

BETTER APPRENTICESHIPS

Access, quality and labour market outcomes in
the English apprenticeship system

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About the reports

This volume contains two reports commissioned by the Sutton Trust from teams at UCL and LSE.

Apprenticeship Quality and Social Mobility

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Foreword

After many years of neglect, it has been heartening to see the government's recent focus on apprenticeships, most notably in the establishment of the training levy and new Institute for Apprenticeships. Too often in the UK vocational qualifications are seen as 'second best', but in countries like Germany and Switzerland, as I have seen first-hand, apprenticeships have as high a status as university degrees. But high quality and high status go hand in hand. We still have a long way to go to emulate the best apprenticeship systems on the continent.

While recent policies have been targeted at increasing the numbers of apprenticeships on offer, we need to look at the quality. For apprenticeships to be genuine paths to success for young people, they must both embody high-quality provision focused on increasing the skills of the apprentice, and must also facilitate further progression. Too many apprenticeships in this country are at level 2 (GCSE level), with no straightforward path towards higher levels. Too many apprenticeships are box-ticking exercises for companies who wish to accredit the existing skills of current staff.

For apprenticeships to provide a real path to social mobility, we need more high-quality apprenticeships targeted at young people. We also need to have automatic and smooth progression from level 2 to level 3, or GCSE to A level standard. In addition, while the growth of higher and degree-level apprenticeships in recent years has been welcome, we need a much faster expansion of these places. There are fewer than 8,000 higher and degree level apprenticeships taken up by young people each year, compared to 330,000 taking up degree courses at university. High level apprenticeships can really provide a genuine alternative for young people. Working for Siemens, I found their apprentices were at least as well qualified as science postgraduates like me.

Previous Sutton Trust research has shown that completing the best apprenticeships (at level 5) can bring lifetime earnings £50,000 higher than an average degree, allowing for student debt and the chance to earn while you learn. While university graduates rack up close to £50,000 in debt by the end of their studies, one in five graduates are not in a graduate-level job three years after graduation. Apprenticeships should have a far greater role to play in providing alternatives to degrees.

However, it is also crucial that the issue of access is tackled. As this report shows, disadvantaged young people are less likely to enter the best apprenticeships than their better-off peers. Also of concern are the gender gaps, with female apprentices concentrated in sectors with low earnings after completion. These inequities need to be addressed, with better guidance for all young people. This should emphasise the benefits of apprenticeships and should be communicated more widely in schools.

Apprenticeships, in their current form, are simply not up to the task of helping disadvantaged young people. But they do have the potential to be drivers of social mobility. This is why our report today urges that we need to focus apprenticeships more on access and quality, than quantity. And the Institute for Apprenticeships should lead the way.

It is also why we at the Sutton Trust will launch a campaign on this issue in 2018, to ensure better apprenticeships, open to all.

I am very grateful to the research teams at the LSE Centre for Vocational Education and the UCL Institute of Education for this research on what is a crucial topic.

Sir Peter Lampl
Founder and Chairman of the Sutton Trust and Chairman of the Education Endowment Foundation

Recommendations

1. **There should be more advanced and higher apprenticeships**, targeted at younger age groups, to give young people a platform for progression to higher level learning and careers including through university.
2. **Apprenticeships should all be of good quality**, offering in-programme formative assessment and feedback, and combining workplace training and off-site learning. Apprentices should develop a substantial amount of new occupational expertise beyond the confines of a narrow job role, including the capability to adapt to change and the currency to progress further in terms of education and the labour market.
3. **Progression for those beginning on lower level apprenticeships should be seamless and automatic.** Level 2 and 3 apprentices should not hit arbitrary glass ceilings and have similar chances as their A-level or graduate peers to access the next level, including higher and degree apprenticeships.
4. **The inspection process should enable judgements about quality**, ensuring that evidence of the extent to which the Institute for Apprenticeships' vision of apprenticeships, requiring substantial on and off the job training leading to a recognised occupation, is being met. Ofsted's remit should focus more explicitly on content, training and trainer quality, progression, and the production of a national resource base to support improvement
5. **Inspections should include specific processes for ensuring that existing employees ('conversions') are participating in substantial training to develop new skills and occupational expertise.** Good quality apprenticeships need to be provided for young people and the apprenticeship levy should be used to provide real training and not the accreditation of existing skills.
6. **The Institute for Apprenticeships and the levy should have a widening access function** to ensure access to advanced and higher apprenticeships for those from less advantaged backgrounds.
7. **Restrictions on intermediate and advanced apprenticeships offering qualifications should be lifted.** Any young person completing intermediate or advanced apprenticeships should have the credentials to progress to a higher level either within the occupational field or the education system.
8. **There should be a stronger drive from the government to support and encourage employers to improve the quality and availability of apprenticeships for young people, and to young people to take them up.** Careers advice should more strongly take into account the benefits of apprenticeships as a route to labour market recognition and educational progression.
9. **Gender segregation should be tackled** through better careers advice and not reinforcing gender stereotypes. Advice should be clearer about the potential careers, salaries and progression prospects that are likely to arise from undertaking an apprenticeship in different sectors. Employers should be aware of the need to diversify the employment pool in the interests of using all available talent and advancing social mobility for all groups.
10. **Government should ensure adequate funding for apprenticeships in non-levy paying employers.** Adequate funding, across sectors, is essential for safeguarding quality and ensuring a valuable experience for apprentices.

Executive summary:

Apprenticeship quality and social mobility

- This report analyses whether sufficient quality indicators are in place to facilitate social mobility for young people (aged 16-24) through apprenticeships. It also provides an analytical framework to support quality improvement through a more 'expansive' approach.
- Good quality apprenticeships lead to improved employment and pay prospects, and enable apprentices to progress further in their careers and education. Their quality arises from a shared understanding about and sustained commitment to ensuring the needs of both the employer and the apprentice are met. However, as this report shows, the current apprenticeship model and system of quality assurance are not fit for purpose.
- Although England has some very good quality apprenticeships, too many are failing to provide sufficient training and access to skilled work to enable participants to progress. There is no provision in current policy to build on the expertise of good quality providers and use it to raise the capacity in sectors and sub-sectors where quality is weaker.
- Instead, the focus is still on boosting numbers rather than on the hard and sustained work required to improve quality. The current top-down and inspection-led approach of the government and its agencies should be replaced by a developmental approach involving all partners.

There are four systemic problems with the current model:

- First, it is assumed that any job role and workplace will provide a suitable context for an apprenticeship. As a result, there is considerable inconsistency across sectors and levels.
- Second, the segmentation of apprenticeship by level puts an artificial break on progression. There is no expectation that apprenticeship will enable progression to the next occupational or educational level. As the majority of apprenticeships are at level 2 and as the majority of apprentices under the age of 25 start their training below their existing level of educational attainment, many apprentices are treading water. This problem has been further entrenched by the IfA's decision to remove qualifications from the new intermediate and advanced apprenticeship standards except in 'special circumstances'. Yet higher and degree apprenticeships are being promoted precisely because they offer individuals the chance to earn money and gain a qualification.
- Third, existing employees can be 'converted' into apprentices. They comprise two thirds of apprentices, making apprenticeship a largely 'adult' programme. Although this practice was highlighted in a select committee report in 2008, there is still no robust procedure in place to ensure existing employees are improving their skills rather than just being accredited for their existing competence.

- Fourth, the funding arrangements do not incentivise quality. The apprenticeship levy may encourage more 'conversions' as a way for large employers to reclaim their money. As it is based on pay-roll, it will also raise more money in London and the South East of England and so may contribute to further regional inequality. The new funding bands (ranging from as little as £1,500, and up to £27,000) allocate more money to higher and degree apprenticeships than the lower-level apprenticeships. Level 2 apprentices and particularly young women in low-paid jobs are not benefiting from an opportunity that will set them on an upward career and income trajectory, nor is their apprenticeship enhanced through the availability of more generous funding, which could be used to augment the content and rigour of the training.

These systemic problems are exacerbated by weak demand for advanced and higher level skills across the economy, and particularly in some low paid service sectors. This acts as a break on the ability of apprenticeship to lever social mobility.

Executive summary:

Apprenticeships for young people in England: Is there a payoff?

- As policymakers seek to increase the number of apprenticeships, we ask whether there is an earnings differential from starting an apprenticeship for young people. To address this question, we use administrative data on education and earnings ('longitudinal educational outcomes') for those who completed the compulsory phase of education, at age 16 in 2003. We follow them until they are 28, in 2015, and estimate the earnings differential at this time.
- About 17 percent of 16-year-olds in 2002 started an apprenticeship by the age of 28 – where for this cohort, starts only took place within five years of finishing GCSEs. About 60% of these are classified as an 'intermediate' apprenticeship (or level 2) with the remainder mainly 'advanced' apprenticeships (or level 3). Most people starting an apprenticeship achieve a highest level of qualification at either level 2 (equivalent to GCSE) or level 3 (equivalent to A-level). Higher apprenticeships were only introduced in 2010 and hence are not considered here.
- While 17% of the cohort start an apprenticeship, only 2% of the cohort progress from an intermediate to an advanced apprenticeship. This has increased to about 4% in more recent times – for the cohort finishing GCSEs in 2011. In other words, just 17% of the original cohort of young people we observed who started an intermediate apprenticeship progressed to an advanced one, though this has risen to approximately 25% more recently.
- Apprenticeships are made up of a number of different components (or aims). During this period, only half those starting an advanced apprenticeship achieved most or all of their aims, and the figure is even lower for those starting an intermediate apprenticeship. Non-completion is still a big issue which has been documented in recent research. However, we generally focus on the payoff to *starting* an apprenticeship because the potential benefit is not only in certification but also on-the-job training, achievement of some if not all the aims and the potential connections made possible through the apprenticeship programme.
- There is strong concentration of men and women within different apprenticeship sectors. For intermediate apprenticeships, most men are classified within Engineering and Manufacturing Technologies (21%), Construction Planning and the Built Environment (29%), Retail and Commercial Enterprise (17%) or Business, Administration and Law (13%). For advanced apprenticeships, there is even more concentration, as 53% of men are classified as within Engineering and Manufacturing Technologies and 26% are within Construction, Planning and the Built Environment. For women doing intermediate apprenticeships, the biggest sectors are Health, Public Services and Care (22%), Retail and Commercial Enterprise (37%) and Business, Administration and Law (32%). At the advanced level, these are also the biggest sectors: Health Public Services and Care, 35%; Retail and Commercial Enterprise, 23%; Business, Administration and Law, 28%.
- Those starting an apprenticeship are more likely than average to be white and to speak English as a first language. Although the number of apprenticeships has increased over time, this has not changed. Furthermore, those from disadvantaged backgrounds – especially men - are less likely to start an apprenticeship. The percentage of disadvantaged men who start advanced apprenticeships is the same as those with university degrees. For this cohort, the percentage of men and women with an advanced apprenticeship who were eligible to receive free school meals when at school is 7% and 11% respectively. This compares to 12% and 14% - for men and women respectively – who start an intermediate apprenticeship. The average person in the cohort eligible to receive free school meals when at school is 14%.

