for support staff**. This was caused by the composition of staff delivering support which in itself varied by the size of provider. For smaller providers, a senior member of staff often had some responsibility for providing support to apprentices, recruitment and/or administration. As a result, reported salary

costs for these providers were typically higher. Larger providers typically are able to operate with economies of scale in the delivery of support activity so the unit cost of that support was typically lower compared to that of smaller providers.

**Premises costs vary by delivery model.** Providers operating an Assessor model tended to have lower, if any, premises costs associated with delivery because their model is based on workplace visits. They sometimes had some space set aside for support such as English and maths. However, it is more likely that such provision was sub-contracted to larger providers who specialise / or are able to operate with economies of scale. Generalist / Release providers delivered more on-site training and hence had much higher premises costs. In a couple of cases, Generalist providers offering technical apprenticeships sub-let specialist premises (i.e. workshops) from other organisations.

## Costs to providers of delivering apprenticeships

### Recruitment

Providers described a range of activities they performed when recruiting an apprentice. The activities providers will perform are described below. These often varied in intensity depending on the age of the apprentice. Examples include:

- **Advertising and marketing.** Providers often carried out this activity (instead of employers) because they had better infrastructure in place to manage apprentice recruitment, especially compared to small employers (many of whom say they pay nothing for recruitment). The specific activities included liaison and communication with schools, creating and distributing recruitment materials, talking at events, advertising in local press/media (with mixed success) and using national media and communication tools such as the apprenticeships vacancies service. For the latter, providers sometimes used the service on behalf of employers to identify eligible candidates.
- **Initial sifting of applications.** Some providers said they did an initial review of all applications and then presented a short-list to employers. The decision-making for the short-list was driven by prior knowledge of the employers' requirements based on their existing relationship. For example, a couple of providers said they knew which employers would be able to manage less mature apprentices and could place them accordingly.

Providers often operate a service for employers and poor quality candidates reflect badly on the provider. Providers said employers (especially small firms) did not always have the time or inclination to manage the recruitment process. Providers typically therefore have infrastructure in place to attempt to minimise the risk of low quality candidates.

*An employer can't be [bothered] with having all the hassle of advertising, finding an apprentice and whatever. So, they come to us and we advertise and literally what we will do is say, 'When do you want to sift? When do you want to interview?' We*

*will assess the potential apprentices prior to them ever going to the company. So, that employer knows that as soon as they have that person sat in front of them, effectively we've said they are fundable and they would be expected to get to the end of their apprenticeship with their academic levels.*

Large FE College; Engineering Manufacture, Level 2

The providers we spoke to said that recruitment activity was more likely to be needed in relation to 16 to 18 year olds (although this is not always the case). This included more intensive support to apprentices in securing their first ever employment, monitoring of management information to identify the potential risk of drop out (i.e. sickness absences) and deploying recruitment/ selection elements that identified those apprentices more likely to stay the course. However, it was sometimes the case that providers are not involved in recruitment, especially in cases where demand for apprentice places is high (see page 48).

Providers also said that older apprentices are more likely to already be employed, or to have enough experience to be ready for the workplace. Recruitment activity for older apprentices tends to be via an employer rather than the individual apprentice and providers can either operate with economies of scale or bypass much of the costs for recruitment. For example, an employer may wish to employ several new apprentices. This means the provider can be more efficient because the amount of recruitment activity per apprentice would be less compared to the direct recruitment of individual apprentices.

### **Support for apprentices**

Providers in our sample reported that an important driver of a difference in apprenticeship delivery costs between 16-18s and adults was the support required by the apprentice as they transition from compulsory education to work. Before entering employment, young peoples' experience of workplaces was often confined to work placements. Many had no work experience at all. Providers therefore had a range of activities in place to help manage this transition. For example, several generalist FE providers offered trial periods to ensure that the relationship between the employer and apprentice was good. This comprised a week 'getting to know each other' moving into a formal trial period in which support activity such as site visits; calls; and monitoring management information on attendance took place. This gave an early sense of progress and identified potential problems needing intervention. It is more probable that older apprentices are work-ready (or already employed) compared to school leavers. As a result, the level and intensity of initial support is usually (but not always) less.

More broadly, many providers described the infrastructure they had in place to help support students of all ages. Providers offered support on a case-by-case basis i.e. age was not a criterion they used to decide who needed support; it was instead provided in relation to need. Some types of support or intervention were more likely to be applicable to younger apprentices. An example is addressing poor workplace etiquette (late arrival,

unprofessional/ childish behaviour, etc.). However, it was equally the case that the required support could increase with age. An example of this is support with maths and English. Several providers said this was more costly for older apprentices because they had been longer away from compulsory education. Older apprentices had developed coping mechanisms to address weaknesses in their maths and English which meant getting them to admit and address these weaknesses was sometimes very difficult.

Across the providers in our sample, there appeared to be a much greater variation in the costs for pastoral support compared to employers. In some cases, the reported costs for support to 16 to 18s was double that of older apprentices. Again, the cause of the variation is the level of experience, maturity and the social circumstances of individual apprentices. That this is felt more keenly by providers could suggest that current provider delivery models insulate employers from the full impact of support issues.

*However, you do find individuals [emphasis added] have additional support needs. So, we have an additional support team and they go out and do additional support on English. They may give them one to one support on their maths, but also, we have ... four standards of behaviour that we expect through the entire organisation and that's through us and our students, our apprentices. So, when we identify that those standards of behaviour are falling short or they need a bit of work, then the assessment team will go and give them that support. That may be attendance, it may be taking responsibility, it may be completing work, and we tend to find that [apprentices] can require more support if they're sixteen to eighteen.*

Small Private Provider; Plumbing and Heating, Level 3

## Teaching and tuition

The amount and complexity of training offered varies according to the particular pathway. Existing frameworks adhere to minimum duration and content guidelines as outlined in the Specification of Apprenticeship Standards for England (BIS, 2015<sup>20</sup>). Providers in our sample reported that technical apprenticeships were typically longer (at least 18 months and typically two to four years) than service-based apprenticeships (many are the minimum duration of 12 months)<sup>21</sup>. This has an impact on cost because of the training-work mix. In the case of several technical apprenticeships (for Release providers), the first year can be exclusively delivered on site, or have a much greater component of training away from the workplace. Several providers described activities targeted at apprentices in their initial few weeks designed to minimise drop out.

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<sup>20</sup> BIS (2015) *Specification of Apprenticeship Standards for England*. BIS. September 2015.

<sup>21</sup> This is supported by the wider literature which suggests that non-traditional, service-based apprenticeships are much more likely to be completed within 14 months compared to more technical apprenticeships (see, for example, Higton *et al*, 2014).

Evidence from our sample of providers shows that the need for and extent of training and tuition varies with the type of apprenticeship. The balance between assessment (reviewing, recording, testing and assessing skills) and training (teaching, tuition, practice and guided learning) differed markedly across framework types. The complexity of new skills taught through the apprenticeship tends to dictate training behaviour. Technical apprenticeships demand some significant training in new skills, and require subsequent assessment. They also often required some investment in facilities and/or equipment.

*If [assessors] look after 36 learners, they will have two days where they are teaching in class, and there'd be two groups of the 36 be split into two, and then the remaining three days they would actually be going out, doing assessing on-site for those learners. We aim to assess them on-site every twelve weeks, and would spend two or three hours on-site with them.*

Large FE College; Vehicle Maintenance and Repair; Levels 2 to 3

*Some apprentices do not like to come into a fully-structured session. So we've got the facility now to offer them some remote learning. So that is an expense to us because, obviously, we have to buy the licence for them to have the remote access because it's all done online. Then we have to make sure that somebody is ringing them, talking to them, making sure that they're picking the skills up, etc. We can go online and we can see that they've done three hours on there, but do we know if they've learnt and retained the information? That's an expense to us.*

Small Private Provider; Early Years Educator, Levels 2 to 3

The acquisition of skills was not usually described as age-dependent (i.e. all ages need to learn new skills) although the duration of some service-based apprenticeships were sometimes slightly shorter for older apprentices as providers said older apprentices may have already possessed some of the softer workplace skills required, or had already learned some low-level technical skills. Other reasons noted for differences in the average duration of some apprenticeships by age include the support requirements relating to the transition into work; and requirements for maths and English GCSEs; and different starting levels of skills and experience. Providers operating elements of an assessor model may report higher tuition / assessment costs for 16-18 year olds because they tend to visit more often.

## **Equipment and premises**

Equipment and premises are a cost that providers face when delivering apprenticeships. Our interviews highlighted how these costs were likely to be dependent on the nature of the apprenticeship being delivered. Technical apprenticeships needed premises (such as a workshop) for the apprentices to practice skills, and the requisite materials and equipment. This sometimes resulted in some quite significant costs. For example, one provider said they bought four second-hand cars a year for apprentices to work on because if they have just one, by the end of the year, they have been dismantled and



reassembled so much, they no longer provided a realistic experience of vehicle maintenance.

Providers reported that this level of practical and technical skill acquisition was not necessary in many service-based apprenticeships (with the exception of those with a large technical component such as computer networking) therefore associated costs are typically lower.

### **Other factors that affect providers' costs of delivering apprenticeships**

Our interviews suggest that a number of other important factors affected the costs of delivering apprenticeships, especially for 16-18 year olds. In particular, the local economic conditions had an impact on recruitment costs and associated activities. Some providers (and employers) in the South East within the London commuter belt said it was hard to recruit apprentices, especially from affluent areas. This was for two reasons:

- Low unemployment rates within a stronger job market; and
- The relatively unattractive apprentice salary compared to other potential roles.

This could have a direct implication for the quality of candidates because of the number of alternative options available to more able young people. It also makes it harder to recruit, requiring more resources and hence cost. Such costs included the need to readvertise and re-interview, higher instances of non-attendance at interviews and poorer softer work skills.

The requirement for 17 and 18 year olds to be in work or full time education (as part of the *Raising the Participation Age* policy) has also led to increased “competition” amongst all providers, including those solely offering non-vocational programmes. This means that some of the brighter school leavers who would have moved into an apprenticeship were now being “advised” by schools to stay on instead.

Another facet for Generalist providers is the relative cost of delivering apprenticeships compared to the funding required for academic routes like A Levels. Providers said that, per learner, apprenticeship funding is higher than academic funding but the associated costs of administering and delivering apprenticeships (including complexity of SFA returns, relationships with employers, pastoral care, workplace assessments, etc.) are also higher.

### **Impacts of funding on provider behaviour**

Providers in our sample highlighted that funding is a critical driver of behaviour for all types of further education provider. They reported that they aimed to generate surpluses which were typically reinvested in the business. Such surpluses were, however, typically small and sensitive to changes in funding. Training portfolios were balanced to address demand (from the wider local / regional community and/or direct from employers). Even

the most specialist providers offered several pathways or frameworks in order to provide a more complete service to employers.

For many providers, especially those adopting the Generalist and Sub-contracting models (see Table 7), frameworks/ pathways were offered that operated at a loss because this meant that their broader portfolio of training was more attractive to employers, or because there was a non-commercial driver of demand. For example, one Generalist provider said they operated some pathways at a loss because the same clients also took on apprentices on pathways that generated a surplus. The provider was concerned these employers would approach other providers without the wider offer.

However, providers were also sensitive to commercial realities. One smaller, charitable provider was changing its operating model to switch to charging employers. The competition in one framework (Leisure and Tourism) was such that they had decided to drop it because of limitations in what local employers would pay. They were concerned that they could not provide an apprenticeship of the suitable quality for the right sort of price. In response to a middling Ofsted rating and a desire to get better, this provider was changing its business model to focus on quality over volume.

Generally, providers in our sample said they think there is an appropriate balance between their funding and the costs incurred *across their portfolios*<sup>22</sup> for apprentices aged 16-18. However, funding for 19+ is less than that for 16 to 18s and technically, providers should make up this difference with payments from employers for this age group. However, many employers will not pay, partly because they haven't been asked to by providers in the past and are conditioned to a low / no tuition cost model. Many providers therefore reach the conclusion that they cannot charge too much if they charge anything at all, especially in cases where local competition is extensive. This is more prevalent in service apprenticeships. However, some providers said they don't work with employers that won't pay at least something because it shows they are not committed to training.

