

PAPER IS02

# Apprenticeships in England: What does research tell us?

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#CEPIndustrialStrategy

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## 1. Introduction

In recent weeks, there has been much controversy over the slowdown in the number of apprenticeship starts and the potential connection with the change in the funding system.<sup>2</sup> The context is one in which there is a government target to have 3 million apprenticeship starts between 2015 and 2020. In the light of recent controversies, this briefing note is a synopsis of findings that are mainly from published CVER research, since its inception in 2015.<sup>3</sup>

We first explain what an apprenticeship in England is (Section 2). An apprenticeship is usually thought of as a programme of work and study for young people as they transition from full time education into the labour market.<sup>4</sup> This is not true for about half of those starting an apprenticeship in England, who are over 25 years of age. Most of these people are already working for their employer before they start an apprenticeship. We discuss changes over time in Section 3. Since 2008 (and more especially from 2010), there has been a huge rate of growth in apprenticeship starts. This has been driven by starts among those aged 25+ (from zero in 2007) and to a lesser extent among those aged between 19 and 24. The number of apprenticeship starts for young people aged 16-18 has been fairly stable from 2003 to the present time. This section also documents that starts don't equal completions. It is estimated that in the 2010-2015 Parliament, the 2.4 million reported as starting an apprenticeship

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<sup>1</sup> This briefing paper is funded under the Centre for Economic Performance's "Informing the Industrial Strategy" project (ESRC ES/S000097/1).

<sup>2</sup> Specifically, the Apprenticeship Levy was introduced in April 2017. This is imposed on large employers who may reclaim part of this cost through developing apprenticeship programmes. There is also ongoing reform to apprenticeship standards, which affects the extent to which this is possible for some employers.

<sup>3</sup> We draw on other research to a limited extent – such as earlier work by Hilary Steedman and a report by Alison Fuller and Lorna Unwin that appeared alongside our research in the Sutton Trust report, 'Better Apprenticeships' in 2017. We do not discuss our findings on the characteristics of apprentices, which are explored, for example, in Cavaglia et al. (2017).

<sup>4</sup> In England, the definition is as follows: 'An Apprenticeship is a job that requires substantial and sustained training, leading to the achievement of an Apprenticeship standard and the development of transferable skills'. (BIS, 2013).

translates to between 1.5 and 1.7 million achievements. We also discuss very recent changes, up to data released in 2017/18. Although there has been a fall in apprenticeship starts, the composition of apprenticeships has also changed, with Advanced and Higher Apprenticeships accounting for a larger share than previously. This complicates the interpretation of a simple count of apprenticeship numbers since the extent of the investment depends partly on the level of the apprenticeship.

In Section 4, we document that there can be a trade-off between quantity and quality. We show this using the 2012 reform that mandated a minimum duration of a year for apprenticeships. Although this led to a reduction in apprenticeship starts and increased the drop-out rate, it appears to have improved the job matching of young people to available employment opportunities. This example shows that efforts to improve quality can actually involve a reduction in apprenticeship starts.

One way to gauge the ‘value’ of apprenticeships is to evaluate whether they lead to an earnings premium in the labour market in subsequent years (reflecting higher demand by employers relative to supply). In Section 5, we summarise our findings for young people who did their GCSEs in 2003 and start an apprenticeship sometime after that. We follow them in administrative data through their education and into the labour market. We summarise the results from an evaluation of the earnings premium attached to starting an apprenticeship. This is estimated when the cohort is aged 28 (in 2015). There is a positive earnings premium on average from undertaking an apprenticeship, after taking account of many other confounding factors. However, there is huge variation in the earnings premium depending on the level of the apprenticeship as well as the sector. There are some apprenticeships where the earnings premium is very high – such as Advanced Apprenticeships in Engineering (where the premium at age 28 is comparable to doing an Engineering degree in university). At the other extreme, there are sectors which have a negligible or lower premium at age 28 compared to alternatives for people educated to the same level. This includes an Apprenticeship in Service Enterprises (such as hairdressing) and Advanced Apprenticeships in Childcare. The different premia attached to different sectors combined with the different choices made by men and women lead to a huge gender earnings gap among men and women who have undertaken an apprenticeship. The very different ‘value’ attributable to different apprenticeships conditional on their sector and level again calls into question whether a numerical target focused on apprenticeship starts is appropriate. We conclude in Section 6.