- After controlling for factors including prior attainment, secondary school attended, demographics and experience, our results show a positive earnings differential from starting an apprenticeship in many contexts, though we cannot of course control for other factors such as social skills, motivation and other attributes valued by employers, so the earnings differential is not necessarily attributable wholly to apprenticeships.¹ By the age of 28, if we consider those educated up to level 2, the baseline earnings for men and women is £19,709 and £13,621 respectively. 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 factors we can observe - 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 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 same average earnings of those whose highest education was A-levels in 2015, when they were aged 28. After taking account of factors we can observe, 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 left 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.
- The gender differences in the earnings differential are particularly striking, especially for those educated to level 3, where they are over three times larger for men than for women. This is mainly driven by the sector of apprenticeship – men are more prominent in higher paying sectors. It is disturbing that women enter sectors with much poorer prospects and that the situation hasn't changed over the last ten years.
- The earnings differential is higher for those who complete the full apprenticeship programme than non-completers and for 'advanced apprenticeships' than 'intermediate apprenticeships'. Although those from disadvantaged backgrounds are less likely to access advanced apprenticeships than the average student, the earnings premium attached to starting an apprenticeship is the same for them as for others.
- Interestingly, men who complete an advanced apprenticeship in engineering earn more on average than men with a degree in engineering at age 28 (although this differential disappears after taking account of all observable characteristics and post-education labour market experience). At the opposite 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). Thus, much like university degrees, potential 'returns' to an apprenticeship vary across subject specialisms.
- Since good apprenticeships for young people are much scarcer than university degrees, it is important to address barriers to creating more such opportunities where there is clearly a positive payoff. Most businesses will not benefit from the focus on training provision for levy-payers as this only applies to the largest employers (accounting for only 2% of employers in the UK). In addition to increasing the incentive for businesses to recruit young people as apprentices, there is also a need to address the under-representation of those from poor backgrounds and those from minority groups.

¹ As we cannot control for many of the qualities employers care about when recruiting apprenticeships, such as motivation and social skills, our earnings differentials do not reflect the causal effect of starting an apprenticeship and should not be interpreted as such. The causal effect of starting an apprenticeship is likely to be smaller than the earnings differential would suggest. Furthermore, these earnings differentials are estimated when people are young and might change as the cohort gets older. We generally compare men and women who started an apprenticeship to those who achieved at most level 2 or level 3 qualifications at age 28.

APPRENTICESHIP QUALITY AND SOCIAL MOBILITY

Alison Fuller and Lorna Unwin
– November 2017



1. Introduction

Good quality apprenticeships have always been associated with social mobility for young people. This age-old work-based model of learning for developing expertise continues to be used and valued throughout the world. Done well, it enables an individual to become a recognised skilled member of an occupational community, able to work without supervision and progress further in their career. Their employer renews the capacity in the workplace so both the individual and the business benefit. For this definition to hold true, however, there has to be a sustained commitment to quality by everyone involved. This has always been a challenge, but today the stakes are higher as government has positioned apprenticeship as a potential silver bullet for improving social mobility.

This report analyses current apprenticeship policy and provision in England to assess whether sufficient quality indicators are in place to facilitate social mobility for young people (aged 16-24) through:

- Improved employment and pay prospects, reflecting the trained, skilled worker's positive contribution to business productivity and associated labour market recognition;
- Achievement of some form of certification, recognised in the national education system as well as by employers across the economy, guaranteeing progression up both the occupational and educational ladders.

We argue that the continued focus on increasing the number of apprentices coupled with a narrow interpretation of how to govern and sustain quality mean that too many apprenticeships are falling short of the Institute for Apprenticeship's (IfA) current definition that 'Not all training is an apprenticeship'.² As a consequence, the apprenticeship is not yet fulfilling its potential as a vehicle for social mobility, or for raising skill levels across the economy.

All education and training programmes are subject to inequalities in relation to gender, ethnicity, disability and geographical availability. We pay attention to these issues, but the key focus is on whether current apprenticeship provision has sufficient quality measures in place to deliver social mobility regardless of the background of the apprentice, their location or occupational sector.

In 2015, a national target was set for three million apprenticeship registrations by 2020. So far, recruitment has been driven by 'adult apprenticeships' for people aged 19-24 and 25 and over. This reflects the practice of 'converting' existing employees (including 16-18 year olds) into apprentices, to which we first drew attention in 2008.³ The most recent government survey of apprenticeship pay reported that two thirds of apprentices were 'conversions'.⁴ This poses two problems. First, there is the 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 field. Enabling adults to gain qualifications through work is very important for their mobility, but this should be done through Accreditation of Prior Learning (APL). Second, the practice does not generate sufficient new employment opportunities for young people. The practice of conversion highlights the way in which the concept of apprenticeship has been stretched to achieve numerical targets rather than to ensure consistent quality.

For more than a decade, numerous official inquiries and research reports have highlighted concerns about quality, including the amount of time spent in training on and off-the-job, the balance between training and assessment, progression from intermediate apprenticeship (level 2) to advanced

² IfA (2017) Draft Quality Statement for Consultation – issued October.

³ For details see, for example: Fuller, A. (2016) *The Growth of Apprenticeship in England: Doubts Beneath the Numbers, Challenge*, 59(5): 422-433; Fuller, A., Leonard, P., Unwin, L. and Davey, G. (2015) *Does apprenticeship work for adults? The experiences of adult apprentices in England*, Report for the Nuffield Foundation. London: UCL Institute of Education; Fuller, A. and Unwin, L. (2012) *Banging on the Door of the University: The Complexities of Progression from Apprenticeship and other Vocational Programmes in England*, SKOPE Monograph 14, University of Oxford: SKOPE; Fuller, A. and Unwin, L. (2010) 'Change and continuity in apprenticeship: the resilience of a model of learning', *Journal of Education and Work*, 25(5): 405-416.

⁴ BEIS (2017a) *Apprenticeship Pay Survey 2016: England*, BEIS Research Paper Number 15, www.gov.uk/government/publications/apprenticeship-pay-survey-2016.

apprenticeship (level 3), gender and ethnicity imbalance, and apprentice pay levels.⁵ The majority of apprentices under the age of 25 start their training at a qualification level below that of their existing level of educational attainment.⁶ There have been attempts to address some of these concerns through the introduction of a 12-month minimum duration for an apprenticeship with 20% of time to be spent training off-the-job, the strengthening of maths and English requirements, and the introduction of employer-led apprenticeship standards in 2016.

In April 2017, new funding arrangements including an apprenticeship levy to be paid by employers with payrolls over £3 million were introduced. It is too early to draw any conclusions about the effect of the levy on overall volumes. However, there was a reduction of 61% in apprenticeship starts in the final quarter of 2016-17 (May to July) compared with the same period the previous year.⁷ Concerns about the potential impact of the levy on both recruitment and quality have been raised by leading employer associations including the Confederation of British Industry, the Institute of Directors, the Engineering Employers Federation and the Federation of Small Businesses since it was first announced by George Osborne in his 2015 budget. As well as the expected criticism that the levy poses an additional tax on businesses at a time of economic uncertainty, critics have also highlighted the levy's in-built incentive to rebadge existing in-house training (including graduate schemes) as apprenticeships without investing new money. The CIPD has called the levy 'a lesson in how not to introduce a new policy'.⁸ A survey of 1400 businesses (10% of whom were levy payers) in September 2017 by the British Chambers of Commerce found that six months after its introduction, the majority of both levy and non-levy paying employers were still unsure about how the new funding arrangements worked.⁹

A set of fifteen 'funding bands' now covers both the existing apprenticeship frameworks and the new standards.¹⁰ The bands range from £1,500 to £27,000, with each band representing the upper limit, though employers and training providers can negotiate a lower price to deliver their apprenticeships. There is separate funding to cover training related to maths, English and functional skills. Apprentices can be funded to undertake an apprenticeship at the same or lower level than any qualification they have already acquired. This is allowable if 'the apprenticeship will allow the individual to acquire substantive new skills and you can evidence that the content of the training is materially different from any prior qualification or a previous apprenticeship'.¹¹

Our analysis will show that, given the continuation of the practice of conversion, the achievement of an overall numerical target (covering all age-groups) will remain relatively straightforward (notwithstanding uncertainties about the effect of the levy). However, for apprenticeships to deliver stronger social and economic benefits requires a much more robust focus on quality. This report does not pretend that organising good quality apprenticeships is easy. Even in countries with well-regarded apprenticeship systems such as Germany and Switzerland, maintaining the level of quality required to achieve social mobility and meet employers' requirements necessitates constant attention.

There are three key reasons why apprenticeships are getting harder for governments to manage, each of which presents challenges for social mobility. First, the lifeblood of good quality apprenticeships is sufficient demand in the economy from employers who want to invest in growing a skilled workforce. Second, the shift to a service-based economy and more short-term business horizons pose challenges for in-depth models of learning such as an apprenticeship. Third, to attract suitable candidates, apprenticeships have to compete with an expanding higher education sector, which promises better outcomes for social mobility.

⁵ Recent examples include: BEIS and Education Select Committee (2017) *Apprenticeships*, Report of the Sub-Committee on Education, Skills and the Economy, London: House of Commons; Pullen, C. and Clifton, J. (2016) *England's Apprenticeships: Assessing the New System*, London: IPPR; NAO (2016) *Delivering Value through the Apprenticeships Programme*, London: National Audit Office.