*The funding for Level 3 telecoms is going to be round about £18,000, which is good but out of that, the employer is going to want value for money and we're going to have to put a pricing structure together that matches what they require. So, there are a lot of challenges for us... One of the delivery methods could be that we sign an apprentice and we don't see them again for another ten, eleven months, until the synoptic and their end-point assessment. [In this model] the apprentice and the*

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<sup>22</sup> It is important to note that this research identified a specific pathway operated by the provider in order to make data collection more accurate. As a result, the data collected on individual pathways does not necessarily reflect the provider's views on the way they consider the balance of income and costs across their whole portfolio.

*employer gather the evidence. We don't see them. We just keep a track on what they're doing.*

Small Private Provider; Information and Communication Technology, Level 2

Cross-subsidisation was mentioned by some providers because some elements of their offer were more profitable than others and, in order to provide a balanced / coherent service, income from all provision is pooled and then used to deliver the full training (and academic) programme. Critically, this allows larger, Generalist and Sub-contracting providers to offer support services at a lower cost than would be possible otherwise.

## Quantitative evidence

### Introduction to the quantitative analysis

As part of our interviews with providers, quantitative cost and activity data were collected. The information collected from our sample of 34 providers included:

- Contextual information and activity data: this was required in order to appropriately interpret reported cost data. Examples of this form of data include the number of apprenticeships delivered, both overall and specifically relating to a particular pathway within the most popular framework offered by that provider; and,
- Estimates of costs incurred against a number of different cost categories. The cost categories covered both recurring costs and one-off costs. Recurring costs are those that are incurred by the provider on an annual basis. One-off costs are incurred just once.

Providers were asked to report costs for a typical 16-18 apprentice and a typical adult apprentice on the same pathway on the same framework to allow those costs to be compared.

### Analysis methodology

We followed a three step process to convert the raw resource cost data to the estimates presented in our analysis below.

#### 1. Cost Classification

All costs incurred by providers were divided into two categories:

- a. Recurring costs: as described above these are incurred throughout the apprenticeship and include payments to external providers or assessors, teaching, ancillary support, equipment, administration and premises.
- b. One-off costs: these are incurred just once by the provider and include costs associated with recruitment activities.

## **2. Cost Allocation**

To ensure that all recurring costs were presented on a consistent basis of per apprentice per year, some processing was required. Annex 1 outlines the components of each cost category and provides further detail on the method by which each is estimated.

Across all categories of costs, providers either reported information separately for 16-18s and adult apprentices or they chose to report an overall figure across all apprentices regardless of age, where they experienced no cost difference between the two groups. To ensure that we interpreted all data correctly we verified raw cost figures with interview transcripts where necessary.

Providers' recurring costs were grouped in to the following categories:

- Fees paid to external trainers/assessors which covers subcontracting and fees paid to external providers;
- Teaching costs which cover staff time spent training apprentices;
- Ancillary support costs which covers staff time with apprentices for reasons other than teaching, such as pastoral support;
- Equipment costs which covers costs for supplying and maintaining any equipment and materials used by apprentices;
- Administrative costs which cover time spent by administrative staff dealing with issues related to apprentices; and
- Premises costs which covers the estimated proportion of buildings utilised by apprentices.

We report one-off recruitment costs separately as this expense does not recur throughout the apprenticeship and cannot be meaningfully and consistently converted to an annual figure. Recruitment costs reflect activities relating to CV sifting, interviewing, testing and assessing apprentices, initial support activity managing the transition to work, advertising, marketing and communications with schools and employers.

We also present provider income which covers government funding, grants and payments from employers, as reported by the providers.

## **3. Cost Aggregation**

To estimate costs per apprentice per annum we summed recurring costs across all recurring cost categories, and separately reported one-off costs.

## Cost and income estimates

We present our mean cost and income estimates for the sample of 34 providers in Figure 6.<sup>23</sup> The sample frame (described on page 20) includes different provider types (such as private providers and Further Education Colleges) of a range of sizes.

The limitations associated with the small sample size must be noted (and are described further below and on page 69). In particular, although valuable to inform policy given the sample covers large and small providers, this relatively small sample may not be entirely representative of the provider market as a whole. Also, it is not weighted to reflect the relative size of different sub-groups in the population.

We present mean cost estimates for apprentices in both the 16-18 age group and the adult age group. The differential between these apprenticeship age groups is also presented based on the mean difference. Positive numbers indicate that providers incur a higher cost (or higher revenue) associated with 16-18s relative to adults, whereas negative numbers indicate providers incur a lower cost (or lower revenue) associated with 16-18s than adults.

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<sup>23</sup> All figures are rounded to the nearest £50 to reflect the lack of precision when dealing with self-reported cost data derived from a small sample. As a result the cost estimates presented separately for 16-18s and adult apprentices may not always correspond perfectly with the rounded differential in costs that is reported.

| Costs per apprentice                                | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|---|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                              |                       |                       |                  |
| Fees paid to external training, providers/assessors | £600                  | £500                  | £100             |
| Teaching  | £1,800                | £1,750                | £50              |
| Ancillary support                                   | £350                  | £300                  | £50              |
| Equipment   | £700                  | £700                  | £0               |
| Admin   | £300                  | £300                  | £0               |
| Premises  | £150                  | £150                  | £0               |
| <b>Total Recurring Costs</b>                        | <b>£3,900</b>         | <b>£3,650</b>         | <b>£250</b>      |
| <b>One-off costs</b>                                |                       |                       |                  |
| Recruitment   | £200                  | £150                  | £50              |
| <b>Income</b>                                       |                       |                       |                  |
| Funding, grants and supplements                     | £6,800                | £3,800                | £3,000           |
| <b>Descriptive stats</b>                            |                       |                       |                  |
| Duration of apprenticeship (months)                 | 20                    | 19                    | 1                |

**Figure 6: Provider cost estimates**

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories.

Source: Data collected for this study by CFE Research and Frontier Economics

## Observations from the cost estimates

We find that, on average, the annual recurring cost per apprentice across all providers and frameworks included in our sample is higher for 16-18s than for adult apprentices by around £250. On average for each 16-18 apprentice, providers incur an annual cost of £3,900, whereas the equivalent figure for adult apprentices is approximately £3,650.

Therefore if we assume an average duration across both age groups of around 20 months<sup>24</sup>, over the course of an entire apprenticeship the overall cost differential could be approximately £400. However, this assumes that any apprentice who starts a 16-18 apprenticeship will remain in the 16-18 category throughout their training, which will not necessarily be the case. As we found earlier (on page 15) many young apprentice starts are almost 18 years of age so they will be adults by the time their apprenticeship ends so associated costs would be expected to move towards those we find for adults. Providers

<sup>24</sup> This is the average duration of frameworks on which providers in our sample reported.

would incur additional costs in relation to the 16-18 group because their apprenticeships last slightly longer on average.

Our findings also indicate that one-off per apprentice recruitment costs are approximately £50 higher for 16-18s than for adults.

There is considerable variation in costs across the providers in our sample. For illustration, the highest derived differential in recurring costs between 16-18s and adults was approximately £2,600 per apprentice per year (this was for a large college delivering a technical apprenticeship framework) while the lowest was -£1,400 (implying that the adult apprenticeship cost the provider more than 16-18. This was for a small private provider delivering a technical apprenticeship framework).

Figure 7<sup>25</sup> illustrates that 48%<sup>26</sup> of providers in our sample indicated no difference between 16-18s and adults in terms of total recurring costs, 6% of providers indicated that the annual per apprentice total recurring costs were between £1-100 higher for 16-18s, 29% of providers indicated that this differential was between £101-500 higher and a further 13% indicated that total recurring costs were over £501 higher for 16-18s relative to adults. In addition, only 3% of providers reported information which indicated that this differential was negative implying that those providers incur higher total recurring costs for adult apprentices rather than 16-18 apprentices.

The higher mean costs of delivering apprenticeships for 16-18s compared to adults are driven by a number of factors described below, along with a description of the variation across the sample of providers:

- Firstly, fees to external assessors and trainers i.e. they sub-contract some of their service offer from others. Such fees are on average approximately £100 higher per apprentice for 16-18s than for adults. Within this specific category of costs, providers' responses exhibited significant variation which is illustrated in Figure 7. Specifically, while the majority of providers in our sample indicated that there was no age-related difference in this category, 6% of providers indicated that the annual per apprentice costs were between £1-100 higher, 3% of providers indicated that annual per apprentice costs were between £101-500 higher and a further 3% indicated that fees paid to external providers were over £501 higher for 16-18s. In addition, 6% of providers reported information which indicated that this

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<sup>25</sup> Providers who reported they have no cost differential by age have a value of zero. Those who reported that 16-18s are more expensive than adult apprentices will be on the right hand side of the chart (i.e. they report a positive number to feed into Figure 6) whereas those providers who reported that adults apprentices are more expensive than 16-18s will be on the left hand side of the chart (i.e. they report a negative number to feed into Figure 6).

<sup>26</sup> Note that our sample of 34 providers implies that one observation corresponds to approximately 3%.

differential was negative implying that those providers pay higher fees to external assessors/trainers for adult apprentices rather than 16-18 apprentices.

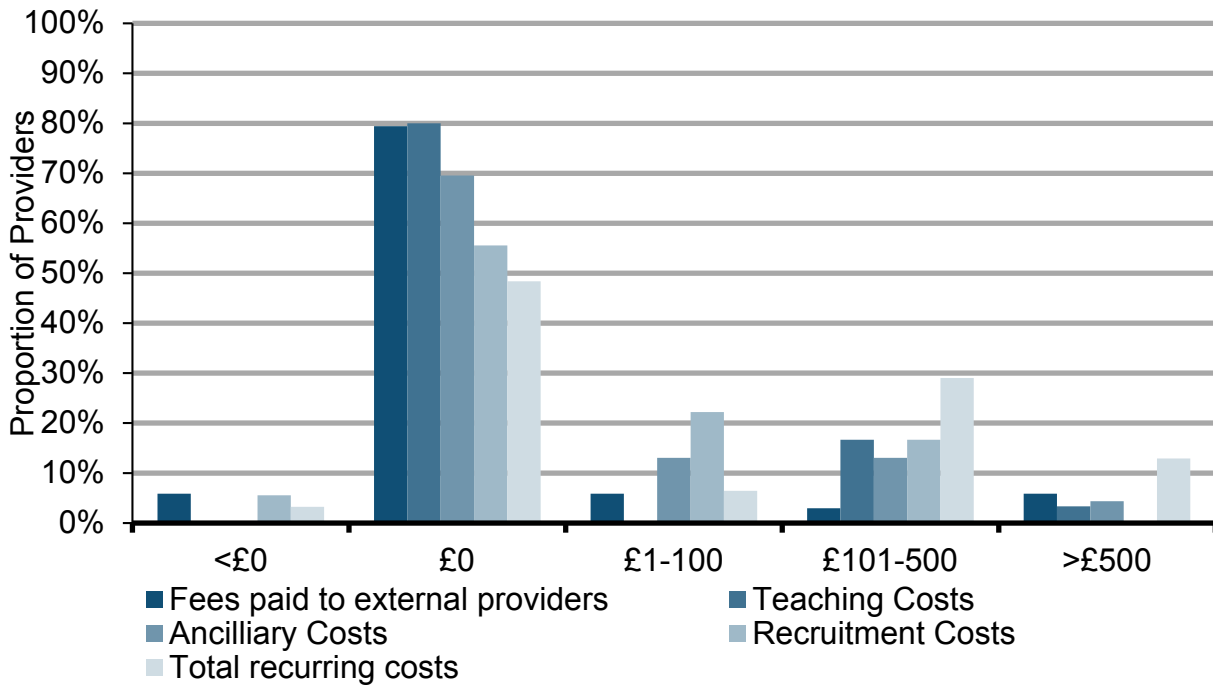
- Secondly, teaching costs were the largest category of cost incurred by providers for both apprentice age groups. Some providers reported that teaching staff need to spend a slightly higher amount of their time with 16-18s relative to adult apprentices. This leads to a mean differential in cost, relative to adult apprenticeships, of approximately £50 per apprentice per year. Again this differential was not constant across all providers (also illustrated in Figure 7). No providers reported information which resulted in a cost differential between £1-100<sup>27</sup> but 17% of providers indicated that they experienced a £100-500 average annual differential between 16-18s and adults in this category. The same cost differential was in excess of £500 for another 3% of providers.
- Thirdly, in line with our findings on additional teaching time, some providers reported that staff need to spend a greater proportion of their time with 16-18s for reasons such as ancillary or pastoral support. This cost differential is again estimated to be approximately £50 per apprentice per year on average. Figure 7 displays how this average differential varies by provider. Again the majority of providers sampled indicated that there was no age-related difference in this category, but 13% of providers indicated that annual per apprentice costs were between £1-100 higher, another 13% of providers indicated that annual per apprentice costs were between £101-500 higher and 4% indicated that fees paid to external providers were over £501 higher for 16-18s.
- Finally, in terms of one-off costs, as described in our qualitative evidence, some providers' responses indicated that recruitment staff have to spend a larger share of their time on 16-18s relative to adults. This in turn leads to a reported average differential of approximately £50 per apprentice. More providers indicated a positive cost differential in this category than any other implying a relatively high level of consistency in the view that recruitment is more expensive per apprentice amongst 16-18s relative to adults. This overall pattern of cost differential is also presented in Figure 7. We see that 22% of providers indicated that annual per apprentice costs were between £1-100 higher, another 17% of providers indicated that annual per apprentice costs were between £101-500 higher. No providers reported a cost differential greater than £500. However, 3% of providers indicated that adult apprentices were more expensive to recruit.

