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The Recent Evolution of Apprenticeships: Participation and Pathways

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Executive Summary

Following a number of policy changes, there has been a significant decline in apprenticeship starts and change in their composition over the last few years. In this report, we describe how apprenticeships have evolved between August 2014 and July 2020 and what characterises apprentices themselves in terms of their demographic background. We use information available in administrative data (the Individualised Learner Record and the National Pupil Database). We interpret what this may imply for inequality and social mobility along various dimensions.

Overall number and composition of apprenticeship starts

Dramatic decline in apprenticeship starts between 2015 and 2020, with a change in composition from lower to higher levels.

Between 2015 and 2020, the number of apprenticeship starts has declined dramatically over time – especially between 2017 and 2018 (when the decline was almost 25 per cent) and in the first wave of the COVID-19 pandemic. Up to the pandemic, the decline is likely to have been strongly influenced by major changes in policy including the overhaul of how apprenticeships are funded (with the introduction of the Apprenticeship Levy from 2017), the replacement of Frameworks for Standards (where the latter are reputedly higher quality and more formally assessed), and new rules affecting the quality of training (including a minimum duration and a minimum threshold for off-the-job training).

- The composition of apprenticeships has also changed, with a dramatic fall in the share of Level 2 apprenticeships and a marked increase in the share of higher level (Levels 4-5) and degree apprenticeships (Level 6-7). By the end of the period, Level 3 apprenticeships were the most popular (44 per cent of all apprenticeships), followed by Level 2 apprenticeships (30 per cent). Higher apprenticeships and degree apprenticeships account for 16 and 10 per cent of all apprenticeships respectively. Higher levels of apprenticeship have a much longer duration than lower levels.
- It seems likely that although the number of apprenticeships has reduced, their average quality has increased. The net impact on productivity depends on whether the improvement in

quality offsets the fall in numbers. It also depends on the extent to which the newer (more expensive) apprenticeships are displacing pre-existing forms of training. This is a risk because the Apprenticeship Levy may incentivise large firms to use apprenticeships in lieu of other established training and career development schemes. The extent to which this has happened is difficult to evaluate, though a recent evaluation of the effect of introducing the Apprenticeship Levy does not find evidence for a decline in non-apprenticeship (publicly funded) training (Patrignani et al. 2021).

- There are six main sectors in which we see apprenticeships in England. There has been relative stability in the share of apprenticeships (between 2015 and 2020) in the top three which are Business, Administration and Law (30 per cent); Health, Public Services and Care (25 per cent); Engineering and Manufacturing Technologies (16 per cent). But there has been more substantive change in the remaining three, with the share accounted for by Construction, Planning and the Built Environment increasing from 4 to 7 per cent over this period and a similar increase for Information and Communication Technology (from 3 to 6 per cent of starts). This has been matched by a reduction in the share of apprenticeship starts accounted for by Retail and Commercial Enterprise (from 18 to 10 per cent).

Apprenticeship starts and socio-economic disadvantage

Individual from poor socio-economic backgrounds are under-represented at all levels of apprenticeships, increasingly so at high levels.

- Dividing the overall English population in five equal size groups (quintiles) based on the relative deprivation of their residential area (as measured by the ONS), we find that the distribution of apprenticeship starts in 2020 across these quintiles of local deprivation is roughly equal (i.e. apprenticeship starts are as likely in the most deprived as in the least deprived quintile). This is a change from the beginning of the period considered here (2015) when apprenticeship starts were more frequently observed among people from more deprived quintiles. This change seems to be driven by bigger relative falls in lower-level apprenticeships (Levels 2 and 3) and particularly affects older individuals (i.e. apprenticeship starts for those aged 25 or over), as well by the development of Higher and Degree apprenticeships.
- We can evaluate how apprenticeship starts vary by an individual's circumstances for those we can match to education records (i.e. aged 16-29; 60 per cent of total apprenticeship starts). We measure this using their eligibility to receive free school meals when in school (Year 10). Individuals from poor circumstances are under-represented at all levels of apprenticeship, but increasingly so at higher levels. While in January 2020 about 17 per cent of students were eligible to receive free school meals in the student population, among those who go on to start an apprenticeship this is much lower: 13 per cent at Level 2; 9 per cent at Level 3; 7 per cent at Level 4/5 and 5 per cent at Level 6 (or degree). This compares to 6.7 per cent of those entering university (Espinoza et al. 2020).
- It is not surprising that individuals from poorer backgrounds are relatively less well represented at higher levels of apprenticeship because these have higher pre-requisites and poverty is a strong correlate of educational achievement throughout schooling. But the fact that they are at least as under-represented in this vocational pathway as they are in the academic pathway (i.e. to university) suggests that apprenticeships are not a more accessible gateway for those from poorer backgrounds than academic opportunities available to them.
- Between 2015 and 2020, there has been a small decline of up to 2 percentage points in the representation of individuals from poorer backgrounds within each level of apprenticeship

(apart from Level 6 – where comparisons over time are less meaningful because this type of apprenticeship is too recent).

- The representation of poor and 'non-poor' individuals in apprenticeships is broadly similar across sectors, although with a relatively larger representation of the former in in apprenticeships classified as Health, Public Services and Care across all levels. Another notable difference is that those from poorer backgrounds are relatively less well represented in Engineering and Manufacturing, especially in apprenticeships at higher levels – and the gap is especially noticeable within degree apprenticeships. This is also true (though less markedly) in Construction. These sectors are associated with high earnings returns in apprenticeships relative to Health and Care (Cavaglia et al. 2017; 2020), and hence suggests that individuals from poor backgrounds face higher barriers to entry to the most lucrative apprenticeships.

Apprenticeship starts and other demographic characteristics

Individuals over 25 years of age account for 40 per cent of all apprentices and are more strongly represented among those starting higher or degree apprenticeships. Women and ethnic minorities are under-represented amongst young people who start an apprenticeship.

- Unlike in most other countries, apprenticeships in England are not predominantly used to facilitate the transition from school to work. Since a policy change in the early 2000s, they have become increasingly more prevalent among older individuals. The share of apprenticeship starts by age has been broadly stable between 2015 and 2020 with roughly 40 per cent among those aged 25 or more; 40 per cent among those aged 19-24 and 20 per cent among those aged 16-18. Individuals over 25 account for the vast majority of those undertaking higher apprenticeships (at levels 4 and 5) and over half of those undertaking degree apprenticeships. It may be of concern that 19-24 year olds have not benefited as much as those aged 25 or more from the expansion of apprenticeships at Level 4 and above since returns to apprenticeships are typically higher for younger age groups (McIntosh and Morris, 2018). Whereas older workers have less opportunity to access lower-level apprenticeships (at Level 2), they have benefited from the increasing availability of apprenticeships at higher levels. With different groups of older people benefiting from the opportunity to retrain at higher versus. lower levels this reallocation has important distributional consequences.
- At younger ages, apprenticeships are more common among men (around 60 per cent), with this being reversed for those aged over 25 (where women account for about 60 per cent of starts). Across levels, women represent between 45 and 49 per cent of apprentices, except at level 4-5 where they represent 57 per cent. The most striking gender difference is how men and women are represented across apprenticeship sectors – and this has not changed much over the time period considered here. The two dominant sectors for females are Business, Law and Administration and Health, Public Services and Care. For men, Engineering and Manufacturing accounts for a large proportion, though Business, Law and Administration is fairly close behind. Men are also well represented in the 'growing sectors' of ICT and construction, whereas both these sectors account for a very small share of female apprentices. Both men and women are represented in retail (to a more even extent) and will therefore have both been affected by the relative decline of this sector. Cavaglia et al. (2020) show that the sorting of men and women across sectors is a very important explanation for why the returns to apprenticeships are so much higher for men.
- Ethnic minorities are under-represented in apprenticeship starts overall. When broken down by age group, this under-representation is strong for 16-18 year olds (White British account for 90 per cent of starts) and for 19-24 year olds (White British account for 83 per cent of

starts), but not for those aged 25 and over, where the distribution by ethnic grouping is much closer to that of the working age population (White British account for 74 per cent of starts). The pattern is similar across all levels of apprenticeships.

Achievement, drop-out and progression

Across apprenticeship types, drop-out rates are relatively high

- We consider achievement and drop-out at a point in time (for those starting apprenticeships in 2017) – apart from degree apprenticeships, where it is still too early to comment on achievement rates. Achievement rates are usually between 63 and 71 per cent. This is lower for older workers, especially within Higher Apprenticeships (level 4-5) where this is 60 per cent. There is also a relatively high share of people dropping out within a year, between 11 and 26 per cent, depending on the age and level, with higher rates for older learners. Across all ages, the highest dropout rate is for Level 2 apprenticeships (26 per cent) and the lowest for Degree apprenticeships (15 per cent)
- Achievers and non-achievers are not that different in terms of demographics and prior attainment - apart from the fact that achievers are younger on average.
- The scale of non-achievement and early dropout is of concern and suggests that the perceived signalling value of having an apprenticeship may not be strong enough to keep more individuals there until the end. The reasons why non-achievement and/or early drop-out is so frequently observed merits further investigation.
- It is very common for individuals to have multiple apprenticeships. This is most notable for 19-24 year olds - around 45 per cent of them starting apprenticeships at Levels 3-5 have previously done one, usually at a lower level.

Background and research aims

The introduction of the Apprenticeship Levy in 2017 has been associated with major changes in the types of apprenticeships offered by firms. This has been accompanied by the phasing-in of apprenticeship standards with a related increase in the availability of apprenticeships at higher levels (Level 4 and above). The availability of apprenticeships has been severely affected by the pandemic. For the purposes of this study, we investigate how apprenticeships have evolved in recent years (from August 2014 to July 2020) and what characterises apprentices themselves in terms of their demographic background. We will evaluate whether there have been changes in their composition and participation across groups, drawing particular attention to changes among disadvantaged and underrepresented groups. We build on recent work by CVER and the Sutton Trust to interpret what these trends may mean for social mobility (e.g. Cavaglia, McNally, Ventura, 2017; 2020). We use the Individualised Learner Record (ILR) for this exercise, which is matched to the National Pupil Database (NPD) for younger individuals (i.e. anyone who did their GCSEs in 2002 or later).

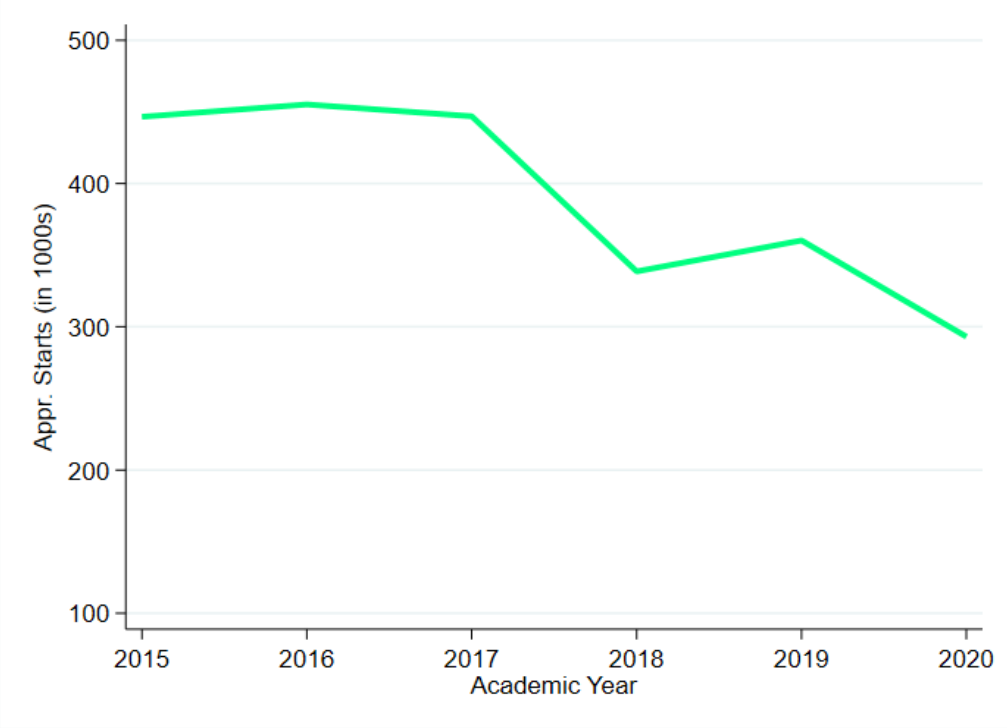
We start in Section 1 by describing general trends in apprenticeship starts over 2015 to 2020, documenting how numbers and the composition of apprentices have changed. In Section 2 we describe the characteristics of apprentices. In Section 3 we discuss pathways into apprenticeships and how this relates to prior attainment. In Section 4 we discuss outcomes and progression before concluding in Section 5.

1. Trends in Apprenticeship Starts

Figure 1 shows that the number of apprenticeships has declined over the short period being studied here. The total number of apprenticeship starts was close to 447,000 in 2015 and remained fairly stable before falling dramatically between 2017 and 2018, when the decline was almost 25 per cent.[1] This was, of course, the year the Apprenticeship Levy was introduced. But numbers did not recover subsequently, and in particular saw another steep fall during the period of the first wave of COVID-19 (up to July 2020).

[1] Years refer to the end of the academic year. For example, 2015 refers to the 2014/15 academic year.