## **2. What is an apprenticeship in England?**

Although apprenticeships normally combine part-time formal education with training and experience at the workplace, the detail of what is involved and how it is financed varies across countries and sectors (e.g. as discussed in Wolter and Ryan, 2011). However, for some time, an apprenticeship in England has looked very different than in countries where apprenticeships are a larger part of the education and skills system. This is documented by Steedman (2011) and summarised in Table 1.

Compared to Austria, Germany and Switzerland, apprentices in England are more likely to be trained at a lower skill level, for a shorter time period and receive only one third of the hours of ‘off-the-firm’ training compared to the ‘apprenticeship countries’. Perhaps most striking of all is that back in 2011, only 60% of apprentices were under the age of 25 whereas in the other countries, apprenticeships are specifically aimed at those transitioning from full time education to the labour market. Bursnall et al. (2017) consider this for more recent cohorts. Using administrative data in England, they show that people below the age of 25 account for 60% and 50% of starts for intermediate and advanced apprenticeships respectively, although there is huge variation by framework. Furthermore the duration is still lower than in other countries.<sup>5</sup>

In England, the average planned duration is 12 months for intermediate and nearly 16 months for advanced apprenticeships. Intermediate apprenticeships are at Level 2 (and equivalent to GCSE in the qualifications framework). Up until recently, they accounted for about 60% of apprenticeships, with most of the rest being ‘advanced’ at Level 3 (equivalent to A-levels in the qualifications framework). Bursnall and Speckesser (2017) document very recent changes. In the first quarter of the 2017/18 academic year, the share of starts in Intermediate and Advanced Apprenticeships was about the same (about 45 percent) each, with Higher Apprenticeships (i.e. Level 4+) now accounting for 10 percent of starts. The growth in Higher (and degree) Apprenticeships has only been in the last 2-3 years and it is where growth is expected following ongoing reforms. This is potentially beneficial to the extent that Higher Apprenticeships are associated with a larger investment and acquisition of skills of use in the workplace. However, there is currently very little transition between Apprenticeships of different levels, implying that they are not necessarily a vehicle for social mobility.

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<sup>5</sup> They give the examples of Norway (where the typical duration is 48 months) and Germany (where the typical duration is between 24 and 42 months).

**Table 1: Comparing apprenticeship models in England and other European countries**

<b>Apprenticeship – England 2011</b>	<b>Apprenticeship – Austria, Germany, Switzerland 2011</b>
Employed status	Trainee status
Wage (high relative to other countries)	Trainee allowance
Short duration (average one year)	Long duration (average three years)
Most at lower skill level (Level 2)	Most at higher skill level (Level 3)
Outside providers train	Employers train on-the-job
Only 60% of apprentices are under 25	Apprentices are normally under 25
Minimum 100 hours off-the-job training	Minimum 900 hours off-the-job training
4-8% of employers train apprentices	25-30% of employers train apprentices

From Steedman (2011)

Recent work by Steedman and her co-authors (Grollmann et al. 2017) focuses on cross-country comparisons of Car Service apprenticeship. This is a case where the apprenticeship is of a similar duration and standard in Germany and the UK (to UK Level 3). Apprentices acquire skills in the workplace and study underpinning technical knowledge for a day a week (or equivalent). A high proportion of firms in this sector are SMEs (and thus outside the scope of the apprenticeship levy in the UK). This is a sector that requires the apprentice to be supervised by a skilled technician while in the workplace. The UK suffers vis-à-vis Germany because technician skills are in short supply, which makes on-the-job training harder to deliver. In Germany, a long tradition of work-place training (in which most employees are apprentice-trained) and culture of cooperation promoted through local trade associations, makes the whole environment far more amenable to apprenticeships. In English firms, the skills shortage in this sector also appears to cause fear of poaching which is another deterrent to investing in apprentices. Another difference is that there is a fixed duration requirement for the apprenticeship in Germany (but not in the UK). A fixed duration removes a source of uncertainty on the period over which the firm can plan to benefit from the apprentice's productivity and offset costs. Grollman et al. argue that if the apprenticeship model is to work as well in this sector as it does in Germany, then more factors than subsidising off-the-firm training need to be considered.<sup>6</sup>