For other costs such as equipment, administrative expenses and premises, average costs were not reported to materially vary by age group.

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<sup>2727</sup> Note that although no providers directly reported a cost difference within the range £1 to £100, the mean is £50 reflecting the average of very high costs for some and zero for others.





**Figure 7: Distribution of the cost differential (between 16-18s and adults) for providers in our sample**

Note: This chart demonstrates the number of providers that report a difference in the costs of delivering apprenticeships between 16-18s and adults, for each cost category. The Y-axis indicates the proportion of providers in our sample and the X-axis indicates the scale of the cost differential (where >0 indicates 16-18s cost more than adults)

Source: Data collected and analysed by Frontier Economics and CFE Research

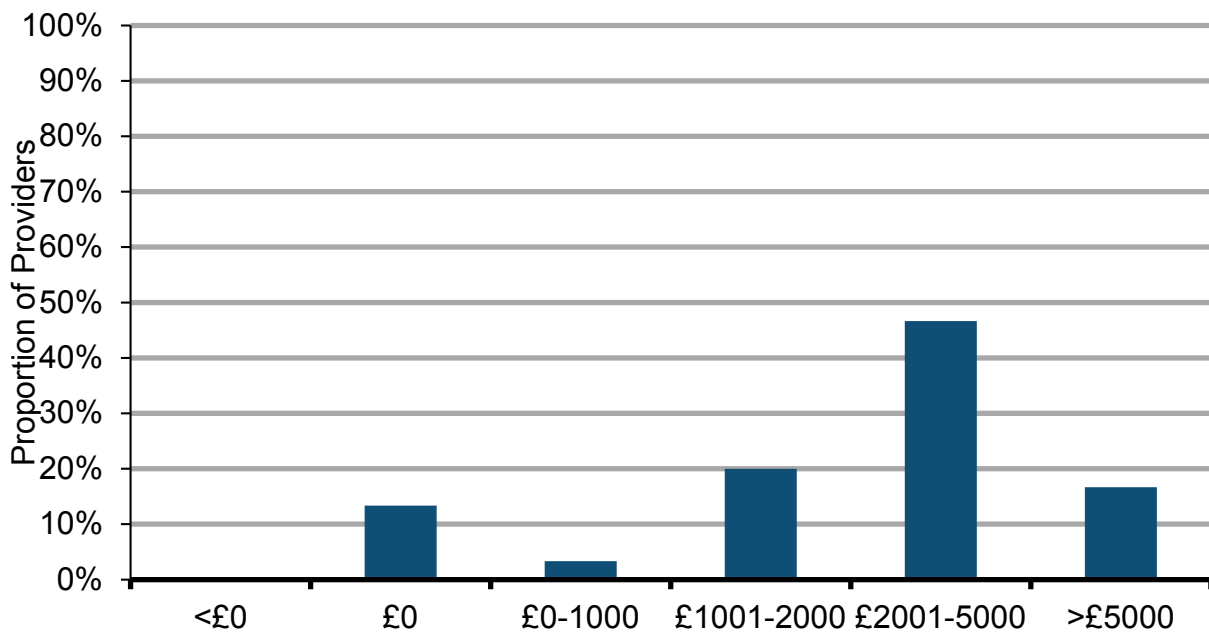
## Observations from the income estimates

Within our sample, providers reported that they receive higher annual income per apprentice for the delivery of 16-18 apprenticeships than they do for adults. The average differential is approximately £3,000.

On average, providers in our sample reported that they earned £6,800 per year<sup>28</sup> for each apprentice aged 16-18 from government funding, grants and supplements, whereas the equivalent figure for each adult apprentice was only £3,800. The magnitude of this specific differential varied from provider to provider. This is illustrated in Figure 8.

We see in Figure 8 that almost half of all providers (47%) indicated that they receive between £2,000 and £5,000 extra funding per apprentice per year if the apprentice is aged 16-18 rather than 19+. A lower proportion of providers reported higher differentials (17% indicated a differential in excess of £5,000). Also, around 20% indicated a differential between £1,000 and £2,000.

<sup>28</sup> This relatively high number is due to the weighting of larger, construction / manufacturing employers in our sample. They typically have more tier 5 and 6 apprenticeships than would be found in the population more generally.



**Figure 8: Distribution of the income differential (between 16-18s and adults) for providers in our sample**

Note: This chart demonstrates the number of providers that report a difference in the income as a result of delivering apprenticeships between 16-18s and adults. The Y-axis indicates the proportion of providers in our sample and the X-axis indicates the scale of the income differential (where >0 indicates 16-18s result in more income than adults)

Source: Data collected and analysed by Frontier Economics and CFE Research

## Subgroup analysis

We examined how the cost and income differentials by age of apprentice varied by type of provider. This was in terms of two dimensions: provider size (big and small) and provider type (private providers and FE Colleges/public providers).

Given our small sample size of 34 providers, carrying out this analysis inevitably means that the sub-groups contain very small sample sizes. Therefore, such small samples must be borne in mind when interpreting the analysis. In addition, reporting additional results based on a finer level of granularity, such as to explore the interaction between size and provider type for example, was not feasible.

We classified providers as either 'big' or 'small' on the basis of their number of apprentices of all ages currently registered with the provider. Providers with more than 1,100 total apprentices were categorised as big; providers with less than 1,100 apprentices were considered small. We find 14 of the 34 surveyed providers were big, and 20 were small.

We find 17 of the 34 providers within our sample were classified as private providers with the remaining respondents Further Education Colleges or other public providers such as county councils or health authorities.

It is important to note that the costs and income reported by each provider relate to a particular pathway on their most popular framework. Therefore, along with reflecting any differences owing to the size or type of the provider, the cost and income data reported below would reflect the composition of frameworks offered.

Figure 9 and Figure 10 contain the results from these analyses.

| <b>Big provider costs per apprentice</b>            | <b>16-18 Apprentices (£)</b> | <b>Adult Apprentices (£)</b> | <b>Differential (£)</b> |
|---|------------------------------|------------------------------|-------------------------|
| <b>Recurring costs</b>                              |                              |                              |                         |
| Fees paid to external training, providers/assessors | £750                         | £450                         | £250                    |
| Teaching  | £1,800                       | £1,750                       | £50                     |
| Ancillary support                                   | £300                         | £300                         | £0                      |
| Equipment   | £550                         | £550                         | £0                      |
| Admin   | £350                         | £350                         | £0                      |
| Premises  | £100                         | £100                         | £0                      |
| <b>Total Recurring Costs</b>                        | <b>£3,850</b>                | <b>£3,500</b>                | <b>£350</b>             |
| <b>One-off costs</b>                                |                              |                              |                         |
| Recruitment   | £200                         | £150                         | £50                     |
| <b>Income</b>                                       |                              |                              |                         |
| Funding, grants and supplements                     | £7,300                       | £3,800                       | £3,500                  |
| <b>Descriptive stats</b>                            |                              |                              |                         |
| Duration of apprenticeship (months)                 | 21                           | 20                           | 1                       |

| <b>Small provider costs per apprentice</b>          | <b>16-18 Apprentices (£)</b> | <b>Adult Apprentices (£)</b> | <b>Differential (£)</b> |
|---|------------------------------|------------------------------|-------------------------|
| <b>Recurring costs</b>                              |                              |                              |                         |
| Fees paid to external training, providers/assessors | £450                         | £500                         | -£50                    |
| Teaching  | £1,800                       | £1,750                       | £50                     |
| Ancillary support                                   | £350                         | £250                         | £100                    |
| Equipment   | £800                         | £800                         | £0                      |
| Admin   | £300                         | £300                         | £0                      |
| Premises  | £200                         | £200                         | £0                      |
| <b>Total Recurring Costs</b>                        | <b>£3,900</b>                | <b>£3,750</b>                | <b>£150</b>             |
| <b>One-off costs</b>                                |                              |                              |                         |
| Recruitment   | £200                         | £150                         | £50                     |
| <b>Income</b>                                       |                              |                              |                         |
| Funding, grants and                                 | £6,500                       | £3,750                       | £2,750                  |

|                                     |    |    |   |
|-------------------------------------|----|----|---|
| supplements                         |    |    |   |
| <b>Descriptive stats</b>            |    |    |   |
| Duration of apprenticeship (months) | 20 | 19 | 1 |

**Figure 9: Provider cost estimates: big and small providers**

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories.

Source: Data collected and analysed by Frontier Economics and CFE Research

| Public provider costs per apprentice                | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|---|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                              |                       |                       |                  |
| Fees paid to external training, providers/assessors | £600                  | £400                  | £200             |
| Teaching  | £1,400                | £1,350                | £50              |
| Ancillary support                                   | £200                  | £200                  | £50              |
| Equipment   | £950                  | £950                  | £0               |
| Admin   | £150                  | £150                  | £0               |
| Premises  | £50                   | £50                   | £0               |
| <b>Total Recurring Costs</b>                        | <b>£3,400</b>         | <b>£3,050</b>         | <b>£350</b>      |
| <b>One-off costs</b>                                |                       |                       |                  |
| Recruitment   | £100                  | £100                  | £0               |
| <b>Income</b>                                       |                       |                       |                  |
| Funding, grants and supplements                     | £6,350                | £3,400                | £2,950           |
| <b>Descriptive stats</b>                            |                       |                       |                  |
| Duration of apprenticeships (months)                | 20                    | 19                    | 1                |

| Private provider costs per apprentice               | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|---|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                              |                       |                       |                  |
| Fees paid to external training, providers/assessors | £550                  | £600                  | −£50             |
| Teaching  | £2,150                | £2,100                | £50              |
| Ancillary support                                   | £450                  | £350                  | £100             |
| Equipment   | £450                  | £400                  | £0               |
| Admin   | £500                  | £500                  | £0               |
| Premises  | £200                  | £200                  | £0               |
| <b>Total Recurring Costs</b>                        | <b>£4,300</b>         | <b>£4,150</b>         | <b>£100</b>      |
| <b>One-off costs</b>                                |                       |                       |                  |

|                                      |        |        |        |
|--------------------------------------|--------|--------|--------|
| Recruitment                          | £300   | £200   | £100   |
| <b>Income</b>                        |        |        |        |
| Funding, grants and supplements      | £7,300 | £4,250 | £3,100 |
| <b>Descriptive stats</b>             |        |        |        |
| Duration of apprenticeships (months) | 21     | 19     | 2      |

**Figure 10: Provider cost estimates: FE Colleges (and other public providers) and private providers**

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories.