Figure 1: Trend in Apprenticeship starts

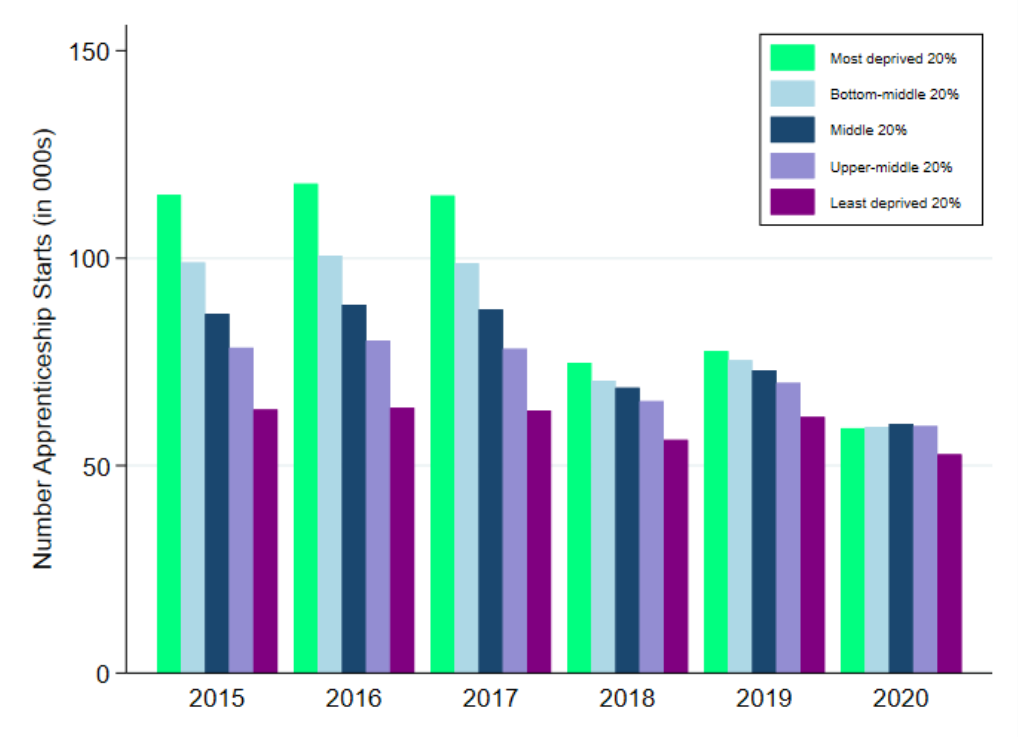


Notes: Number of apprenticeship starts (in 1000s) by academic year (August-July) between 2015 and 2020. Source: ILR

Figure 2 shows that the fall in the number of starts has been much greater in areas with high levels of deprivation compared to low levels of deprivation, with the main change happening between 2017 and 2018. Apprenticeship starts used to be more common in more deprived areas than in less deprived areas.[2] In the latter part of the period, they are more evenly spread across areas. Figure A.1 in the appendix shows the composition of apprenticeship starts by areas of deprivation. This tells a similar story. It indeed shows that the share of apprenticeships from the most deprived area decreased from 26 to 20 per cent over the period, which was almost completely matched by an increase in the least deprived areas from 14 to 18 per cent. The Appendix also shows the composition of apprenticeship starts across regions (Figure A.2), which has been relatively more stable over time. This suggests that the decline in opportunities for people living in deprived areas is not primarily driven by economic differences across regions.

[2] This is also shown and discussed by Sarah O'Connor in an article in the Financial Times on 12 April 2022. https://www.ft.com/content/a90913f1-9f05-46a3-a3b3-e7dd4752ed38

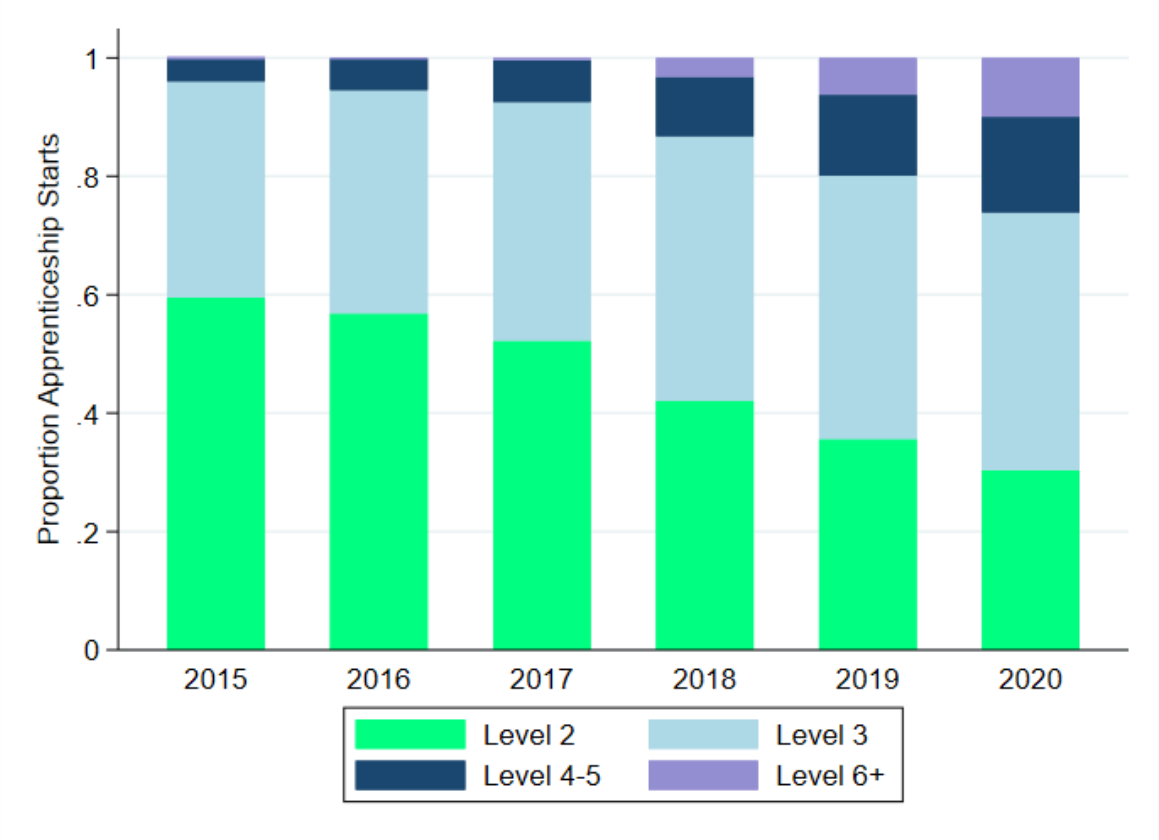
Figure 2: Apprenticeship starts by deprivation quintile



Notes: The figure shows change in the number of apprenticeship starts by the quintile of apprentices' postcode deprivation in academic years 2015 to 2020. Deprivation is defined according to the ONS 2015 Index of Multiple Deprivation at the Lower Super Output Area level.
Source: ILR

Alongside the change in the overall number of apprenticeships, the composition of apprenticeships has also changed, with a dramatic fall in share of Level 2 apprenticeships and a marked increase in the share of higher level (Levels 4 and 5) and Degree Apprenticeships (Figure 3). At the start of the period in 2015, there were very few Degree Apprenticeships (only 97), and very few Higher Apprenticeships. This changed substantially from 2018 onwards and by the end of the period, Degree Apprenticeships and Higher Apprenticeships accounted for 16 per cent and 10 per cent of all apprenticeship starts. Over the period, the share of Level 3 apprenticeships has increased and is now the most prevalent type of apprenticeship. In 2015, they accounted for 37 per cent of apprenticeships. By 2020, they accounted for 44 per cent. Even though the share of Level 2 apprenticeships has declined, by the end of the period (in 2020), they still accounted for 30 per cent of starts.

Figure 3: Level compositional change by academic year



Notes: Proportion of apprenticeships started at each level by academic year (August-July) between 2015 and 2020. Source: ILR

The change over time in the level and composition of apprenticeships coincides with a number of important changes to apprenticeship policy, which have been well-documented (see, for example, Battiston et al. 2020 and Patrignani et al. 2021). These include the following:

- The introduction of the Apprenticeship Levy (from April 2017; announced in July 2015). This is a levy of 0.5 per cent of the wage bill of businesses in excess of £3 million per annum. The funds are paid into a digital account that employers can use to fund new apprenticeships at different levels.
- Apprenticeship Standards have been gradually introduced since 2014/15 (with the aim of replacing Frameworks over time).[3] They differ from Frameworks in being more occupationally focused, directly developed by employers (instead of sector bodies) and having an external end-point assessment.
- At the same time, a statutory 20 per cent minimum threshold for off-the-job training was introduced, meaning that apprentices are required to spend at least 20 per cent of their working hours on off-the-job training (not including English and maths up to Level 2).

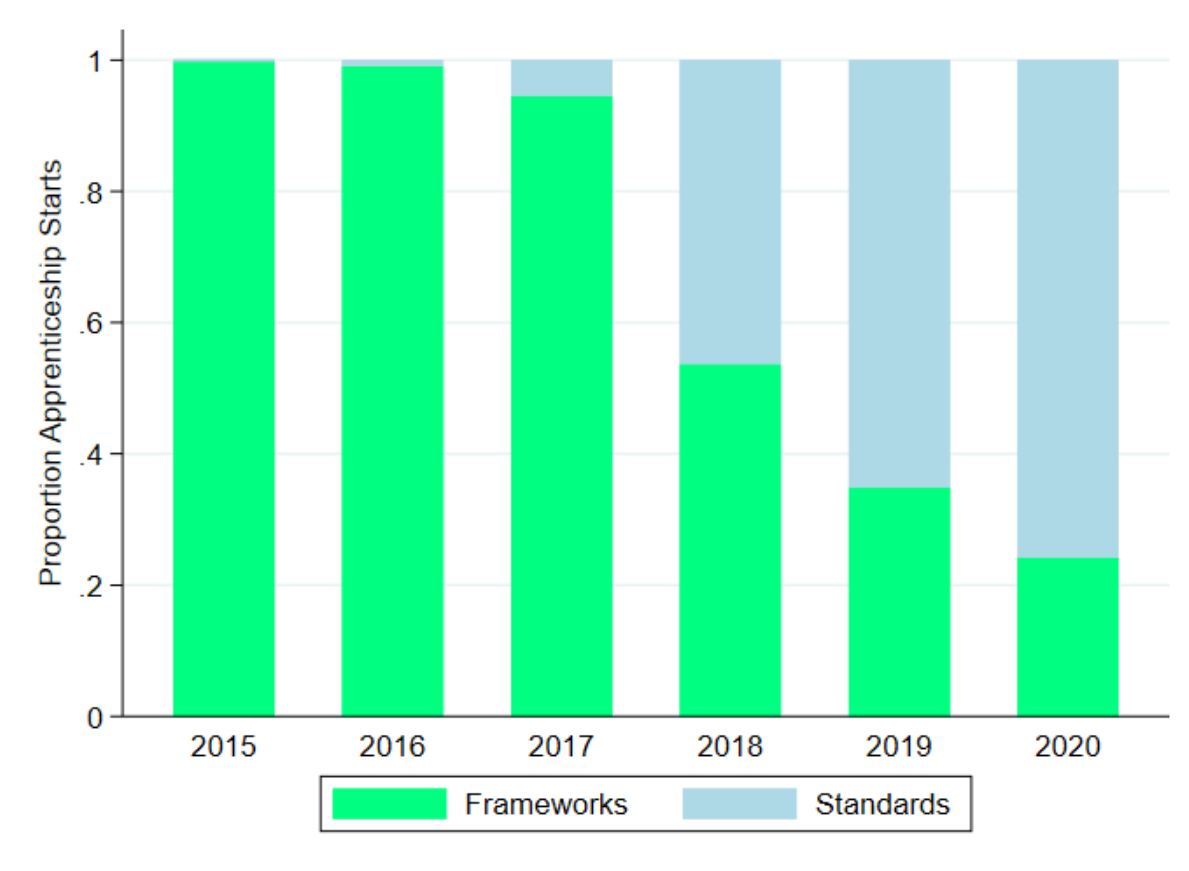
[3] Figure A.3 in the Appendix documents the gradual roll-out of standards at different levels between 2015 and 2020.

- A previous change (though not within the time period studied here) is that apprenticeship training has a minimum duration of 12 months (from August 2012).

It is difficult to say what components of policy change have driven employers' behaviour. Patrignani et al. (2021) show that after the introduction of the Apprenticeship Levy, there was a relative increase in training intensity for employers paying the Levy as compared to non-Levy payers. A report from the Learning and Work Institute (Murphy and Jones 2021) indicates that employers paying the Apprenticeship Levy were more likely than non-Levy payers to take on apprentices at Level 4 and above, and that they favoured these to meet their needs, such as upgrading skills or facilitating staff progression. But employers not paying the Levy (for which the government paid 90 per cent of training costs up to 2019 and 95 per cent thereafter) may have encountered difficulties in providing the desired level of apprenticeship starts due to a shortage of funds (Evans and Dromey, 2019). In fact, the decline in apprenticeship starts over the period was partly driven by a decrease in Intermediate and Advanced apprenticeships offered by small and medium size firms (Julius et al 2021).

Around the same time, there was a marked shift from Frameworks to Standards. In 2015, all apprenticeship starts were Frameworks. This changed dramatically from 2018 onwards and in 2020, when 76 per cent of all apprenticeship starts were Standards (Figure 4). The increasing availability of standards for higher level apprenticeships may also have contributed to the shift away from Intermediate and Advanced apprenticeships (Murphy and Jones 2021).

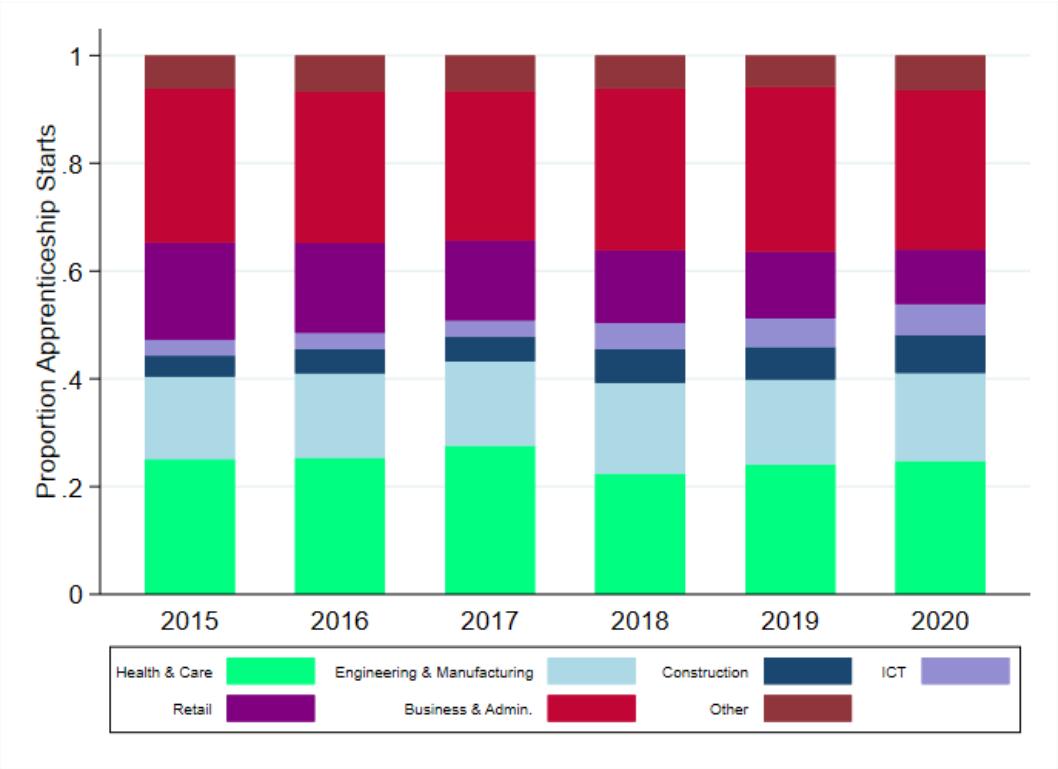
Figure 4: Change in the composition of apprenticeship starts



Notes: The figure shows the change in the proportion of apprenticeship starts delivered as Frameworks or Standards between 2015 and 2020. Source: ILR

There are six main sectors in which we see apprenticeships in England (Figure 5). In order of size (in 2020), these are: Business, Administration and Law (30%); Health, Public Services and Care (25%); Engineering and Manufacturing Technologies (16%); Retail and Commercial Enterprise (10%); Construction, Planning and the Built Environment (7%); Information and Communication Technology (6%). The remaining 'other' category accounts for 6%. There has been relative stability in the composition over the time period considered here (certainly relative to the trends discussed above), with little change in the share accounted for by the largest three categories. There has been more significant change in the remaining three, with the share accounted for by Construction, Planning and the Built Environment increasing from 4 to 7 per cent over this period and a similar increase for Information and Communication Technology (from 3 to 6 per cent). This has been matched by a reduction in the share accounted for by Retail and Commercial Enterprise (from 18 to 10 per cent). Thus, while the number of apprenticeship starts has declined overall, there has been a different experience in some sectors. Up to the year of COVID-19, there had even been a year-on-year increase in the absolute number of apprenticeship starts for those classified under Construction, Planning and the Built Environment and Information Communication Technology (not shown here).

