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Technical Appendix

Securing success from start to finish

Investigating factors associated with apprenticeship withdrawal

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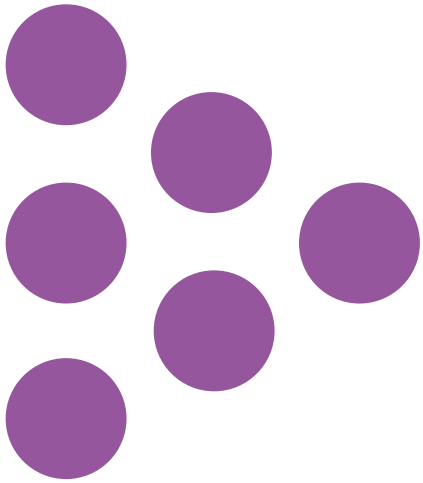

Technical Appendix: Securing success from start to finish

Investigating factors associated with apprenticeship withdrawal

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A note on terminology

Apprenticeship achievement: constructed by the Department for Education (DfE) and calculated from the number of achieved learning aims in a given reporting year as a percentage of learning aims set to end in that year, excluding the programme aims of any learners that transferred onto another qualification within the same institution (DfE, 2024b).

Apprenticeship withdrawals: constructed for this report and calculated for each year based on the proportion of apprenticeship starters in that year who subsequently withdrew within the period covered by our dataset[1] as a proportion of all learners who had either withdrawn or completed (where learners are counted as completing on finishing their programme of study regardless of outcome), after excluding learners still progressing towards an outcome. An apprenticeship withdrawal may happen for a range of reasons including learners leaving their apprenticeships for other opportunities, and employers terminating an employment contract.

Due to the differences in methodology used, achievement and withdrawal rates reported throughout the report cannot be directly compared. The withdrawal rates estimated in this report will overstate withdrawals in the later years of the period covered by our dataset, compared to DfE's methodology for estimating apprenticeship achievement, because learners still progressing towards an outcome will be more likely to complete than withdraw. The advantage of our approach compared to DfE's methodology is that it enables us to include a larger number of more recent apprenticeships in our statistical analyses and allows for better comparison of withdrawals between apprenticeship frameworks and standards.[2]

[1] Our dataset covers withdrawals and completions up to the end of the 2020/21 academic year for all qualifications started up to the end of the 2019/20 academic year.

[2] Frameworks and standards can be better compared in our definition as by focusing on learners who complete rather than pass their qualifications, we are excluding any differences in achievement rates that result from the introduction of end point assessments (EPA). Using a simplified framework, the definition of apprenticeship withdrawals used in this report can be conceptualised as follows, where: O=Apprentices who have been on apprenticeship programme for at least a year; P= Completed all learning and passed assessment activities; NP= Completed all learning but did not pass all assessment activities; D=Apprentices who have not yet completed their apprenticeship and W=Withdrawals. Then, O=P+NP+D+W and apprenticeship withdrawal rate in our report is defined as $\frac{W}{P+NP+W}$

In comparison, under the DfE definition of the apprenticeship achievement rate, where F=Apprentices who have been on apprenticeship programme and are expected to finish their apprenticeship in the current academic year. Then F=P+NP+D+W and the achievement rate is defined by DfE as $\frac{P}{P+NP+D+W}$

1 Methodology

1.1 Research questions

Our research involves quantitative analysis of data from the Department for Education's (DfE) Longitudinal Educational Outcomes (LEO) dataset. We draw together data on apprentices' learning aims, their prior educational attainment from the National Pupil Database (NPD), their earnings before, during and after their apprenticeship from HMRC, their employers from the Inter-Departmental Business Register (IDBR), and their apprenticeship providers, which we bring into LEO from external sources using a new provider matching feature.

Utilising such a rich dataset enables us to answer the following Research Questions:

- RQ1) How have apprenticeship achievement rates changed over time?
- RQ2) Amongst learners on standards, how have withdrawal rates varied by apprenticeship, learner, provider and employer characteristic?
- RQ3) How have the relationships between withdrawal rates and apprenticeship, learner, provider and employer characteristics changed, when comparing learners on standards to those on frameworks?
- RQ4) How has the composition of learners, employers and providers in the apprenticeship system changed, and how do withdrawal rates between frameworks and standards compare after accounting for these compositional changes?
- RQ5) How long do learners take before completing or withdrawing from their apprenticeship and how might extending the duration of apprenticeships have contributed to the drop in completions?
- RQ6) Might maths and English exit requirements have contributed to high withdrawal rates?
- RQ7) How do withdrawal rates vary depending on apprentices' wages?
- RQ8) What employment and wage penalty is associated with withdrawing from an apprenticeship?

1.2 Data

To identify learners who started an apprenticeship, and their subsequent apprenticeship outcomes, we utilise data from the Individualised Learner Data (ILR), which is one module of LEO. We utilise data from 2013/14 to 2020/21 – this is because 2020/21 was the latest year of LEO data available, and apprenticeship provider identifiers changed in 2013/14.

For our analysis of apprenticeship starts, we were able to utilise data on learners that started in any year from 2013/14 to 2020/21. However, for our analysis of apprenticeship withdrawals, we used data on learners that started apprenticeships between 2014/15 and 2019/20. We omitted learners that started in 2020/21 because apprenticeships cannot be completed in a year. We omitted learners where the main aim started in 2013/14 because we needed at least one year of pre-apprenticeship data to derive some of the variables for our models (for example, whether they were employed by the same employer before they started their apprenticeship or not). We omitted learners whose apprenticeship was still ongoing in the last year of our data (2020/21).

We identified the same learners over time using the longitudinal LEO identifier[3], which allows us to track their journey, from their pre-apprenticeship employment and earnings to their post-apprenticeship employment and earnings. We dropped learners in the ILR who did not merge to the longitudinal identifier in LEO. We also dropped duplicate records, apprenticeships that had a recorded duration of zero months[4] and records for apprentices who started four or more apprenticeships in the same academic year[5].

Next, we linked individuals' data in the ILR with data from other modules of the LEO on their demographic characteristics, prior educational attainment and the characteristics of their apprenticeship providers and employers, allowing us to examine the relationship between a broad range of individual, employer and provider characteristics and withdrawal. This involved matching the ILR data to other modules of the LEO and external sources, including:

1) Data on learners' characteristics and prior attainment (from the NPD)

From the NPD, we gathered data on learners' demographics and prior attainment, including whether the pupil achieved a 'strong pass' on their English and maths GCSEs[6], their GCSE results from Year 11 (specifically, the quintile of a pupils' overall capped GCSE attainment), whether the pupil was ever recorded as eligible for free school meals (FSM), and the highest level of attainment they had achieved prior to the start of their apprenticeship. A relatively small proportion of apprentices did not have any data in the NPD (for instance if they did not go to secondary school in England). In these cases, we set learner characteristics to 'missing'.

2) Data on apprenticeship providers (from external datasets)

We drew together data on apprenticeship providers from publicly available sources, including data on provider size[7], provider type and Ofsted rating[8], linking this with learner data in the ILR via anonymised UKPRN identifiers[9].

3) Data on employers (from the IDBR)

We drew on data on apprentices' employers in the IDBR. It was not possible to directly link employer identifiers in the ILR with the IDBR. We therefore used the linkage to the HMRC earnings data to identify an apprentice's 'main' employer in the tax year their apprenticeship

[3] This was the AE_ID variable from the main LEO spine module. We considered an apprenticeship to be completed if the main aim was recorded as such.
[4] We based our measure of apprenticeship duration on the difference between the recorded start and end date of an apprentice's main apprenticeship learning aim in the ILR data.
[5] In principle, apprentices cannot be enrolled on more than one apprenticeship at the same time. While most instances of multiple apprenticeship in the same year reflected apprentices moving from one apprenticeship to another, we dropped the cases of individuals who were enrolled on four or more apprenticeships in a year as these are likely to be data entry errors.
[6] We defined a 'strong pass' as a GCSE grade five and above or a C* and above. We observed the first record of English and maths GCSE scores where a pupil sat their GCSEs more than once.
[7] Taken from DfE official statistics on provider starts, achievements, UKPRN, Level and SSA.
[8] Ofsted data was only available for providers from 2014/15 onwards. We linked Ofsted data longitudinally so that a provider's rating each year reflected data from their most recent inspection.
[9] In line with the Digital Economy Act (DEA) requirements which govern the sharing of LEO data, provider identifiers in the LEO data must be anonymised in the same way as pupil data before being linked to the data. This anonymisation was carried out by the Office for National Statistics (ONS).

started, which we assumed was their apprenticeship employer[10]. This provided us with a 'main employer identifier', which we were then able to link with the IDBR. The IDBR data contained information about the size and sector of the employer.

We also used this linkage to derive bespoke employer variables such as the number of apprentices each employer employed in each year and the number of years each employer had previously offered any apprenticeship. These variables were not directly recorded in the ILR and could have been impacted by the match rate between the ILR and the HMRC earnings data, as well as other factors. For those learners where we were unable to match to a corresponding earnings record, we set employer characteristics to missing.

4) Data on the sector subject area of each apprenticeship (from LARS)

Finally, we also linked ILR data to data from the Learning Aims Reference Service (LARS), which provided us with information about the subject sector area of different apprenticeship frameworks and standards, and the year each framework and standard was rolled out and / or removed. We linked the ILR data to the LARS based on framework and standard identifier codes.