Source: Data collected and analysed by Frontier Economics and CFE Research

Among the providers within our sample, we find that the average annual costs per 16-18 apprentice were slightly lower for big providers when compared to smaller providers, by around £50 per apprentice per year in recurring costs. This indicates economies of scale in equipment and premises costs of big providers.

The absolute cost differential for the providers in our sample between 16-18 apprentices and adult apprentices was greater for big providers (£350) than for small providers (£150). This is driven by higher fees paid to external training providers for 16-18s by big providers and implies that the majority of the overall cost differential we observe across the sample is driven by big providers.

Income also appeared to differ by provider size. Big providers in our sample reported income for 16-18 apprentices some £800 per apprentice per year more than small providers (though similar income for adults). Big providers reported receiving £3,500 more per 16-18 apprentice per year than for adults; for small providers the differential was lower at £2,750. As noted above, this could, however, be driven by a number of factors other than size *per se*. For example, the mix of frameworks they offer would affect the average costs reported by big and small providers.

Among the providers included within our sample we find that private providers tend to have higher costs per apprentice for delivering apprenticeships than colleges and other public providers. Specifically, private providers had higher teaching costs per apprentice aged 16-18 relative to colleges and higher administrative costs but lower equipment costs. These differences could reflect different business models or variations in the range of apprenticeships offered. In total, private providers' annual recurring costs per apprentice were approximately 30% higher relative to colleges (costs were £4,300 and £3,400 respectively) <sup>29</sup>.

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<sup>29</sup> As we will see when examining the employers cost data the most important factor in determining the cost of an apprenticeship is whether it is a technical apprenticeship (covering construction and engineering for

## Limitations and assumptions in the provider cost analysis

There are a number of limitations associated with the data used that must be recognised when interpreting our analysis.<sup>30</sup>

- The small sample size must be noted. All average cost estimates per apprentice per year are based on a sample of 34 providers and 27 employers that were interviewed for this 6-week study. In the time available, it was important that we obtain as rich an information set from providers and employers as possible. A semi-structured interview approach, using a bespoke discussion guide, was therefore favoured over a survey of a wider sample because this meant that we were able to talk the interviewees through the types of information we required and why, and that we could ask supplementary questions to make sure we understood the data they reported. This would not have been possible if we had used a survey-based approach, as the data would have been more likely to be incomplete and respondents could interpret questions differently which would introduce inconsistencies.
- Subgroup averages are based on even smaller sample sizes and should be interpreted with this in mind.
- All information reported is based on a specific pathway within a framework offered by the relevant provider, therefore income and costs reported may not be representative of all apprentices registered with a particular provider. This also implies that when we are examining how costs differ for different types of provider, costs are likely to be influenced by the particular pathway against which they have reported the costs.
- Mean costs have been reported and we have provided information about the distribution around those means for our sample. These variations around the mean are important to understand when interpreting the data.
- Costs are estimated using data as reported by providers. An independent assessment of the quality of the training delivered or the efficiency of the provider (both of which could impact costs significantly) was beyond the scope of this project. It has not been possible to validate the accuracy of this (though we have made every effort to ensure that the questions we asked were interpreted consistently across providers).
- The majority of our cost and income estimates are based on average annual figures. In practice there is likely to be some variation around reported costs in

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example) or a service based apprenticeship (covering hairdressing or business administration for example). Both our provider subgroup analyses could be influenced by this effect if for example smaller private providers are more likely to deliver a technical apprenticeship.

<sup>30</sup> Limitations are also discussed below on page 56.

different years of the apprenticeship as the profile will change over time. Therefore, our costs do not refer to one specific year of an apprenticeship.

- Premises costs should be considered purely illustrative because the costs reported by providers are likely to have accounted for different aspects of costs that were not possible to verify. For example, capital depreciation costs may have been reflected by some providers but not others; maintenance and running costs are likely to have been reported accurately by some but only estimated by others. And, allocating premises costs to apprentices where the business model involves many other learners is likely to be particularly challenging.

To derive cost estimates it was also necessary to make a number of assumptions. For those costs that were reliant on person time costs, we used gross salaries as reported by providers for teaching staff, administrative staff, recruitment staff and management were scaled appropriately to reflect employer National Insurance and pension contributions.

Where data were not known or reported we have imputed values based on averages of the remainder of the sample. Not all providers were able to report the number of apprentices currently registered with them. Therefore, to derive per apprentice averages it was necessary to use information from the 2014/15 ILR<sup>31</sup> on the number of apprenticeship starts. Our cross-checks revealed that this is likely to be a reasonable proxy.

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<sup>31</sup> <https://www.gov.uk/government/collections/individualised-learner-record-ilr>

# Drivers of behaviour and costs for employers

## Qualitative evidence

### Summary of main findings form our qualitative interviews

From our sample of 27 employers, our main findings are below:

**1. Age is a less important driver of the costs of employing apprentices than the type of framework/ standard.**

Employers reported that the key driver of any variation in the costs associated with employing apprentices related to the framework/ occupation rather than age. For example, employers offering technical apprenticeships lasting two years or more reported lower productivity in year 1. In some cases, productivity in year 1 was zero because apprentices either spent all of their time away from the workplace or required extensive supervision to perform all tasks. This was not a function of age *per se*, but of ability and technical skill at a given point in training.

**2. Of the non-salary costs employers face when employing apprentices, supervision is most likely to vary by age (and recruitment for some).**

In some occupations there are legal or health and safety requirements for apprentices to be supervised all or most of the time they are in the workplace. Examples include:

- Young apprentices on construction sites who could not be left unsupervised because of the inherent dangers involved in construction.
- Stringent safeguarding requirements placed on apprentices in childcare settings in order to protect the children being cared for; and
- Early stage apprentices in manufacturing and engineering settings lacked the skills needed to safely / efficiently use equipment necessary for the job.

**3. Some employers are not likely to be sensitive to the proposed 16-18 incentive.**

For employers with apprentices on technical frameworks, many suggested the size of the proposed incentive relative to their total outlay was minimal. Employers reported that the incentive would therefore make no difference to their willingness to recruit young apprentices because of the overall value apprenticeships represent. Examples cited by employers as to why they employ young apprentices include the strong drive to replace an increasingly ageing technical workforce, the proven value and contribution apprentices made to business productivity upon completion and the serious difficulties some face in recruiting workers with the right skills through other routes.



## Introduction to our evidence on employers of apprentices

This section describes the qualitative evidence we elicited from employers of apprentices in our sample and presents quantitative analysis of their costs when employing apprentices.

We first describe the drivers of employers' decisions relating to apprentices before exploring the types of costs employers face, as reported by employers in our sample. We then describe the drivers of differences in costs for employers between young apprentices and adults, before reporting on the responsiveness of employers to funding incentives.

We then present the quantitative analysis of the costs employers face when employing apprentices, and explore how these vary by the type of the apprenticeship and the size of the employer (in terms of number of apprentices employed).

Finally, we highlight the assumptions we have made in our analysis and the limitations of the analysis that must be borne in mind when interpreting the evidence.

## Drivers of employers' decisions about apprentices

From the outset, it is worth noting that the data collected represents a purposive sample of employers. Our sample of 27 employers interviewed is over-represented in firms within the construction sector and under-represented by firms in the Information and Communication as well as Wholesale and Retail sectors. As a result, the data itself is biased towards those purposively selected for the study.

The employers taking part in this study identified a number of reasons for employing apprentices aged between 16 and 18 years of age. The first of these was to address skills gaps and/or replenish their ageing workforce. For these employers, apprentices performed an important function in filling problem vacancies / occupational shortages and ensuring business continuity. Employers employing technical apprentices often sought to fill sector skills gaps (i.e. engineers and construction site managers). Larger businesses sometimes described longer-term strategic plans to recruit apprentices each year to replace employees who are retiring. The salaries reported for some apprentices on technical frameworks on completion were relatively high (up to £42,000 per year) and this alone demonstrates these employers place significant value on the skills of fully trained apprentices.

*[Apprenticeships bring] in a steady flow of new people so we can train them with the right skills. It also addresses demographic issues, so we did have a very mature workforce and if we hadn't started recruiting apprentices a few years ago, we would've had major problems now. [It also]... gives us a genuine talent pipeline... lots of our apprentices who completed apprenticeships maybe three, four, five, six years ago... have moved into supervisory roles.*

However, there were other decision-making factors in play. For example, businesses employing apprentices on frameworks where competency can be gained fairly quickly (such as 12 month apprenticeships for business and administration) get a relatively productive member of staff to deploy in the workplace after a short period of time, often after around 3 months.

Several employers said they pursued the apprenticeship/ work-based training route because of the potential social return on investment. This included social enterprises training construction apprentices, housing associations and an FE college wishing to “practice what it preaches”. This was sometimes coupled with an altruistic introduction to a career as several employers said they wanted to give young people a chance and a route into work they wouldn’t otherwise have. Apprenticeships were considered really important in achieving this aim, especially in cases where the delivery model was a counterpoint to classroom delivery, typical of school, and hence provided a different way of acquiring vocational knowledge.

*In terms of what they bring to us, especially in some of the more technical roles, I think they bring fresh insight and fresh ideas. We’ve got numerous examples where we’ve had IT apprentices or digital apprentices who have come into the business working in our technical IT teams or digital teams who have brought a completely different viewpoint in and completely different ideas than we’ve had here.*

## **The costs for employers of employing apprentices**

### **Training costs (fees paid to providers for training or assessment)**

Large employers in our sample within the engineering, manufacturing and construction sectors described a long history in employing technical apprentices and typically made direct contributions to the cost of training. In such cases, they perceived tuition to account for a significant proportion of the costs associated with employing the apprentice. A couple of employers were also active in the development of apprenticeship standards and were making a corresponding financial contribution. These firms typically had significant resources or large budgets in place to administer their apprenticeship schemes. For such firms, apprenticeships were integral to their workforce development model. These were the employers who faced the significant technical skills shortages and ageing workforces described above.

In sharp contrast, several smaller employers with employees on service-based frameworks said that they paid nothing to a provider for tuition, assessment or support costs i.e. all costs were borne by the provider and paid for through the provider’s state funding income.

*We didn't pay anything [to the provider for training]. My understanding is that it came from the grant on their side.*

Small Information & Communication; Digital Marketing and Communications, Level 2

## **Salary**

Of our sample of employers, smaller employers with employees on service-based frameworks were more likely to offer the apprentice minimum wage (this was the case for around half of those offering short duration, service-based apprenticeships) and, in a couple of circumstances, still offer the national minimum wage on completion of the apprenticeship. The sectors in which these employers operated were very sensitive to changes in costs, and salaries were typically a very large proportion of overall business costs.

Employers offering technical apprenticeships typically paid higher salaries to their apprentices, often with notable increases upon qualification.

## **Supervision**

Several apprentice occupations had legal or health and safety requirements which meant apprentices had to be supervised all or most of the time they are in the workplace. Examples include:

- Young apprentices on construction sites who could not be left unsupervised because of the inherent dangers involved in construction.
- There were also stringent safeguarding requirements placed on apprentices in childcare settings in order to protect the children being cared for; and
- Early stage apprentices in manufacturing and engineering settings lacked the skills needed to safely / efficiently use equipment necessary for the job.

The supervising employee could spend a significant amount of their time with the apprentice which had an impact on their productivity. As the apprentice became experienced, so the amount of direct supervision time decreased. The level of experience is considered to correlate with age but was not seen as age dependent.