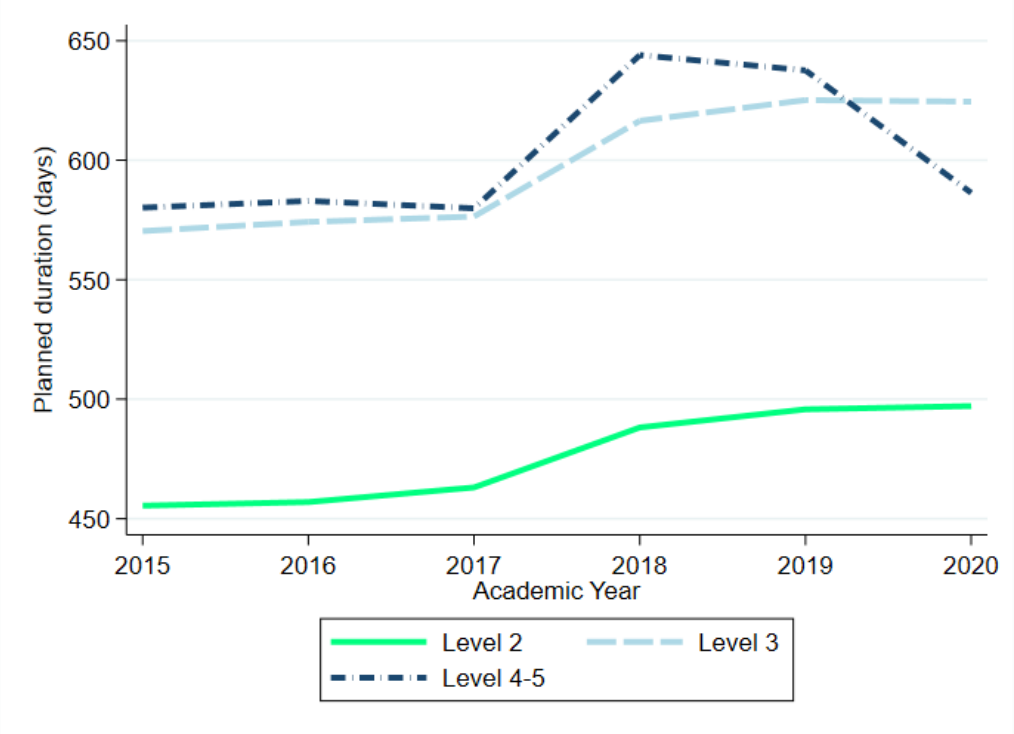
Figure 5: Sector Compositional change over time



Notes: The figure shows the change in the composition of apprenticeship starts for different sectors between 2015 and 2020. Source: ILR

Finally, there has been a change over time in the planned duration of apprenticeships. Figure 6 shows this by apprenticeship level except for Level 6 (or Degree) apprenticeships where we cannot investigate this over time given how few there were at the beginning of the period. The increase in planned duration for Level 2 and Level 3 apprenticeships was roughly 9 per cent over the whole period, with the biggest change happening between 2017 and 2018. By 2020, those starting Level 2 and 3 apprenticeships had a planned duration of 497 and 625 days respectively. There was an even larger change in the planned duration of those starting Higher Apprenticeships (Level 4 and 5), also dating from 2017-18. But this fell back considerably in 2020, finishing only a little higher than at the beginning of the period (586 days). Degree Apprenticeships (not shown here) have a much longer planned duration of over 1000 days. While different sectors typically have different planned durations, the relative stability of sectoral composition over the period suggests this has not been the main driving force behind this increase. Instead, the phasing-in of standards (particularly between 2017 and 2018) is likely to have been an important contributory factor. To the extent that 'planned duration' may be an indicator of content (and thus quality), as previous research suggests (Nafilyan and Speckesser 2017), it would appear that there have been some improvements within all types of apprenticeship over the time period considered.

Figure 6: Trends in planned duration



Notes: The figure shows the trends in planned duration by level for apprenticeships started between 2015 and 2020. Source: ILR

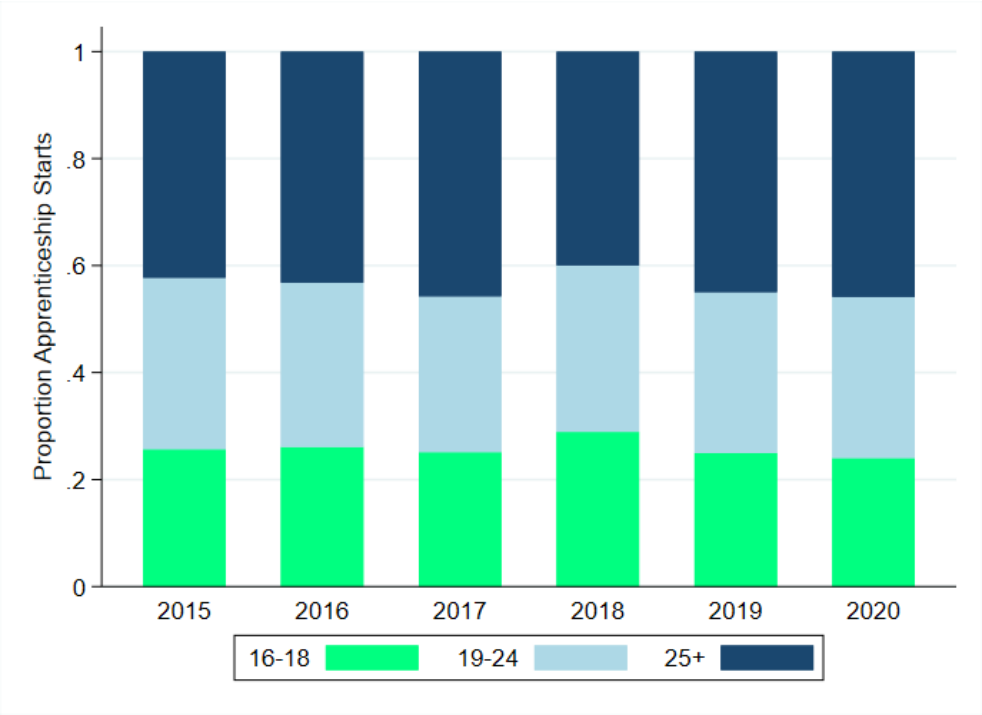
2. Who gets an Apprenticeship?

Against the backdrop of these general trends in apprenticeship starts, we consider the characteristics of those starting an apprenticeship of different levels and types and how this evolved between 2015 and 2020. We describe what characterises apprenticeship starts and trends under the following headings: age, gender, ethnicity and socio-economic status.

2.1. Apprenticeship starts by age

Section 1 shows that apprenticeship starts have declined substantially between 2015 and 2020. But the overall composition of apprenticeship starts in terms of age has been relatively stable. As shown in Figure 7, those aged 25 and over account for over 40 per cent of all apprenticeship starts, and those from 16-18 just above 20 per cent of all apprenticeship starts (with 19-24 year olds in the middle). Unlike many other countries, apprenticeships in the UK are largely taken by people who are already in the labour market, and not those at the school to work transition (McNally, 2018). This is unchanged over the time period considered here, though opportunities have declined for everyone.

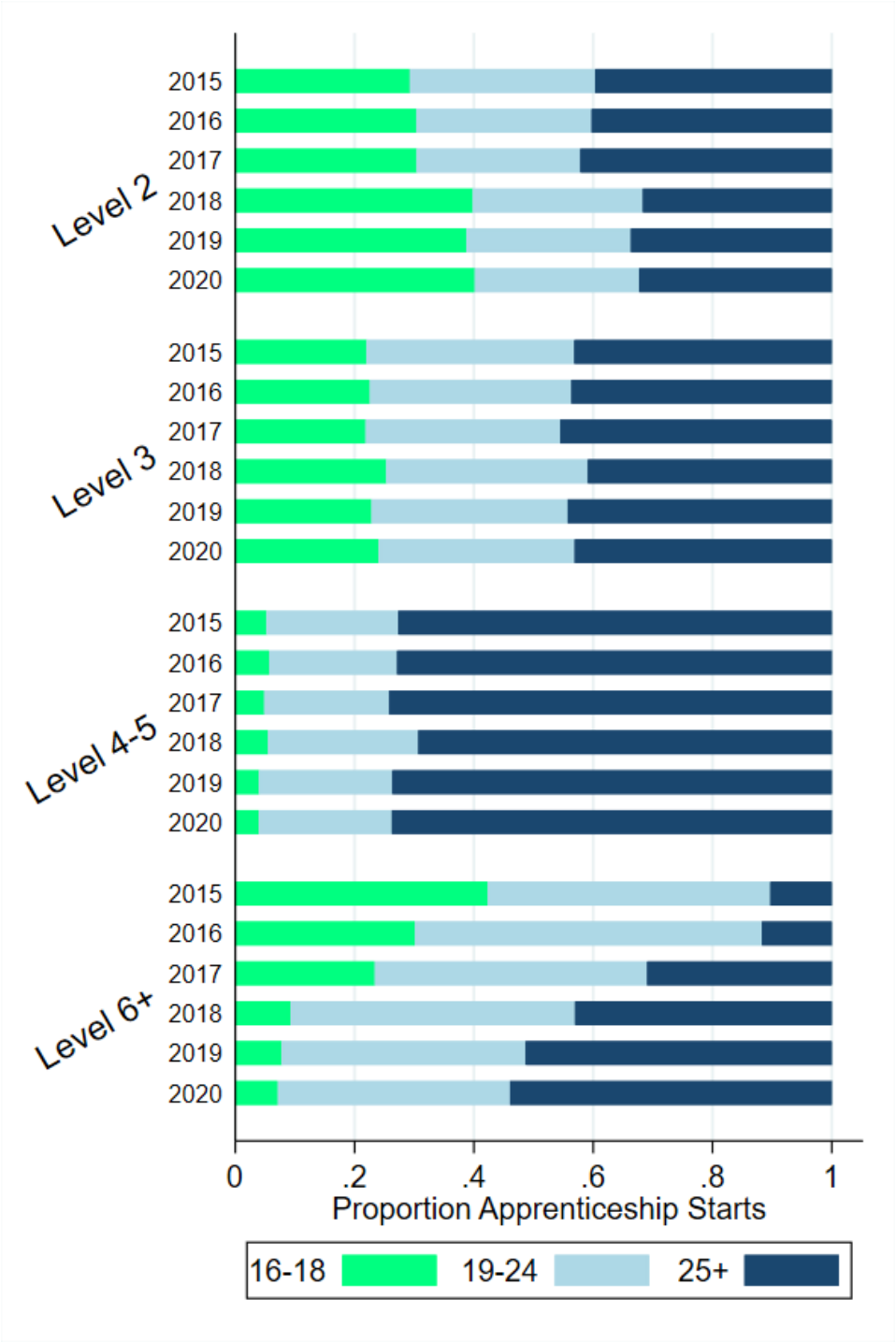
Figure 7: Composition of apprenticeship starts by age groups



Notes: The figure shows the proportion of apprenticeship starts by age group for apprenticeships started between 2015-2020. Source: ILR

When we further refine apprenticeships by level (in Figure 8), we see the age composition of apprenticeship starts varies markedly according to the level of the apprenticeship but has not changed that much over time (particularly at Level 3-5). The youngest age group (16-18 year olds) are better represented among apprenticeships at Levels 2 and 3 but are unsurprisingly under-represented at higher levels: most people of that age are pursuing Level 3 qualifications or below and would lack the pre-requisites for an apprenticeship at a higher level. What may be surprising is that individuals over the age of 25 account for the vast majority of those undertaking Higher Apprenticeships and over half of those undertaking Degree Apprenticeships whereas those aged between 19 and 24 are particularly under-represented amongst those starting Higher Apprenticeships (at Level 4 and 5). Looking at the change over time, what emerges from this figure is that over 25 learners' participation in Level 2 apprenticeships has declined disproportionately relative to other groups. At the same time, they have particularly benefited from the expansion in Degree Apprenticeships (accounting for over 50 per cent of all the new Degree Apprenticeships starting between 2018 and 2020).