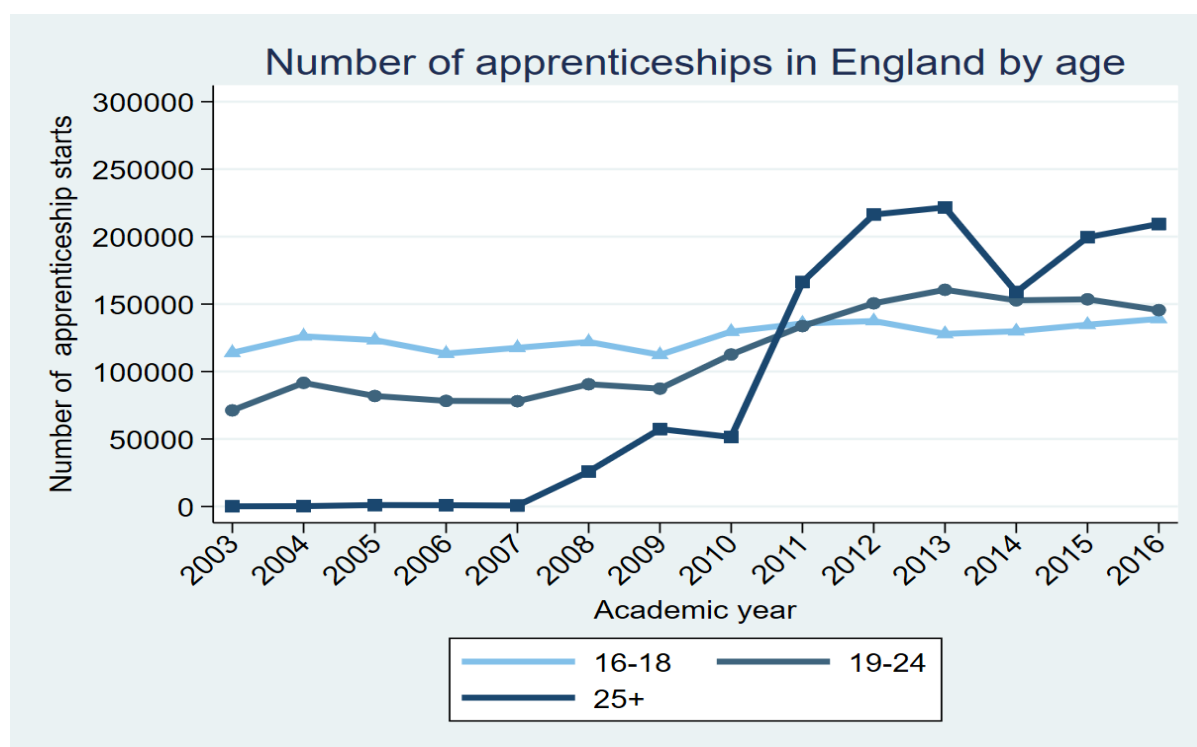
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<sup>6</sup> In addition to those issues mentioned, the authors argue for the need for labour market regulation in this sector – for example, requiring a completed Car Service apprenticeship for MOT certification status.

### 3. How have things changed?

Amid recent controversy about the slow-down of apprenticeship starts since the Levy was introduced (coinciding with on-going reform to apprenticeship standards), it is easy to forget the overall context. There has been huge change in the number of apprenticeship starts since about 2008 (accelerating from 2010). This is shown in Figure 1. The number of apprenticeship starts has massively increased, and this has been largely driven amongst those aged over 25. Before 2007, there was no apprenticeship starts for people in this age-group. Now they account for about half. There has been significant growth amongst those aged between 19 and 24. The number of 16-18 year olds starting apprenticeships has been very stable between 2003 and 2016, and it is rare for individuals to go straight from school to an apprenticeship after GCSEs (Hupkau et al. 2016). Starts amongst those aged 19-24 over-took 16-18 year olds in 2012 and has remained a little above them in most years since then.

**Figure 1. Number of apprenticeship starts in England by age**



Source. ILR data. Extension of analysis in Hupkau and Ventura (2017).

Conlon et al. (2017) note the policy context in which the increase in apprenticeship numbers occurred. Funding for the Train to Gain initiative (which mostly focused on aims undertaken at Level 2 and 3) was reduced at the beginning of the 2010/11 academic year (with £150m of

Train to Gain funding re-invested into Apprenticeships).<sup>7</sup> Despite the increase in apprenticeship numbers, the overall number of people receiving publicly funded training declined (Hupkau and Ventura, 2016).

The increase in the number of apprenticeship starts was concentrated within the following sectors: Business, Administration and Law; Health, Public Services and Social Care; Retail and Commercial Enterprise, and Engineering and Manufacturing Technologies. This is discussed in detail by Hupkau (2015), who also cites evidence that at least within Retail, Health and Business, apprentices were mainly recruited from the pool of existing employees rather than new entrants to firms.