1.3 Outcomes

1.3.1 Apprenticeship withdrawal

To assess whether an apprentice completed their apprenticeship, we used the completion status variable in the ILR for the main learning aim of their apprenticeship[11]. We considered an apprentice to have completed their apprenticeship if the apprenticeship's completion status was 'The learner has completed the learning activities related to the learning aim'. We likewise considered an apprenticeship to have withdrawn if the completion status of their main learning aim was 'The learner has withdrawn from the learning activities related to the learning aim'. A learner may complete their apprenticeship, without passing all their assessments. When completion status was recorded as 'temporarily withdrawn' or 'transferred to another learning aim' we used the longitudinal identifier in the data to observe whether the learner ever completed or withdrew from any future apprenticeship.

We also calculated a measure of the time (in months) it took for an apprentice to either complete or withdraw from their apprenticeship. This was derived from the difference between the date the apprenticeship began (as recorded in the ILR) and the date when its final completion or withdrawal outcome was recorded. We also derived a second, related, measure which provided the length of time taken to complete or withdraw from the apprenticeship as a proportion of the number of months the apprenticeship was expected to take to complete. This enabled us to examine the duration of learners' apprenticeship but did not provide an indication of their progress through specific stage-gates of their course.

[10] In some cases, apprentices were working at multiple employers in the same tax year, where we would only observe the 'main' employer that year (i.e. the employer at which the learner earned the most that year). There was the possibility that this was not actually the learner's apprenticeship employer that year, but we conducted sensitivity checks on this which indicated that the presence of multiple employers did not greatly affect any of our main conclusions.
[11] Variable name CompStatus.

1.3.2 Labour market outcomes

We also used HMRC data to derive learners' earnings and employment status before, during and after completing / withdrawing from their apprenticeship. We matched learner data from the ILR to data on their earnings and employment status in HMRC data, using the learners' longitudinal identifier and academic year (mapped to tax year). We used this linkage to observe learners' earnings and employment status:

a) before their apprenticeship (which enabled us to examine whether learners' apprenticeship outcomes varied depending on their prior employment history and earnings),
b) at the start of the apprenticeship (which enabled us to explore how differences in earnings impacted their likelihood of completion), and
c) for each of the three years after an apprentice completed or withdrew from their apprenticeship (which enabled us to examine how subsequent earnings vary between those who complete and those who withdrew).

HMRC earnings data was only available up to 2020/21, hence we only looked at earnings up to three years after learners completed or withdrew from their apprenticeship (and fewer than that for more recent learners who had fewer than three elapsed years in our LEO data). Where individuals had multiple jobs in a tax year, we were, unfortunately, only able to observe their total aggregate earnings in that year in HMRC earning data, which could have introduced some bias into our analyses if, for example, learners who withdraw from their apprenticeship are more or less likely to have a second job whilst on their apprenticeship compared to those that complete. We set learners' earnings to missing where their earnings data was missing, or they did not link to HMRC data. We also set earnings to missing if they had negative recorded earnings or they were outliers (earnings above £90,000). We then deflated earnings records using the Consumer Price Index with Housing (CPI-H) to adjust for inflation and took the natural logarithm so that our regression estimates approximately represented impacts in percent terms.

We also examined whether apprentices were unemployed after their apprenticeship by linking their ILR data to HMRC employment spells data in LEO, which enabled us to examine how learners' probability of being unemployed varied depending on whether they completed their apprenticeship or not. We observed the number of unemployment spells for an apprentice in the tax years after the tax year in which they completed their apprenticeship. We set this variable to missing where a learner did not match to the HMRC earnings spells data in that tax year. We then divided the number of unemployment spells by the number of years of employment data we could observe for a learner, to account for the fact that total possible number of unemployment spells in our data differed depending on the year learners completed their apprenticeship.

In addition to earnings and employment status, we also examined the number of industry sectors[12] the apprentice worked in both before and after they completed their apprenticeship, which enabled us to examine whether learners who were more attached to a particular industry sector were more likely to complete their apprenticeship, and whether learners who completed their apprenticeship were more likely to remain in the same sector afterwards

[12] From the HMRC earnings data, we used 'sections', which refers to different industry sectors, defined using the Standard Industrial Classification (SIC) hierarchy.

compared to those who withdrew. We looked at the number of industry sectors a learner worked in during the three years before they started their apprenticeship, and the total number of sectors they worked in during each of the three tax years after they completed their apprenticeship, which we averaged over these three years[13]. We also observed whether the apprentice enrolled in a new apprenticeship (at any level) in any of the three years after completing or withdrawing from their apprenticeship.

1.4 Regression analysis

We use regression analysis to isolate the impact of each learner, provider and employer characteristic on learners' probability of withdrawal, whilst holding all other observed characteristics constant. We used regression modelling because raw differences in withdrawal rates between groups are likely to be confounded by differences in the composition of these groups. For example, raw differences in withdrawal rates between white learners and minority ethnic learners might be confounded by other differences between these groups in the apprenticeships they start, in their employer, and so on. We ran multiple regression models both for our withdrawal and duration outcomes. We used ordinary least squares (OLS) models in all of the regressions, even for the binary withdrawal outcome, due to the large size of the sample. We conducted a robustness check on the final specification of the withdrawal regression model using a probit model to ensure that the OLS specification was not influencing our results.

We conducted separate regressions for frameworks and standards. Each model included all of the learner, provider, employer and apprenticeship characteristics as independent variables. We also included dummy variables for the year the apprenticeship started. This was crucial because apprentices who started an apprenticeship later in our data had less time to withdraw or complete (e.g. for apprentices starting in 2019/20, we could only observe whether they had a completion outcome up to 20/21). We also included a set of dummy variables for the specific framework or standard of the apprenticeship, to control for patterns in withdrawal rates that were specific to a framework or standard and unexplained by other characteristics. Standard errors were clustered at the learner level to account for learners taking multiple apprenticeships in different years.

Finally, we ran a 'pooled' specification which included both frameworks and standards in one model. In this model, we added an additional dummy variable to record whether the apprenticeship was a framework or standard, which was our main variable of interest. We used this model to assess the impact of an apprenticeship 'being an apprenticeship standard versus an apprenticeship framework' on learners' probability of withdrawal, holding all observed characteristics constant. Similarly to the separate framework / standard models, in this specification we included framework and standard dummies (aggregated into one variable) in the model to account for how withdrawal rates may differ between frameworks and standards in ways that are not explained by differences in other characteristics. Due to collinearity between framework / standard identifiers and the level and sector of an apprenticeship, we omitted level and sector dummies from our models.

[13] For apprentices who only had two years of available HMRC earnings data after they completed their apprenticeship, we averaged over these two years only.

We then ran a second set of models which followed a very similar specification, but which included the average earnings prior to the start of the apprenticeship and the number of sectors the apprentice had worked in prior to the start of their apprenticeship (as a proxy for how 'attached' to a particular sector or industry the apprentice was at the start). We also included earnings in the year the apprenticeship started, which we assumed reflected what the apprentice earned on their apprenticeship. We estimated these models separately from the above as we were not able to observe earnings for all apprentices, so models were estimated on a smaller sample to our overall sample.

1.4.1 Analysing the impact of completion on future labour market outcomes

Our analysis of the impact of apprenticeship withdrawal (compared to completion) on future labour market outcomes followed a similar approach. We began by estimating total average earnings and employment outcomes, separately for apprentices who completed and those who did not complete their apprenticeship. We did this regardless of whether the apprentice went on to enrol on another apprenticeship at any future date. We then ran a suite of regression models examining how each of our observed apprenticeship, learner, provider and employer characteristic was associated with each of our labour market outcomes. All of these outcomes (inflation-adjusted earnings, unemployment spells and number of sectors worked in) were continuous variables, so we used OLS for each of these models. The specification of these models matched the specification described above.

We also ran a pooled model to assess whether withdrawal rates remained higher for apprenticeship standards compared to frameworks after controlling for differences in learner, provider and employer characteristics.

1.5 Data limitations

As mentioned in section 1.2 above, we were only able to utilise data on learners that started apprenticeships between 2014/15 and 2019/20. The factors most strongly associated with withdrawal from an apprenticeship standard may have changed in recent years, as may the effects of apprenticeship completion on labour market outcomes

The data linkages needed to match data on learners in the ILR with data in other modules of LEO also restricted our sample. For instance, linking ILR data to the main LEO spine reduced our sample of apprenticeships by about a third, and linking this to HMRC data reduced our sample further. While it is difficult to ascertain the impact on our analysis, one key area where this is likely to impact our findings is for older apprentices who have no records in the NPD from 2000 onwards as they will be excluded from the LEO spine.

The employer characteristics we were able to derive also had limitations. To derive employer characteristics, we needed to link ILR data to both HMRC earnings data and data in the IDBR. Unfortunately, we were only able to observe individuals' total earnings in each tax year and their main employer in each tax year - earnings in HMRC data is not split by employer or employment spell - and we had to assume that apprentices' main employer was their apprenticeship employer. This may not always have been the case where apprentices had multiple employers in a tax year. It also means our measure of total earnings may not have accurately reflected what an apprentice earned in their apprenticeship where they worked in multiple jobs in a tax year, particularly where an apprentice completed their

training and subsequently moved into another job with a different employer in the same tax year. This means that our research findings regarding the effects of completion on future labour market outcomes should be interpreted and used cautiously.