⁶ Social Mobility and Child Poverty Commission (2016) *Apprenticeships, young people and social mobility*. Submission to the Education, Skills and Economy Sub-Committee Inquiry on Apprenticeships.

⁷ DfE (12 October, 2017) *Further Education and Skills in England*, SFR 53/2017

⁸ CIPD (2017) *From 'inadequate' to 'outstanding': making the UK's skills system world class*, London: CIPD.

⁹ BCC and Middlesex University (2017) *Workforce Survey 2017: Apprenticeship Levy*.

¹⁰ <https://www.gov.uk/government/publications/apprenticeship-funding-bands>

¹¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/605004/EMPLOYER_RULES_V2_FINAL.pdf

There are plenty of examples of good quality apprenticeships in England including some world-class provision. These exhibit what we have termed 'expansive' characteristics and show that apprenticeships can be a powerful vehicle for social mobility. It is time to build on this best practice to enable employers and training providers to improve the quality of all apprenticeships.

Following this Introduction, the report is divided into eight further sections.

2. Research questions and methodology

Our research was guided by the over-arching question: What are the criteria for good quality apprenticeships for young people in the 16-24 age group? We used a thematic approach to examine the factors that might generate quality and how far they were being supported through and measured by current apprenticeship policy, including the introduction of the apprenticeship levy. The key themes which shaped our analysis were: a) the location of apprenticeships within the existing ladders of progression in a range of contrasting occupational sectors; b) the relationship between an apprentice's prior educational attainment, occupational experience and their apprenticeship; c) the labour market and educational currency afforded by the apprenticeship certification; d) the government's structures and processes for measuring and supporting quality; and e) the role of employers and training providers in sustaining quality.

In our analysis, we drew on findings from a review of the following evidence:

- a) The international research literature on apprenticeship quality, with reference to issues of social mobility and progression.
- b) The evolution of apprenticeship policy and key reforms with respect to identifying and measuring quality criteria, including the introduction of the apprenticeship levy.
- c) Case study research of apprenticeship provision we have conducted in a range of sectors.
- d) The publicly available statistics on patterns of participation in apprenticeship, with reference to apprentice characteristics, sectors and levels.

Defining apprenticeship

Contemporary apprenticeship straddles the worlds of employment and education. It continues to be an important part of national skills policies, and in many European countries it is an institution within the upper secondary education systems. Apprenticeship systems reflect the culture, economic and employment conditions, and institutional structures of their national contexts.¹² There is, however, a sufficient level of shared understanding about the fundamental purpose of apprenticeship to enable useful comparisons to be made about the strengths and weaknesses of different systems.¹³ The international literature suggests that for a training programme to warrant being defined as an apprenticeship, it should conform to the following criteria:

- Develops a clear and recognised occupational/professional identity.
- Develops durable, broad-based, transferable skills as well as specific occupational competence through a combination of workplace and off-the-job training and further education to nationally agreed standards.
- Results in a form of nationally recognised certification that guarantees further progression in the occupational field, the labour market more generally, and education.
- Requires well-trained and appropriately resourced vocational teachers and trainers.
- Operates through co-operation between learning sites. This may include forms of training partnership between employers - notably small and medium-sized enterprises (SMEs) - to enable apprentices to develop broader and/or deeper levels of expertise than would be possible in one organisation.

¹² Fuller, A. and Unwin, L. (2012) (eds) *Contemporary Apprenticeship: International Perspectives on an Evolving Model of Learning*, London: Routledge.

¹³ Deitmer, L., Hauschidt, U, Rauner, F. and Zelloth, H. (2013) (eds) *The Architecture of Innovative Apprenticeship*, Dordecht: Springer; OECD (2012) *Note on 'quality apprenticeships' for the G20 Task Force on Employment*, Paris: OECD.

- Requires close collaboration between employers, education and training providers, and government. (In countries with strong systems, trades unions and works councils would also be included.)

For the OECD, the development of durable transferable skills for 'productive careers' marks a key difference between an apprenticeship and shorter and less intensive forms of work-based learning such as internships or work placements.

Although the Elizabethan Statute of Artificers set rules for apprenticeships as early as 1563 (the statute was repealed in 1814), the UK as a state only began to consider apprenticeships as a potential pathway within its publicly-funded education and training system in 1983 when it enabled employers to receive funding under the Youth Training Scheme (YTS). Apprenticeship numbers had been declining since the mid-1960s and some employers used the opportunity of YTS to adapt their apprenticeship programmes to fit the new criteria.¹⁴ This disrupted the traditional demand-led and private arrangement between an employer and an individual. Since then there has been frenetic policy activity across vocational education and training.

The aim of the Modern Apprenticeship (MA) programme, introduced in 1994 was to boost technical skills at Level 3. In line with the existing youth training schemes, funding for the MA was tied to the achievement of mandatory competence-based and assessment-driven National Vocational Qualifications (NVQs). When NVQs were first made available in 1987, they formed part of the Conservative government's agenda, led by the then Manpower Services Commission (MSC), to improve what it saw as a failing vocational education and training system at a time of rapidly rising youth and adult unemployment. This was set within the broader context of the government's aim to create a more market-led approach to further education in which students became customers and private sector training providers could compete with colleges for government funding to deliver qualifications. NVQs were central to these plans because their design meant that an individual no longer had to attend a college course to gain a qualification. Now their existing skills could be assessed against a set of competence criteria. If they had gaps in their competence, these could be filled by a short course of training. This approach has had a lasting and significant impact on government-funded training programmes. The Train to Gain initiative, launched in 2006 to increase the numbers of adults already in the workforce with Level 2 and Level 3 qualifications, was widely criticised as a waste of public money for not ensuring that employees were training to acquire new skills.¹⁵ Yet, there was no official recognition that the underlying cause of the problems lay in the scheme's assessment and accreditation model.

In 2001, the Modern Apprenticeship was split into two levels: foundation level 2 (now intermediate) and advanced (level 3). To promote progression, a technical certificate (a new term for existing knowledge-based qualifications) was included, though this was abandoned in 2006. In 2004, all remaining youth training schemes were collapsed into a new 'brand' or wrapper, *Apprenticeships*. This included programme-led pre-apprenticeships (abolished in 2009) and young apprenticeships for 14-16 year olds (abolished in 2011). In 2010, higher apprenticeships were introduced, leading to a foundation degree or equivalent qualifications, followed by degree apprenticeships in 2015.

The 2009 *Apprenticeship, Skills, Children and Learning Act* placed apprenticeship on a statutory footing in response to concerns about quality. As a result, the Specification of Apprenticeship Standards for England (SASE) stated that apprenticeships should comprise five elements:

- A competence-based qualification
- A knowledge-based qualification, which could be combined with an NVQ
- Transferable skills (functional skills or GCSE in English and mathematics, and ICT)
- Personal learning and thinking skills
- Employee rights and responsibilities

The 2012 Richard Review of Apprenticeships threw this up in the air and proposed that an apprenticeship should be based on an agreed standard for a specific occupation. The use of the term

¹⁴ Ryan, P. and Unwin, L. (2001) Apprenticeship in the British 'Training Market', *National Institute Economic Review*, No.178, pp.99-114.

¹⁵ NAO (2009) *Train to Gain: Developing the Skills of the Workforce*, London: The Stationery Office.

'occupation' as opposed to 'job' reflected the view that an apprenticeship should enable an individual to develop an occupational identity and become part of an occupational community. This translates relatively easily in occupational fields such as engineering, construction, hairdressing, accountancy and parts of hospitality (such as chefs), but is more challenging in other sectors such as retail, customer service, management and business administration, where the concept of occupation is less well-developed.¹⁶ In 2015, the government in England announced that the existing apprenticeship frameworks (around 230 covering some 700 pathways) would be phased out and replaced by apprenticeship standards designed by groups of employers (known as Trailblazers). The new standards would ensure that apprenticeship training went beyond the needs of a single employer and result in 'a rigorous system to ensure that the content of each apprenticeship is of high quality'.¹⁷

The most recent national survey of intermediate, advanced and higher apprenticeships shows high levels of 'satisfaction' with training and overall experience.¹⁸ Nearly all level 2 and level 3 apprentices felt that they acquired or improved their skills as a direct result of their apprenticeship (97%). However, there are clear indicators in the survey of considerable variation in the length and type of training and employment status in apprenticeship between sectors, levels and age groups. Around one third of apprentices were not aware their course or training was an apprenticeship. Younger apprentices were much more likely to be employed only for the duration of their training. Approaching half of apprentices received five hours or less training per week. Advanced apprentices and those specifically recruited to an apprenticeship had received higher levels of formal training. Higher apprentices reported that much of their training time was spent on informal training during usual work activities (3.4 hours). Amounts of training varied by sector, with construction and engineering apprentices receiving the most.

In its review of apprenticeships in 2016, the National Audit Office (NAO) found that, although the DfE had a strategy for measuring apprenticeship recruitment against the three million target, it had provided no success measures in terms of 'how the programme is impacting on skills levels, addressing skills gaps or improving achievement rates'.¹⁹ Furthermore, the DfE had 'an overly optimistic view of its potential to influence the way that employers and training providers deliver apprenticeships'. In the next section we use the latest statistics to analyse the reality of apprenticeship participation.

¹⁶ Fuller, A. and Unwin, L. (2013) *Apprenticeship and the Concept of Occupation*, London: The Gatsby Charitable Foundation.

¹⁷ HM Government (2015) *English Apprenticeships: Our 2020 Vision*, London: Department for Business, Innovation and Skills.

¹⁸ DfE (2016) *Apprenticeships Evaluation 2015 – Learners*, London: DfE. This is a telephone survey of 5,000 Level 2 and 3 apprentices and 800 higher apprentices – some current and some 'recent completers' (within 12-20 months prior to being interviewed).

¹⁹ NAO (2016) *Delivering Value through the Apprenticeships Programme*, London: National Audit Office.

3. Apprenticeship participation

The most recent full year of statistics (2015/16) suggests that apprenticeship participation is currently at odds with the aim of delivering a highly skilled pipeline of young people into the workforce, particularly in the STEM sectors.²⁰ As Table 1 shows, the majority of registrations ('starts' in policy-speak) are at level 2 (intermediate) and in the older age groups.