Figure 8: Age compositional change by Level

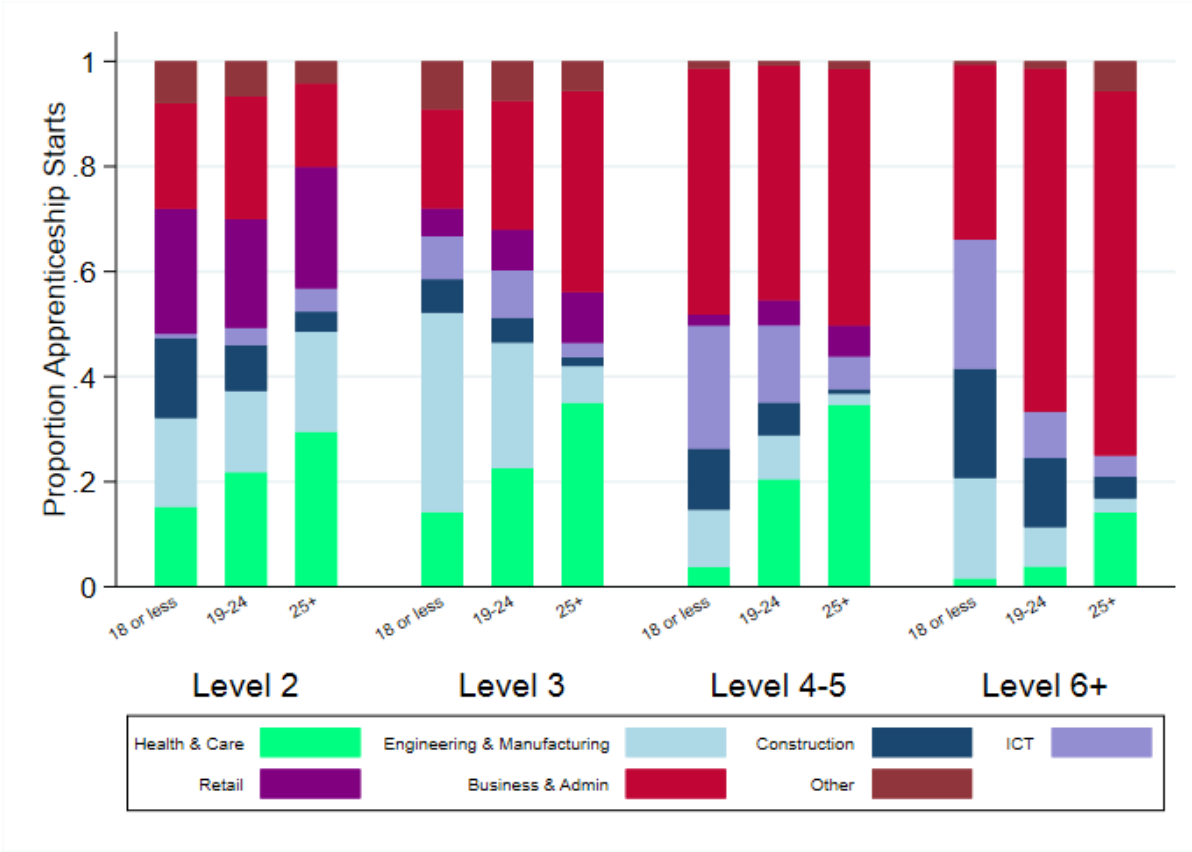


Notes: The figure shows the compositional change over time of apprenticeship starts by age and level. 2015-2020. Source: ILR

Figure 9 shows the sectoral composition of apprenticeship starts by age and level in 2019. Apprenticeships in some sectors are concentrated at certain levels. For example, apprenticeships in Retail are only common at Level 2 whereas apprenticeships in Engineering and Manufacturing and ICT are more important at Level 3. Strikingly, a very large share of Higher and Degree Apprenticeships are in Business and Administration. This is particularly pronounced among older apprentices, which, as

discussed above, represent the vast majority of apprenticeships above Level 3. This is consistent with research suggesting that apprenticeships at higher levels are used (in part) to train senior employees towards managerial roles (Murphy and Jones, 2021). To the extent that young (16-18) people enter apprenticeships at a high level, they are more likely to be recruited in sectors like ICT, Engineering or Construction than their older counterparts. More generally, Figure 9 suggests that across all levels older individuals are more likely to undertake their apprenticeships in either Business, Administration and Law or Health, Public Services and Care compared to younger individuals.

Figure 9: Sectoral composition of apprenticeship starts by level and age group

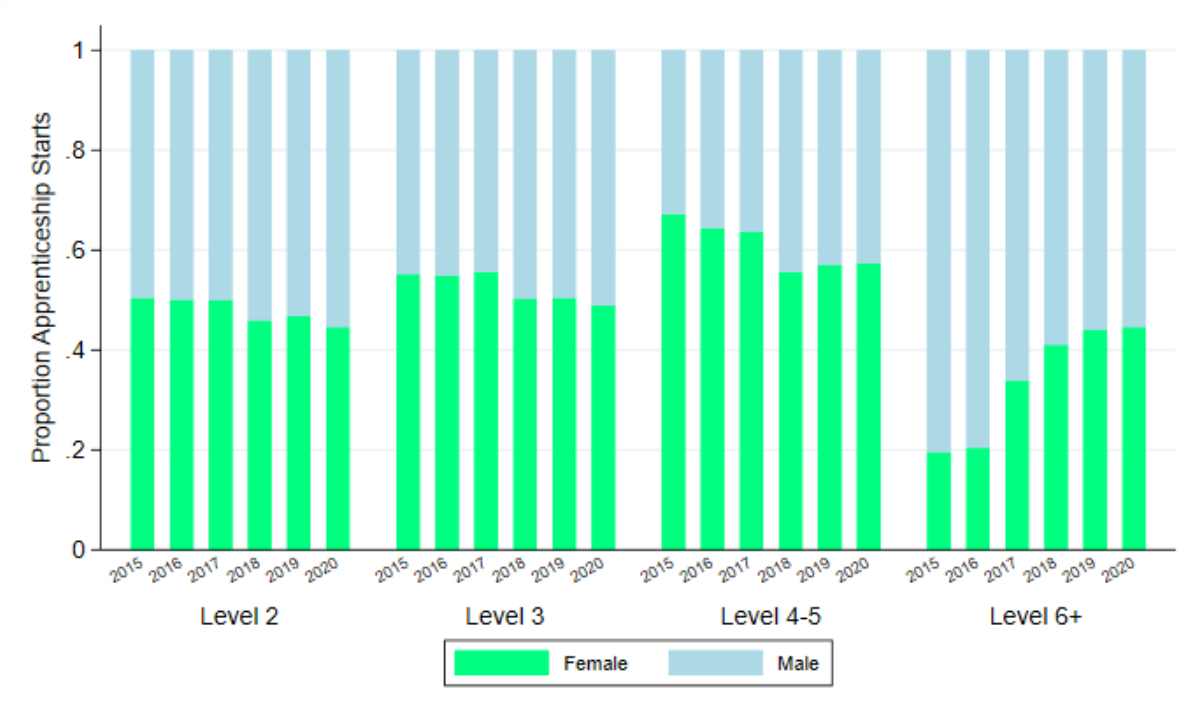


Notes: The figure shows the sectoral composition of apprenticeship starts by age and level in 2018/2019. Source: ILR

2.2. Apprenticeship starts by gender

The distribution of apprenticeship starts according to gender is not striking for the degree of inequality (Figure 10). In the most recent year considered (2020), females represent 45 per cent of apprenticeship starts at Level 2, 50 per cent at Level 3 and 45 per cent at degree level. Where there is a more marked difference is with Higher Apprenticeships (Level 4-5) where females make up 57 per cent of apprenticeship starts (which is a decline from 2015).

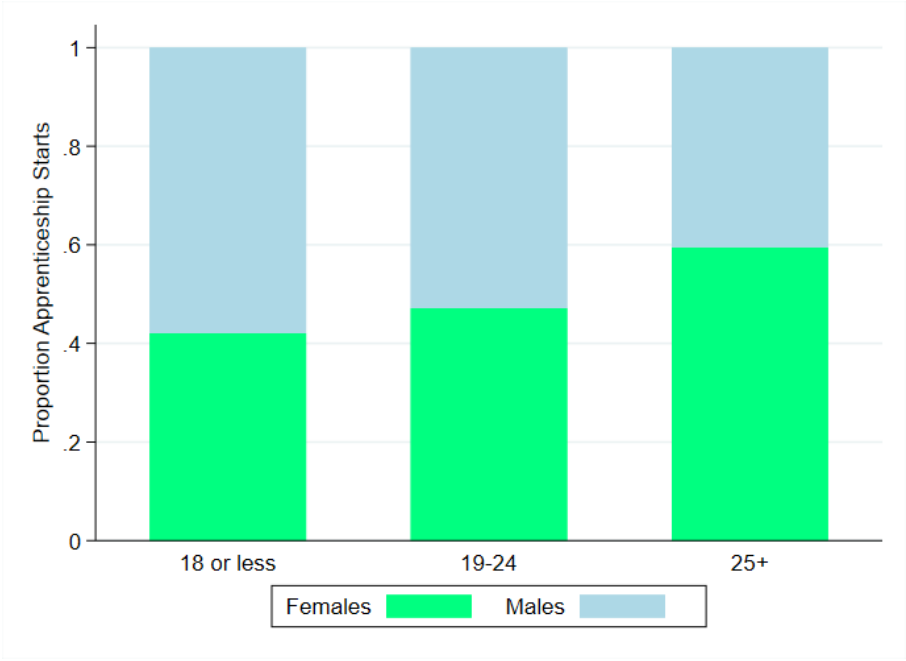
Figure 10: Compositional change of apprenticeship starts in terms of gender by level



Notes: The figure shows the gender composition, within each level of apprenticeship starts by academic year (for apprenticeship started between 2015 and 2020). Source: ILR

There is a more striking gender difference when it comes to the age distribution of apprentices. Males are more dominant among younger groups (around 60%), with this being reversed for those over the age of 25 (Figure 11).

Figure 11: Gender composition by age group



Notes: The figure shows the gender composition for apprenticeship starts by age group in 2018/19. Source: ILR

But most striking of all is how differently men and women are represented among sectors of apprenticeship (Figure 12) with the differences being particularly stable over the period considered.[4] The two dominant sectors for females are Business, Law and Administration and Health, Public Services and Care. For men, Engineering and Manufacturing accounts for a large proportion, though Business, Law and Administration is fairly close behind (even though it does not account for such a large share as it does for women). Men are also relatively well represented in the 'growing sectors' of ICT and construction, whereas both these sectors account for a very small share of female apprentices. Both men and women are represented in Retail (to a more even extent) and will therefore have both been affected by the relative decline of this sector over the period considered.

[4] The strong sorting of men and women into different sectors is discussed by Cavaglia et al. (2017, 2020). They show it gives rise to very unequal payoffs to apprenticeships with men benefiting far more than women.

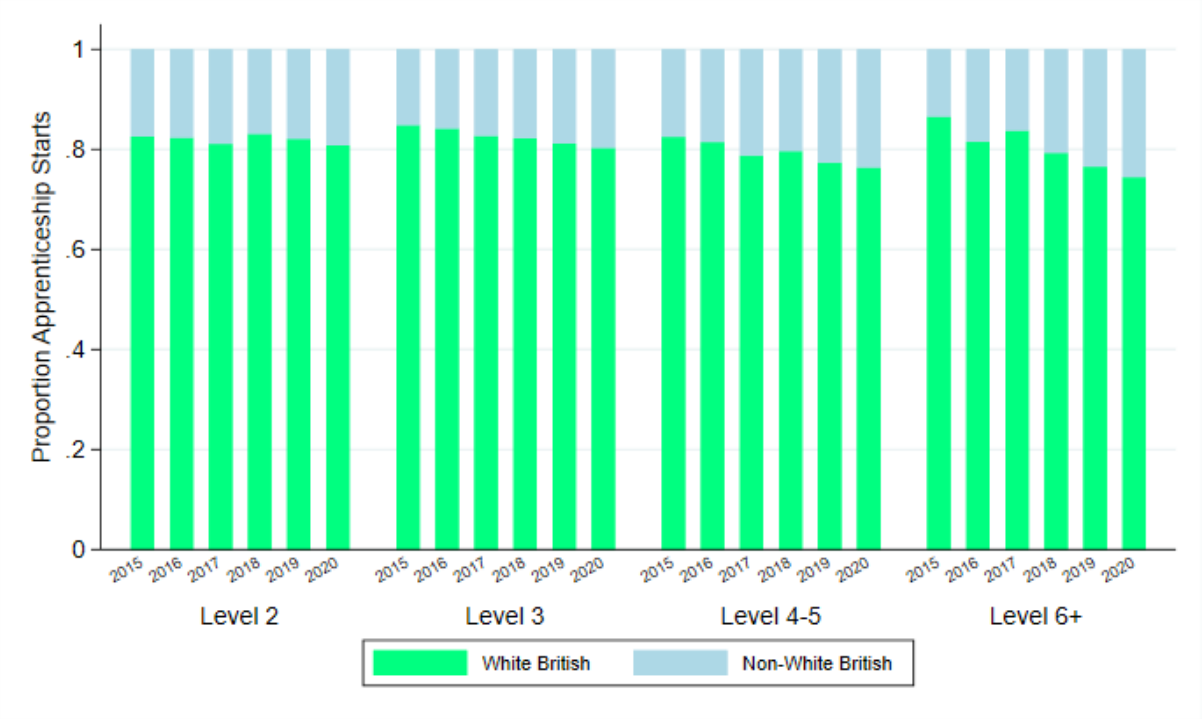
Figure 12: Sector compositional change by gender

Notes: The figure shows, separately by gender, the change in sector composition of apprenticeships started between 2015 and 2020 . Source: ILR

2.3 Apprenticeship starts by ethnicity

Overall, White British individuals account for 81 per cent of apprenticeship starts in 2020, with little change over time (Figure 13). This is higher than their share of the working-age population in England, which was 77 per cent in 2019. They account for a smaller share of higher and Degree Apprenticeships (76 per cent and 74 per cent for higher and Degree Apprenticeships respectively) where participation from individuals from ethnic minorities has steadily increased over recent years.

Figure 13: Ethnic composition of apprenticeship starts by level



Notes: The figure shows the ethnic composition of apprenticeship starts within each level, 2014/15 to 2019/20.
Source: ILR

Table 1 shows a breakdown of ethnic groups in the working age population (based on the Labour Force Survey in 2019) and among apprenticeship starts (based on the ILR in 2019). This shows that ethnic minorities are most under-represented for younger age groups and slightly over-represented among older age groups, whereas the opposite is true for White British. The latter account for 90 per cent of all 16-18 apprenticeship starts (compared to 75 per cent of all 16-18 year olds); 83 per cent for 19-24 apprenticeship starts (compared to 75 per cent of all 19-24 year olds) and 74 per cent of over 25 apprenticeship starts (compared to 77 per cent of those over 25).

For individuals of age 16-18, all ethnic minority groups are under-represented among apprentices apart from Black Caribbean where the share of apprentices is the same as among the working age population. This is also true for 19-24 year olds except that those from an Indian ethnic background have the same representation among apprentices as they do in the working age population. In the population aged 25 and over, the distribution of apprenticeships by ethnic group looks very similar to the working age population.