Where an apprentice had two or more employers in the same tax year, it was also difficult to identify whether they worked at the same employer prior to or after their apprenticeship, which means that findings relating to the relationship between this factor and learners' likelihood of withdrawing should be treated with caution. Furthermore, we were unable to distinguish between levy paying and non-levy paying employers, which prevented us from examining whether this was associated with variation in learners' probability of withdrawing. This would be a valuable addition to LEO to support further research.

Finally, our analysis of differences in subsequent employment status between learners who completed their apprenticeship and those with withdrew relied on a linkage between the ILR and employment spells data in LEO. Where there were mismatches between the ILR and LEO employment spells data, it was not possible to tell whether this corresponded to an unemployment spell or simply a data mismatch. This could have resulted in us overstating the number of years apprentices spent in unemployment after finishing their apprenticeship.

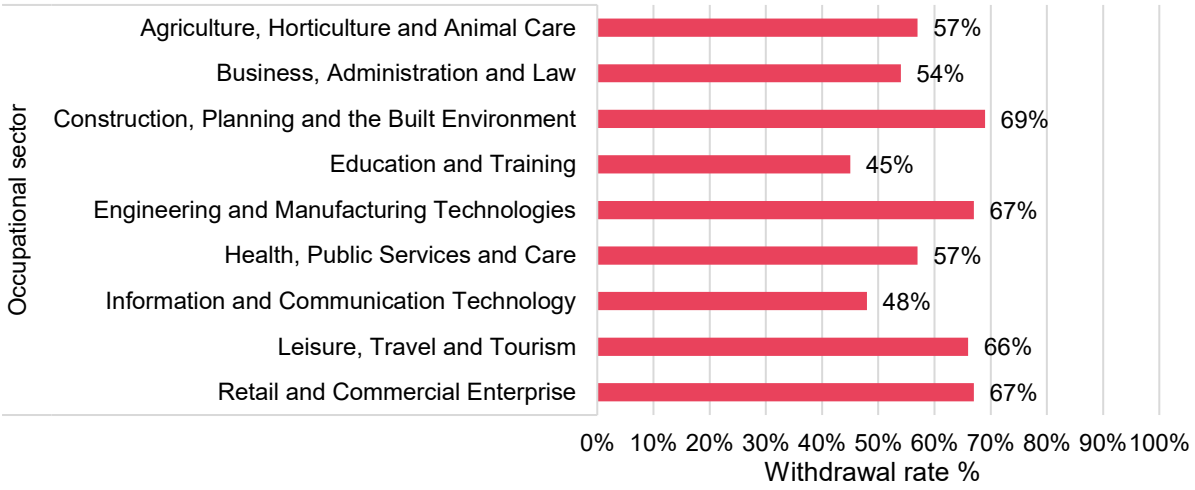
2 Further breakdowns by learner, provider and employer characteristics

2.1 Differences in apprenticeship withdrawal rates by level, subject and industry sector

Subject

Withdrawal rates amongst learners on apprenticeship standards vary by subject. Figure 1 shows withdrawal rates by Tier 1 Sector Subject Area (SSA) for learners on apprenticeship standards with more than 1,000 learners who started an apprenticeship between 2013 and 2019. Over two-thirds of learners in Construction, Planning and the Built Environment, Engineering and Manufacturing Technologies, Retail and Commercial Enterprise and Leisure, Travel and Tourism withdrew from their apprenticeship, whereas more than half of learners completed their apprenticeship in Education and Training and Information and Communication Technology.

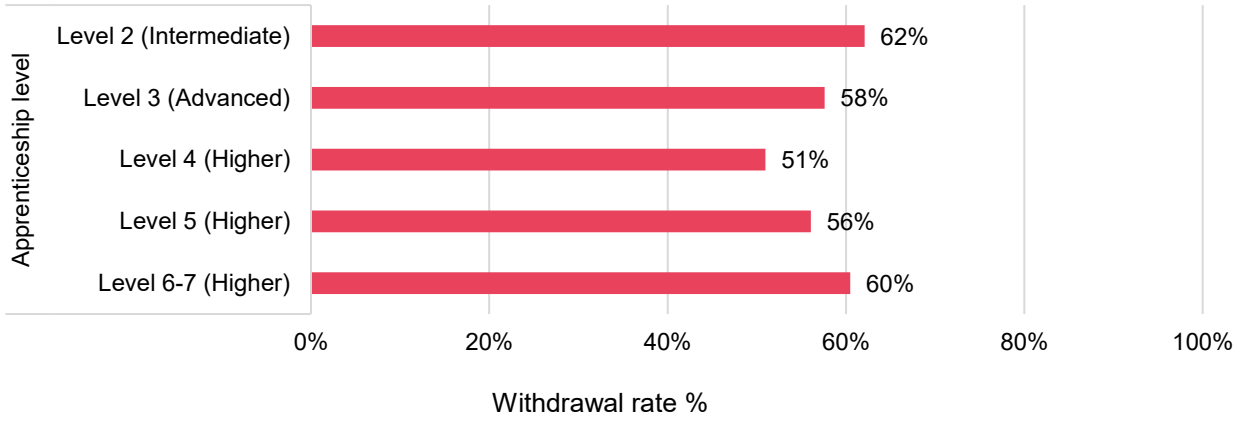
Figure 1 Withdrawal rates from an apprenticeship standard by subject sector (starts 2014/15 to 2019/20)



Apprenticeship level

As shown in Figure 2, withdrawal rates also vary by level, with apprenticeships at Level 4 and 5 (which sit between qualifications equivalent to A-levels or degrees) having the lowest withdrawal rates (51 percent and 56 percent, respectively).

Figure 2 Withdrawal rates from an apprenticeship standard by Apprenticeship level (starts 2014/15 to 2019/20)



Special Educational Needs (SEN)

Withdrawal rates for learners with Special Educational Needs (SEN) were eight percentage points higher (64 percent) than their peers without SEN (56 percent), as shown in Figure 3. However, these differences diminish considerably after controlling for differences in other observed characteristics, as shown in Figure 4.

Figure 3 Withdrawal rates from an apprenticeship standard by Special Educational Needs status (starts 2014/15 to 2019/20)

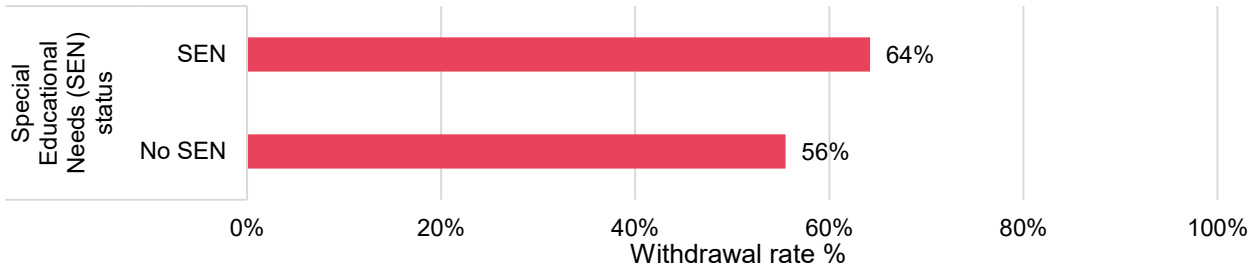
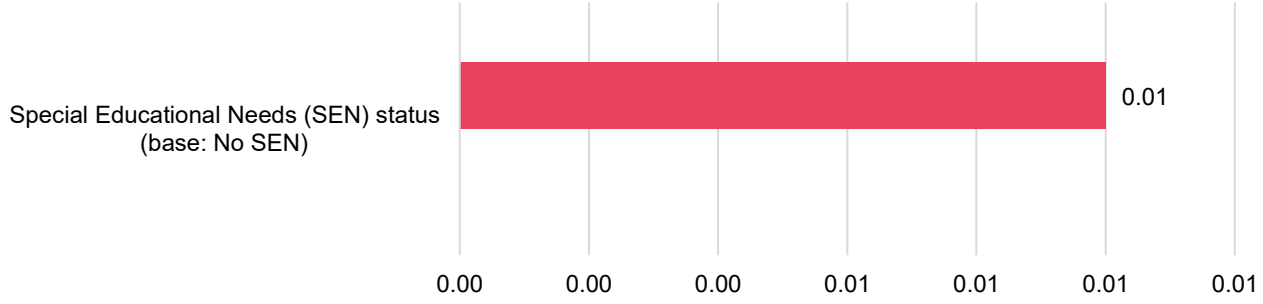


Figure 4 Effect of Special Educational Needs status on the probability of withdrawing from an apprenticeship standard (starts 2014/15 to 2019/20)