Furthermore, it can't be taken for granted that the increase in starts results in completed apprenticeships. Bursnall et al. (2017) conduct a longitudinal analysis for apprenticeships that started in 2011/12. For the cohort of all 516,880 intermediate and advanced apprentices starting apprenticeships in England during that year, they find that one third were withdrawn and a further 10 per cent were not completed within 36 months. This suggests that focusing on the published numbers of apprenticeship starts and on the published achievement rates (which, to a large extent, exclude apprenticeships that are withdrawn) may not give an accurate picture of the reality of apprenticeship provision. Assuming the same pattern persisted across the 2010-2015 Parliament, the 2.4 million reported as starting an apprenticeship translates to between 1.5 and 1.7 million achievements.<sup>8</sup>

Bursnall and Speckesser (2018) document the change in trends since the introduction of the Apprenticeship Levy in April 2017. Initially, the introduction of the Levy in the final quarter of the 2017/18 academic year reduced the number of apprenticeship starts markedly: apprenticeship starts were down 59% compared to the same period in the previous academic year. In the first quarter of this academic year, the difference declined, but is still 26.5% lower than the period before the Levy. However, there has been a shift in the composition of apprenticeship starts by level, with a lower share of Intermediate Apprenticeships and a higher share of Advanced and Higher Apprenticeships. In the first quarter of the 2017/18 academic year, the share of Intermediate and Advanced Apprenticeships was about the same (around 45% each). Higher Apprenticeships have increased dramatically – and very recently; they now constitute about 10% of apprenticeship starts. This difference in composition complicates the

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<sup>7</sup> The Train to Gain scheme ended completely in 2011.

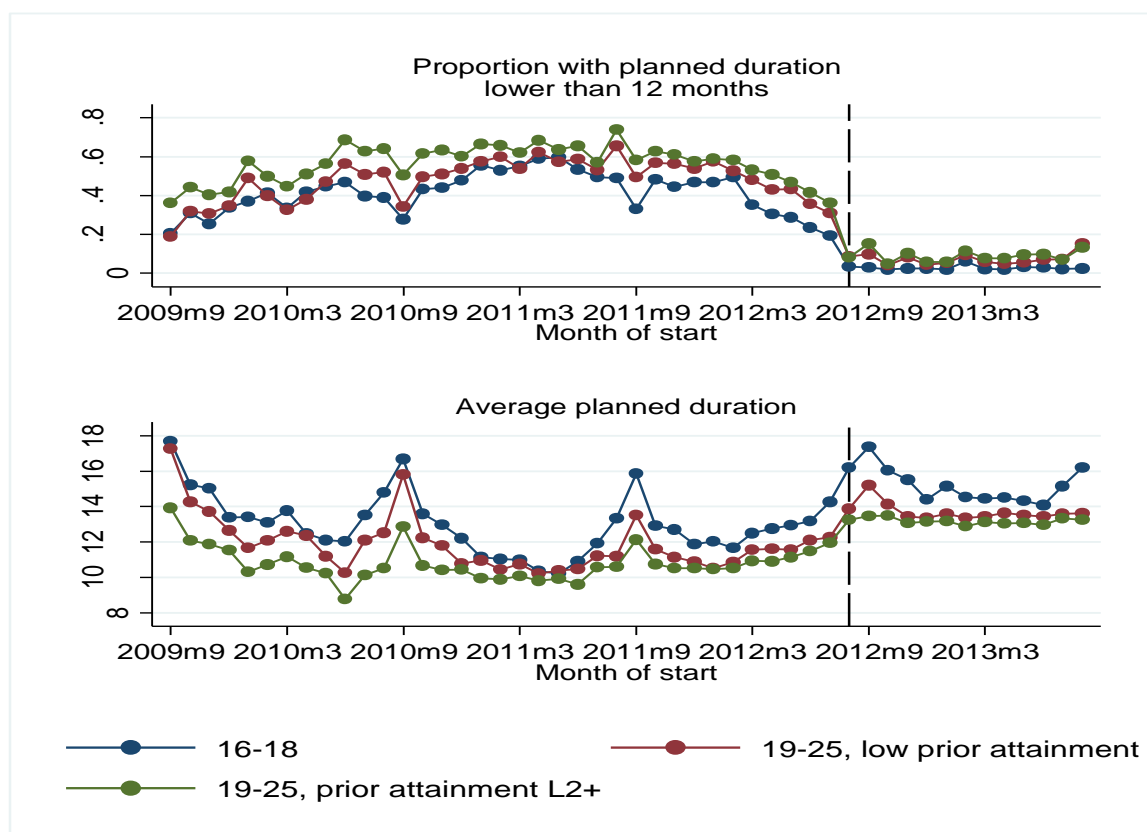
<sup>8</sup> The extent of achievement is strongly related to measures of prior achievement and to the sector framework (as well as to the level within the sector). Overall achievement rates range from 57% in Retail to 83% in Accounting and 90% or more in Spectator Safety and the Glass Industry.

interpretation of a simple count of apprenticeships in that the amount of investment required for Advanced and Higher Apprenticeships is larger than that required for Intermediate Apprenticeships. As discussed below, the earnings premia attached to Apprenticeships is typically higher for Advanced Apprenticeships compared to Intermediate Apprenticeships, implying that they are not of comparable economic value.