Table 1: Starts 2015-16 full year by age and level (rounded nearest 100)

Age	Intermediate Apprenticeships (IA)	Advanced Apprenticeships (AA)	Higher Apprenticeships (HA)	Total
U19	86,900	42,700	1,800	131,400
19-24	84,900	63,100	5,800	153,800
25+	119,500	85,000	19,600	224,100
All	291,300	190,900	27,200	509,400

Table 2 provides a breakdown of registrations by age group, level and gender. The majority (53%) are female (268,740). However, females represent less than half the registrations in the two younger age groups, but are in a clear majority in the 25-plus category. Hence, it is the size of the female representation in the oldest group that accounts for the majority of apprentices being female. Women and men are equally split across the intermediate level, but females are in the majority for both advanced and higher apprenticeships.

Table 2: Starts 2015-16 full year by age, gender and level

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age group, (% female)
U19	39,640	47,300	16,430	26,300	580	1180	131,430 (43%)
19-24	40,530	44,360	32,370	30,770	2,700	3,130	153,860 (49%)
25+	65,630	53,880	56,770	28,240	14,090	5,490	224,100 (61%)
All by gender and level	145,800	145,540	105,570	85,310	17,370	9,800	

The gender distribution is uneven across sectors. The following tables (3-7) show that females predominate in four high volume (in terms of overall size) service sector frameworks and males in engineering. Health and social care has by far the largest number of registrations of any framework. The older age group (25+) predominates in three of the service sectors (customer service, hospitality and catering, and health and social care), but young women under-19 are the largest age group in children's care, learning and development. In contrast, engineering is dominated by young males aged under-19 and 19-24.

²⁰ All statistics reported here can be found at: <https://www.gov.uk/government/statistical-data-sets/fe-data-library-apprenticeships>

The majority of registrations in customer service (76%), hospitality and catering (71%) and health and social care (55%) are on the intermediate apprenticeship. Just under half (47%) of registrations in children’s care, learning and development are intermediate. Engineering is the only sector framework that has a strong majority (78%) of registrations on the advanced apprenticeship. None of the sector frameworks presented in tables 3 to 7 have any registrations for higher apprenticeship.

Table 3: Starts 2015-16 full year by age, gender, level and framework: Customer Service

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age
U19	2,620	1,990	330	190	-	-	5,130
19-24	3,470	2,850	1,330	740	-	-	8,390
25+	4,960	4,260	2,500	1,130	-	-	12,850
Total							26,370

Table 4: Starts 2015-16 full year by age, gender, level and framework: Hospitality and Catering

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age
U19	2,630	2,720	270	330	-	-	5,950
19-24	3,810	3,890	1,640	1,570	-	-	10,910
25+	6,430	3,100	2,990	2,290	-	-	14,810
Total							31,670

Table 5: Starts 2015-16 full year by age, gender, level and framework: Children’s Care Learning and Development

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age
U19	5,770	220	3,420	90	-	-	9,500
19-24	2,700	180	4,680	370	-	-	7,930
25+	2,350	90	3,490	810	-	-	6,740
Total							24,100

Table 6: Starts 2015-16 full year by age, gender, level and framework: Health and Social Care

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age
U19	3,470	470	720	130	-	-	4,790
19-24	10,910	1,940	7,490	1,270	-	-	21,610
25+	25,790	4,810	24,650	4,900	-	-	60,150
Total							86,550

Table 7: Starts 2015-16 full year by age, gender, level and framework: Engineering

Age	IA female	IA male	AA female	AA male	HA female	HA male	All by age
U19	20	810	300	5,860	-	-	6,990
19-24	40	1,370	210	5,270	-	-	6,890
25+	20	1,510	60	1,690	-	-	3,280
Total							17,160

Table 8 presents the number of registrations in accountancy by age, gender and level. It shows that 40% of registrations were on the intermediate apprenticeship, 42% were on the advanced and 8% on the higher route. In contrast with other service sectors, the majority of registrations were in the under-25 age group, with a reasonable gender balance.

Table 8: Starts 2015-16 full year by age, gender, level and framework: Accountancy

Age	IA female	IA male	AA female	AA male	HA female	HA male	All
U19	820	840	550	720	80	90	3,100
19-24	630	510	890	840	540	550	3,960
25+	310	80	300	80	110	50	930
Total							7,990

The final table (9) presents higher apprenticeship registrations for the two younger age groups in the sector frameworks with more than 100. This shows the diversity across service and STEM sectors.

Table 9: Higher Apprenticeships by age U19, 19-24, and framework 2015-16 with more than 100 starts

Framework	U19	19 - 24	Both age groups
Accountancy	170	1,090	1,260
Business Administration	250	890	1,140
Care Leadership and Management	-	690	690
Digital and Technology Solutions Professional	-	250	250
Engineering Technology	-	210	210
IT and Telecoms Professional	320	720	1,040
Management		560	560
Network Engineer		100	100
Professional Services	200	150	350
Project Management	100	150	250
Social Media and Digital Marketing		120	120

The expansion of higher and degree apprenticeships opens doors to higher-level jobs and occupations, although they do not guarantee a higher quality experience. However, the new funding bands mean that more money is allocated to supporting these apprenticeships than the lower-level apprenticeships still using existing sector frameworks. This means that individuals and particularly young women accessing level 2 apprenticeships in low-paid jobs are not benefiting from an opportunity that will set them on an upward career and income trajectory, nor is their apprenticeship enhanced through the availability of more generous funding, which could be used to augment the content and rigour of the training.²¹

From the perspective of progression, this statistical picture is troubling for two main reasons. The segmentation of apprenticeship by level means that each level is self-contained. To take the example of catering: a kitchen assistant level 2 apprentice would not necessarily be able to access a level 3 chef training or the qualifications associated with it. It follows that the combination of this segmentation and the size and variable quality of the intermediate apprenticeship in the overall apprentice population have a significant impact on the programme's ability to deliver the progression that would enable many more apprentices to access advanced training, qualifications and skills, and the social and economic benefits they generate. If the apprentice is in a workplace that does not offer progression to a role with a higher level of skill, then they will tread water in relation to their occupation. If apprentices are following apprenticeships that do not include qualifications which can take them to the next qualification level, then this inhibits their development of generic skills and wider educational progression.

Our analysis highlights two areas of concern. First apprenticeships are not structured in a way that enables **all** participants to move up an occupational and employment ladder. Each apprenticeship is self-contained and defined by the IfA as employment in a 'job role' that 'together with the off the job training, provides opportunities to cover the full occupational profile and learning all of the skills, knowledge and behaviours required'.²² As we discuss in more detail below, this conflation of 'job role'

²¹ Marsh, R. (2017) 'Who deserves a £2,000 apprenticeship?', FE News, September 1st.

²² IfA (2017) Draft Quality Statement: https://consult.education.gov.uk/apprenticeships/copy-of-institute-for-apprenticeships-statement-qu/supporting_documents/Quality%20Statement%20Draft%20for%20consultation.pdf

with 'occupational profile' is highly problematic as it assumes that all jobs have the necessary breadth and depth to equip apprentices with a platform for progression and, hence, any job is suitable for an apprenticeship. Second, the content of apprenticeships is not consistently sufficient (particularly at level 2) to enable participants to move up the educational ladder.

These systemic problems are exacerbated by weak demand for advanced and higher level skills across the economy, and particularly in some low paid service sectors. Currently, apprentices under the age of 19 receive the minimum apprentice wage of £3.50 per hour compared to £4.05 per hour for an employee of the same age. An apprentice aged 19 or over in their first year also receives £3.50 per hour compared with a national minimum wage of £5.60 for 18- to 20-year-olds and £7.50 for workers over 25. Employers can top up an apprentice's wage at their discretion. The latest data on the mean rate hourly rate for apprentices at each level shows there is a big difference between pay at levels 2 and 3 and levels 4 and 5:

- Level 2 - £6.66
- Level 3 - £7.37
- Level 2/3 - £6.98
- Level 4/5 (not disaggregated) – £10.80²³

The data also reveal that many apprentices on levels 2 and 3 (for whom compliance of providers has been monitored) are on less than the minimum wage per hour associated with their age group. The data show nearly one in five (18%) were paid below the appropriate national minimum or living wage. Weak demand coupled with allowing apprenticeships to be associated with low-paid job roles acts as a break on the ability of apprenticeship to lever social mobility.

²³ BEIS (2017a) Apprenticeship Pay Survey 2016: England, BEIS Research Paper Number 15, www.gov.uk/government/publications/apprenticeship-pay-survey-2016.

4. Quality as defined and measured in apprenticeship policy

In its draft quality statement, the IfA defines apprenticeship as follows:

An apprenticeship is a job with training to industry standards. It should be in a **recognised occupation**, involve a substantial programme of **on and off-the-job training** and the apprentice's occupational competence should be tested by an **independent, end point assessment**...Not all training is an apprenticeship. Work experience alone, shorter duration training for a job, attending a course, or assessing and certificating an employee who is already working in the occupation, are all positive forms of learning and accreditation at work but they are not apprenticeships. (IfA's emphasis)

This statement, together with the new standards and the apprenticeship levy, marks a step change from the existing arrangements in five ways: a) an employer-led approach in relation to apprenticeship design and funding; b) apprenticeships defined in the context of occupations, not just job roles; c) the introduction of end-point assessment (EPA); d) the removal of qualifications from intermediate and advanced apprenticeships except in 'special circumstances'; and e) renewed focus on maths and English. These five interrelated dimensions all have an impact on apprenticeship's relationship to social mobility. We examine them in turn.

Role of employers

Employers and the health of the economy more generally are critical to creating and sustaining a quality apprenticeship system. In skills policy documents and ministerial speeches, employers are often referred to as one homogenous group or stakeholder. Yet employers differ in significant ways, most obviously in terms of size, sector, but also in terms of their experience in organising quality apprenticeships or indeed any form of apprenticeship-style training. The demand for skills varies across sectors and employers; from complex skills, which take time to learn, to skills acquired relatively quickly on-the-job. As the previous section showed, the demand for apprenticeships is unevenly spread across individual employers and sectors. It follows that without recognising and developing ways of responding to these differences, the introduction of an employer-led model cannot be viewed as a proxy for a high-quality apprenticeship system.