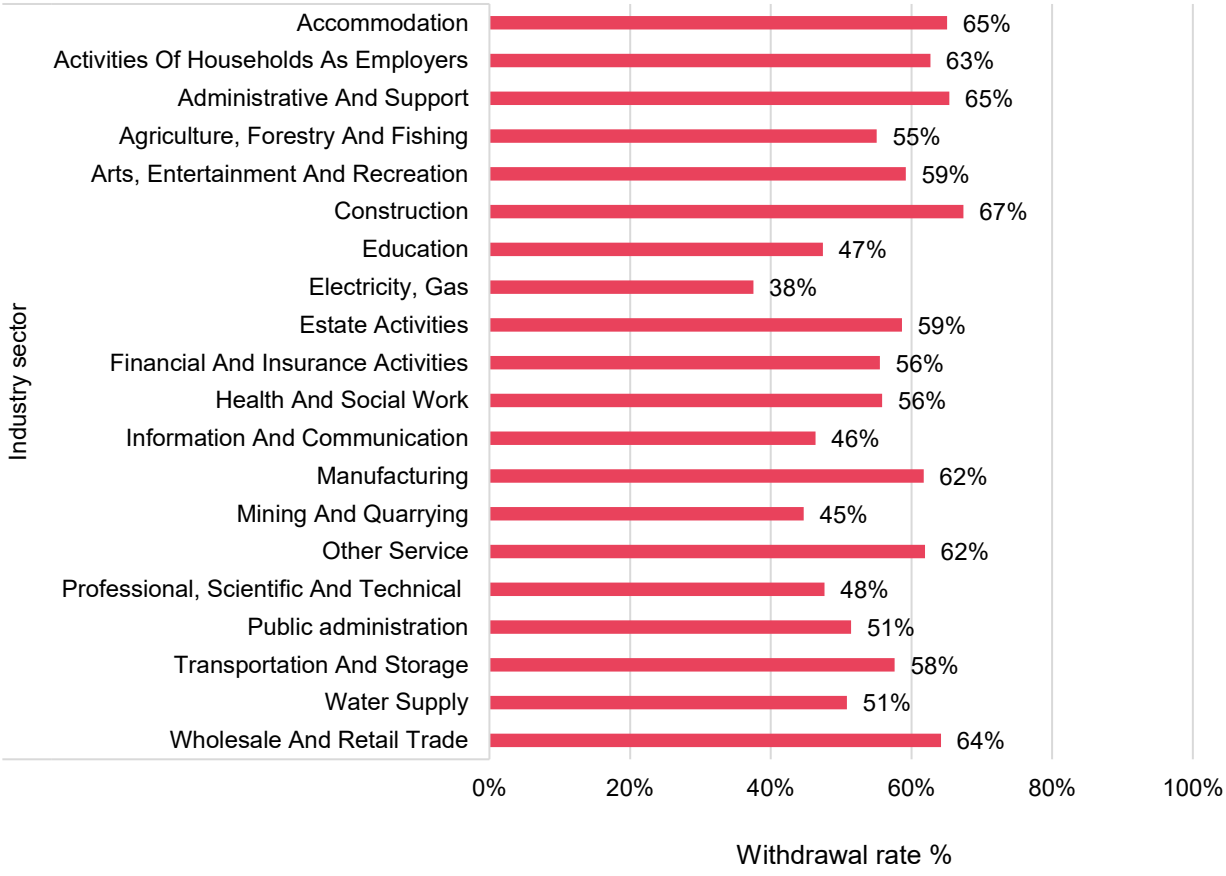


Note: SEN = Whether the learner has ever been registered as having SEN

Industry sector

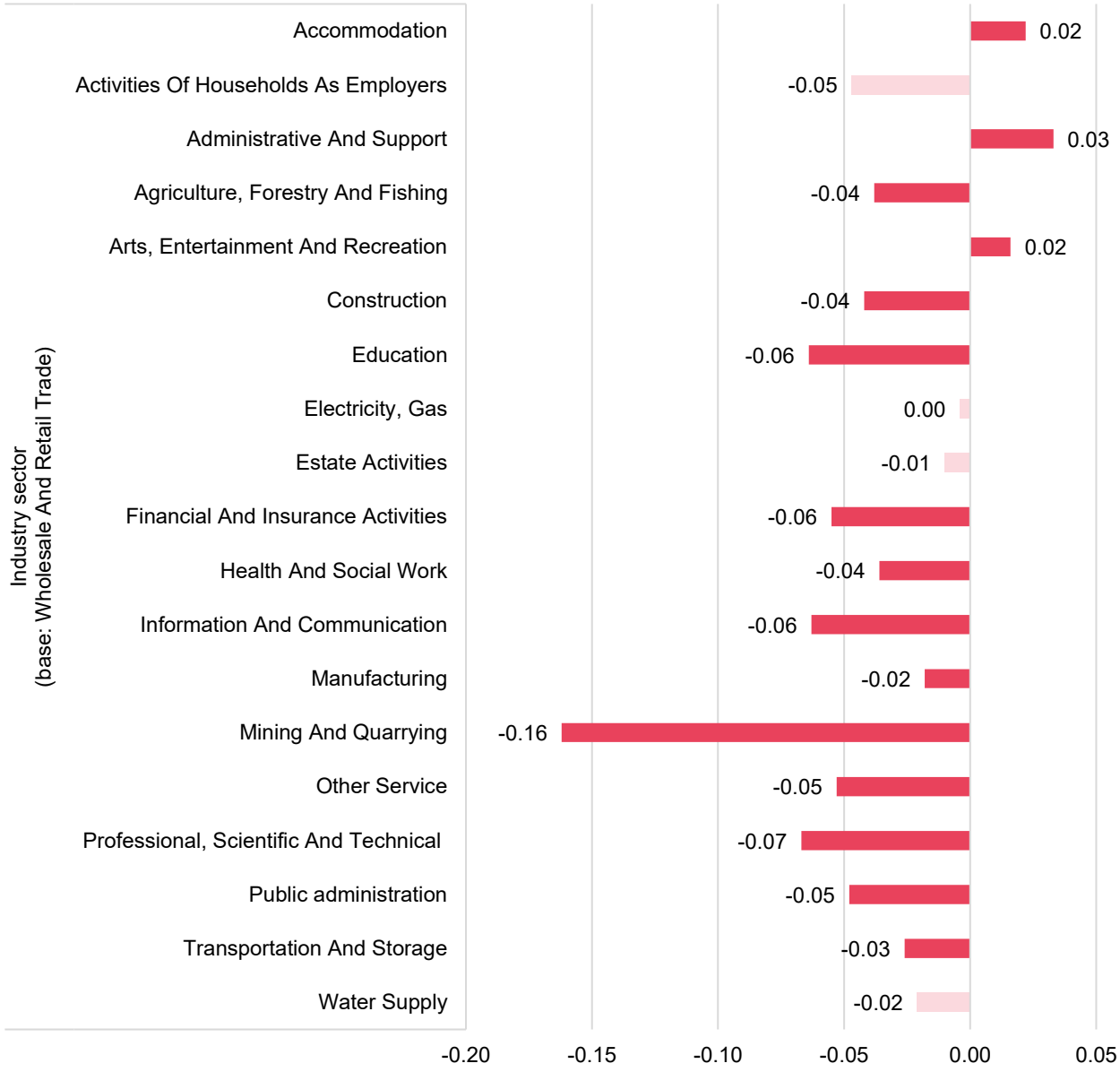
Withdrawal rates also vary by industry sector. Industries are based on the broad industry groups in the Standard Industrial Classification (SIC). Apprentices working in Electricity/Gas were almost half as likely to withdraw as those in Construction (38 percent compared to 67 percent). Other sectors with low withdrawal rates include Mining and quarrying (45 percent), Professional, Scientific and Technical (48 percent) and Education (47 percent). In addition to Construction, sectors with the high withdrawal rates included Wholesale and Retail Trade (64 percent), Manufacturing (62 percent), Accommodation (65 percent) and Administrative and Support (65 percent).

Figure 5 Withdrawal rates from an apprenticeship standard by industry sector (starts 2014/15 to 2019/20)



As shown in Figure 6, regression analysis indicates significant differences between sectors in learners' probability of withdrawing from an apprenticeship by industry after controlling for other observed characteristics. This indicates that differences in withdrawal rates between industries are not entirely explained by the differences between sectors in their composition of apprenticeship levels, learners, providers and employers. Learners working in the 'Administrative and Support' and 'Accommodation' industries remain amongst the most likely to withdraw, whilst those working in 'Mining and Quarrying' and 'Professional, Scientific and Technical' remain the least likely to withdraw.

Figure 6 Effect of industry sector on the probability of withdrawing from an apprenticeship standard (starts 2014/15 to 2019/20)



Note: Columns in light red are not statistically significantly different from baseline category

3 Comparing apprenticeship standards and frameworks

3.1 How has the relationships between withdrawal rates and apprenticeship, learner, provider and employer characteristics changed, when comparing learners on standards to those on frameworks?