#### 4. Is there a quantity-quality trade-off?

Following the expansion of apprenticeships in the late 2000s, evidence emerged that some apprenticeships were of very poor quality. As a consequence, the Skills Minister introduced binding minimum standards for all apprenticeships, which came into effect in August 2012.<sup>9</sup> This introduced a minimum duration of a year, thus changing the duration of Intermediate Apprenticeships in many industries (see Figure 2).

**Figure 2: Duration of Intermediate Apprenticeships**



Source: Nafilyan and Speckesser (2017)

<sup>9</sup> Specification of Apprenticeship Standards for England (SASE). As well as specifying a minimum duration, this also specified the minimum number of Guided Learning Hours (GLH), i.e. the apprentices' contact time with teaching professionals in colleges and the time dedicated to instruction by experienced staff in firms. However GLH were widely unaffected.



Nafilyan and Speckesser (2017) estimate the impact of this reform on apprenticeship outcomes in sectors that were affected. They focus on 19-24 year olds who experience a genuine increase in apprenticeship duration as a result of this reform. They find that the reform reduced apprenticeship starts in the sectors affected (by 13-33 percent), increased drop-out rates (by 3-5 percentage points) and reduced achievement of the qualification by 4-7 percentage points. However, there was also an increase in earnings that can be associated with the reform (of about 7% compared to the counterfactual). With the available data, it isn't possible to test whether the increase in earnings was driven by those who achieved a longer apprenticeship or by learners dropping out of their apprenticeships to get a better paid job or by compositional change (i.e. less committed people not starting an apprenticeship). However, the authors argue that the reform improved the job matching of young people to available employment opportunities, which was the reform's ultimate purpose. A broader point is that a reform to tighten apprenticeship standards may induce higher quality at the same time as causing a reduction in the number of apprenticeship starts.

## **5. What is the value of an apprenticeship?**

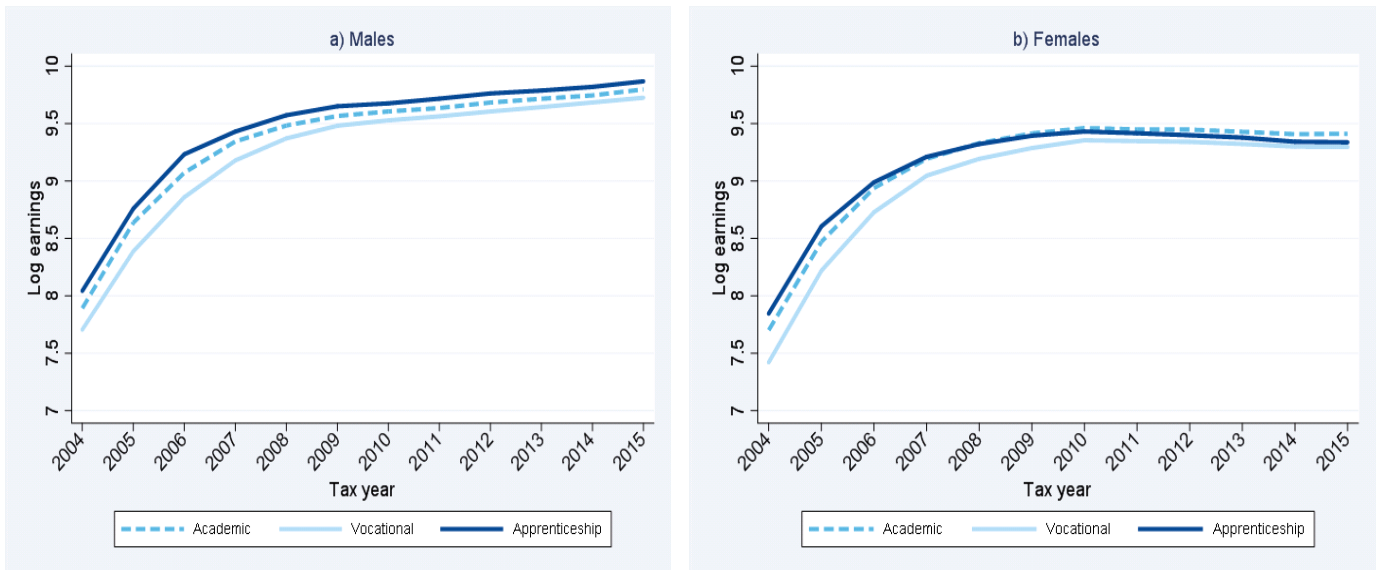
One way to establish the 'value' of an apprenticeship is to estimate the extent to which doing one leads to better employment prospects in the longer run (e.g through earnings). This tells us something about how employers value the skills acquired as a result of the apprenticeship process.