*The supervision side of it would be showing them how to do part of the work which they need them to do. Say it was hanging a radiator, then [the supervisor] would show them how to do that and then would observe some of that job being done [by the apprentice] to make sure that it's being done right. Once [the apprentice has] got confidence, then it's quite possible that the [supervising] engineers would just say, I need those four radiators hung, go away, do the work somewhere else and then come back and have a look and see what's done after.*

Small Construction; Plumbing and Gas, Levels 2 to 3

## **Lower productivity of the apprentice**

Employers in our sample typically recognised that although apprentices are employed to perform a role in the business, they are also training and therefore their productivity is typically lower than other similar employees.

Employers with a long tradition in apprenticeships did not feel the limited productivity from the apprentice, nor the loss of productivity from their supervisor, were problematic. It was part and parcel of an employee's progression and a required step in developing and maintaining an effective workforce.

Several employers recognised that productivity will be lower at the start of the apprenticeship but this was reported to rise over time. The costs are perceived as greater for apprentices at the start of their training and productivity was considered lower for longer when the amount of required skills acquisition was high. Some employers operating technical apprenticeships reported zero productivity in Year 1 because apprentices either spent all of their time away from the workplace or were deemed incapable of performing any task unsupervised. This is not a function of age *per se*, but of ability and technical skill at a given point in training. However, given the nature of recruitment, younger apprentices are those more likely to lack the required skills and hence such a cost is more likely to be apparent in 16 to 18 year olds.

*Year ones, well, their productivity for the business is going to be zero, because not only are they at college, when they come back, that's when they do their in-house training, then right up until that first one, they are just work-shadowing.*

Large Manufacturing, Advanced Fitting, Level 3

For technical apprenticeships, the amount of training away from the workplace was reported to diminish over time as apprentices acquired the skills they need. In later years, they were able to put these skills into practice and become productive (and command higher wages). Such apprenticeships are also longer – typically 24 months minimum with no variation in duration related age.

## **Drivers of cost differences between young and adult apprentices**

In the main, employers did not recognise much difference in the costs associated in employing apprentices based on their age. The main difference related to the discussion above on the lower salaries that young people command, and their lower level of productivity. The central premise of apprenticeship training is that wages increase in line with technical knowledge and associated competency / productivity.

Some employers noted some slight differentials, however. Smaller employers said they were more reliant on support from training providers in identifying and selecting young apprentices. However, whilst providers typically took on the bulk of activity relating to recruitment and support, employers typically conducted some activity, primarily in recruitment and supervisory / line management support.

*I think that some of the older apprentices... [have] had a little bit more life experience... I think that there are lots of decisions that young people need to make at the age of sixteen, and we need to be sure that they're making those decisions to come into education as much as possible. You never know 100%, and of course, [but we want to know if] they have a passion for education, they have a passion for working with children, not just, 'That will do.'*

Small Health & Social Care; Children and Young People's Workforce, Level 2

As apprentices are employed, many (but not all) employers interviewed applicants which led to some costs for the employer in time spent. This cost can increase based on factors others than the age *per se* of the apprentice. For example, several employers said that finding suitable candidates was difficult because they were based in locations with low youth unemployment rates which meant more activity was required to find young people of the right quality, especially when paying the apprentice minimum wage.

*I went to do a talk recently at a local school. Out of 400 students, only one showed interest in construction, which is quite shocking really. Whereas five, six years ago, you'd have probably had 20% to 25% show interest.*

Small Construction, General Construction Operations, Level 2

One employer recognised a distinct drop-off in both the number and quality of applicants in the past couple of years. In his view, this was caused by the rise in the participation age for education or training. Non-vocational Level 3 providers had become more interested in recruiting able school leavers who would have been attracted to apprenticeships before the policy change. As a result, the amount of advertising, recruitment and support activity required to train poorer quality candidates was greater. No employer offering three or four year apprenticeship programmes reported that they struggled to recruit.

Some employers recognised that **the maturity of an apprentice** could have an impact on costs. Smaller employers were more likely to identify a differential in cost for age-related attitudinal/experience. Larger employers appear less likely to report such differences because they have a long history in delivering apprenticeships and have existing support mechanisms/ infrastructure in place to manage the transition of young people into the workplace. Smaller employers are more likely to rely on external providers to deliver this support but should that fail, they have fewer mechanisms in place to manage behaviour. Note the behaviour is the issue, not the age. Employers said, however, that it is more likely that immature or unprofessional behaviour will be exhibited by younger people.

Like some providers, employers based in locations with a buoyant youth labour market described the impact this had on the ability to attract and retain young apprentices. Several employers in the South East said young people had a choice of potential opportunities, including competing frameworks, non-vocational learning or better paid

work (even in non-career jobs). This means that recruitment of young people from more affluent areas, or those within commuting distance to London was extremely difficult. The prospect of better long-term career prospects and development were difficult to sell compared to immediate higher salaries. In these cases, the costs associated with recruitment and retention activity would be higher. For example, one employer had seen his recruitment costs double over recent years as the level of interest in its apprenticeship places dropped off.

The reverse was the case in places with poor local labour markets and apprentices represented a lower cost way to complement the workforce. One employer in the North East commented on its low salary cost base and that the salary of apprentices on completion was not notably different to that received whilst training. The employment costs for the apprentice for this employer were therefore low and the nature of the work (IT website consultancy) meant that apprentices became productive early in their 12 month apprenticeship. The minimum wage (or slightly higher) was more likely to be paid on service-based frameworks. In most of these cases, the apprenticeship lasted around 12 months and apprentices were paid at the apprentice minimum wage rate (£3.40 per hour at the time of the fieldwork).

Supplementary qualifications including English and maths were also cited by some employers as an additional cost that did not always add value. This was referred to by two employers with Early Years apprentices on the health and childcare framework as they talked about the necessity to achieve the minimum C grade in English and maths. For example, one employer said the maths requirement prevented vocationally talented apprentices from progressing onto Level 3. In their view, the level of maths skill required in Early Years care is limited to teaching four year olds how to count. This particular employer had a good apprentice leave their employment when their apprentice achieved grade D at GCSE for the third time. This requirement was deemed unnecessary.

## **Responsiveness of employers to funding incentives**

Proposed incentives for 16-18 year olds were considered of little relevance to larger employers offering long-duration, technical apprenticeships for several reasons. The size of the proposed incentive relative to the total training outlay for larger employers was fractional. These employers said an incentive would make no difference in their willingness to recruit apprentices because of the overall value they represented to the business for all the reasons listed above under the heading *Drivers of apprentice employment decisions* section. Most employers said they wanted the best candidate regardless of factors such as age.

A number of employers felt that age-based funding incentives sat uncomfortably with employment law covering discrimination in the workplace. Their concerns related to their perception of mixed messages being sent by government i.e. on the one hand discrimination is not permitted, yet on the other, the age-related incentive suggests a

better qualified older apprentice may not be employed in favour of a younger apprentice with less potential.

*If everyone went by age discrimination laws, then you would find [apprentices] of all ages... In some sectors you will find apprentices that are only sixteen because they only hire sixteen-year-olds, which is discriminatory.*

Large Manufacturing; Advanced Engineering Manufacture, Level 3

Smaller employers, or those for whom staff costs were a large proportion of operational costs, suggested they would be more price sensitive to variations in fees charged by providers. This is especially the case when employers needed to spend similar amounts on recruitment activity compared to employers recruiting to high-tariff frameworks or Standards. This means the relative cost for recruitment could be higher and helps explain why some employers were keen to use services provided by providers for recruitment.

## Quantitative evidence

### Introduction to the cost analysis

As part of the employer interviews, quantitative cost and activity data were collected. The information collected from our sample of 27 employers included:

- Contextual information and activity data: this was required in order to appropriately interpret reported cost data. Examples of this form of data include the number of apprentices employed both overall and specifically with regards a pathway within the most popular framework offered by that employer; and,
- Estimates of costs incurred against a number of different cost categories. The cost categories covered both recurring costs and one-off costs. Recurring costs are those that are incurred by the provider on an annual basis. One-off costs are incurred just once.

Employers were asked to report costs for 16-18 apprentices and adult apprentices on the same pathway on the same framework to allow those costs to be compared. Where no difference in costs was apparent, they were asked to provide a single estimate that would be applicable to each age group.

### Analysis methodology

The analytical methodology used to derive resource cost estimates from the information provided by employers was very similar to that used for the provider data.

Firstly, as was the case in relation to providers, employers' costs were classified as either recurring or one-off. As was the case for providers, employers' only non-recurring costs

related to recruitment. Employers' recurring costs were grouped into the following categories:

- Training which refers to the fees paid to external trainers/assessors which external training costs;
- Salary costs which cover the apprentices' earnings;
- Supervision costs which account for staff time spent supervising apprentices;
- Line manager costs which cover the proportion of a line manager's time spent managing apprentices;
- Training manager costs which cover the proportion of internal trainers' time spent with apprentices;
- Administrative costs which cover time spent by administrative staff dealing with issues related to apprentices; and,
- Other costs which cover the cost of correcting apprentices' work where necessary and other miscellaneous costs such as equipment costs not captured in any other category.

Again we applied necessary adjustments in order to ensure that all figures could be presented on a consistent basis, and verified this approach by referring to the transcripts. We also aggregated all recurring costs and analysed one-off recruitment costs separately in keeping with the approach followed with providers. Annex 1 outlines the constituent elements of each cost category and provides further detail on the method by which each is estimated.

We also accounted for the fact that employers also benefit from employing apprentices in two ways. Firstly, some employers received grants for the apprentices they employ (such as AGE grants<sup>32</sup>); and secondly, employers also gain a benefit from the value of output that the apprentices produce while they are working. The latter was estimated by asking the employers to estimate the productivity of the apprentice relative to a member of qualified staff (i.e. the % of output the apprentice would deliver relative to the qualified member of staff. So 75% would mean that the apprentice only delivers 75% of the work that the qualified staff member delivers). This was then valued in monetary terms by multiplying this by the salary of the qualified member of staff.

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<sup>32</sup> The AGE 16 to 24 grant is for small employers (<50 employees) and aims to support businesses who would not otherwise employ apprentices to recruit individuals aged 16 to 24 into employment through the apprenticeship programme. This is worth £1,500 to the employer for each qualifying apprentice aged 16-24. Employers can be paid up to 5 grants in total.



## Cost and income estimates

We present our cost and income estimates for the entire sample of 27 employers in Figure 11. As described in the section on the sample frame (page 22) employers are both large and small and are drawn from six different sectors.

All costs and income reported are based on the current funding system. Changes have been proposed for the apprenticeship funding system from spring 2017 – such changes would therefore not be reflected in this analysis.

The limitations associated with the small sample size must be noted (and are described further below and on page 69). In particular, although valuable to inform policy given the sample covers different types of employer, this relatively small sample may not be entirely representative of the employer market as a whole, and is not weighted.

We present mean costs for employers of both the 16-18 group of apprentices and the adult age group. The differential between these apprentice groups is also presented based as the mean difference. Positive numbers indicate that employers incur a higher cost for employing 16-18s compared to adult apprentices; a negative number indicates that the employer incurs a lower cost for employing 16-18s compared to adult apprentices.

| Costs per apprentice                                | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|---|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                              |                       |                       |                  |
| Training (fees to training providers and assessors) | £1,800                | £2,000                | -£200            |
| Salary  | £11,100               | £12,450               | -£1,350          |
| Supervision   | £7,200                | £6,300                | £900             |
| Line Manager  | £750                  | £750                  | £0               |
| Training Manager                                    | £4,000                | £4,000                | £0               |
| Admin   | £400                  | £400                  | £0               |
| Other   | £150                  | £150                  | £0               |
| <b>Total Recurring Costs</b>                        | <b>£25,400</b>        | <b>£26,000</b>        | <b>-£650</b>     |
| <b>One-off costs</b>                                |                       |                       |                  |
| Recruitment   | £400                  | £400                  | £0               |
| <b>Value to the employer</b>                        |                       |                       |                  |
| Income  | £850                  | £400                  | £500             |
| Benefit of apprentice output                        | £10,300               | £10,850               | -£600            |
| Total value   | £11,150               | £11,250               | -£100            |
| <b>Net cost (excluding one-off)</b>                 |                       |                       |                  |
| Net cost (total recurring – total benefit)          | £14,250               | £14,750               | <b>-£550</b>     |
| <b>Descriptive stats</b>                            |                       |                       |                  |
| Drop out  | 12%                   | 9%                    | 3%               |

|                                     |    |    |   |
|-------------------------------------|----|----|---|
| Duration of apprenticeship (months) | 28 | 28 | 0 |
|-------------------------------------|----|----|---|

**Figure 11: Employer cost estimates**

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories. Benefit refers to the annual productive contribution of an apprentice enjoyed by the employer.