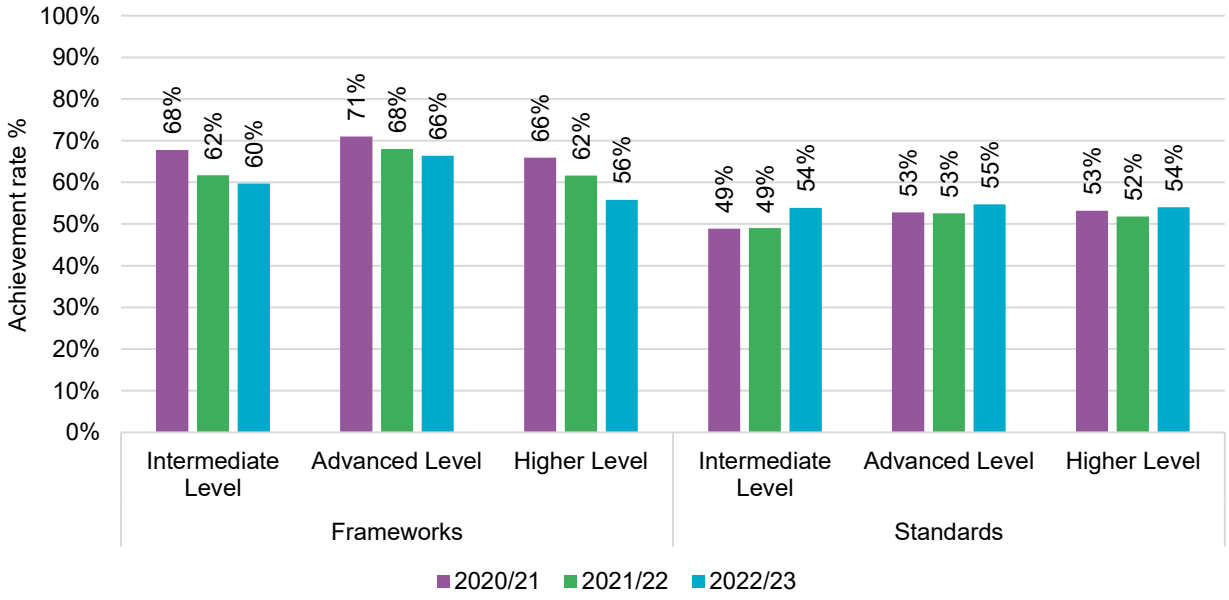
In this section, we explore how the effects of apprenticeship, learner, provider and employer characteristics on withdrawal differ between frameworks and standards. This exploits the fact standards and frameworks co-existed in the system throughout the period in our data and deepens our understanding of why standards have had consistently higher withdrawal rates than frameworks and why the apprenticeship achievement rate has declined over time. We present the characteristics where effects on withdrawal differ between frameworks and standards. For each characteristic, we present the results from regression analysis only.

Apprenticeship level

The difference in achievement rates between apprenticeship standards and frameworks are evident across all levels, as shown in Figure 7. However, the difference in achievement, whereas higher level apprenticeships (Level 4 and above) experienced a more modest difference in achievement rates between frameworks and standards.

It is, however, important to note that these patterns will partly reflect compositional differences in the qualifications offered between frameworks and standards, and the timing when different frameworks were phased out.

Figure 7 Achievement rates by apprenticeship level by year, from 2020/21 to 2022/23

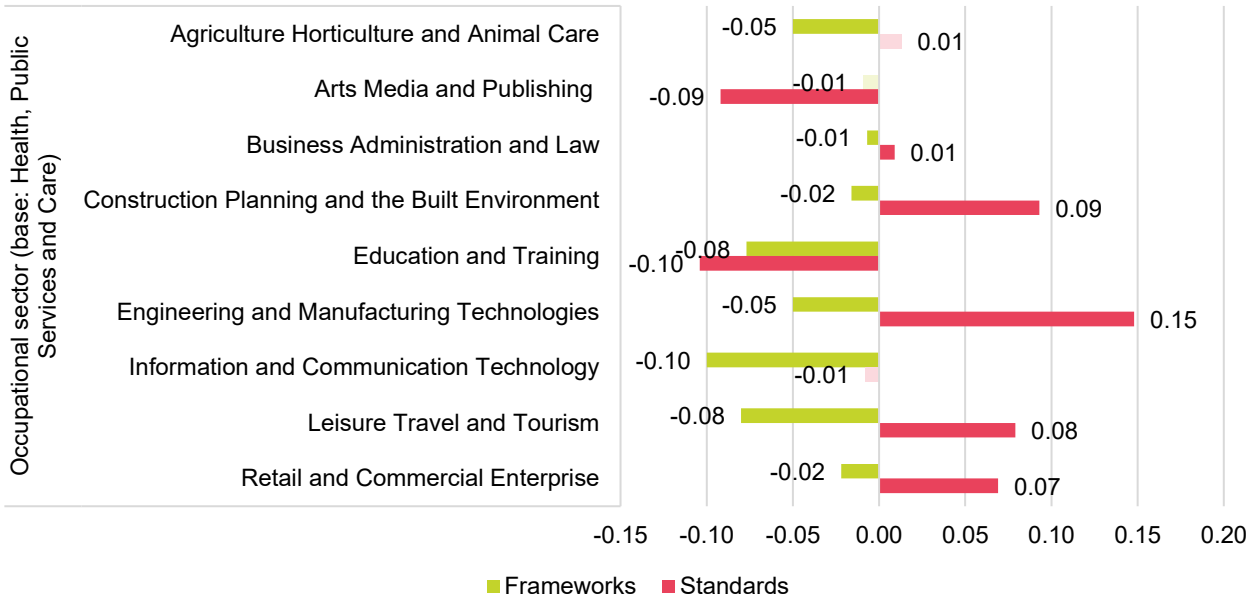


Source: DfE, 2025a

Subject area

Differences between occupational sectors in learners' probability of withdrawing have differed for standards and frameworks as shown by Figure 8. Some sectors are associated with a slightly higher probability of withdrawal from standards, compared to frameworks, specifically 'Science and Mathematics', 'Construction, Planning and Built Environment', 'Engineering and Manufacturing Technologies', 'Leisure, travel and tourism' and 'Retail and Commercial Enterprise'. By contrast, in other sectors the move to standards appears to have benefitted completion rates, particularly in 'Arts, Media and Publishing'. Further research would be required to explain these changes, but one possible explanation is that the switch to standards resulted in greater mismatches between apprentices' experience and expectations in some sectors compared to others.

Figure 8 Effect of occupational sector on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)

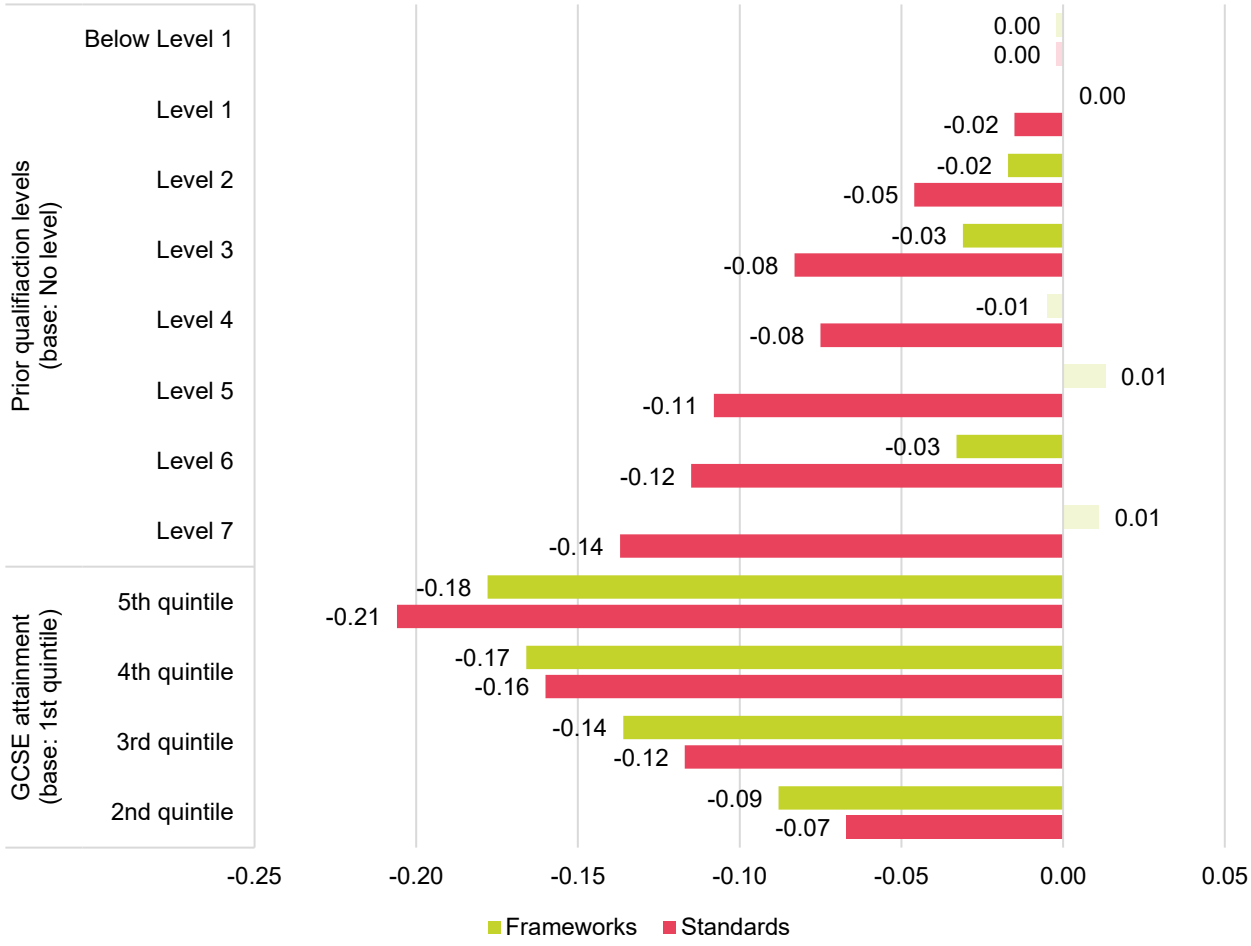


Note: 'Science and Mathematics' and 'Social Sciences' not shown above due to small sample sizes. Columns in light red and green are not statistically significantly different from baseline category

Prior qualification levels and GCSE attainment

Prior qualification levels are more strongly associated with withdrawal from standards than from frameworks, as shown in Figure 9. Higher qualification levels are more protective against withdrawals for standards than they were for frameworks, whereas having no or low qualifications puts learners at greater risk of withdrawal from standards. Learners' GCSE attainment is also marginally more predictive of their probability of withdrawing from a standard, reinforcing the conclusion that standards are harder for lower prior attainers to complete.