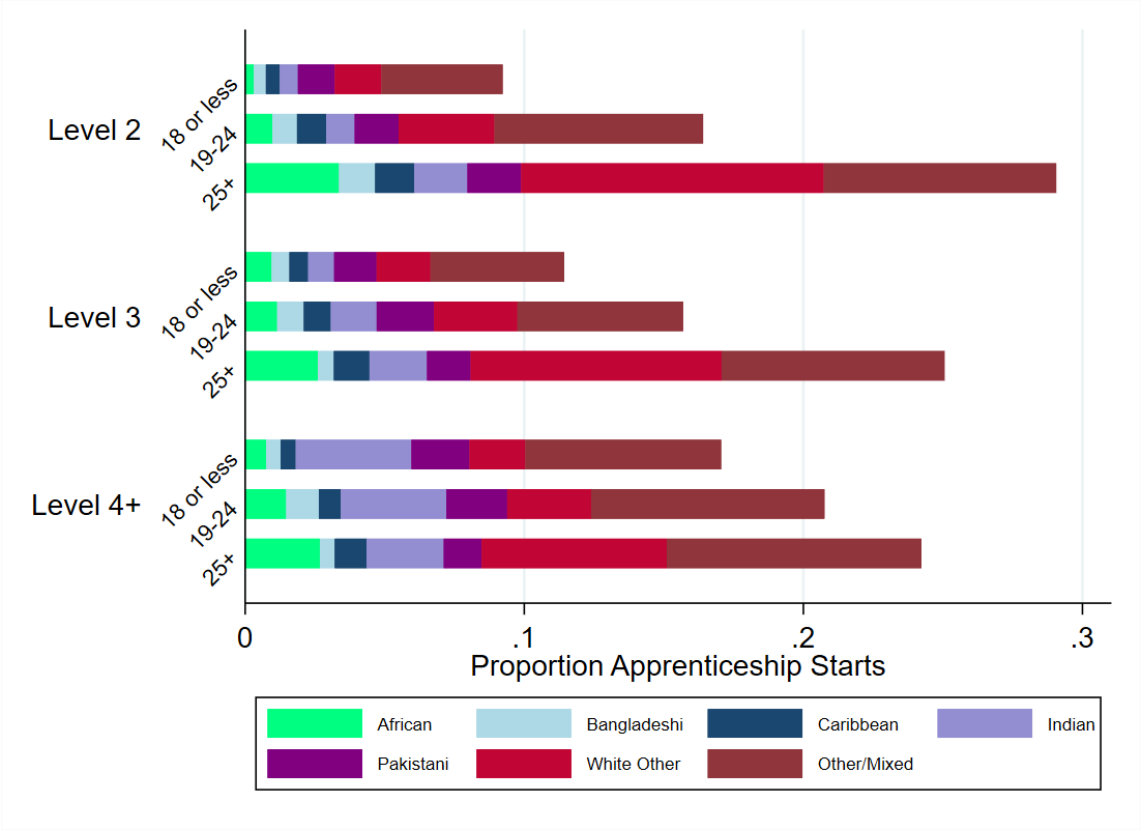
Table 1: Distribution of apprenticeship starts by ethnicity and age compared to the population

	Working age (16-64)		16-18		19-24		25-64	
Ethnic group	Apprenticeships	Population	Apprenticeships	Population	Apprenticeships	Population	Apprenticeships	Population
White British	0.81	0.77	0.90	0.75	0.83	0.75	0.74	0.77
Other White	0.05	0.08	0.02	0.04	0.03	0.06	0.09	0.08
Indian	0.02	0.03	0.01	0.03	0.02	0.02	0.02	0.03
Pakistani	0.02	0.02	0.01	0.03	0.02	0.03	0.02	0.02
Bangladeshi	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01
Black African	0.02	0.02	0.01	0.04	0.01	0.03	0.03	0.02
Black Caribbean	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other/Mixed	0.07	0.06	0.05	0.08	0.07	0.08	0.08	0.06
Total	360,294	36,680,972	90,015	1,884,788	108,260	4,257,099	162,019	30,539,084

Notes: This table compares the ethnic composition of the working-age population in England with that of apprentices. The comparison is also presented for three separate age groups. The analysis is based on apprenticeships started in the 2018/19 academic year. Source: Quarterly Labour Force Survey (2nd Quarter of 2019) and ILR.

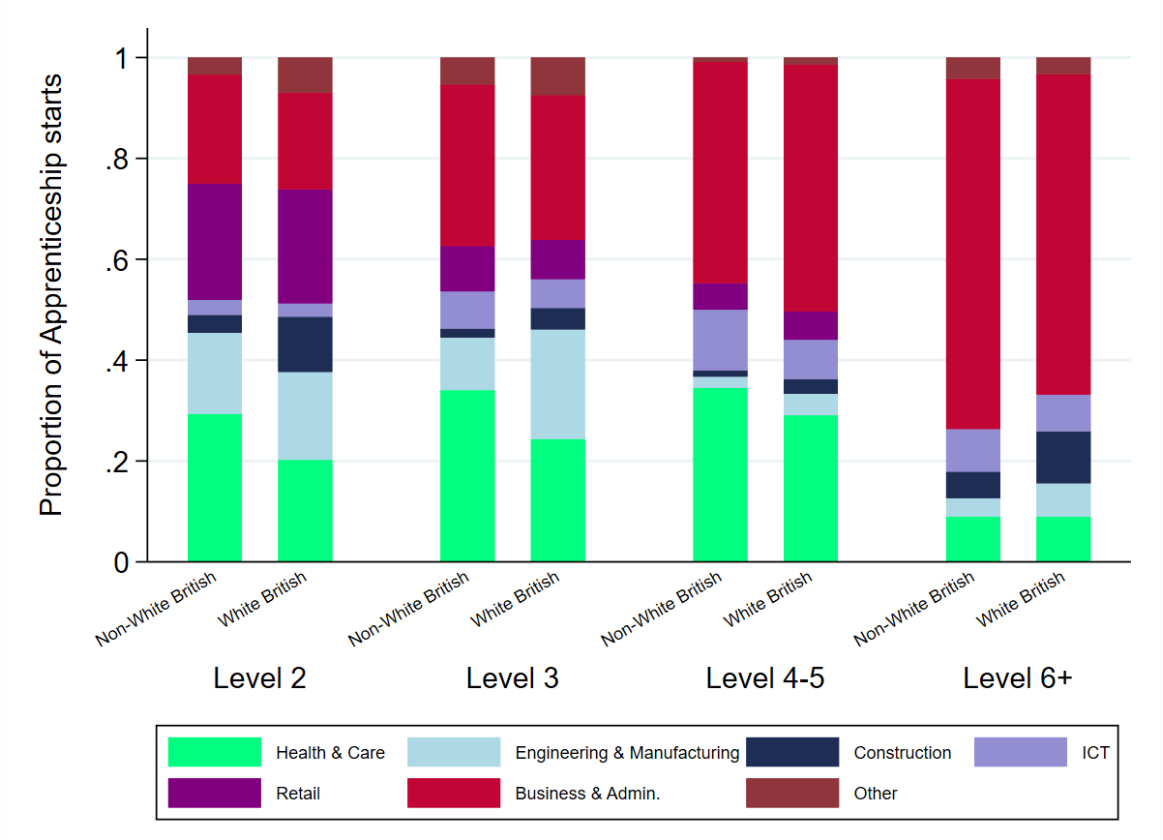
In Figure 14, we show the distribution of ethnic minorities by age and level together. Taken as a group, ethnic minorities are better represented among older workers within each level of apprenticeship. The extent of this is greater among lower level apprenticeships (Level 2) than Higher and Degree Apprenticeships but this mainly applies to 'White Other' rather than the other groups.

Figure 14: Ethnic composition by age group (within level)



Notes: The figure shows the ethnic composition of apprentices by level for apprenticeships started in academic year 2018/19. Notice that Level 6+ has been aggregated with Level 4-5 to avoid disclosure risks. Source: ILR

Figure 15: Sector composition by main ethnic group



Notes: This figure shows, separately by apprenticeship level, the proportion of apprenticeship starts in each sector for White British and non-White British apprentices. The analysis is based on apprenticeships started in the 2018/19 academic year. Source: ILR

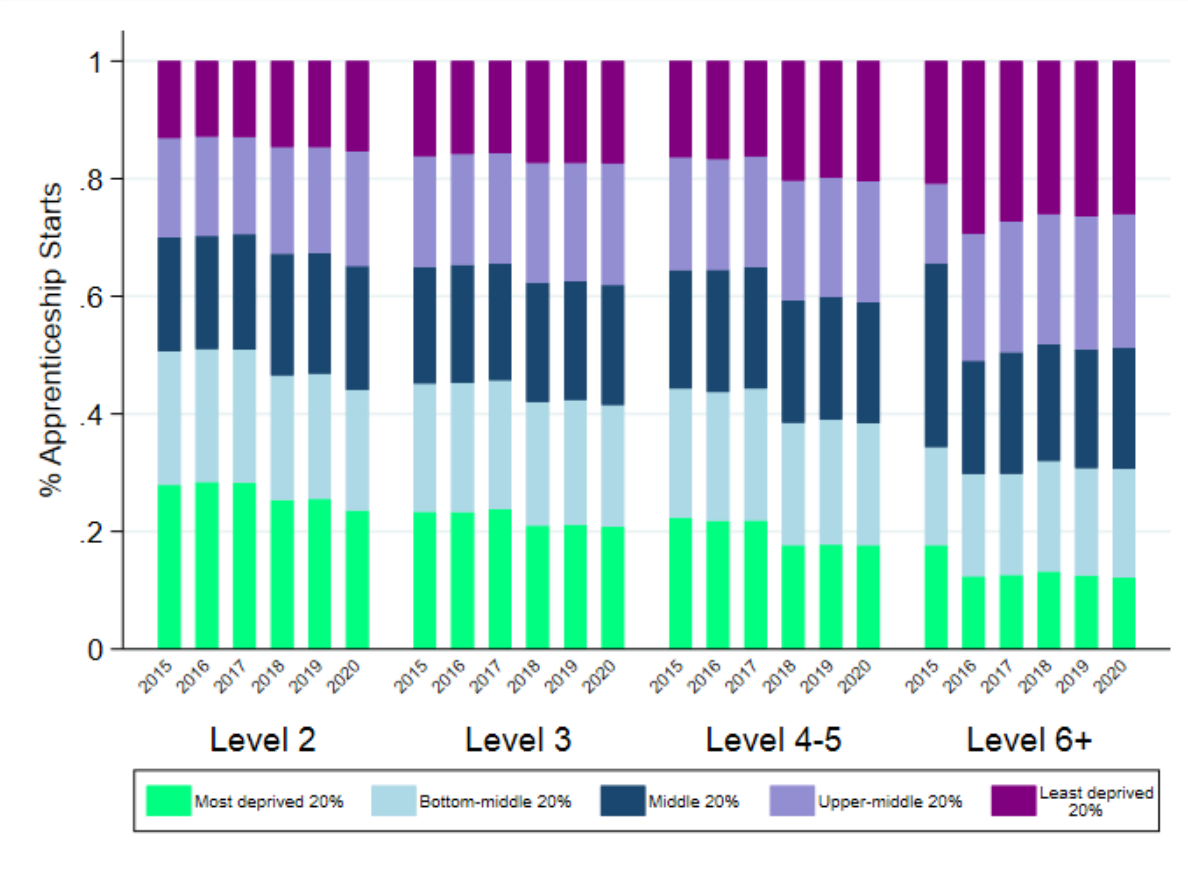
Finally, Figure 15 shows that ethnic minorities sort into sectors in different proportions compared to those classified as White British. Some differences are particularly noteworthy: Non-White British apprentices are much more likely to start an apprenticeship in Health and Care at all levels. They are also less likely to start apprenticeships in Engineering and Manufacturing, particularly at Level 3 and Higher, and in Construction. At Level 3 and, to a greater extent, at Level 4-5, ethnic minorities are more likely to start apprenticeships in the ICT sector.

2.4. Apprenticeship starts by socio-economic background

When it comes to apprentices' socio-economic background, we first consider patterns according to the relative deprivation of the areas in which apprentices live (as we can do this for the whole population of apprentices). We then consider individuals who can be linked to the National Pupil Database (NPD) where a measure of parental background is recorded in the form of students' eligibility for free school meals (FSM) in Year 10. This group includes apprentices aged between 16 and 28 and account for 60 per cent of all apprenticeships in the years we are considering. To give an idea of the overall scale of this measure consider that in January 2020 about 17 per cent of pupils were eligible for free school meals.

As discussed above in Figure 2, the number of apprenticeship starts has fallen disproportionately among apprentices from most disadvantaged areas (i.e. comparing across deprivation quintiles). In Figure 16, we show this has been the case across all levels of apprenticeship, especially at lower levels. Higher and Degree Apprenticeships have benefited those living in less deprived areas (e.g. their relative importance has increased in the least deprived quintile over time), in contrast to those living in poorer areas where their relative importance has decreased.[5]

Figure 16: Changes in the composition of apprenticeship starts by deprivation quintiles



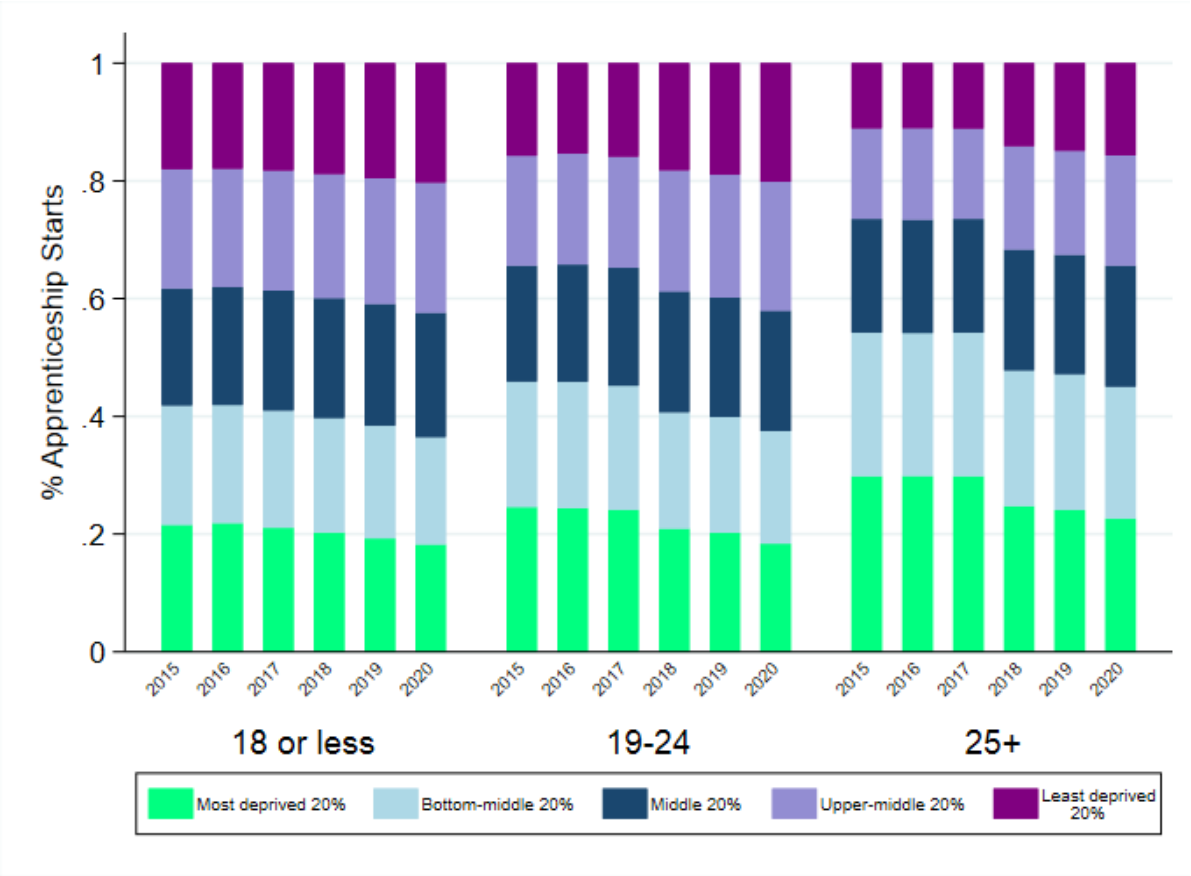
Notes: The figure shows, separately by level, changes in the composition of apprenticeship starts by the quintile of apprentices' postcodes' deprivation in each academic year (2014/15-2019/20). Deprivation is defined according to the ONS 2015 Index of Multiple Deprivation at the Lower Super Output Area level. Source: ILR

In terms of change across age groups, 19-24 year olds and adult learners have been affected by changes in the composition of apprenticeships across areas (as defined by deprivation quintile). Those age 16-18 have been less affected. The largest change is among adults (25+) living in the most deprived areas, where the decline in apprenticeship starts has coincided with the decline of Level 2 apprenticeships.[6]

[5] Notice, however, that trends over time for degree apprenticeships are more difficult to interpret because there were so few of them in earlier periods.