Sectors such as engineering, construction and accountancy have long traditions in providing and investing in apprenticeships and work-based training to (re-)generate the skilled workforce they require. Well-established sector-based approaches and collective organisational arrangements (facilitated by sectoral and professional bodies) provide capacity, expertise and infrastructure to complement the training provided by individual employers of all sizes. Yet there is no provision in current policy to build on this expertise and use it to raise the capacity in sectors and sub-sectors where quality is weaker.

Employers can recruit apprentices regardless of whether they have trained trainers or have any experience of managing good quality workforce development. Employers are, of course, inspected to ensure they meet health and safety requirements, but beyond that, there is still very little monitoring of their involvement, including in relation to on-the-job training. Training providers are inspected on their compliance with apprenticeship requirements, funding, eligibility criteria, mandatory minimum standards and the support they provide for apprentices. The nature of the inspection regime is, then, further indication of the separation in the government's mind of training from employment. From the apprentice's point of view, they are required to trust the system and hope that they find (or are already in) a job with an employer who is committed to running a good quality apprenticeship.

Currently, the only formal role employers can play in shaping both the structure and content of apprenticeships and apprenticeship policy is to become a member of a Trailblazer Group responsible for designing apprenticeship standards in their sector. Each group has a minimum of ten employers of whom at least two are expected to employ fewer than 50 people. The IfA's 80-page guide for establishing a Trailblazer Group provides detailed instructions for designing standards so that they meet the IfA's rules.

To date there are some 240 groups involving 1,200 employers.²⁴ Since the IfA took over responsibility for approving new standards from the DfE, the Trailblazers have complained that the process is taking too long. Clearly the IfA has to ensure standards are consistent, but the tone of its guide and the nature of the approval process suggests that it has adopted an overly top-down approach which does not position employers (of all sizes and types) as partners with government in the development of apprenticeships.

Occupational Focus

The use of a 'job role' as the basis for designing an apprenticeship has long been seen as overly restrictive when compared to the occupational approach in some other European countries. The IfA's quality statement aims to address this:

An occupation is an all-encompassing term for the role a person is able to perform across a range of employers and workplaces. The concept of an occupation will usually also involve opportunities for progression, both to higher levels within the same occupation but importantly also to occupations with similar skill requirements.²⁵

This definition encompasses a breadth of learning, progression and occupational mobility. Yet in its *Guide for Trailblazer Groups*, the IfA conflates this broad-ranging definition (through references to 'rigorous and substantial training' and 'transferable skills') with the narrower concept of job role.²⁶ The guide states that an 'apprentice occupation', regardless of the level, must:

- Be one for which someone can achieve full competence without the need for further training beyond the apprenticeship.
- Be unique. It should not overlap significantly with an occupation covered by an apprenticeship standard which has already been approved or is in development.

The assumption that achieving 'full competence' means 'no further training beyond the apprenticeship' will be required puts an artificial break or glass ceiling on progression. This is particularly problematic at level 2. It is also contrary to the contemporary understanding that further learning is part and parcel of being a member of a skilled occupation. When we look within the 'levels', there is both overlap and confusion. Competences assigned to level 2 also appear at the other levels. In contrast, when apprenticeships are linked to occupational fields supported by institutional regulation and professional registration, we find much stronger connection between the content of apprenticeship and the occupational career structures.

End-Point Assessment (EPA)

EPA is a common feature of apprenticeships in other European countries, but it is combined with the practice of continuous feedback and review (involving the apprentice, the employer and off-the-job provider) that is central to the maturation principle underpinning apprenticeship.²⁷ When assessment is seen as integral to the whole learning process it generates the information that both the learner and their trainers and teachers need to progress and is, therefore, a key indicator of the quality of a learning programme, whether in a workplace or educational setting.²⁸ Many apprenticeships in England will continue to incorporate continuous assessment, but it is concerning that the IfA's statement on quality only refers to EPA. The exclusion of any reference to the pedagogical purposes and benefits of continuous assessment misses an important opportunity to include it as one of the measures of quality within the inspection regime. Furthermore, an overly dominant focus on EPA continues the assessment-led approach, which has deflected attention away from the quality of actual training in apprenticeship.

²⁴https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/657099/ticklist_03_11_17.pdf

²⁵ IfA (2017) Draft Quality Statement: https://consult.education.gov.uk/apprenticeships/copy-of-institute-for-apprenticeships-statement-qu/supporting_documents/Quality%20Statement%20Draft%20for%20consultation.pdf

²⁶ IfA (2017) *'How to' guide for Trailblazers*, London: Institute for Apprenticeship.

²⁷ Unwin, L. (2017) *The Role of Qualifications and End Point Assessment in Apprenticeships: An International Comparison – available from semta.org.uk*

²⁸ Black, P., Harrison, C., Lee, C., Marshall, B. and Wiliam, D. (2004) *Assessment for Learning*, Maidenhead: Open University Press.

Role of qualifications

Initially, the Trailblazer groups were told they could include qualifications in the assessment plans that accompany Apprenticeship Standards, but the IfA has now decreed that: 'Apprentices can only be required to achieve particular qualifications in certain specific circumstances', defined as where:

- a qualification is a legal or statutory requirement (often referred to as a 'licence to practise')
- a qualification is required for professional registration
- a qualification is widely used as a hard sift when applying for jobs in the occupation involved and without it, an apprentice would be at a significant disadvantage as they try to progress in their career

In its quality statement, the IfA says it will issue 'certification' on completion of the apprenticeship. Employers and apprentices will be able to use this "trusted record of employability as a licence for the occupation and to access related professional status". This seems at odds with the IfA's list of 'special circumstances' (as quoted above), which recognise that: a) a 'licence to practise' is a legal (and sometimes statutory) term applicable in some occupational fields (and therefore limited in use); b) that qualifications are required for professional registration; and c) that employers use qualifications as part of their recruitment process. In its 2001 report for government, the Modern Apprenticeship Advisory Committee, chaired by Sir John Cassels, had a much more robust concept of certification. It stated that: "...it is clear from our market research that the prospect of meaningful qualifications is a very important incentive for those considering entry to modern apprenticeships".²⁹ The report advocated the introduction of an overarching diploma with national recognition and credibility within sectors. This is in line with European countries with strong apprenticeship systems in which final certification provides apprentices with a nationally recognised qualification. It also prefigures a growing international policy interest in the development of apprenticeships that offer a platform for educational as well as occupational and labour market progression, through the availability of nationally recognised dual or hybrid qualifications.³⁰

The restriction on the use of qualifications in the new standards only applies to intermediate and advanced apprenticeships. Yet higher and degree apprenticeships are being promoted on the very basis that they lead to nationally recognised qualifications with direct equivalence in the education system. The message to prospective apprentices on the 'Become an Apprentice' section of the government's website states that: 'Some apprenticeships may also give you an additional qualification, such as a diploma' but does not make it clear which these are and gives individuals limited information for decision-making. To date, there is considerable variability between apprenticeship standards approved by the DfE *prior* to the establishment of the IfA and those that have followed. Some still include qualifications whilst others do not.

Maths and English

In some other European countries where apprenticeship is firmly located within their national education system, apprentices have to continue studying general education subjects including maths, sciences, and languages at the same level as their peers in full-time school. In England, under the Framework model, if apprentices have not already attained GCSEs in maths and English at grade C or above, they have to pass online tests in functional skills (at a level below the vocational qualifications in their apprenticeship), though it is recommended they be offered the opportunity to study for GCSEs. Under the standards model, functional skills (or qualifications) are not mandatory. The supporters of functional skills, including the Education and Training Foundation, argue that many employers value a more applied version of maths and English than GCSEs provide.³¹ Apprenticeships are often attractive to young people because they want to continue learning in a way that is significantly different to school. Yet functional skills do not have the educational or labour market currency of GCSEs.

²⁹ DfES (2001) *Modern Apprenticeships - The Way to Work, The Report of the Modern Apprenticeship Advisory Committee* (the Cassel's Report), Sudbury: Department for Education and Skills.

³⁰ Deissinger, T., Aff, J., Fuller, A. and Helms Jorgensen, C. (2013) *Hybrid Qualifications: structures and problems in the context of European VET policy*, Zurich: Peter Lang.

³¹ ETF (2015) *Making Maths and English Work for All*. Available at http://www.et-foundation.co.uk/wp-content/uploads/2015/04/Making-maths-and-English-work-for-all-25_03_2015002.pdf

Whilst GCSEs exist, apprenticeships at levels 2 and 3 have to prove they can ensure progression for young people with low-grade GCSEs. Two key problems need to be addressed. First, teachers and trainers need to be given the professional development and resources to develop imaginative pedagogical practices which help apprentices contextualise maths and English within the technical and practical part of their training programme. Second, as research on the *Skills for Life* initiative showed, maths and English competence needs to be refreshed through practice,³² yet in some workplaces, including those offering level 2 apprenticeships, day-to-day work does not generate the chance to practice these skills. Ofsted must include the monitoring of apprentices' maths and English as part of their workplace inspections. This should also help to identify workplaces with low levels of basic skills and act as a trigger for broader initiatives to support workforce development. In this way, apprenticeship could act as a window into the capacity of workplaces to support social mobility more generally.

³² Wolf, A. and Evans, K. (2011) *Improving Literacy at Work*, London: Routledge.

5. Measuring and improving quality for social mobility

The IfA's vision is that: 'Apprenticeships will deliver high quality training and outcomes for apprentices in terms of quality, achievement and wage gain'. This will be measured using data gathered in the following ways:

- Ofsted overall and apprenticeship grades/HEFCE (Office for Students) judgements
- Days of off-the-job training delivered to apprentices
- Ratio of apprentice completion to starts and success in end-point assessment
- Wage gain after apprenticeships

Three of the four sources of evidence are quantitative. It is understandable that government requires robust quantitative evidence to measure apprenticeship quality. However, it is not clear whether they will provide a sufficiently rounded and reliable picture of the way apprenticeship is being experienced on the ground. This means the IfA will rely heavily on Ofsted and HEFCE-triggered inspections to provide the key measure of 'real' quality. The IfA will need to work very closely with Ofsted and HEFCE to ensure that their inspection regimes are generating sufficient and meaningful evidence on the quality of training and trainers. We now review the sources of evidence in reverse order as the first one (*Ofsted grades and HEFCE judgements*) is markedly different to the other three.