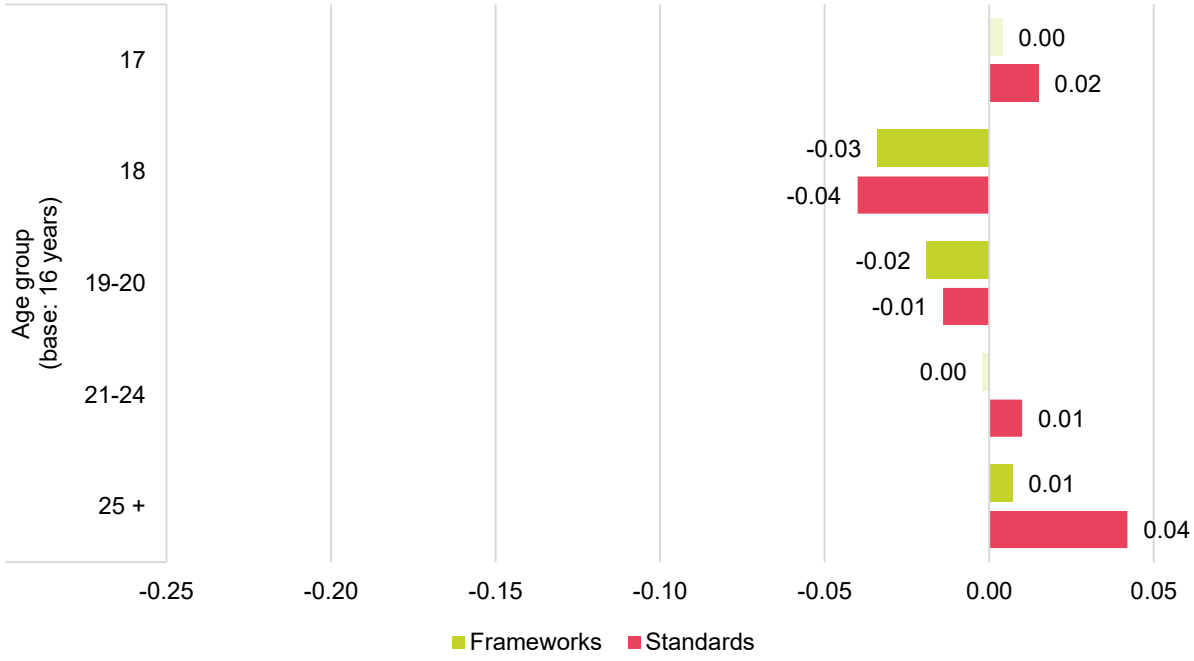
Figure 9 Effect of prior qualification levels on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)



Age

Age-related differences in learners' probability of withdrawal have also been greater for standards than for frameworks, as shown in Figure 10. Being aged 25 or over is more strongly associated with withdrawal from standards than withdrawal from frameworks. One potential explanation for this is that older apprentices on standards are more likely to be workers undertaking professional development, rather than career changers for whom completion is more necessary. However, further research would be required to test this hypothesis which would ideally include the collection of better-quality apprenticeship employer data by the DfE.

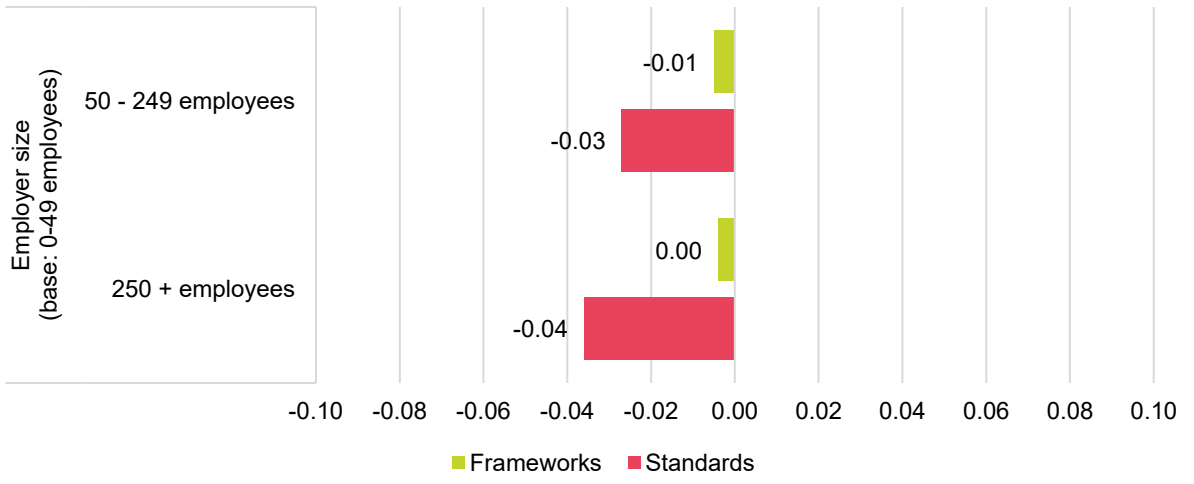
Figure 10 Effect of age on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)



Employer size

Larger employers have been associated with a lower probability of learners withdrawing from standards, whereas the relationship between employer size and withdrawal was very small for frameworks, as shown in Figure 11. This suggests that the move to standards has increased the importance of employer size, putting apprentices employed in larger organisations at a greater advantage relative to their peers in smaller organisations.

Figure 11 Effect of employer size on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)



Size of employer apprenticeship programme

Employers with more apprentices, particularly 50+ apprentices, are less likely to see their apprentices withdraw from standards, whereas the relationship between the size of employers' apprenticeship programme and withdrawal was modest for frameworks, as shown in Figure 12. Again, this suggests there have been greater advantages for learners on standards, compared to learners on frameworks, to being employed in an organisation with a larger scale apprenticeship programme.

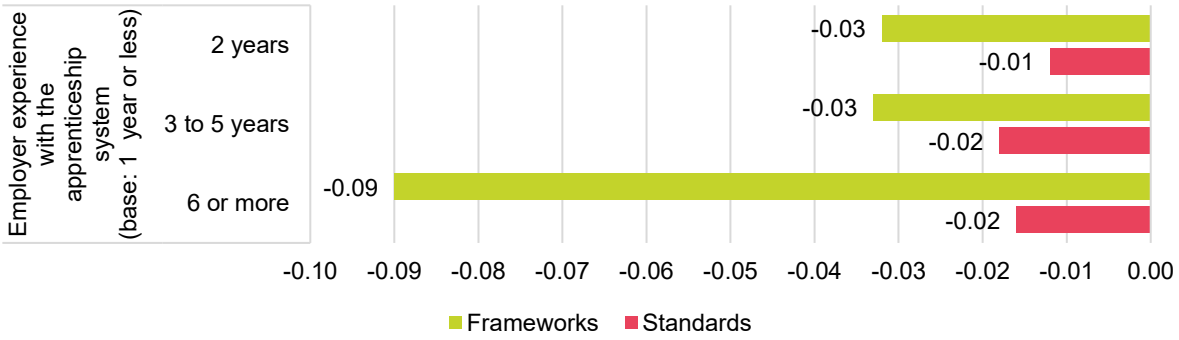
Figure 12 Effect of size of employer apprenticeship programme on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)

Note: Columns in light red and green are not statistically significantly different from baseline category

Employer experience with the apprenticeship system

The relationship between employers' experience with the apprenticeship system and apprentices' probability of withdrawing has been greater for standards than for frameworks, as shown in Figure 13. This suggests that employers' experience with the apprenticeship system, as well as their size and scale, has a greater influence on learners' probability of withdrawing from an apprenticeship standard, compared to the effect employer experience had on learners' probability of withdrawing from a framework.

Figure 13 Effect of employer experience with the apprenticeship system on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)



Provider Ofsted rating

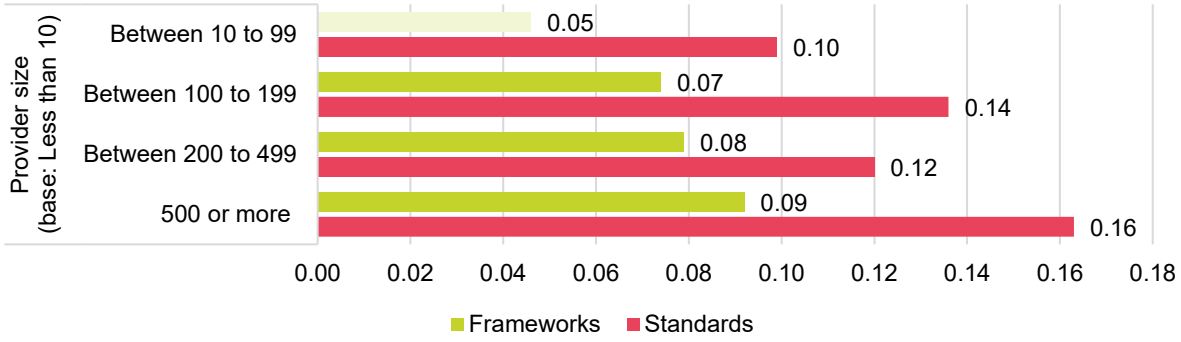
Ofsted-rated 'Inadequate' providers are associated with a higher probability of withdrawal amongst learners on both standards and frameworks, but the effects of being an 'Inadequate' provider were greater for frameworks compared to standards, as shown by Figure 14 (in which 'Inadequate' providers are the base/ comparison category). Differences between Ofsted 'Requires improvement' and 'Outstanding' providers in learners' probability of withdrawing were also greater for frameworks than for standards. This could be because apprenticeship requirements are more clearly defined for standards, or because especially weak providers of standards have exited the apprenticeship system. Alternatively, EPAs may have created an additional incentive for providers to ensure learners have achieved occupational competence, or other factors may explain this result.