Source: Data collected and analysed by Frontier Economics and CFE Research

## Observations from the cost estimates

For the employers included within our sample, across all six sectors and size of business we find that the average annual recurring cost per apprentice is lower for apprentices aged 16-18 than for adults by approximately £650. On average for each 16-18 apprentice, employers incur an annual recurring cost of £25,400, whereas the equivalent figure for adult apprentices is approximately £26,000. Therefore over the entire duration of an average apprenticeship (average duration is 28<sup>33</sup> months), employers would incur an extra cost of approximately £1,500 for an adult apprentice relative to a 16-18 apprentice. However, this assumes that any apprentice who starts a 16-18 apprenticeship will remain in the 16-18 category throughout their training, which will not necessarily be the case. Many young apprentice starts are almost 18 years of age so they will be adults by the time their apprenticeship ends, so associated costs would be expected to gradually move towards those we find for adults.

The reason for our general finding is that for the employers in our sample, although the average annual supervision costs for 16-18s are higher than for adults by £900, this is outweighed by the lower salary paid to younger apprentices (on average they are paid £1,350 less than their adult counterparts). We also find that annual training fees paid to external trainers or assessors are on average around £200 per apprentice higher for adult apprentices relative to 16-18s.

There is no reported difference in one-off apprentice recruitment costs by age group for the employer.

In terms of net costs to the employer which account for the benefits employers accrue from apprentices' work delivered (i.e. their productivity) and specific income received as a result of employing the apprentice (such as from grants)<sup>34</sup>, 16-18s still cost employers less than adults but by a smaller sum of approximately £550 per apprentice annually on average. On average, employers in our sample incurred a net annual cost of £14,250 for

<sup>33</sup> This is the average duration of the apprenticeship frameworks on which providers in our sample reported. The duration reported by employers is slightly higher than the equivalent figure observed from the provider data. This discrepancy is likely to be driven by the nature of frameworks on which they reported.

<sup>34</sup> This calculation does not take one-off recruitment costs into account

each 16-18 apprentice, whereas the equivalent figure for each adult apprentice was £14,750.

There are however important variations around the mean costs noted in Figure 11. For example, although a significant proportion of employers report no difference in costs of employing 16-18s compared to adult apprentices, a small number of employers indicate that 16-18s actually cost more than their adult counterparts. The distribution of costs around the mean for different cost categories are shown in Figure 12.

Figure 12 demonstrates that for the main cost categories for which some employers reported a difference in costs between young and adult apprentices, some reported very high cost differentials<sup>35</sup>.

We find that 44% of employers in our sample indicated no difference between 16-18s and adults in terms of total recurring costs, 18%<sup>36</sup> of employers indicated that these costs were between £1-1000 higher for adult apprentices, and 26% of employers indicated that such costs were more than £1,000 higher for adults relative to 16-18s. In addition, 11% of employers reported data that suggests this differential was positive implying that those employers incur lower total recurring costs for adult apprentices relative to 16-18 apprentices.

As shown in Figure 12, the average differential in terms of fees paid to external providers is driven by a small proportion of employers who report that adult apprentices cost of £1-1000 (16%) more per year than 16-18s, or greater than £1,000 more per year (4%). However, a further 4% of employers reported that 16-18s cost them of £1-1000 more per year than adults in terms of fees paid to external providers.

A significant proportion of employers also reported that they paid 16-18s a lower salary than adult apprentices, reflecting the fact that the minimum wage is lower for this group. Around 28% of sampled employers reported that annual per apprentice salary costs for 16-18s were in excess of £1,000 lower than adult apprentices. This is a key reason why the average annual salary cost per apprentice is £1,350 lower for 16-18s relative to adult apprentices. No employers reported a smaller negative differential or a positive differential of any magnitude.

Figure 12 also indicates that several employers in our sample reported that supervision costs them more for 16-18s on a per apprentice basis than adults due to a higher proportion of staff time required. This led to the average cost of supervision per

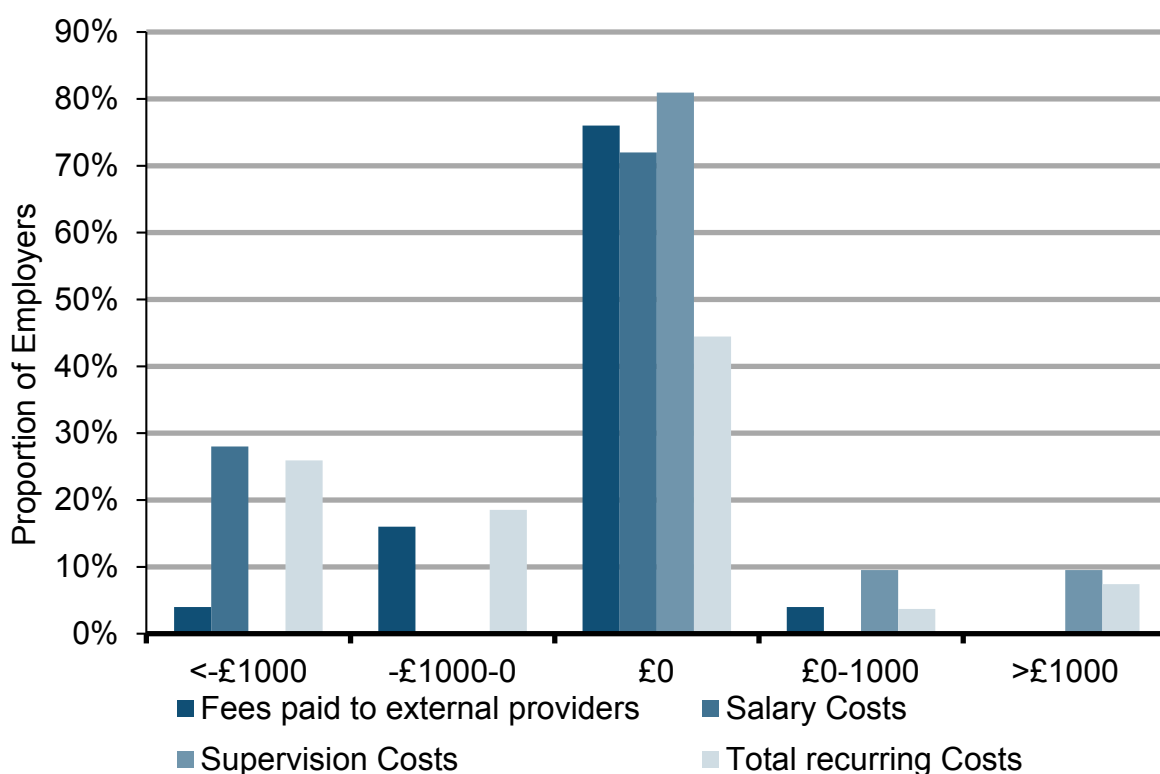
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<sup>35</sup> Employers who reported no differential have a value of zero. Those who reported that 16-18s are more expensive than adult apprentices will be on the right hand side of the chart (positive numbers in Figure 12) whereas those employers who reported that adults apprentices are more expensive than 16-18s will be on the left hand side of the chart (negative numbers in Figure 12).

<sup>36</sup> Note that our sample of 27 employers implies that one observation corresponds to approximately 4%.

apprentice being £900 more for employing apprentices aged 16-18 than adults. On average, supervising an adult apprentice costs employers £6,300 per year while the equivalent figure for 16-18s is £7,200 per annum. Figure 12 shows that the pattern of non-zero cost differentials for supervision costs is concentrated on the right hand side of the chart, indicating that supervision of 16-18s generally costs more than adults. Specifically 10% of sampled employers reported that annual per apprentice supervision costs for 16-18s were between £0-1000 higher for 16-18s relative to adult apprentices and a further 10% of employers reported that this differential was in excess of £1,000.

There was no reported material cost difference by age group for the other costs including line managers, training managers, administrative expenses and 'other' costs. One-off recruitment costs also did not vary by age of apprentice (where they are incurred).



**Figure 12: Distribution of the cost differential (between 16-18s and adults) for employers in our sample**

Note: This chart demonstrates the number of employers that report a difference in costs as a result of delivering apprenticeships to 16-18s rather than adults. The Y-axis indicates the proportion of employers in our sample and the X-axis indicates the scale of the cost differential (where >0 indicates 16-18s cost more than adults)  
 Source: Data collected and analysed by Frontier Economics and CFE Research

### Observations from the estimates of income and output benefit of apprentices to the employer

We find that employers in our sample receive higher incomes on average as a result of employing apprentices aged 16-18 (from incentives or grants for example) than for adults, but 16-18 apprentices are typically less productive than adults.

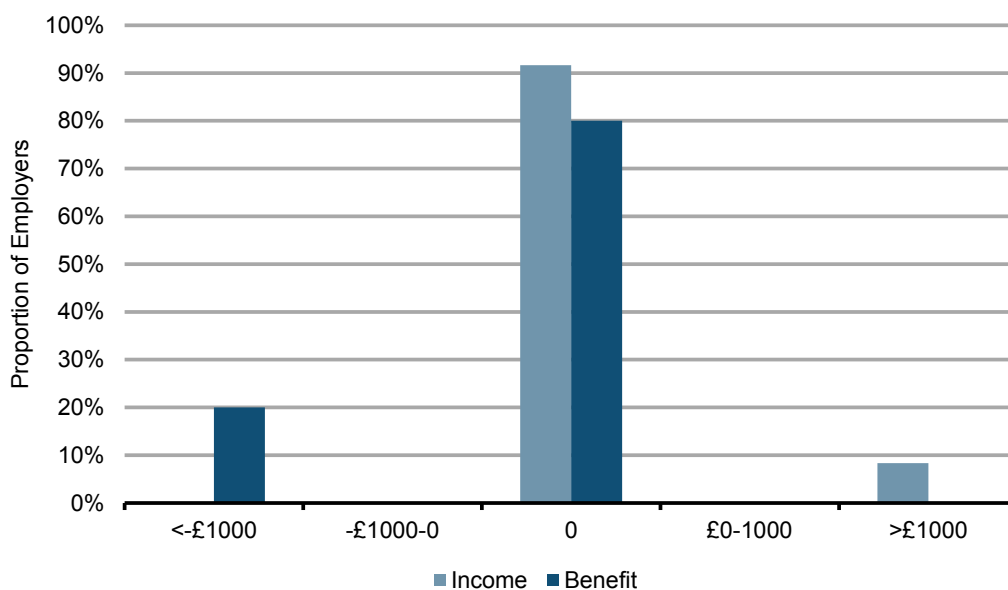
Employers in our sample reported that they receive income of an average of around £850 per apprentice per annum when employing 16-18s, compared to £400 for adults. This must be interpreted with caution because this average is driven by a small number of employers reporting significantly higher income associated with their employment of 16-18 apprentices. Most report no income differential between age groups of apprentices.

Figure 13 illustrates how the magnitude of this differential in income and the differential in the benefit to the employer from the apprentices' productive contribution varied across the sample. In relation to income, we can see that just 8% of employers reported income from employing 16-18s over £1,000 higher than for adults (from incentives and other forms of income). This small group of employers are large firms offering engineering apprenticeship frameworks and standards. For the latter, their 16-18 funding is based on the tier of standard delivered. The vast majority of employers do not report receiving any income from either age group of apprentices.