Cavaglia et al. (2017) evaluate the earnings differentials to starting an apprenticeship for those who finish their GCSE exams in 2003. They follow them as they progress through education and into the labour market using administrative data. They evaluate the impact of starting an apprenticeship on later earnings at the age of 28 (in 2015). About 17% of this cohort had started an apprenticeship by the age of 28. The focus is primarily on the earnings differential that arises from starting an apprenticeship because the potential benefit is not only in certification but also on-the-job training, achievement of some (if not all) of the aims and potential connections made through the apprenticeship programme.

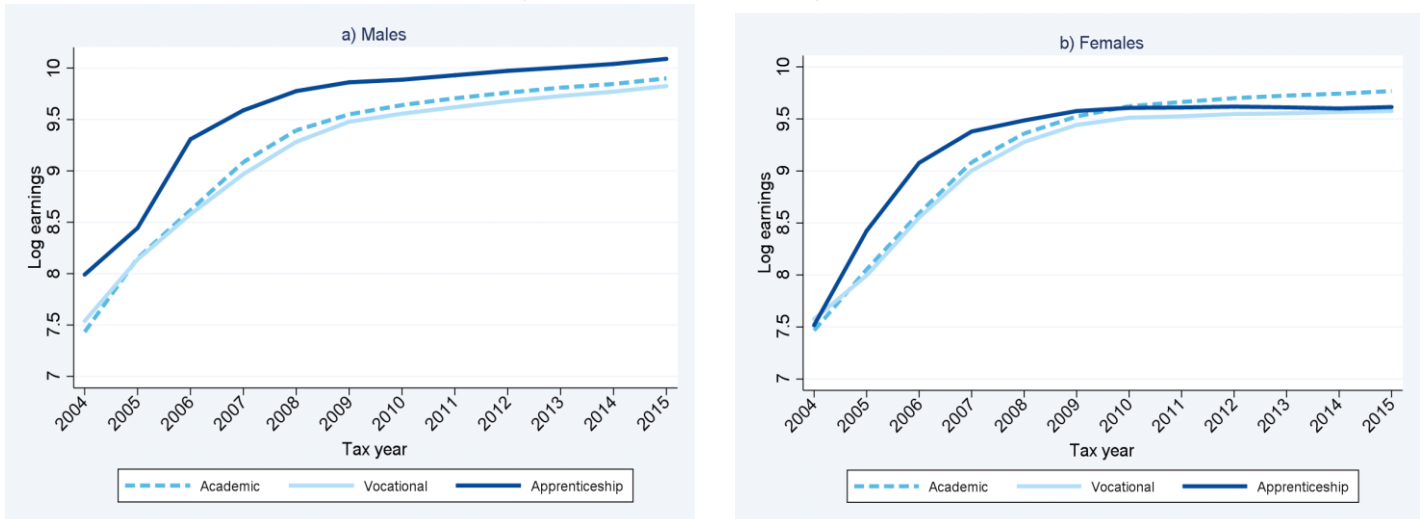
Those who start an apprenticeship are compared with those of a similar educational level. In practice, this means comparing such individuals either with those who achieved Level 2 educational qualifications (GCSE or vocational equivalent) or Level 3 educational qualifications (A-levels or vocational equivalent). For this cohort, higher apprenticeships did not exist. Figures 2 and 3 show the evolution of earnings over different tax years for this cohort

of men and women (who did their GCSEs in 2003) conditional on their level and type of education. In the raw data, it is evident that the average earnings differential to starting an apprenticeship is higher for men than it is for women. Earnings trajectories are worse in general for women.