Figure 14 Effect of Ofsted rating on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)

Provider size

Somewhat counter-intuitively, larger providers are associated with higher withdrawal rates, all else being equal. Potential explanations for this result are that larger providers deliver a larger share of their training content via online, asynchronous learning or struggle to provide the same quantity or quality of tailored one-to-one support as smaller providers. The effects of provider size are larger for standards than they were for frameworks, suggesting that the move to standards has increased the relative advantage of being trained by a smaller provider.

Figure 15 Effect of provider size on the probability of withdrawing from apprenticeship standards and frameworks (starts 2014/15 to 2019/20)



Note: Columns in light red and green are not statistically significantly different from baseline category

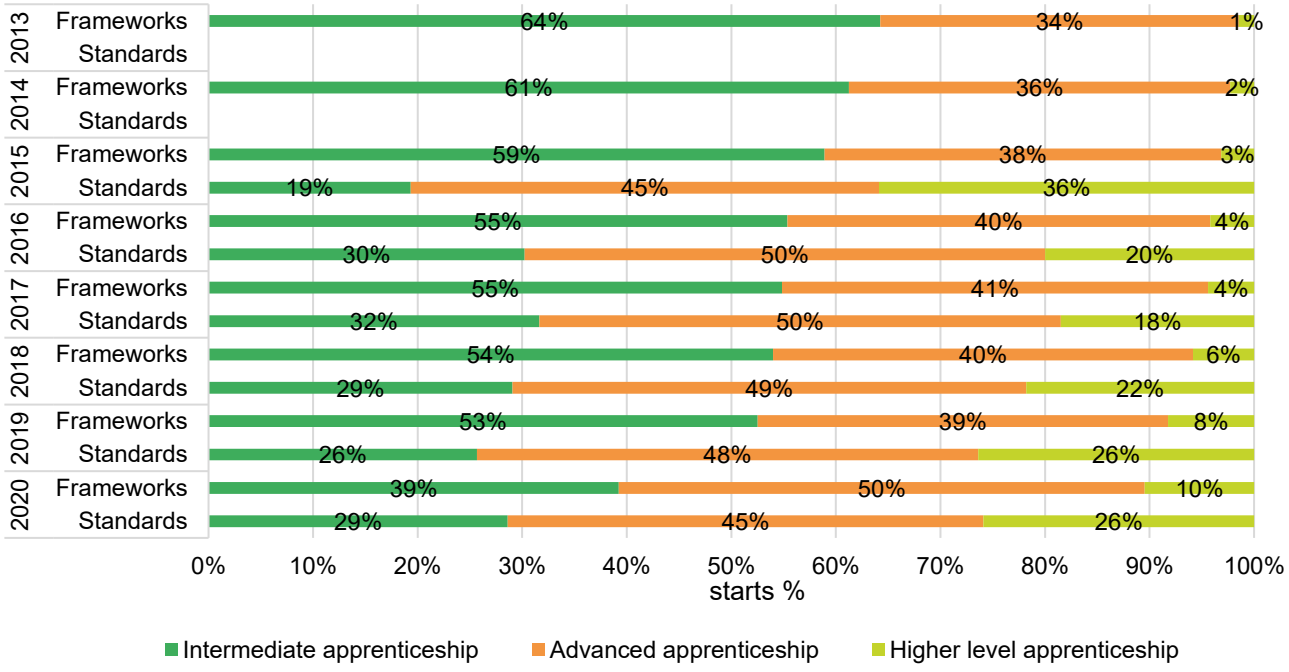
In the next section, we move onto examining how the composition of learners, employers and providers in the apprenticeship system has changed, and the extent to which the 'gap' in withdrawal rates between frameworks and standards is attributable to these compositional changes.

3.2 To what extent can differences in withdrawal rates between frameworks and standards compare after accounting for compositional changes between standards and frameworks?

Changes in the composition of apprenticeship levels and sectors

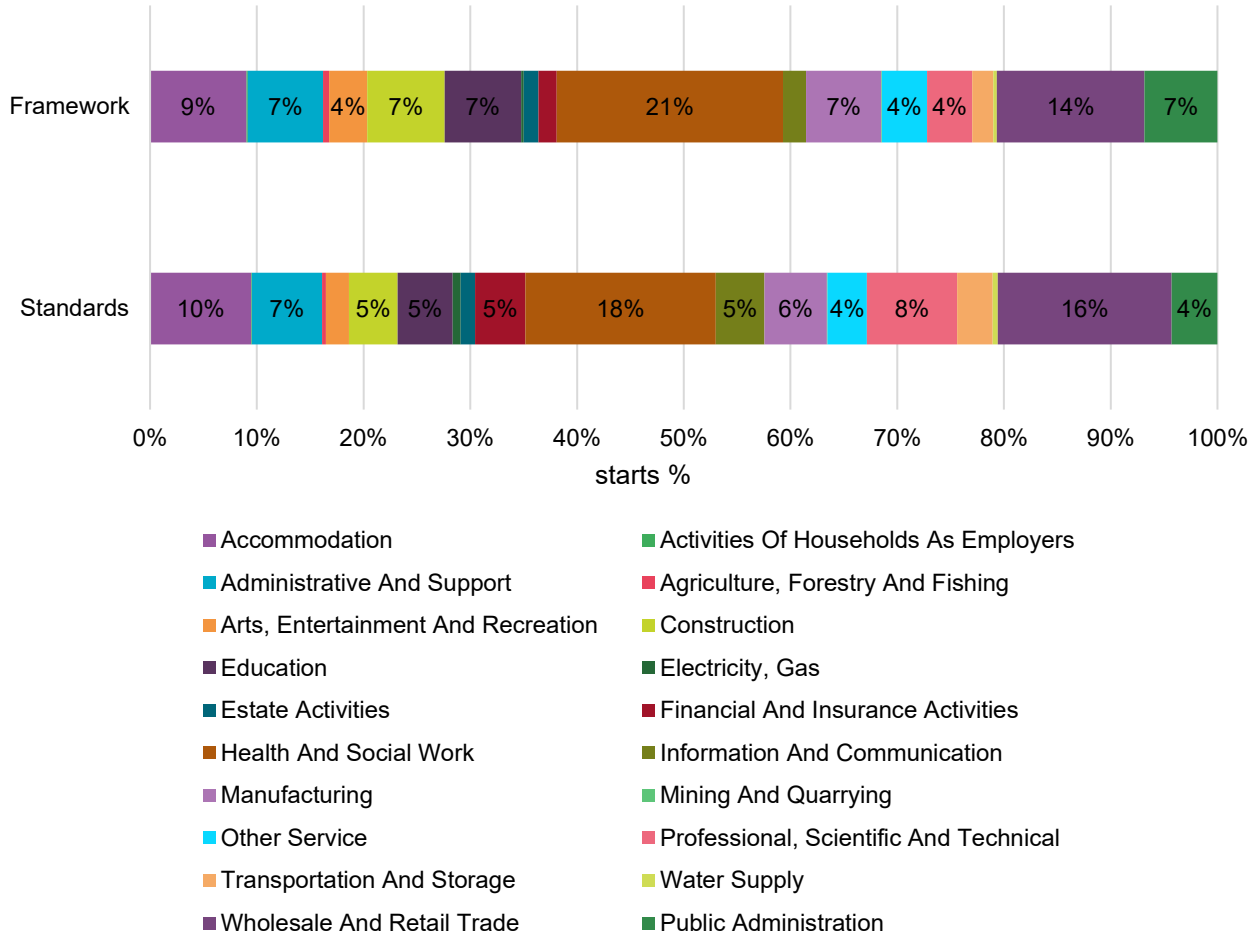
Starts on apprenticeship standards have been much more likely, compared to starts on frameworks, to be at higher level, and much less likely to be at intermediate level. This is true of apprentices that started in all years between 2013/14 and 2020/21, as shown in Figure 16.

Figure 16 Distribution of apprenticeship starts by level, broken down by year, for frameworks and standards (starts 2013/14 to 20/21)



The composition of subject sectors in which learners started apprenticeships was similar for standards and frameworks, for the period 2013/14 to 2020/21. No sector saw its share of total apprenticeship starts increase or decrease by more than four percentage points when comparing starts on standards to starts on frameworks. In absolute terms, all sectors saw a decline in apprentice numbers (even sectors whose share of total apprenticeships increased).

Figure 17 Distribution of apprenticeship starts by industry sector for standards and frameworks (starts 2013/14-20/21)



Changes in the composition of learners

The composition of learners starting standards and frameworks has differed. Apprentices on standards are more likely to be 25 and over, from an ethnic minority, from a less deprived neighbourhood, to have higher prior qualifications (Level 3 or above), to have higher attainment at GCSE and to have never been FSM eligible. Most of these differences are slight, however some shifts, particularly in the age profile of learners and the proportion of apprentices with at least a Level 3 prior qualification, are more substantial.