Wage gain after apprenticeships

Given the majority of apprentices are already employed when they start their apprenticeship, measuring any wage improvement will need to take account of whether the wages of the 'apprentice employee' would have risen regardless of the apprenticeship, and enable analysis of where the strongest gains are located (sectors and levels). This is important information for careers advisers given the competing messages that young people receive when making decisions following their GCSEs. From the perspective of social mobility, this would be particularly beneficial for advisers offering guidance to young people from disadvantaged groups about the most attractive apprenticeships in terms of wage outcomes.

Ratio of apprentice completion to starts and success in end-point assessment

This measure is only useful if the data are used to generate robust questions about why completion and achievement rates vary by geography, age, gender, ethnicity, prior attainment level, and Standard.

Days of off-the-job training delivered to apprentices

This will provide some indication of whether the new mandatory requirement for 20% of the apprenticeship to be spent training in an off-the-job setting is being met. However, the data will need to be triangulated with qualitative evidence about the actual quality of that training. The DfE defines off-the-job training as 'learning which is undertaken outside of the normal day-to-day working environment', but which can still be delivered at the apprentice's 'normal place of work' though outside 'their normal working duties'.³³ This has been the standard approach since the introduction of Modern Apprenticeships. Again, as with the guidance on EPA, this is a missed opportunity to set down criteria regarding the pedagogical approaches and types of curricula, which the IfA could use to evaluate the actual value of off-the-job training. There is no reference to vocational teachers and trainers in the IfA's statement in relation to on or off-the-job training. Whilst it is Ofsted's responsibility to monitor the quality of training, the IfA should acknowledge the vital role that teachers and trainers play, both within workplaces and in off-the-job settings.

As we noted in the introduction to this report, the majority of apprentices are 'conversions'. The IfA's statement notes that 'assessing and certificating an employee who is already working in the occupation'

³³ DfE (2017) *Apprenticeship Off-the-Job Training: Policy background and examples*, London: Department for Education.

is not an apprenticeship. However, given that the practice of ‘conversions’ is allowable under the funding rules, it is unclear how the IfA intends to ensure that apprentices who are existing employees when they start their apprenticeship are engaging in substantive training to develop new skills at a higher level. When we acted as special advisers to the Innovation, Universities, Science and Skills Select Committee’s scrutiny of the draft Apprenticeships Bill in 2007/08, witnesses from the then Learning and Skills Council reported that some 70% of apprentices were ‘conversions’. In its report, the select committee recommended that official statistics should differentiate between apprentices recruited to a new position with an employer and those who were existing employees.³⁴ In its response, the Labour government agreed this should be done, from August 1st 2010. Seven years later, this has still not happened.

Ofsted grades and HEFCE role

It is to Ofsted and HEFCE that we have to look for qualitative monitoring of teaching and learning, progression through both on and off-the-job training, and for overall quality of apprentices’ experience. In its latest guidelines, Ofsted states that its inspectors will check to see if apprenticeships are properly managed to ‘fully meet the principles and requirements of an apprenticeship’. This will involve checking that training providers work with employers to plan training and assessments, monitor and support apprentices so they can ‘progress quickly, gain new skills’, achieve their full potential, successfully complete, and ‘contribute to their employer’s business’. There is no reference here to how Ofsted inspectors will distinguish between on and off-the-job training or what methods they will use to check that ‘converted’ apprentices are developing new skills. This lack of detail is reflected in Ofsted’s statement about what it expects of training staff:

- trainers, assessors, coaches and mentors communicate up-to-date vocational and technical subject knowledge that reflects the expected industry practice and meets employers’ needs and apprentices acquire that knowledge effectively.³⁵ (our emphasis)

The use of the term ‘communicate’ suggests that Ofsted may be working with a traditional model of teaching in which learners are largely passive and regarded as ‘empty vessels’. This is out of step with best practice in education and training where the apprentice or student plays an active role. Whilst it would be expected to see a reference to meeting ‘employers’ needs’, there is no accompanying reference to the broader occupational field that we saw in the IfA’s statements. The concern, therefore, is that the parameters within which Ofsted inspectors are expected to conduct their inspections may be restricted to the apprentice’s performance in their current job role.

Ofsted inspection reports frequently highlight that training officers/tutors are focusing too much time on completing assessments rather than on developing new skills and knowledge. Although reference is made in several reports to the adequacy (or not) of recognising and building on the prior learning and experience of apprentices, there is no distinction made as to whether apprentices are new recruits or existing employees.

With the introduction of higher and degree apprenticeships there has been debate about the respective roles of Ofsted and HEFCE in the quality assurance process. The resolution of this (from April 2017) is that Ofsted will inspect all apprenticeships up to and including levels 4 and 5 (unless there is a prescribed HE qualification included in the programme, in which case this aspect will fall under HEFCE’s remit), and that all aspects of level 6+ apprenticeships will be regulated by HEFCE through its annual provider review process.³⁶ If, through the annual provider review process, HEFCE registers a concern about quality, it will ask the Quality Assurance Agency for higher education to investigate. However, neither Ofsted nor the HEFCE approaches provide the developmental advice and support required to enable apprenticeship employers and providers to improve the quality of their provision. Both approaches also mean that up to three or four cohorts of apprentices could have passed through a providing organisation before any inspection is carried out.

³⁴ House of Commons (2009) *Pre-legislative Scrutiny of the Draft Apprenticeships Bill. Session 7, Volume 11*, London: The Stationery Office.

³⁵ Ofsted (2017) *Further education and skills inspection handbook*, Manchester: Ofsted.

³⁶ See <http://www.HEFCE.ac.uk/news/newsarchive/2017/Name.113266.en.html> for more details about the division of labour between Ofsted and HEFCE.

6. The progression challenge: illustrating the inconsistency

In the following section, we provide examples of apprenticeship vacancies selected at random from the government website.³⁷ We do this to generate questions about the extent to which the opportunities advertised and provided through the Standards support and provide a platform for progression. In relation to the apprenticeship standards, we undertook a word search for 'progression' to enable us to compare the term's usage across a variety of examples. Our analysis highlights the inconsistencies between apprenticeships even when they are positioned at the same educational level. From the perspective of social mobility, the lack of a consistent approach to progression as a key indicator of quality is a real concern.

Customer Service

This vacancy is for an 'Import Co-ordinator' apprentice under the Customer Service Practitioner Apprenticeship Standard (intermediate level 2).

Import Co-ordinator (shipping company): Intermediate apprenticeship

Apprenticeship Standard - Customer Service Practitioner

An apprentice is required to provide high quality customer service through acting in a courteous and professional manner at all times. You must have flexibility to assist in out of hours and weekend work as requires.

Duties:

Telephone: Answering telephone calls in a polite and courteous manner, directing calls to relevant people.

Filing: Maintaining office filing systems on a daily basis.

Mail: Franking mail, recording special deliveries signing for mail and presenting all mail to front desk for collection.

Office Equipment: Ensure all printers and photocopiers are loaded with paper. Liaise with leasing companies in the event of breakdowns.

Stationary: Ordering of office supplies and maintenance of stationary cupboard.

Banking Returns: Processing of banking on a daily basis and updating spreadsheets to ensure accurate record keeping.

Future Prospects:

'The company' promotes and supports career development, there are opportunities for people to progress throughout the business. Consistent development will also allow an individual to excel in their current role, and continually keep their skills and performance up-to-date.

Desired skills:

Excellent organisational, communication, numerical and analytical skills

Ability to work under pressure in a fast-paced environment

Demonstrable problem solving, decision-making and time management skills

The ability to deal with customers

Knowledge of Microsoft Office packages, particularly Word, Excel and Outlook, and ability to learn various in-house systems.

Excellent customer service focus

Personal qualities:

Excellent communication skills

Eager to learn

Qualifications required:

GCSE or equivalent grade A - C in Maths and English.

Training Provider (responsible for):

Customer Service Practitioner Apprenticeship Standard

Level 1 Functional Skill in English

Level 1 Functional Skill in Maths

³⁷ See: <https://www.gov.uk/apply-apprenticeship>, accessed 13th October 2017.

Where is the progression in the advert and the standard?

There are a number of issues to note here. First, the focus of the advertisement is on the requirements for the job and its duties, rather than on the apprenticeship as an opportunity to gain occupational expertise through a substantial programme of new learning. Although the apprenticeship is at level 2, applicants should already have obtained level 2 qualifications, including in English and maths. The Apprenticeship Standard only includes functional skills in English and maths at level 1 - at a lower level than the applicant is expected to have on entry. The advertisement indicates that there are opportunities for career development within the company, but it is not clear how attainment of the apprenticeship standard will facilitate the individual's progression to the next educational level or mobility within the labour market. The advertisement's overall message is that the company is looking for someone with existing customer service experience who will be immediately productive rather than an inexperienced school leaver or new entrant to the occupation.

There is no mention of progression in the apprenticeship standard for 'customer service practitioner' associated with the advert. The closest statement of relevance is: "Link to professional registration: Completion of this apprenticeship will lead to eligibility to join the Institute of Customer Service³⁸ as an individual member at professional level". Whilst the opportunity provided by successful completion of an apprenticeship to join a professional or trade association can be perceived as a benefit, the standing of this Institute and the value of membership at 'Professional level' are unclear. It seems odd for an individual to be eligible for a professional level of membership with only attainment at level 2. Are there further rungs on the ladder above professional level? In what ways would eligibility to join the Institute of Customer Service be recognised by employers? In what ways would the Standard and qualifications attained as part of the apprenticeship provide a platform for progression to the next educational level?

Accountancy

Junior Accounts Assistant: Intermediate apprenticeship

We are looking to recruit a Junior Accounts Assistant who will be given training towards AAT Levels, 2, 3 and 4 through the National Apprenticeship Scheme. The apprentice will be required to attend college one day a week and work in our office four days a week.

Duties to include:

Data inputting
Filing
Admin duties
Other tasks as required

Desired skills:

Articulate
Good people skills
Team player

Personal qualities:

Polite
Punctual
Confident
Interest in accountancy

Length:

3 years

Qualifications required:

5 GCSEs grade C or above (or equivalent qualifications)

Future Prospects:

Permanent position

³⁸ <https://www.instituteofcustomerservice.com/>

Where is the progression in the advert and the standard?