[6] Over 25 learners' participation in Level 2 apprenticeships has declined disproportionately over this period (see Figure 8).

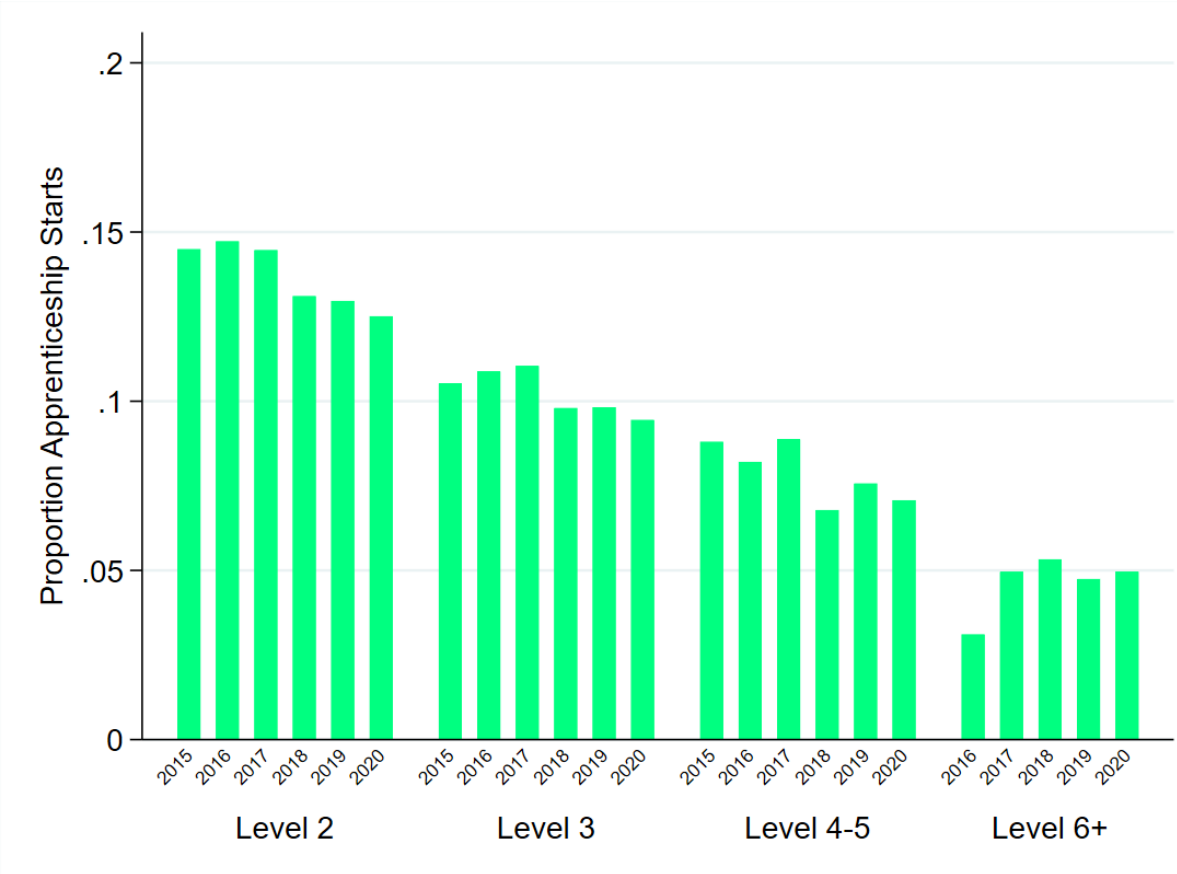
Figure 17: Changes in composition by deprivation quintile across age groups



Notes: The figure shows, separately by age group, changes in the composition of apprenticeship starts by the quintile of apprentices' postcodes' deprivation by academic year (2014/15-2019/20). Deprivation is defined according to the ONS 2015 Index of Multiple Deprivation at the Lower Super Output Area level. Source: ILR

Figure 18 shows the percentage of apprentices (aged 16-29) who were eligible to receive free school meals (in Year 10 when in school) by level of apprenticeship. This shows that individuals from poor backgrounds are under-represented at all levels of apprenticeship with a striking difference across levels. Their representation is not too far off the national average at Level 2, but it becomes increasingly marked at each successive level of apprenticeship with 13 per cent at Level 2; 9 per cent at Level 3; 7 per cent at Level 4/5 (Higher Apprenticeships) and 5 per cent at Level 6 (Degree Apprenticeships) in 2020. The representation of low-SES individuals within Degree Apprenticeships compares slightly unfavourably to their representation in higher education. For example, of all those who did their GCSEs in 2006 and obtained a university degree by age 26, about 6.7 per cent were eligible to receive free school meals (Table A1.4 in Espinoza et al 2020). The figure also shows that there has been a small decline in FSM-eligible individuals' participation into apprenticeships of 1-2 percentage points within each level (apart from Level 6) over the period.

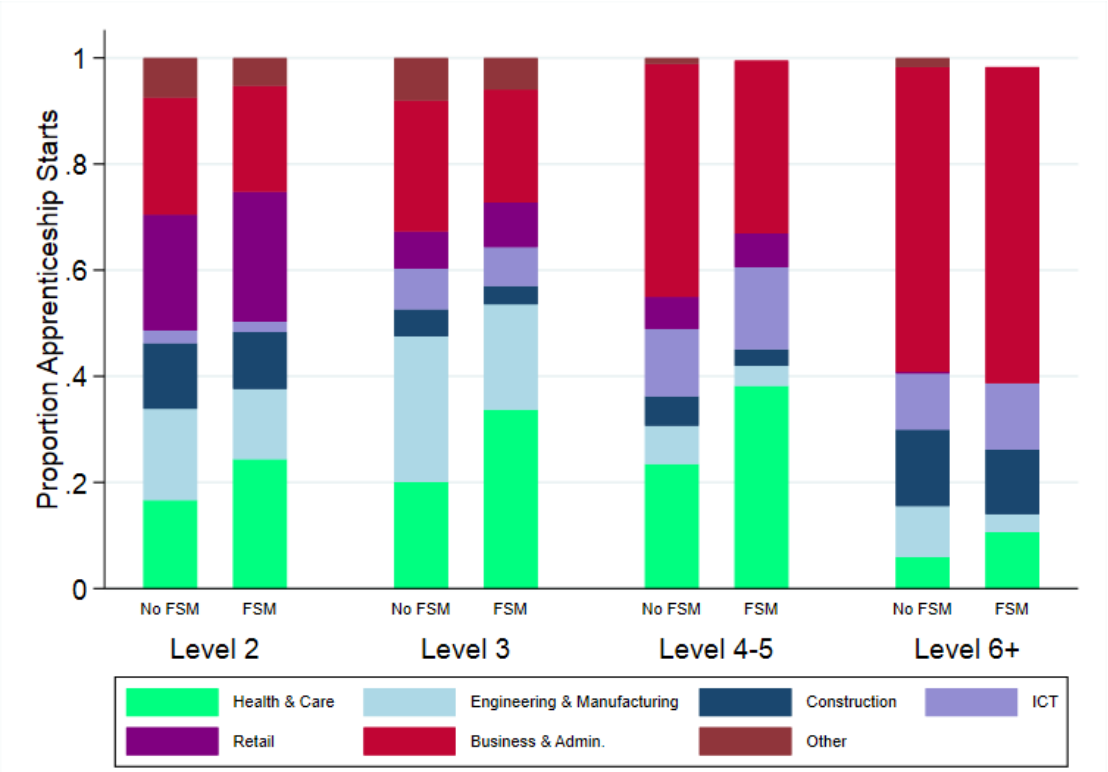
Figure 18: Changes in the proportion of FSM-eligible apprentices across levels



Notes: The figure shows, separately by apprenticeship level, the proportion of apprenticeships started by learners eligible for FSM (in their Year 10) over the 2015-2020 period. The sample only includes apprentices of up to 29 years of age as this is the group for whom information from the NPD can be consistently recorded in the period of interest. Source: ILR linked to NPD.

Figure 19 shows the representation of FSM and non-FSM individuals by sector within each level. In general terms, the pattern is similar across levels, with a relatively larger representation of FSM individuals in apprenticeships classified as Health, Public Services and Care across all levels. Another notable difference is that FSM individuals are relatively less well represented in Engineering and Manufacturing, especially in apprenticeships at higher levels – and the gap is especially noticeable within Degree Apprenticeships. They are also less likely to be in Construction apprenticeships. The two latter sectors are among those associated with the highest payoffs, whereas Health and Care is associated with some of the lowest payoffs (Cavaglia, McNally and Ventura 2017, 2020).

Figure 19: Sector composition by Level and young apprentices' socio-economic background (FSM eligibility)



Notes: The figure shows, within each apprenticeship level, the proportion of apprenticeships started in each sector in academic year 2018/19 by apprentices' socio-economic background as measured by their eligibility for Free School Meals (FSM) in Year 11. The sample only includes apprentices of up to 29 years of age, as this is the group for whom information from the NPD can be consistently recorded in the period of interest. Source: ILR linked to NPD.

3. Pathways into apprenticeships

Table 2 shows the highest qualification attained prior to starting an apprenticeship of a given level.[7] The table shows that the majority of apprentices have a qualification at the level below or the same level as the level at which they start an apprenticeship. A minority have a qualification at a higher level (which we can observe for Levels 2 and 3).

[7] Table A.1 shows the same statistics for the most common apprenticeship sectors.

Table 2: Apprentices' highest prior attainment

	Intermediate (Level 2)	Advanced (Level 3)	Higher (Level 4-5)	Degree (Level 6+)
Below Level 2	0.46	0.22	0.11	0.02
Level 2	0.36	0.44	0.20	0.06
Level 3	0.12	0.22	0.39	0.33
Level 4	0.01	0.02	0.07	0.09
Level 5+	0.02	0.08	0.20	0.49
Other qual.	0.02	0.02	0.02	0.02
Total	128375	160304	49243	22372

Notes: The table shows, for each apprenticeship level, the proportion of apprenticeships started by learners' highest level of qualification prior to starting the Apprenticeship in 2019 (reference year). Source: ILR.

If we consider the individuals who we can link to the National Pupil Database, we can investigate this in more depth, distinguishing between all the different types of qualifications individuals had acquired prior to starting the apprenticeship. So as to observe individuals' prior attainment, we include apprentices between the age of 16 and 21. It is important to note that this subpopulation of apprentices is neither representative of apprentices overall (many of whom start apprenticeships over the age of 21), nor representative of cohorts leaving school over the same period (most of whom do not undertake apprenticeships).

Table 3 shows all previous qualifications attained prior to starting apprenticeships at different levels.[8] For those starting Intermediate (or Level 2) apprenticeships, the vast majority have passed at least one GCSE at Level 2 but only 41 per cent obtained five GCSEs with grades A*-C (or 5-9). Intermediate apprentices are also better represented among the bottom 40 percent of the GCSE score distribution (within this subpopulation of apprentices) and are less likely to come from the top 20 percent.

Looking beyond GCSE performance, starting a Level 2 Apprenticeship after having first achieved a classroom-based post-16 vocational qualification is quite common (40 per cent have one). A minority had also previously obtained qualifications at Level 3 (mostly vocational).

Turning to those starting Advanced (or Level 3) apprenticeships, prior attainment in secondary school is higher with 64 per cent having obtained 5 GCSEs with good grades and 61 percent having obtained Level 2 in both English and math. They are also more likely to come from the top 40 percent of the GCSE score distribution within this subpopulation of apprentices.

About 40 per cent have prior vocational qualifications at Level 2 and 30 per cent an Intermediate (Level 2) Apprenticeship. A smaller number have qualifications at Level 3 (35 per cent vocational and 12 per cent academic). Young people starting a Higher Apprenticeships (Level 4 or 5) between age 16 and 21 are much more highly qualified. The vast majority have obtained at least five GCSEs at grade A*-C (5-9) including in English and math. Over half of them belong to the top 20 percent of the GCSE score

[8] Table A.2 shows the same statistics for the most common apprenticeship sectors.

distribution within the subpopulation of apprentices. It is extremely unlikely for someone scoring among the bottom 40 percent of the distribution to start a Higher Apprenticeship so early in their careers. Looking at their post-16 educational attainment, it is very common for young people on Higher Apprenticeships to have a Level 3 qualification and, interestingly, A-Levels are almost as popular a pathway as vocational qualifications (34 and 47 per cent have achieved at least one respectively). 27 per cent of such individuals had previously obtained a vocational level 2 qualification (and only 14 per cent have a Level 2 apprenticeship), suggesting a lack of progression among those who do not enter Level 3 courses right after GCSEs. Over one third of those starting a Higher Apprenticeship had previous achieved a Level 3 (or Advanced) apprenticeship.