**Figure 3. Log median earnings by year for those educated up to Level 2 (maximum) (GCSE cohort of 2003)**



**Figure 4. Log median earnings by year for those educated up to Level 3 (maximum) (GCSE cohort of 2003)**



Source: Cavaglia et al. (2017)

The methodological approach involves ‘netting out’ things that make those who started an apprenticeship different from those who did not. For example, men who start an advanced apprenticeship are only half as likely to have been eligible for free school meals when at school

(compared to the average in the cohort). There are a range of characteristics which can be controlled for: prior attainment at primary and secondary school; demographics such as ethnicity and economic disadvantage; the secondary school attended, and post-education experience in the labour market. Thus, the earnings of individuals with and without an apprenticeship are compared after taking account of all these different factors. The approach isn't perfect because it doesn't take account of such factors as motivation, social skills, and perseverance (which might affect the probability of being taken on as an apprentice as well as earnings). So one shouldn't interpret the earnings differential as being attributable to the apprenticeship alone.

By the age of 28, the baseline earnings for men and women are £19,709 and £13,621 respectively for those educated up to Level 2. This is the average earnings of those whose highest education was GCSEs (with at least one GCSE of A\*-C) at age 28 in 2015. After taking account of other factors - men who start an apprenticeship earn 23% more than those who left school with only GCSEs and roughly 16% more than those who left education with a Level 2 vocational qualification. For women, those who start an apprenticeship earn 15% more than those who left school with only GCSEs and about 4% more than those who left education with a Level 2 vocational qualification.

For those educated up to Level 3, the baseline earnings for apprentices aged 28 are £22,464 and £18,500 for men and women respectively. This is the average earnings of those whose highest education was A-levels in 2015, when they were aged 28. After taking account of other factors, men who start an apprenticeship earn about 37% more than those who left education with A-levels (and did not progress any further). They earn about 35% more than those who left education with a Level 3 vocational qualification. Women who start an apprenticeship earn about 9% more than those who completed their education with A-levels by the time they are age 28. They earn roughly 15% more than those who left education with a Level 3 vocational qualification (without progressing any further).

Even if these earnings differentials partly capture individual characteristics which can't be controlled for (e.g. better 'soft skills' of those accepted on to an apprenticeship programme), they are suggestive of high potential returns to an apprenticeship.<sup>10</sup> But some apprenticeships lead to better prospects than others. The gender difference is particularly striking, especially

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<sup>10</sup> This is consistent with other CVER research about earnings/wage differentials to vocational education. Conlon et al. (2017) have recently included apprenticeships in a broad study investigating the payoff to different types of further education using the LEO data. McIntosh and Morris (2016) is a very recent example of a study estimating the wage differentials to having an apprenticeship using the Labour Force Survey.

for those educated to Level 3, where the earnings differential is over three times larger for men than for women. Much of this is attributable to the sector of learning. Most men with advanced apprenticeships are classified within Engineering and Manufacturing Technologies (53%) or Construction, Planning and the Built Environment (26%). For women, the most important sectors for advanced apprenticeships are Health, Public Services and Care (35%), Retail and Commercial Enterprise (23%) and Business, Administration and Law (28%). The sectors popular with men tend to have larger differentials than those popular with women. For example, the premium to starting an apprenticeship in Engineering is particularly high. At the other extreme, there are apprenticeship sectors that have a negligible or lower premium than alternatives for people educated to the same level. This includes having an apprenticeship in service enterprises (such as hairdressing) for women educated to Level 2 or Level 3 and childcare at Level 3 (also affecting women).<sup>11</sup> Thus, much like university degrees, potential ‘returns’ to an apprenticeship vary across subject specialisms.

The above analysis considers those who started an apprenticeship, even if they didn’t complete one. In general, the earnings differentials are higher for completers compared to non-completers. Interestingly, men who complete an advanced apprenticeship in engineering earn more on average than men with a degree at age 28 (which is also true when controls are included).<sup>12</sup> This is shown in Figure 5.

The implication of this analysis is that the ‘value’ of apprenticeships (as measured by labour market earnings) differs very markedly depending on both the level and sector of apprenticeship. Furthermore, this analysis pertains to a cohort of students who undertook their apprenticeships before the big increase from 2010. The majority of these students had done their apprenticeship by the time they were 21 years of age. We need to be very careful about extrapolating these earnings differentials to recent times, where so much of the recent growth has been among those aged over 25 years of age – for whom most apprentices are ‘conversions’ (i.e. ‘converting’ existing employees into apprenticeships). As discussed by Fuller and Unwin (2017), this poses two problems. First, there is a danger that these apprentices are being accredited for their existing skills without spending sufficient time training to update or upgrade their skills, or retrain in a new occupational fields.<sup>13</sup> Second, the practice does not generate sufficient new employment opportunities for young people.