On average, employers in our sample enjoyed an estimated benefit from the output delivered by the apprentice of £10,300 per apprentice for each 16-18 apprentice. This compares to £10,850 for adults. The difference between 16-18s and adults is driven by their lower level of skills, relative to adults, and hence lower productivity.

Important to note is that the benefit to employers reported here refers to the average productivity of an apprentice within a typical year of their apprenticeship. Some employers reported that apprentices' productivity rises over time as they become more experienced. The average costs we report in Figure 11 reflect the average level of productivity over the duration of the apprenticeship.

Around 20% of the employers in our sample reported a difference in productivity of apprentices between 16-18s and adults. These employers suggested that adult apprentices were more productive by over £1,000 per year relative to 16-18s.



**Figure 13: Distribution of the income/value differential (between 16-18s and adults) for employers in our sample**

Note: This chart demonstrates the number of employers that report a difference in income as a result of delivering apprenticeships to 16-18s relative to adults. The Y-axis indicates the proportion of employers in our sample and the X-axis indicates the scale of the income differential (where >0 indicates 16-18s lead to more income than adults)  
 Source: Data collected and analysed by Frontier Economics and CFE Research

## Additional observations

Employers reported that drop-out rates were higher amongst 16-18s than for adult apprentices. Specifically, on average, 12% of 16-18s drop out according to the employers in our sample, whereas the equivalent figure for adult apprentices was only 9%. Each apprentice who does not complete their apprenticeship will impose additional costs on their employer who may have to search for a replacement or reassign their work to other members of staff. It is not possible to accurately quantify the size of this cost and how much more expensive 16-18s are relative to adults as a result of this.<sup>37</sup> Therefore, our results in Figure 11 do not reflect these potential additional costs.

## Costs estimates by size of employer and type of apprenticeship

We examined how the mean costs and income/benefit to the employers associated with employing 16-18 and adult apprentices varied by the size of the employer and the type of apprenticeship.

To carry out this analysis, we estimated results separately for large and small employers; as well as for employers offering technical apprenticeships and those offering service-

<sup>37</sup> We do not know when the apprentices dropped out or whether they subsequently re-enrolled.

based apprenticeships. Our sample size prevented us from reporting results based on a finer level of granularity such as an interaction between size and type of apprenticeship. The subgroup results that we do report are based on very small sample sizes and as such should be interpreted accordingly.

Size of the employer was determined by the total number of apprentices of all ages currently registered with the employer (as noted in the ILR). Employers with more than 45 total apprentices were classified as large; 13 of the 27 surveyed employers met this criteria and 14 were small (though note that these may have a very large number of total non-apprentice employees).

We classified each employer as either technical or service based depending on the framework they reported on. Technical apprenticeships covered construction, engineering and electrical apprenticeships. Service apprenticeships covered childcare, health, business and administration and digital marketing. 17 of the 27 employers were categorised as technical.

Results are presented in Figure 14 and Figure 15 below.

| <b>Technical apprenticeship costs per apprentice</b>         | <b>16-18 Apprentices (£)</b> | <b>Adult Apprentices (£)</b> | <b>Differential (£)</b> |
|--|------------------------------|------------------------------|-------------------------|
| <b>Recurring costs</b>                                       |                              |                              |                         |
| Training (fees to external training providers and assessors) | £2,850                       | £3,150                       | -£300                   |
| Salary   | £13,200                      | £13,850                      | -£650                   |
| Supervision  | £10,150                      | £8,700                       | £1,450                  |
| Line Manager   | £800                         | £800                         | £0                      |
| Training Manager   | £4,850                       | £4,850                       | £0                      |
| Admin  | £600                         | £600                         | £0                      |
| Other  | £200                         | £200                         | £0                      |
| <b>Total Recurring Costs</b>                                 | <b>£32,650</b>               | <b>£32,150</b>               | <b>£500</b>             |
| <b>One-off costs</b>   |                              |                              |                         |
| Recruitment  | £450                         | £400                         | £0                      |
| <b>Value to the employer</b>                                 |                              |                              |                         |
| Income   | £1,350                       | £650                         | £700                    |
| Benefit of apprentice output                                 | £11,150                      | £11,700                      | -£550                   |
| Total value  | £12,500                      | £12,350                      | £150                    |
| <b>Net cost (excluding one-off)</b>                          |                              |                              |                         |
| Net cost (total recurring – total benefit)                   | £20,150                      | £19,800                      | £350                    |
| <b>Descriptive stats</b>                                     |                              |                              |                         |
| Drop out   | 10%                          | 11%                          | 0%                      |
| Duration of apprenticeship (months)                          | 35                           | 35                           | 0                       |

| Service-based apprenticeship costs per apprentice            | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|--|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                                       |                       |                       |                  |
| Training (fees to external training providers and assessors) | £100                  | £0                    | £100             |
| Salary   | £7,550                | £9,500                | -£1,900          |
| Supervision  | £2,900                | £2,350                | £550             |
| Line Manager   | £700                  | £700                  | £0               |
| Training Manager   | £1,800                | £1,800                | £0               |
| Admin  | £200                  | £150                  | £50              |
| Other  | £0                    | £0                    | £0               |
| <b>Total Recurring Costs</b>                                 | <b>£13,250</b>        | <b>£14,500</b>        | <b>-£1,250</b>   |
| <b>One-off costs</b>   |                       |                       |                  |
| Recruitment  | £300                  | £300                  | £0               |
| <b>Value to the employer</b>                                 |                       |                       |                  |
| Income   | £150                  | £0                    | £150             |
| Benefit of apprentice output                                 | £8,550                | £8,600                | -£50             |
| Total value  | £8,700                | £8,600                | £100             |
| <b>Net cost (excluding one-off)</b>                          |                       |                       |                  |
| Net cost (total recurring – total benefit)                   | £4,550                | £5,900                | -£1,350          |
| <b>Descriptive stats</b>                                     |                       |                       |                  |
| Drop out   | 15%                   | 6%                    | 9%               |
| Duration of apprenticeship (months)                          | 15                    | 15                    | 0                |

**Figure 14: Employer cost estimates: technical compared to services apprenticeships**

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories. Benefit refers to the annual productive contribution of an apprentice enjoyed by the employer.

Source: Data collected and analysed by Frontier Economics and CFE Research

| Big employer costs per apprentice                            | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|--|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                                       |                       |                       |                  |
| Training (fees to external training providers and assessors) | £1,650                | £1,800                | -£150            |
| Salary   | £10,750               | £12,550               | -£1,800          |
| Supervision  | £6,900                | £5,150                | £1,750           |
| Line Manager   | £700                  | £700                  | £0               |
| Training Manager   | £5,650                | £5,650                | £0               |
| Admin  | £350                  | £350                  | £0               |



|  |                |                |              |
|--|----------------|----------------|--------------|
| Other                                      | £100           | £100           | £0           |
| <b>Total Recurring Costs</b>               | <b>£26,100</b> | <b>£26,300</b> | <b>-£200</b> |
| <b>One-off costs</b>                       |                |                |              |
| Recruitment                                | £450           | £450           | £50          |
| <b>Value to the employer</b>               |                |                |              |
| Income                                     | £650           | £200           | £450         |
| Benefit of apprentice output               | £10,450        | £11,000        | -£600        |
| Total value                                | £11,100        | £11,200        | -£150        |
| <b>Net cost (excluding one-off)</b>        |                |                |              |
| Net cost (total recurring – total benefit) | £15,000        | £15,050        | -£50         |
| <b>Descriptive stats</b>                   |                |                |              |
| Drop out                                   | 9%             | 10%            | -1%          |
| Duration of apprenticeship (months)        | 28             | 28             | 0            |

| Small employer costs per apprentice                          | 16-18 Apprentices (£) | Adult Apprentices (£) | Differential (£) |
|--|-----------------------|-----------------------|------------------|
| <b>Recurring costs</b>                                       |                       |                       |                  |
| Training (fees to external training providers and assessors) | £1,900                | £2,200                | -£300            |
| Salary   | £11,450               | £12,350               | -£900            |
| Supervision  | £7,450                | £7,500                | -£50             |
| Line Manager   | £850                  | £850                  | £0               |
| Training Manager   | £2,500                | £2,500                | £0               |
| Admin  | £450                  | £450                  | £50              |
| Other  | £200                  | £200                  | £0               |
| <b>Total Recurring Costs</b>                                 | <b>£24,800</b>        | <b>£26,000</b>        | <b>-£1,200</b>   |
| <b>One-off costs</b>   |                       |                       |                  |
| Recruitment  | £300                  | £350                  | £0               |
| <b>Value to the employer</b>                                 |                       |                       |                  |
| Income   | £1,100                | £600                  | £500             |
| Benefit of apprentice output                                 | £10,150               | £10,700               | -£550            |
| Total value  | £11,250               | £11,300               | -£50             |
| <b>Net cost (excluding one-off)</b>                          |                       |                       |                  |
| Net cost (total recurring – total benefit)                   | £13,550               | £14,700               | -£1,150          |
| <b>Descriptive stats</b>                                     |                       |                       |                  |
| Drop out   | 14%                   | 8%                    | 6%               |
| Duration of apprenticeship (months)                          | 27                    | 28                    | -1               |

Figure 15: Employer cost estimates: big compared to small employers

Notes: All cost estimates have been rounded to the nearest £50. The rounded total recurring cost differential may therefore not be equal to the sum of the individual categories. Benefit refers to the annual productive contribution of an apprentice enjoyed by the employer.

Source: Data collected and analysed by Frontier Economics and CFE Research

## Costs by type of apprenticeship

As Figure 14 shows, employers in our sample that offered technical apprenticeships incurred significantly higher costs than employers of services apprenticeships<sup>38</sup>. We find that total recurring average annual costs per apprentice were £32,650 for a 16-18 apprentice on a technical framework, compared to £13,250 for a 16-18 apprentice on a services framework.

Overall, technical apprenticeships cost the employer on average £500 more per apprentice aged 16-18 than per adult apprentice. Given that these apprenticeships typically last longer (35 months) than services apprenticeships (15 months) implies these higher costs of 16-18s are incurred for longer. For illustration, a 16-18 apprentice on a technical apprenticeship could cost the employer (in terms of recurring costs) around £1,500 more than an adult apprentice on the same framework, or around £1,000 more than an adult in net cost terms.

Figure 14 also shows that the higher cost of technical apprenticeships is largely driven by the higher costs to the employer of supervision, particularly for 16-18s. The annual average cost was £10,150 per 16-18 apprentice compared to £8,700 per adult apprentice. Equivalent costs for services apprenticeships are £2,900 per 16-18 apprentice and £2,350 per adult apprentice. The fact that technical apprentices require such a high degree of supervision relative to services apprentices is related to the nature of the work undertaken. Certain technical activities such as construction require almost constant supervision for health and safety reasons.

Figure 14 shows that apprentices on technical frameworks are also typically paid more than those on services frameworks. The average annual salary for a 16-18 technical apprentice is £13,200 compared to £7,550 for a 16-18 service-based apprentice.

## Costs by employer size

In terms of employer size we observe from our sample that employers of large numbers of apprentices typically face higher costs per apprentice of employing 16-18 apprentices than adults. This is because although large employers typically pay apprentices a little less than do the smaller firms for both age groups and they have lower cost of

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<sup>38</sup> When we examined the same split amongst providers we found similar results. Specifically providers of technical apprentices incurred costs that were on average 50% higher than equivalent costs than providers who reported on services apprenticeships.

supervision per apprentice than smaller firms, they typically have higher costs for training managers.

However, it is important to note that the differences observed between big and small employers are more likely to be driven by the type of apprenticeship than by the size of the employer. Therefore the type of apprenticeship undertaken is likely to be the most important factor in determining cost regardless of employer size.