Finally, with regard to Degree Apprenticeships, prior attainment in secondary school is even more heavily tilted towards the very top of the GCSE score distribution among young apprentices (they are exclusively concentrated among the upper 20 percent). Over half of individuals have A-levels, making it a more typical pathway than the vocational one (36 per cent have a vocational level 3 qualification). Some people started a Degree Apprenticeship after having previously obtained a Higher (9 per cent) or Advanced apprenticeship (19 per cent). Overall, while it is still early days for Degree Apprenticeships (and here we are focusing on those started by younger learners), they are emerging as an alternative pathway to a degree for those who followed an academic (or mixed) path at Level 3 rather than something apprentices at lower level can progress into.[9]

[9] As a note of caution, individuals in this sample are between 16 and 21 years old, implying that we observe them for at most 5 years after they take their GCSEs exams. This may be too narrow a window to observe people making a longer trajectory. Thus we may be underestimating the extent of progression.

Table 3: Prior attainment of apprentices (16-21)

	Intermediate (Level 2)	Advanced (Level 3)	Higher (Level 4-5)	Degree (Level 6+)
GCSEs results:				
Some GCSEs (Level 2)	0.80	0.93	0.99	1.00
5 GCSEs A*-C	0.41	0.64	0.91	0.97
Level 2 English and maths	0.41	0.61	0.86	0.93
GCSE total score distribution among apprentices of age 16-21:				
1st quintile	0.26	0.12	0.02	0.01
2nd quintile	0.23	0.18	0.06	0.02
3rd quintile	0.20	0.22	0.13	0.06
4th quintile	0.17	0.24	0.25	0.19
5th quintile	0.14	0.25	0.54	0.72
Below Level 2	0.13	0.02		
Vocational Level 2	0.41	0.43	0.27	0.16
Intermediate Apprenticeship	0.11	0.30	0.14	0.04
Vocational Level 3	0.27	0.35	0.47	0.36
Academic Level 3	0.06	0.12	0.34	0.52
Advanced Apprenticeship	0.03	0.08	0.37	0.19
Above Level 3	0.00	0.00	0.01	0.03
Higher Apprenticeship	0.00	0.00	0.06	0.09
Total	202073	247001	29925	17668

Note: The table shows, for each apprenticeship level, the proportion of apprenticeships started by learners who obtained a given qualification prior to starting the apprenticeship. Since most learners would have achieved more than one type of qualification, columns do not sum to one. This analysis is based on apprenticeships started in the academic year 2019 by learners who are found in the NPD (16-21 years of age, because of data limitations). Source: NPD-linked ILR.

4. Outcomes and Progression

We consider outcomes and progression of those starting an apprenticeship. Here we are able to use the whole population of apprentices. In Table 4, we show the percentage achieving an apprenticeship and the percentage dropping out within a year by level of apprenticeship and age group. The analysis is based on apprenticeships started in 2017 which gives us enough time to observe the outcomes of most apprenticeships (this looks very similar to 2015).[10] We do not consider achievement for those starting Degree apprenticeships as they are much longer in their planned duration and most of them have started too recently to observe achievement data.

[10] We consider only those dropping out within the first year to make sure the measure is comparable across apprenticeships regardless of their planned duration (given that our data only goes to 2020 when longer apprenticeships would still be ongoing).

Table 4 shows that across levels, achievement rates are between 63 and 71 per cent, with the exception of Level 4-5 (Higher Apprenticeships) for older age groups (25+), where this is only 60 per cent. Achievement rates are lower for older workers at each level of apprenticeship.

When it comes to dropping out within one year, this measure is highest for those starting out on Intermediate apprenticeships and is similar across age categories (at about 25 per cent). It reduces markedly with the level of the apprenticeship, except for older workers (over 25). The lowest level of drop out is for Degree Apprenticeships (Level 6+) where this is 15, 11 and 20 per cent for 16-18 year olds; 19-24 year olds and those aged 25+ respectively. But even this is higher than university degree drop out rates (in the UK), where 6.7 per cent of young full-time university degree entrants in 2019 did not continue into their second year.[11]

The dropout rate has increased for apprenticeships started in 2018 (to 28 per cent) or later with respect to those started between 2015-2017 (at 24 per cent). Nafilyan and Speckesser (2017) have shown that the government policy to increase the duration of apprenticeships (in 2012) led to an increase in the dropout rate but also to better labour market outcomes for achievers. It is plausible that other reforms to improve apprenticeship quality may have had similar effects.

[11] Source: HESA (Link: https://www.hesa.ac.uk/news/24-02-2021/uk-performance-indicators-non-continuation-201920)

Table 4: Apprenticeship outcomes by Level and age group

	Level 2			Level 3			Level 4-5			Level 6+		
	16-18	19-24	25+	16-18	19-24	25+	16-18	19-24	25+	16-18	19-24	25+
Achievement rate	0.66	0.67	0.65	0.71	0.70	0.63	0.66	0.64	0.60	-	-	-
Dropout within one year	0.26	0.26	0.25	0.18	0.20	0.23	0.16	0.18	0.24	0.15	0.11	0.20
Total	68332	61656	94034	35085	54808	77381	1379	6082	21554	149	426	373

Note: This table shows, separately by level and age group, the proportion of apprenticeships that are formally achieved as well as the proportion of learners dropping out within one year of starting the apprenticeship (includes taking a learning break). The figures refer to apprenticeships started in the academic year 2016/17, allowing us to observe outcomes for up to three years since their start (2017-2020). Even then, Level 6+ apprenticeships may have an even longer duration meaning that outcomes may not be fully observed (hence the decision to omit their achievement rate). Source: ILR.

Table 5: Apprentices' characteristics by achievement status

	Overall		Level 2		Level 3		Level 4+	
	Non-achievers	Achievers	Non-achievers	Achievers	Non-achievers	Achievers	Non-achievers	Achievers
Age group								
Under 19	0.24	0.26	0.30	0.31	0.19	0.22	0.04	0.06
Between 19-24	0.27	0.30	0.27	0.28	0.30	0.34	0.20	0.23
Over 24	0.49	0.44	0.43	0.41	0.51	0.44	0.75	0.72
Demographics								
Female	0.54	0.54	0.50	0.50	0.58	0.57	0.60	0.65
Living in most deprived 10%	0.15	0.13	0.16	0.14	0.13	0.12	0.10	0.10
Non-White British	0.13	0.12	0.12	0.11	0.13	0.12	0.16	0.16
Prior attainment								
Below Level 2	0.42	0.35	0.56	0.48	0.28	0.23	0.13	0.11
Level 2	0.39	0.43	0.32	0.37	0.52	0.54	0.17	0.15
Level 3	0.17	0.20	0.10	0.14	0.19	0.22	0.51	0.56
Level 4	0.01	0.01	0.00	0.00	0.00	0.00	0.08	0.08
Level 5+	0.01	0.01	0.00	0.00	0.01	0.01	0.10	0.08
Other qual.	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.02
Total	143,620	277,639	76,780	147,242	55,045	112,229	11,795	18,168

Notes: This table shows learners' average characteristics by whether they have achieved (including partially) their apprenticeships. The analysis is based on all the apprenticeships started in the 2016/17 academic year and that were not recorded as still continuing by 2019/20. To avoid disclosure, Level 6+ was included with Level 4-5 in the Level 4+ category. Source: ILR.

Table 5 shows characteristics of achievers and non-achievers by level of apprenticeship in academic year 2017. These two groups are not that different in terms of demographic characteristics except that achievers are more likely to be younger. Achievers usually have higher prior attainment (within each level) compared to non-achievers but the differences between them are not that stark.

Overall, the main reasons for achieving versus non-achieving are unlikely to be reflected in these background statistics and may have more to do with the quality of the apprenticeship or the availability of outside options (as non-achievement does not necessarily mean that individuals have moved to a less good opportunity). This may suggest that the signalling value provided by apprenticeships is not strong enough to commit more individuals to complete them.[12] In that respect, differences in achievement and dropout may also be linked to the requirements for accessing different sectors and/or occupations (Stromback and Mahendran 2010). For example, in some sectors a qualification is required to enter the profession (such as plumber or electrician) raising the stakes of not completing an apprenticeship whereas this is not true of other sectors (like retail).[13] In our data, Retail is the sector characterised by the largest dropout rate (28, 26 and 28 per cent at Levels 2, 3 and 4-5 respectively), although this is followed very closely by Health and Care, and Business Administration. Engineering and Manufacturing is one of the sectors with the lowest rate (22, 15, 13 per cent respectively at Levels 2, 3 and 4-5 respectively), although the dropout rate is clearly still of concern.

In Table 6, we show a snapshot of how people have taken on multiple apprenticeships and what characterises these moves, over the period 2015-2019. We consider all those who have started an apprenticeship in the academic year 2018/2019 and we condition on its level. The first row shows the percentage of those starting an apprenticeship in this year who had previously undertaken an apprenticeship. This is especially high for 19-24 year olds, where 45-46 per cent of them starting a Level 3 (advanced) or Level 4-5 (higher) apprenticeship had previously undertaken an apprenticeship. For other Levels and age groups, the percentage is lower, generally between 20-30 per cent (with some exceptions). Within each level of apprenticeship, older people are less likely to have more than one apprenticeship (varying between 9 per cent of those stating a Degree Apprenticeship and 21 per cent of those starting a Higher Apprenticeship).

Where an individual has multiple apprenticeships, the previous one is usually at a lower level than the current one (which suggests progression) and is usually within the same sector. Within intermediate apprenticeships (Level 2), the previous apprenticeship is at the same level and is more mixed in whether this is in the same or a different sector. It might be that for people undertaking these apprenticeships, the Framework/Standard is sometimes too narrow to meet their employability needs (bearing in mind these apprenticeships are also short). This might be true, though to a lesser extent,

[12] Dropouts do not seem very likely to start another apprenticeship shortly after dropping out. For example, of those dropping out from an apprenticeship started in 2015, 10 per cent start another apprenticeship within a year of dropping out. Of those dropping out from an apprenticeship started in 2018, 9 per cent start another apprenticeship within a year of dropping out.

[13] Research carried out in Scotland shows that employers in Electrical Installation sector reported the highest increase in employee productivity on achievement. In contrast, apprentices within Retail and Hospitality, became productive after a relatively short period of training, which reduces the incentive for employers to push apprentices to complete their apprenticeship (Skills Development Scotland 2015).

for people starting out at higher levels of apprenticeship, accounting for the sizeable minority of those whose previous apprenticeship is at the same level and/or in a different sector.

Table 6: Apprentices with more than one apprenticeship

	Level 2			Level 3			Level 4-5			Level 6+		
	16-18	19-24	25+	16-18	19-24	25+	16-18	19-24	25+	16-18	19-24	25+
% More than 1 apprenticeship	0.23	0.29	0.16	0.31	0.46	0.21	0.23	0.45	0.20	0.08	0.28	0.09
First apprenticeship	0.62	0.25	0.24	0.23	0.07	0.11	0.23	0.05	0.13	0.50	0.05	0.15
The previous apprenticeship is:												
At the same level as the current one	0.86	0.77	0.81	0.16	0.28	0.41	0.11	0.13	0.27	0.00	0.06	0.17
At a lower level than the current one	NA	NA	NA	0.84	0.71	0.56	0.88	0.86	0.72	1.00	0.94	0.83
At a higher level than the current one	0.14	0.23	0.19	0.00	0.01	0.02	0.00	0.01	0.01	NA	NA	NA
The previous apprenticeship is:												
In the same sector	0.56	0.47	0.66	0.87	0.81	0.79	0.89	0.86	0.80	0.72	0.86	0.87
In a different sector	0.44	0.53	0.34	0.13	0.19	0.21	0.11	0.14	0.20	0.28	0.14	0.13
Total	49,702	35,421	43,252	36,619	52,687	70,998	1,956	11,001	36,286	1,738	9,151	11,483

Note: This table shows progression from one apprenticeship to the next, in reverse chronological order, for each apprenticeship of each learner, in terms of level and sector, for those with more than one apprenticeship. This is done by level and by age group for all apprenticeship starting in a reference year (2019). This allows us to consider previous apprenticeships starting between 2015-2019. NA refers to the fact that by construction there is no lower level than Level 2 or higher level than Level 6+. Source: ILR

5. Discussion and conclusion

Over the last few years, there have been two big falls in the number of apprenticeship starts – between 2017 and 2018 and in 2020. The latter coincided with the COVID-19 pandemic and the former most likely reflects the set of reforms put in place by the government affecting how apprenticeships are funded (Apprenticeship Levy) and delivered (e.g. the change from Frameworks to Standards; the minimum threshold for off-the-firm training). The composition of apprenticeships has changed markedly from lower to higher levels: while Level 3 apprenticeships remain the most prevalent (44 per cent of all starts in 2020) followed by Level 2 (30 per cent of all starts), Higher and Degree apprenticeships have become much more widespread. There has also been a marked increase in the planned duration of apprenticeships, especially at Levels 2 and 3.

One might characterise the changes over the last few years (at least up until the pandemic) as a substitution of quantity for quality. Many would consider this as a welcome development: the previous government's "3 million apprenticeship starts" target had been criticised for its emphasis on quantity (rather than quality). On the other hand, even lower-level apprenticeships have been shown to lead to higher earnings (Cavaglia et al. 2017; 2020), at least in some sectors. In general, to gauge the impact of these changes, it is important to consider which groups have been more affected and what the distributional implications have been.

Unlike in other countries, following a policy change in the mid-2000s, apprenticeships in England are not primarily used at the point of school to work transition but have become increasingly common for older individuals (McNally, 2018). In recent times, individuals over 25 account for the vast majority of those undertaking higher apprenticeships (at Levels 4 and 5) and over half of those undertaking Degree apprenticeships. At the same time, over 25s have been affected disproportionately by the decline in Level 2 apprenticeships.

What are the implications of these trends? Research evidence shows that returns to apprenticeships are considerably higher for younger age groups (McIntosh and Morris, 2018) suggesting they would be in the best position to benefit financially from access to apprenticeships. The discussion above shows that these younger groups have not been the main beneficiaries of the increased availability of Higher and Degree Apprenticeships. Furthermore, there have been claims of a higher deadweight cost associated with offering these apprenticeships to older individuals – to the extent that this reflects firms offering them to well-qualified senior employees to replace training courses they would have previously paid for (e.g. via MBA programmes). But it is difficult to gauge the extent of this. In a recent paper evaluating the Apprenticeship Levy, Patrignani et al. (2021) did not find evidence for apprenticeships reducing (publicly funded) training in other areas.