This advertisement is for a junior accounts assistant. This is an entry-level position tied to the Assistant Account Standard. In contrast to the customer service example, the vacancy shows the location of the job and apprenticeship on a structured occupational, qualification-based and career progression ladder. Candidates are informed that they will be given training to enable them to progress up the rungs of the AAT (Association of Accountancy Technicians) ladder starting at level 2, but with the chance to move on to level 3 and then level 4. It is made clear that the training includes day-release to college, with the other four days in the workplace. The prospect of a career in accountancy is also mentioned. From the candidate's perspective, the vacancy offers a transparent picture of how progression will occur and how the apprenticeship, conceived as a journey starting at level 2, but moving up to Associate Professional Level (level 4) will be enabled and facilitated through the apprenticeship route. As with the previous example, candidates are expected to have achieved five GCSEs, but no mention is made of these necessarily including English and maths. Potentially, therefore, the vacancy is open to a wider range of applicants. The first stage of the apprenticeship is at an equivalent educational level to their prior attainment, but the end-point (assuming satisfactory achievement of milestones) is significantly higher.

The switch from the framework to the standards-based approach in accountancy has resulted in some changes, including that qualifications are no longer mandatory. However, it is noticeable that the AAT³⁹ promotes take-up of a diploma (there is one at level 3 and one at level 4) alongside pursuit of the apprenticeship standards. These diplomas have educational currency (including UCAS points) and professional currency (recognition by professional bodies), so strengthen the progression aspects of the pathway. It follows that the progression currency obtained by someone attaining solely an apprenticeship standard will be weaker than their peers who not only attain a standard at level 3 or 4, but also the relevant diploma. This distinction introduces an element of complexity and risk for potential applicants to accountancy apprenticeships who will need to check they have the chance to attain the standard and the professional body's qualifications.

³⁹ <https://www.aat.org.uk/>

Hospitality Team Member: Intermediate Apprenticeship

This is a fantastic opportunity to start your career in hospitality and learn all aspects of a busy catering environment. It is the perfect opportunity for an individual who is interested in the Hospitality industry and would like to further their career in this field.

Duties will include:

- Basic food preparation; both hot and cold
- Opening and closing checks
- Serving customers
- Take orders
- Process cash and card payments
- Stock control
- Clearing Tables
- Maintaining the cleanliness and hygiene of the Kitchen and dining area.

You will learn both sides of the business, both service and food preparation and how each affects the other. As an Apprentice you will be included on a Hospitality Apprenticeship Standard qualification. This will involve a Vocational Learning Advisor coming to visit you on a regular basis to deliver training and guide you through your Apprenticeship.

Desired Skills

We are looking for a confident and outgoing individual. Who has Initiative and is Physically fit. Must have a good level of numeracy and literacy.
Personal qualities
Must be: Punctual, Clean and tidy. No facial piercings in line with food safety. Articulate, Outgoing. You will need a good sense of humour. Able to interact with customers.

Qualifications required:

None Specific

Future Prospects:

There is a possibility of a position at the site on completion of the apprenticeship for the right candidate.

Where is the progression in the advert and the standard?

Unlike the previous two examples, this advertisement indicates that no prior qualifications are required, making the opportunity available to young people and older adults with low prior attainment as well as candidates with higher attainment. Achievement of the standard has the potential to take an individual with no qualifications through to attainment of a level 2 apprenticeship. The advertisement is tentative about future prospects, indicating only a possibility of permanent employment and with no mention of access to further education and training or career opportunities either specifically or in general. The apprenticeship appears essentially to be a job, but with an assessor visiting the apprentice in the workplace to support their completion of the Standard's requirements. There is no mention of participation in formal off-the-job provision as in the accountancy example.

The Hospitality Team Member Apprenticeship Standard linked to the advertisement states that: 'Progression from this apprenticeship is expected to be onto a hospitality supervisory or team leading role'. There is no mention of completion of this standard leading to a cognate standard at a higher level (3+), nor how it would provide a platform for progression to the next educational or career level. This standard is attained by means of the EPA process, with no formal qualification indicated as optional, or additive to the EPA. So, whilst the standard provides a structure for the induction of a newcomer into the knowledge, skills and behaviours of a hospitality team member, it does not articulate how attainment of the standard provides a platform for educational progression, for example, by supporting the apprentice to gain Level 2 English and maths, or in career terms.

Whilst English and maths are not mentioned in this standard, they are referred to in the assessment plan: “To complete the apprenticeship the employee must pass level 1 English and maths (or have the appropriate exemption certificate) and work towards and attempt level 2 before undertaking their end point assessment.” Attainment of level 1 in these two core subjects is an important starting point for individuals who have not been able to attain them whilst at school. However, from the perspective of an apprenticeship as a route to social mobility, the inclusion of English and maths only at level 1 as the mandatory requirement represents an unambitious and limited goal that falls short in terms of setting these individuals on a secure progression pathway, either in terms of employment and career or further education and training.

In contrast to the weakly framed occupational basis of many of the advertisements for intermediate apprenticeships and some for advanced apprenticeships, the titles for the latest batch of 56 approved standards for higher and degree apprenticeships offer much greater clarity. For example:

- Aerospace software development engineer (Level 6 Degree)
- Cyber security technologist (Level 4)
- Registered Nurse (Level 6 Degree)
- Chartered legal executive (Level 6 Degree)
- Dental technician (Level 5)
- Embedded electronic systems design and development engineer (Level 6 Degree)

This raises two questions: a) To what extent can apprenticeship be applied across higher education?; and b) Which kinds of provision would not fit and why?

7. A framework for identifying and developing Expansive-Restrictive characteristics to support quality improvement

From our own research and in collaboration with employers, training providers and other stakeholders in apprenticeship, we have developed what we have called the ‘Expansive–Restrictive Framework’.⁴⁰ This provides an analytical and developmental tool to help the partners involved evaluate and co-produce their apprenticeship provision. It enables them to look at the extent to which their apprenticeships develop generic and job-specific skills and build a platform for progression. The framework doesn’t present a binary divide, but a continuum. All organisations (and workplaces within them) shift across the expansive-restrictive continuum due to pressures generated by their business environments.⁴¹ This is just as true for colleges, training providers and universities as it is for the employers they work with.

At the expansive end of the continuum, we find employers (of all sizes in all sectors, public and private) who understand that employees involved in any form of skill development need to be afforded a dual identity as workers and learners for the duration of their training, whether they be apprentices or employees involved in shorter programmes. In restrictive environments, apprentices are often already productive workers and largely assessed against their existing competence or, if new employees, they are given little time to learn new skills away from the everyday pressures of the workplace. More expansive workplaces try to ensure that short-term production pressures do not harm the longer-term goals of both the organisation and the individual. Creating and maintaining ‘expansive’ conditions is not easy and requires support at all levels of the organisation. Employers with little or no history of providing apprenticeships or those with workplaces that cannot offer access to a wide enough range of tasks and skills need support to help them to improve their training capacity.

Government has a duty to set national standards for apprenticeships because they are partly funded through public funding. However, government and its agencies cannot and should not be solely responsible for developing and sustaining quality. This requires a sustained partnership approach. Applying the expansive – restrictive framework to the illustrative examples presented in the previous section would help raise questions about: a) the extent to which the apprenticeship was embedded within an employer’s workforce development and skills strategy; b) the nature and extent of the apprentice’s identity as a learner as well as a worker; c) the opportunity available for planned training away from the workplace; and d) whether the role and training provided sufficient stretch to support substantial new learning.

⁴⁰ This research is reported in a number of publications including: <https://www.excellencegateway.org.uk/content/etf1712>

⁴¹ Felstead, A., Fuller, A., Jewson, N. and Unwin, L. (2009) *Improving Working for Learning*, London: Routledge.

The Expansive-Restrictive Framework in the context of apprenticeships

	EXPANSIVE	RESTRICTIVE
C1	Apprentice develops occupational expertise to a standard recognised by the occupational field.	Apprentice develops skills for a limited job role without improving on their existing level of competence.
C2	Employer and provider understand that apprenticeship is a platform for career progression and occupational/professional registration.	Apprenticeship doesn't build the capacity to progress beyond present job role because it doesn't enable substantial development of higher-level skills.
C3	Individual has dual status as learner and employee: explicit recognition of, and support for, individual as learner.	Status as employee dominates: limited recognition of, and support for, individual as learner.
C4	Individual makes a gradual transition to productive worker and is stretched to develop expertise in their occupational field.	Fast transition to productive worker with limited knowledge of the occupational field.
C5	Individual is treated as a member of an occupational community with access to the community's rules, history, occupational knowledge and practical expertise.	Individual treated as extra pair of hands who only needs access to limited knowledge and skills to perform job.
C6	Individual participates in different communities of practice inside and outside the workplace.	Training restricted to narrowly defined job role and workstation.
C7	Individual's work tasks and training closely mapped against recognised occupational standards and assessment requirements to ensure they become fully competent.	Weak relationship between workplace tasks, occupational standards and assessment requirements.
C8	Individual gains forms of certification that have labour market currency and support progression to next level (career and/or education).	Individual doesn't have the opportunity to gain valuable and portable forms of certification, and/or certification is limited to accrediting prior learning and existing skills.
C9	Off-the-job training includes time for reflection and stretches individual to reach their full potential	Supporting individual to fulfil their potential is not seen as a priority.
C10	Individual's existing skills and knowledge recognised and valued and used as platform for new learning	Individual is regarded as a 'blank sheet' or 'empty vessel'.
C11	Individual's progress closely monitored and involves regular constructive feedback from range of employer and provider personnel who take a holistic approach	Individual's progress monitored for job performance with limited developmental feedback.

The idea here is not to judge 'restrictive' apprenticeships or their providers as worthless, but to generate ideas for how they might shift more towards the expansive end of the continuum, and in doing so be of more long-term value to both the apprentice and their employer. The characteristics C1, 2, 3, 4, 5 and 6 help frame a discussion between employers and training providers about their motivations, their expertise, and the pressures they each face.

- If you are an employer, do you have a strong business case for employing apprentices?
- How does apprenticeship fit in with your wider workforce development strategies?
- If you are a training provider, what do you want to achieve from this partnership and what do you see as your key contribution?

C4, 5 and 6 can be used to extend these questions:

- Will the proposed length and breadth of the apprenticeship provide sufficient time and space for apprentices to reach the level required to work without supervision?
- Are we (as employers) expecting individual learners to be productive too quickly?
- Do we (employers and providers) need to give individual learners more time to practice their skills and broaden and deepen their knowledge?