Figure 18 shows that the proportion of learners aged 23 and over starting an apprenticeship between 2013/14 and 2020/21 in our data was about 14 percentage points higher for standards than for frameworks, whilst the proportion of starts by young people under 19 was more than 10 percentage points lower for standards than for frameworks. This reflects the effects of changes in employer behaviour that are well established in the existing literature (for example, see Cavaglia, Chiara, Ventura and McNally, 2022).

Figure 18 Distribution of apprenticeship starts across age group for standards and frameworks (starts 2013/14-20/21)

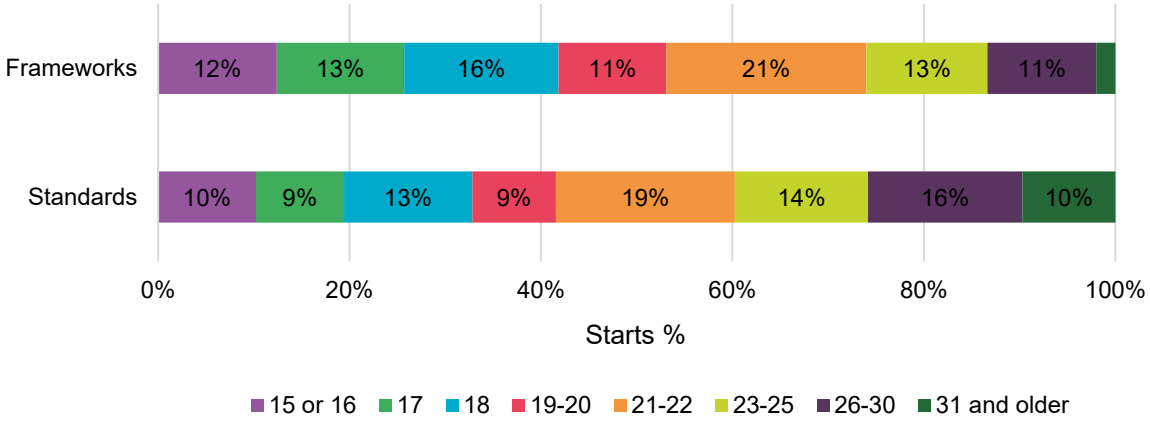


Figure 19 shows that learners who were, at some point, eligible for FSM were less likely to start apprenticeship standards than frameworks, whilst **Error! Reference source not found.** shows that learners from less deprived areas make up a higher proportion of learners on standards, raising concerns about how the switch to apprenticeship standards has impacted social mobility. The shift towards more apprentices being from relatively advantaged areas is, however, likely to have positively impacted on completion rates, given learners from less deprived backgrounds are less likely to withdraw, which suggests the withdrawal rate gap between standards and frameworks would have been greater if the socioeconomic composition of learners had not changed.

Figure 19 Distribution of apprenticeship standards and frameworks starts across FSM status (2013-2020)

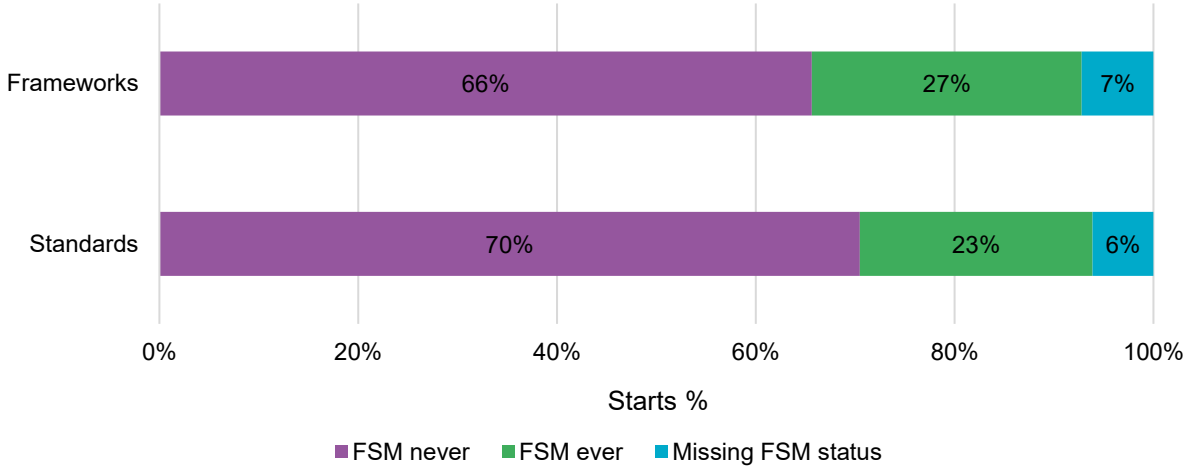
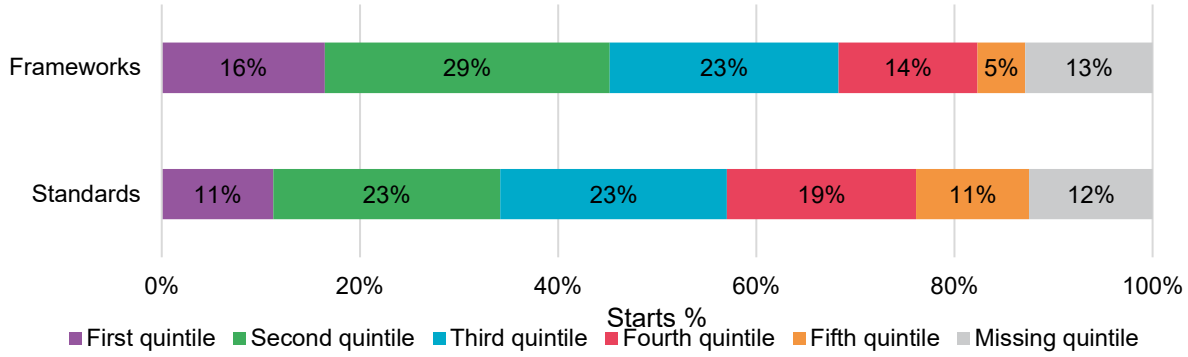


Figure 20 shows that the GCSE attainment of apprenticeship starters also differed between standards and frameworks, with those in the bottom two quintiles making up a much smaller proportion of starts on standards than frameworks. Again, this raises concerns about how the shift from frameworks to standards has affected prospects for social mobility. This shift towards more starts by learners with higher prior attainment and qualifications is, however,

likely to have benefitted completion rates, which suggests the withdrawal rate 'gap' between standards and frameworks would have been greater if the academic profile of learners had not changed.

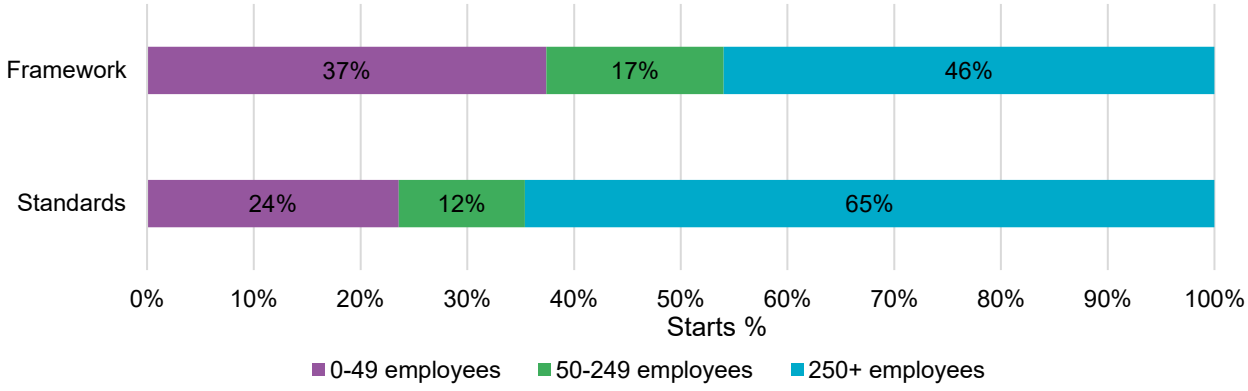
Figure 20 Distribution of apprenticeship starts by GCSE attainment quintile for standards and frameworks (starts 2013/14-2020/21)



Composition of employers in the apprenticeship system between standards and frameworks

Starts on standards were less likely than starts on frameworks, between 2013/14 and 2020/21, to be in SMEs, as shown in Figure 21. Larger employers (employing over 250 employees) made up around two-thirds of employers of apprentices on standards, whereas they comprised less than a half of the employers of apprentices on frameworks. Organisations with more than 20 apprentices also made up a larger proportion of employers in the standards world, as did employers who had more experience with the apprenticeship system. Given results presented in the main report showed greater employer size, scale and experience are associated with lower withdrawal rates, it is likely the withdrawal rate 'gap' between standards and frameworks would have been greater if the composition of employers had not changed.

Figure 21 Distribution of apprenticeship starts by employer size for standards and frameworks (starts 2013/14-2020/21)



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DfE (2025) *Apprenticeships: academic year 2024/25*, *GOV.UK*. Available at: https://explore-education-statistics.service.gov.uk/find-statistics/apprenticeships/2024-25 (Accessed: 20 January 2025).

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