Our analysis suggests distributional concerns arising from recent policy changes. Apprenticeships used to be relatively more common in most deprived areas but this is no longer the case. This is correlated with changes in the composition of apprenticeships (in terms of level). Deprived areas have suffered more from the decline in Level 2 Apprenticeships (where they are still disproportionately concentrated). More prosperous areas have benefited disproportionately from the expansion of Degree Apprenticeships. When we consider apprenticeship participation among individuals who were eligible to receive free school meals (FSM) when at school (i.e. covering those up to age 29 in our data or 60 per cent of all apprenticeship starts), we see that this group is under-represented at all levels of apprenticeships – but increasingly so at higher levels. Strikingly, Higher and Degree apprenticeships are not more common among disadvantaged individuals than a university degree. From this perspective, it is hard to see Higher and Degree Apprenticeships as a route to widen opportunities for individuals from poorer backgrounds. Furthermore, most individuals doing Higher or Degree

Apprenticeships leave school with good GCSEs and do not progress from lower levels of vocational education (Level 2) to these programs. Thus, the existence of Higher and Degree Apprenticeships is not a substitute for lower-level programs for which individuals eligible to receive free school meals would be more likely to qualify. It is also interesting to note that A-levels are a common route to these higher apprenticeship levels (in contrast to what is sometimes perceived). Additionally, even within levels, learners eligible for FSM tend to be more represented than non-FSM eligible learners in sectors associated with the lowest payoffs (in particular Health, Public Services and Care) and less represented in sectors associated with higher earnings (Engineering and Manufacturing and Construction apprenticeships), as shown in previous studies (Cavaglia, McNally and Ventura 2017, 2020).

Aside from disadvantage and age, we also consider participation in apprenticeships by ethnicity and gender. With regard to the latter, the composition has been relatively stable over time in the face of the underlying changes observed elsewhere. Ethnic minorities are well represented among older workers at all levels of apprenticeship but they are badly under-represented among starts for younger people. With regard to gender, women are better represented among older apprentices, but less so among younger ones. The most striking gender difference is in representation across sectors. This has not changed much over the time period considered here. Women are much more likely to start apprenticeships in Health, Public Services and Care and, to a lesser extent, Business, Law and Administration. Very few women start apprenticeships in Engineering and Manufacturing, which is the most popular among men, or in sectors like Construction or ICT, whose importance has increased over this period. Cavaglia et al. (2020) show that the sorting of men and women across sectors is a very important explanation for why the returns to apprenticeships are so much higher for men.

Finally, it is not only apprenticeship starts that matter, but whether apprenticeships are achieved and what they lead on to. Our analysis shows that non-achievement and early dropout is a big concern. The problem is widespread, though greater for older workers. Non-completion is not strongly correlated with individual characteristics (that are measured in administrative data). The reasons for non-completion and dropout are important issues for future research.

To conclude, recent changes in apprenticeship policy have increased the apparent quality of training on offer but this has not benefited disadvantaged groups and the COVID-19 pandemic (at least in the short term) has led to fewer opportunities for all. The extent to which the increased availability of Higher and Degree Apprenticeships has led to genuinely better training (and therefore productivity) depends on this generating added value over and above what would otherwise have happened. While the scaling up of Higher and Degree Apprenticeships may well open up new successful pathways into the labour market for young people, so far this expansion has disproportionately benefited older employees (25+) and those from more advantaged backgrounds. Taken together, these changes do not suggest a pattern of apprenticeship participation that would either reduce socio-economic inequality or improve social mobility.

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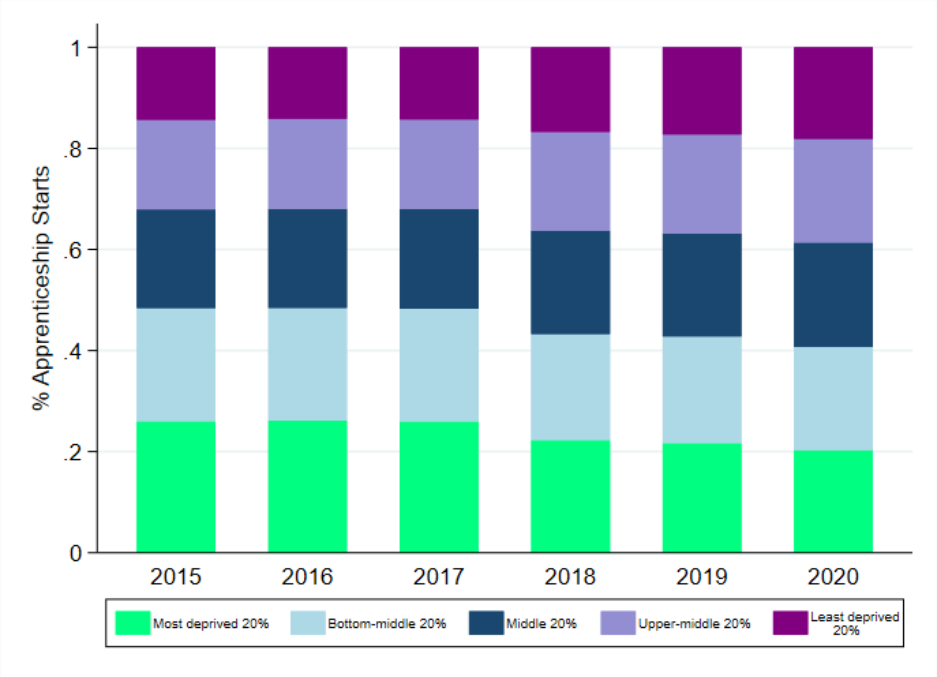
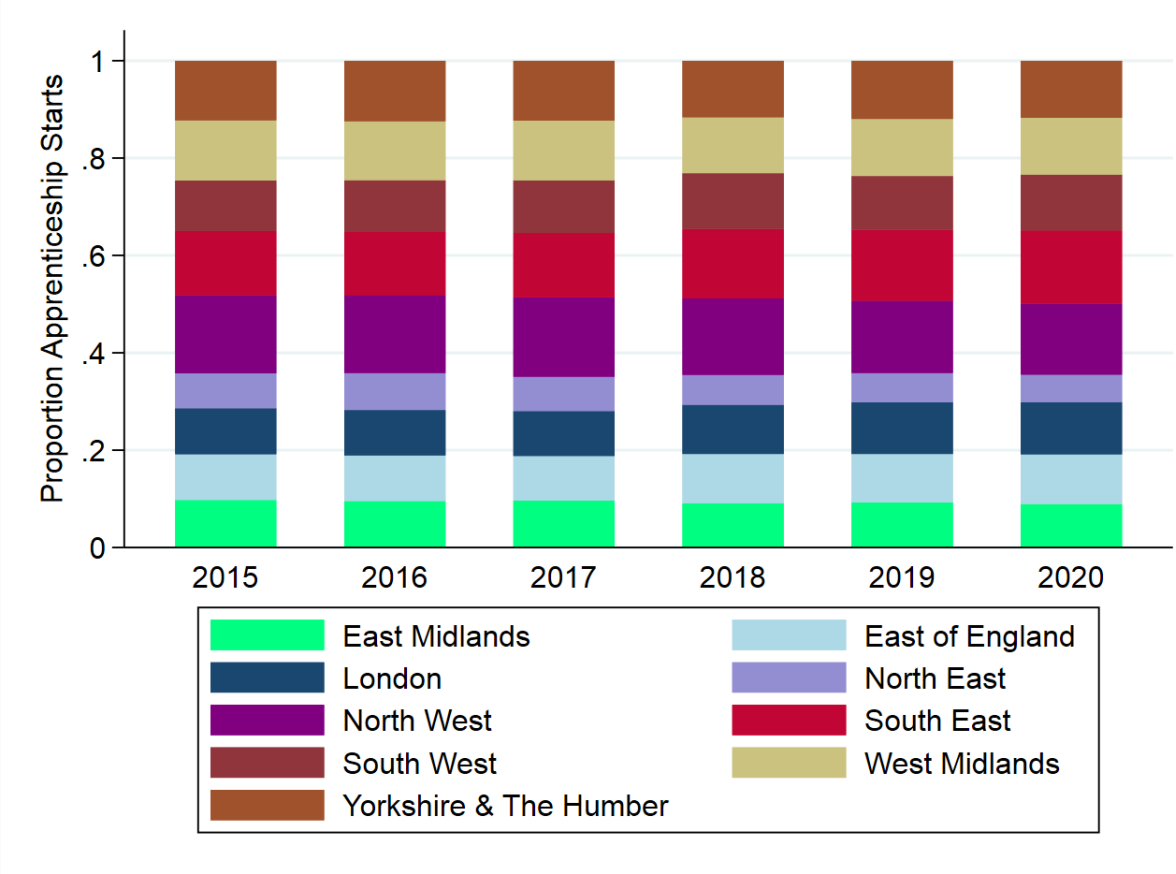
Appendix

Figure A.1: Change in composition of Apprenticeship starts by quintile of area deprivation



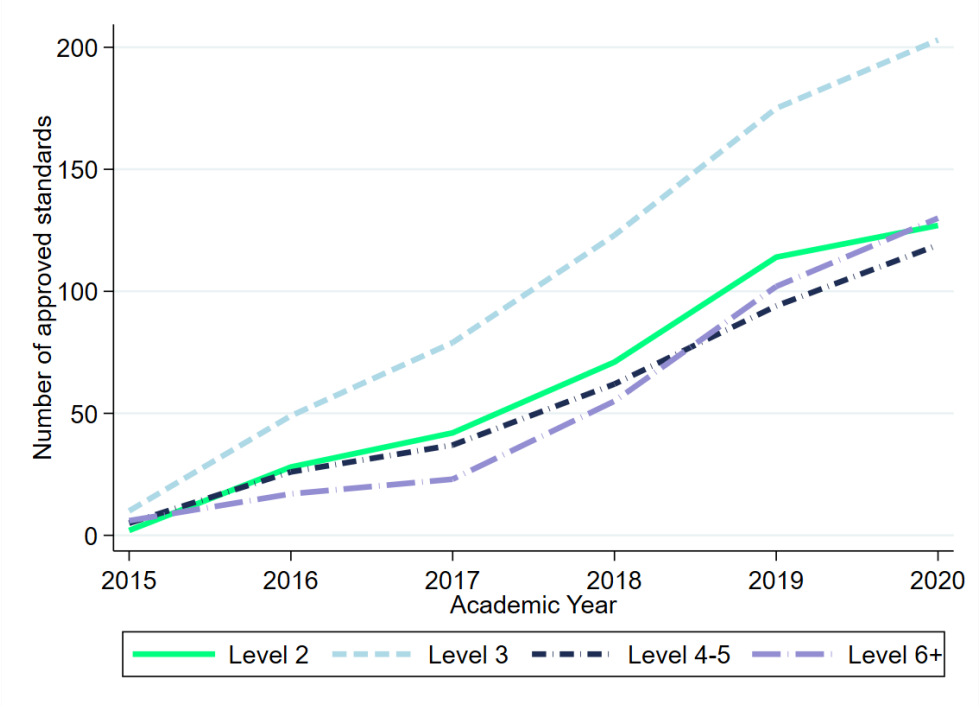
Notes: The figure shows changes in the proportion of apprenticeship starts by the quintile of apprentices' postcode deprivation by academic year (2015-2020). Deprivation is defined according to the ONS 2015 Index of Multiple Deprivation at the Lower Super Output Area level. Source: ILR

Figure A.2: Change in the proportion of apprenticeship starts across regions in England



Notes: The figure shows the changes in the regional composition of apprenticeship starts by academic year.
Source: ILR

Figure A.3: Evolution in the number of Apprenticeship Standards by Level



Notes: This figure plots the total number of Apprenticeship Standards approved for delivery at each Level over the 2015-2020 period.

Table A.1: Apprentices' highest prior attainment

	Healthcare and Public Services	Engineering and Manufacturing	Construction	ICT	Commercial	Business and Administration
Below Level 2	0.31	0.30	0.37	0.08	0.55	0.17
Level 2	0.35	0.47	0.37	0.33	0.31	0.31
Level 3	0.21	0.17	0.19	0.41	0.10	0.27
Level 4	0.02	0.01	0.02	0.03	0.01	0.04
Level 5+	0.08	0.03	0.02	0.14	0.02	0.19
Other qual.	0.02	0.02	0.03	0.01	0.01	0.03
Total	86989	56661	21706	19136	44753	110281

Notes: The table shows, for main apprenticeship sectors, the proportion of apprenticeships started by learners' highest level of qualification prior to starting the Apprenticeship in 2019 (reference year). Source: ILR.

Table A.2: Prior attainment by apprenticeship sector (16-21 year olds)

	Healthcare and Public Services	Engineering and Manufacturing	Construction	ICT	Commercial	Business and Administration
GCSEs grades:						
Some GCSEs (Level 2)	0.84	0.88	0.78	0.97	0.79	0.95
5 GCSEs A*-C	0.45	0.55	0.43	0.77	0.39	0.73
Level 2 English and maths	0.42	0.53	0.44	0.72	0.38	0.70
GCSE total score distribution among young apprentices (age 16-21):						
1st quintile	0.24	0.17	0.28	0.07	0.28	0.08
2nd quintile	0.22	0.21	0.22	0.12	0.23	0.13
3rd quintile	0.21	0.22	0.18	0.19	0.21	0.18
4th quintile	0.18	0.21	0.16	0.26	0.17	0.25
5th quintile	0.15	0.19	0.16	0.37	0.12	0.35
Below Level 2	0.08	0.07	0.15	0.01	0.13	0.03
Vocational Level 2	0.43	0.49	0.39	0.30	0.45	0.31
Intermediate Apprenticeship	0.23	0.21	0.18	0.07	0.22	0.19
Vocational Level 3	0.30	0.30	0.25	0.51	0.25	0.34
Academic Level 3	0.08	0.06	0.06	0.20	0.06	0.22
Advanced Apprenticeship	0.05	0.06	0.06	0.16	0.03	0.10
Above Level 3	0.00	0.00	0.01	0.00	0.00	0.00
Higher Apprenticeship	0.00	0.00	0.00	0.03	0.00	0.01
Total	72374	120975	45668	34201	57573	131033

Note: The table shows, for main apprenticeship sectors, the proportion of apprenticeships started by learners who obtained a given qualification prior to starting the apprenticeship. Since most learners would have achieved more than one type of qualification, columns do not sum to one. This analysis is based on apprenticeships started in the academic year 2019 by learners who are found in the NPD (16-21 years of age, because of data limitations). Source: NPD-linked ILR.