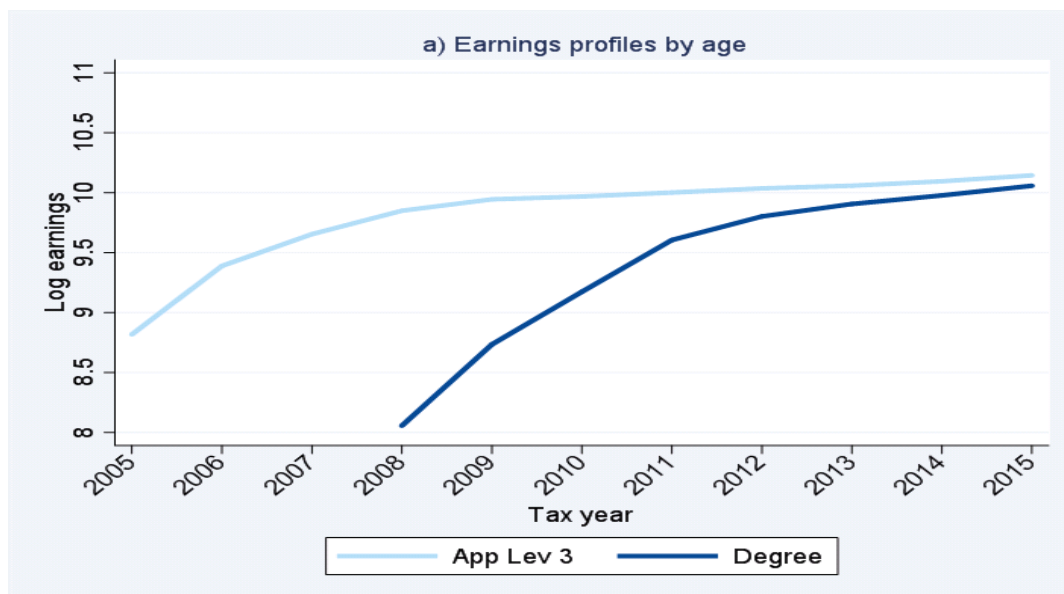
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<sup>11</sup> Note that most sectors show an earnings premium at age 23, even if they do not at age 28.

<sup>12</sup> Men with an advanced Apprenticeship in Engineering earn about the same as men with an Engineering degree at age 28 after controlling for other factors, including experience.

<sup>13</sup> They also make the point that enabling adults to gain qualifications through work is very important for their mobility but this should be done through Accreditation of Prior Learning (APL).

**Figure 5: Median earnings differential for men who completed a degree versus completion of an advanced apprenticeship by year (for GCSE cohort of 2003)**



With regard to other countries, it is not always the case that apprenticeships lead to an increase in wages in the medium term over and above alternatives such as classroom-based vocational education. One of the most convincing studies on this is for Austria (by Fersterer et al. 2008) who find that a year of apprenticeship training generates an increase in pay of slightly more than 5 per cent. There is more widespread evidence that apprenticeships ease the school to work transition for young people (e.g. as reviewed by Wolter and Ryan, 2011). A recent paper by Hanushek et al. (2017) suggests that the employment advantage that young workers with apprenticeships have over those with general education in early years is reversed later in the lifecycle (from about 50) – with a particularly strong pattern in the ‘apprenticeship countries’ of Denmark, Germany, and Switzerland. They conclude from this that vocational training should not substitute for providing strong basic skills. This needs to be a core part of all education and training programmes for young people.

## 6. Conclusion

Over the last ten years, the increase in the number of apprenticeship starts has been driven mainly by those over 25 years of age (and to a lesser extent those aged between 19 and 25). In that many of these apprenticeships are ‘conversions’, it would seem unlikely that they would have the same added value to individuals as compared to apprenticeships that facilitate transition to a skilled job in the labour market. This will be examined in a forthcoming CVER

discussion paper by McIntosh and Morris (University of Sheffield). Even when we investigate the ‘value’ of apprenticeships to young people, we find a great deal of variability by sector and level. This implies that the value of a given number of apprenticeship starts depends on their composition. Furthermore, efforts to improve quality can have a direct impact on quantity – for example, stricter standards can mean that ‘low quality’ apprenticeships are not offered in the first place. One can increase investment in quality apprenticeships (i.e. paying attention to the level and context) or increase the number of apprenticeships. For given resources, a higher weight placed on the former must imply a smaller rate of growth in the number of apprenticeship starts.

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