## Limitations and assumptions in the employer cost analysis

There are a number of limitations associated with the data used that must be recognised when interpreting our analysis.<sup>39</sup>

- The sample size for this 6-week study is small at just 27 employers. So although valuable for informing policy, this limitation is of course important to recognise. The small sample size must be noted. In the time available, it was important that we obtain a rich information set from providers and employers. A semi-structured interview approach, using a bespoke discussion guide, was therefore favoured over a survey of a wider sample because this meant that we were able to talk the interviewees through the types of information we required and why, and that we could ask supplementary questions to make sure we understood the data they reported. This would not have been possible if we had used a survey-based approach, as the data would have been more likely to be incomplete and respondents could interpret questions differently which would introduce inconsistencies.
- All average cost estimates per apprentice per year are based on a sample of 27 employers from six specific sectors and therefore may not be representative of the market as a whole.
- Specific subgroup averages are based on even smaller sample sizes and should be interpreted with this in mind.
- All information reported is based on a specific pathway within a framework offered by the relevant employer, therefore income and costs reported may not be representative of all apprentices registered with a particular employer.<sup>40</sup>
- In addition, costs and income are as reported by employers,<sup>41</sup> an independent assessment of the quality of training or supervision employers provide is beyond the scope of this project.

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<sup>39</sup> This is also discussed on page 56.

<sup>40</sup> This is likely to be less of an issue for employers than providers as most employers would offer a narrower range of apprenticeships

<sup>41</sup> This is true in all but a very small number of cases. However, certain employers misinterpreted the supervision questions resulting in implausibly high cost values. In these cases we imputed data from similar employers.

- As with all primary evidence we have based our analysis on information reported by the providers and employers, it is not possible to validate the accuracy of this. However, we have compared our results for employers with previously published cost estimates which looked at the costs to employers of employing apprentices<sup>42</sup>. Although that analysis was not apprentice age-specific, our cost estimates appear broadly consistent.
- The majority of our cost and income estimates<sup>43</sup> are based on typical annual figures. In practice the profile of costs and productivity associated with the apprentice will differ over the duration of the apprenticeship. We have reported the average costs over the course of the apprenticeship as it has not been possible to report figures for each year of an apprenticeship individually.
- It has not been possible to quantify the costs to employers when apprentices drop out of their apprenticeship.
- We also note that there are likely to be differences in costs and activities associated with a 16 year old apprentice and an 18 year old apprentice, for example. Employers were not able to provide evidence on this.

To derive cost estimates it was also necessary to make a number of assumptions. In keeping with the approach used in relation to the provider data, for costs that were reliant on person time costs, we used gross salaries as reported by providers for teaching staff, administrative staff, recruitment staff and management and scaled these to reflect employer National Insurance and pension contributions.

Where data were not known or reported we have imputed data based on averages of the remainder of the sample. Not all employers were able to report the number of apprentices currently registered with them. Therefore, to derive per apprentice averages it was necessary to use information from the 2014/15 ILR<sup>44</sup> on the number of apprenticeship starts. Our cross-checks revealed that this is likely to be a reasonable proxy.

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<sup>42</sup> See BIS Research Paper 67 (2012):

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/32306/12-814-employer-investment-in-apprenticeships-fifth-net-benefits-study.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32306/12-814-employer-investment-in-apprenticeships-fifth-net-benefits-study.pdf)

<sup>43</sup> Employers did have the option of reporting year by year information for apprentice salary and apprentice productivity. In those cases an appropriate average was used in the cost/income calculations

<sup>44</sup> <https://www.gov.uk/government/collections/individualised-learner-record-ilr>

## Limitations of the analysis

Limitations in the analysis have been noted at the end of each of the provider and employer quantitative evidence sections. This section therefore seeks to reiterate some of the main limitations that are important to bear in mind when interpreting the analysis.

The short time 6-week timeframe for this work constrained the sample size to 34 providers and 27 employers. Results must therefore be interpreted bearing this limitation in mind. The small sample size means that econometric testing in order to establish whether or not the reported differences between 16-18 apprentices and adults are statistically significant is not feasible.

Costs included in our analysis have been reported by respondents. It is important to note that many factors drive the costs that employers and providers face. In particular, the quality of the service offered by providers would be likely to affect costs; likewise the quality of the supervision provided by employers, for example, would also affect costs. An assessment of the quality of the providers and employers is beyond the scope of this short study.

Similarly, the efficiency with which employers and providers operate would also affect the costs they face. Assessment of our respondents' efficiency has not been possible to assess within this short study.

The cost estimates included refer to a typical year over the duration of the apprenticeship rather than any one specific year of an apprenticeship programme. In practice we would expect that the costs (such as supervision, wastage etc.) and productivity associated with each apprentice would change over the duration of the apprenticeship. This has not been possible to include within the mean costs presented.

Certain cost categories were difficult for respondents to accurately estimate. For example assessing the proportion of an employer's premises utilised by apprentices may not be straightforward and is likely to be subject to significant measurement error.

The nature of the data collected implies that it is not always possible to drill down into the reasons why cost differentials between 16-18s and adult apprentices exist. For example, it is not clear why some providers use sub-contacting more than others, or why some providers and employers report income that is higher than others. This could be due to the nature of the apprenticeships delivered and the business models used, but this has not been possible to validate.

# Annex

## Cost category calculation methodology

### Providers

The fees paid to external training providers/assessors category covers fees paid by providers to external providers and awarding organisations. Annual per apprentice external provider cost is calculated as follows:

$$\begin{aligned} & \text{Per apprentice annual fees to external training or assessment agencies} \\ & + \text{Annual per apprentice fees to the awarding organisation} \\ & + \text{Fees paid to other training providers} \end{aligned}$$

The teaching cost category covers costs incurred by providers as a result of staff spending time on apprentice tuition both at the workplace and on the provider's premises. Annual per apprentice teaching costs are calculated as follows:

$$\begin{aligned} & \text{Number of staff per apprentice involved in tuition of framework} \\ & \times (\text{Proportion of time spent with apprentices at the workplace} \\ & + \text{Proportion of time spent with apprentices on provider's premises}) \\ & \times \text{Average salary of teaching staff} \end{aligned}$$

Ancillary support covers costs incurred by providers as a result of staff spending time with apprentices for reasons other than teaching (such as pastoral support) and other costs associated with ancillary training such as English and Maths. Annual per apprentice ancillary support costs are calculated as follows:

$$\begin{aligned} & \frac{\text{Number of staff providing ancillary support to apprentices} \times \% \text{ time spent on apprentices} \times \text{average ancillary staff salary}}{\text{Total number of apprentices}} \\ & + \frac{\text{Other costs associated with ancillary training}}{\text{Total number of apprentices}} \end{aligned}$$

The equipment category covers cost incurred as a result of supplying and maintaining any materials or equipment used by apprentices on the provider's premises and the employer's premises and costs of health and safety materials. Annual per apprentice equipment cost is calculated as follows:

$$\begin{aligned} & \text{Per apprentice cost for supplying materials or equipment used by apprentices on provider's premises} \\ & + \text{Per apprentice cost for supplying materials or equipment used by apprentices on employer's premises} \\ & + \text{Per apprentice cost of health and safety equipment and materials} \end{aligned}$$

The administrative costs category covers the costs incurred by providers as a result of staff spending time on administration related to apprentices. Annual administration costs per apprentice are calculated as follows:

$$\frac{\text{Number of staff involved in administration relating to apprenticeships} \times \% \text{ time spent on apprentices} \times \text{average administrative staff salary}}{\text{Total number of apprentices}}$$

The recruitment category covers costs incurred by providers as a result of staff spending time on apprenticeship recruitment, cost of marketing materials and external marketing spend with other organisations. One-off recruitment costs per apprentice are calculated as follows:

$$\frac{\text{Number of staff involved in apprenticeship recruitment} \times \% \text{ time spent on apprentices} \times \text{average recruitment staff salary}}{\text{Total number of apprentices}} + \frac{\text{Costs of marketing materials} + \text{External marketing spend}}{\text{Total number of apprentices}}$$

The premises category covers costs incurred by providers as a result of apprentice's contribution to annual premises costs. Annual premises cost per apprentice is calculated as follows:

$$\frac{\text{Annual premises cost} \times \% \text{ of premises utilised by apprentices on the selected framework}}{\text{Total number of apprentices}}$$

The income received by providers that can be attributable to apprentices is broken down into total government funding received per apprentice per year and other income received per apprentice per year. Annual per apprentice income is therefore calculated as follows:

$$\text{Per apprentice annual government funding} + \text{Other annual income received per apprentice}$$

Providers could report that any of the constituent elements of these cost and income categories across all cost categories (such as fees paid, salaries, or proportion of time spent) were different for 16-18s relative to adult apprentices.

## Employers

The fees paid to external training providers/assessors category covers fees paid by employers to external providers and awarding organisations. Annual per apprentice external provider cost from the employer's perspective is calculated as follows:

$$\text{Per apprentice annual fees to training provider for course fees assessment agencies} + \text{Annual per apprentice facilities costs for training apprentices away from the workstation}$$

The salary cost category covers costs incurred by employers from apprentice salaries. Annual per apprentice salary costs are calculated as follows<sup>45</sup>:

$$\frac{\text{Annual salary per apprentice in year 1} + \text{Annual salary per apprentice in year 2} + \text{Annual salary per apprentice in year 3}}{3}$$

The supervision cost category covers costs incurred by employers as a result of staff spending time supervising each apprentice. Annual per apprentice supervision costs are calculated as follows:

$$\text{Number of staff involved in supervising each apprentice} \times \% \text{ time spent on apprentices} \times \text{average supervisor salary}$$

The line manager category covers costs incurred by employers as a result of line managers spending time managing apprentices. Annual per apprentice line manager cost is calculated as follows:

$$\frac{\% \text{ of line manager time spent on apprentices} \times \text{salary of line manager}}{\text{Number of apprentices on framework of interest}}$$

The training manager category covers costs incurred by providers as a result of staff spending time training apprentices away from the work station. Annual per apprentice training manager cost is calculated as follows:

$$\frac{\text{Number of staff involved in training} \times \% \text{ of their time spent training apprentices} \times \text{salary of trainers}}{\text{Number of apprentices on framework of interest}}$$

The administrative costs category covers the costs incurred by employers as a result of staff spending time on administration related to apprentices. Annual administration costs per apprentice are calculated as follows:

$$\frac{\text{Number of staff involved in administration relating to apprenticeships} \times \% \text{ time spent on apprentices} \times \text{average administrative staff salary}}{\text{Total number of apprentices}}$$

The recruitment category covers costs incurred by employers as a result of staff spending time on apprenticeship recruitment, and cost for other aspects of recruitment activities. One-off recruitment costs per apprentice are calculated as follows:

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<sup>45</sup> For apprenticeships that are less than three years in duration the average salary was recalculated accordingly



$$\frac{\text{Number of staff involved in apprenticeship recruitment} \times \% \text{ time spent on apprentices} \times \text{average recruitment staff salary}}{\text{Total number of apprentices}} + \frac{\text{Costs of other aspects of recruitment activities}}{\text{Total number of apprentices}}$$

The other category covers costs incurred by providers as a result of correcting the apprentice's work and other miscellaneous costs such as equipment. Annual premises cost per apprentice is calculated as follows:

$$\frac{\text{Cost of correcting the apprentice's work} + \text{Other costs}}{\text{Total number of apprentices on framework of interest}}$$

The income received by employers that can be attributable to apprentices is composed of grants per year received (such as AGE grants) and other income. Annual per apprentice income is therefore calculated as follows:

$$\text{Per apprentice annual grants received} + \text{Other annual income received per apprentice}$$

The benefit enjoyed by employers that can be attributable to apprentices is calculated by comparing apprentices' average level of productivity throughout their apprenticeship to that of a fully trained employee. Annual per apprentice employer benefit is therefore calculated as follows:

$$\text{Per apprentice average productivity (\% of trained employe)} + \text{Salary of trained employee}$$

Employers could report that any of the constituent elements of these cost and income categories across all cost categories (such as fees paid, salaries, or proportion of time spent) were different for 16-18s relative to adult apprentices.



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