Characteristics C7 to C11 relate to the ways in which apprentices develop skills and knowledge and have their progress monitored and assessed. They can be used to formulate a set of questions about training is organised and who is involved.

- Is the content of our programme stretching enough?
- Are we recognising and building on apprentices' prior learning?
- Does our assessment process tell us enough about apprentices' progress?
- Are we as partners equally involved in the assessment process?
- In what ways could we further strengthen our partnership to improve the connections between the in-work and out-of-work elements of the programme?
- Do our vocational teachers and trainers, workplace supervisors and mentors have the time, resources and expertise they need to properly support apprentices?

Partnerships based on a shared expansive ambition place demands on the actors involved (particularly managers) to be more pro-active in how they think about apprenticeships.

8. Conclusion

In August, the front-page of *The Times* reported that elite private schools are promoting degree apprenticeships to their students. The argument that a degree apprenticeship in engineering, accountancy or project management is an attractive option for these young people is strong. Their schools deliver the educational qualifications, social capital and networks that can facilitate access to the most sought-after apprenticeships offered by top firms. For this group, completion of a degree apprenticeship is an alternative route to a successful career, consolidating their social position. However, this raises a serious question about apprenticeships as a vehicle for social mobility and progression if opportunities for recruitment to higher-level apprenticeships is inadvertently curtailed for those coming from less advantaged starting points. At the same time, the high profile for higher and degree apprenticeships means that not enough work is being done to develop and invest in levels 2 and 3 where most apprentices are found, and to ensure that it offers them a strong platform for progression.

As we have shown in this report, the current profile of apprenticeships is skewed towards level 2 and older participants (most of whom are already employed conversions). Moreover, our analysis of quality and how it is developed and assured has exposed longstanding shortcomings in the model and highlighted that there is nothing in the new standards-based, employer-led, levy-funded approach that guarantees a high quality learning and development experience to all apprentices, including the provision of a strong platform for progression. The levy could exacerbate ‘conversions’ as a means for large employers to claw back their money without addressing the deadweight problem. Given that the pay-roll basis of the levy means it will raise more money in London and the South East of England, the new policy may also contribute to further regional inequality.

Government must devise a methodology for identifying apprentices who are ‘conversions’ to enable the publication of annual statistics by age, sector, standard, geographical location, and level and non-levy paying employers. This would also include collecting data on apprentices’ highest educational attainment prior to starting an apprenticeship to facilitate monitoring of how opportunities are being taken up by different educational groups, increasing the potential for interventions to enhance equity, diversity and social mobility.

Connections between the levels must be strengthened so that level 2 and 3 apprentices do not hit arbitrary glass ceilings and have similar chances as their A-level or graduate peers⁴² to access the next level including, higher and degree apprenticeships. The combination of the levels and the limitations on the inclusion of qualifications at levels 2 and 3 means that individuals may have to complete two, three or four apprenticeships en route to reaching the level they aspire to in their chosen occupation. Instead, every apprenticeship should include nationally recognised qualifications that can take the apprentice to the next level, whether that is in terms of another apprenticeship or qualification.

The fragmented approach we have identified has implications for transaction costs and quality. First, the current statistical practice of reporting apprenticeship ‘starts’, which may relate to multiple registrations by only one individual, adds another level of confusion. Second, apprenticeships do not provide any consistency in terms of the experience an individual can expect. Third, the gendered nature of apprenticeships means that young women are more likely to get trapped in low-status, low-paid jobs in service sector occupations, which deliver mainly level 2 apprenticeships.⁴³ The Resolution Foundation has found that most people, and particularly women, in low-paid jobs are ‘stuck’ as ‘poorly-paid positions are not acting as a first rung on the ladder – it is the only rung’.⁴⁴

⁴² From May 2017, the funding rules allow individuals to register for an apprenticeship at an equal or lower level to their existing highest qualification, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/562401/Apprenticeship_funding_from_May_2017.pdf

⁴³ Fuller, A. and Unwin, L. (2014) *The challenges facing young women in apprenticeships*. In Schon, I. and Eccles, J.S. (eds) *Gender Differences in Aspirations and Attainment*, Cambridge: Cambridge University Press.

⁴⁴ D’Arcy and Finch (2017) *The Great Escape? The chances of escaping low pay in 21st century Britain*, London: Resolution Foundation, <http://www.resolutionfoundation.org/events/the-great-escape-the-chances-of-escaping-low-pay-in-21st-century-britain/>

Apprenticeships exist within the UK's highly flexible labour market. Given the high volumes of service sector jobs in the economy (and their dominance in the number of apprenticeship registrations), we need to examine whether the institutional and professional foundations that drive quality in apprenticeships in fields such as accountancy, engineering, and some of the bespoke crafts, could be replicated. In countries such as Denmark and the Netherlands, a mix of full-time and part-time vocational education and training programmes (which include work placements) sit alongside apprenticeship so that the latter's distinctiveness can be protected.

It follows from our analysis that a process of reform that has quality at its heart is likely to lead, at least initially, to a smaller more focused apprenticeship programme. To achieve better quality, we need to build capacity within workplaces, vocational education and training organisations, and government and its agencies so they can create and promote the expansive conditions in which quality apprenticeship thrives. This requires a developmental model of quality assurance, as opposed to the current top-down approach, which concentrates on exposing weaknesses. Ofsted's remit should be expanded and adapted to focus much more explicitly on content, pedagogy, training quality and progression than its current largely quantitative approach allows. This will require Ofsted to quality assure the competence of vocational teachers and trainers and the availability of professional development opportunities to enable them to update both their pedagogical and occupational expertise. Higher and degree apprenticeships should also be subject to the same robust regime. Both Ofsted and HEFCE inspection should include specific processes for ensuring existing employees ('conversions') are participating in substantial training to develop new skills beyond their existing levels of competence.

This developmental approach would be capable of identifying the characteristics of high quality apprenticeship across diverse occupations and contribute to a national research and development (R&D) resource base to support improvement. As a result, apprenticeship would reclaim its role as a distinctive model of skill formation of benefit to employers, individuals, the economy and society. It is a model that sets a high standard and, as the IfA now claims, should not be reduced to a catch-all term for any form of training or certification of 'competence'.

APPRENTICESHIPS FOR YOUNG PEOPLE IN ENGLAND

Is there a payoff?

Chiara Cavaglia, Sandra McNally and Guglielmo Ventura
– November 2017



1. Introduction

In England, there has been a big policy drive to increase the number of apprenticeships. One of the commitments made by the new Conservative government in 2015 was to increase the number of apprenticeships to three million by 2020. While often spoken about as a policy directed at young people, most of the growth has in fact been for workers over the age of 24.⁴⁵ The apprenticeship levy, which commenced this year, aims to incentivise large firms to take on apprentices, although it is too early to evaluate its effectiveness.

The policy focus on apprenticeships raises the question as to whether this is a worthwhile investment for young people at the beginning of their careers relative to other options. The main difference between apprenticeships and classroom-based vocational education is that the former involves most time being spent on the firm, with some 'in-house' training and work. In theory, apprenticeships should offer an excellent environment to acquire generic employability skills - such as team-working, communication skills - and specific occupational skills acquired 'on the job' as well as in a more theoretical context.⁴⁶ Furthermore, they may ease the school-to-work transition by establishing better matches of workers' skills to firms' needs and by acting as a substitute for job-search. On the other hand, there is a risk, in the absence of appropriate monitoring, that firms might provide training which is too company-specific or lacking in the quantity or quality that will be of use to other firms should the employee move. Thus the quality of apprenticeships may vary depending on the institutional context. Furthermore, even in countries with a good reputation for apprenticeships and vocational training, the initial advantage they confer may not last a lifetime.⁴⁷ Whether or not apprenticeships have a payoff, and for how long, is ultimately an empirical question. This is an important question for young people to consider when making post-16 choices and to policymakers when considering whether and how to incentivise firms to take on apprentices.

We use the new administrative linked education-earnings data (the Longitudinal Educational Outcomes dataset) to examine this question for the cohort of students who finished their compulsory education in 2003, at age 16. We choose this year because it is the earliest we can follow students from the school system into further/higher education and into the labour market. We focus on earnings at age 28, which is in the year 2015. Although not the first paper to estimate the earnings differential to having an apprenticeship, it is the first that has used the newly available administrative data specifically for this purpose.⁴⁸ It is especially useful because one can control directly for a lot of factors that might impact on the probability of starting an apprenticeship and earnings (such as prior attainment) but has the limitation that only the early career of a young person can be evaluated with this data.

Between 2003 and 2008, about 17% of young people in our cohort had started an apprenticeship. However, most had undertaken some form of further education beforehand - most often classroom-based vocational qualifications, although many do A-levels. Often further vocational qualifications are then pursued as part of the apprenticeship. In fact, an apprenticeship is made up of a number of different aims or components and it is very common to not achieve all of them. The number of apprenticeship starts vastly outweighs the number of apprenticeship completions.⁴⁹ This does not mean that there is no benefit from some time having been spent on an apprenticeship programme. However, the fact that young people often pursue a bundle of post-16 options and the fact that many do not complete their apprenticeship, complicates how to evaluate the earnings differential that is attributable to an apprenticeship itself. Another issue is that those who undertake apprenticeships most usually have a highest educational qualification up to level 2 (the educational equivalent of GCSEs) or level 3 (A-levels). They have a very different educational profile to those who pursue university degrees and spend less time in the education system.

⁴⁵ See Hupkau and Ventura, 2017

⁴⁶ See Wolter and Ryan (2011) for an excellent review of the international evidence on the effects of apprenticeships for young people and firms.

⁴⁷ Hanushek et al. 2015

⁴⁸ However 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.

⁴⁹ Bursnall et al. 2017

We tackle these issues by comparing individuals who start an apprenticeship relative to those of the same educational level (a highest level of education of level 2 or level 3). In the case of men – where earnings differentials are found to be high – we also compare the earnings of those who completed advanced apprenticeship to those of graduates at age 28. As the latter have such a different experience-earnings profile (and enter the labour market much later), we need to be careful with the interpretation as one might expect graduates to have a steeper earnings profile beyond this age. In all cases, we try to ‘net out’ as many characteristics of individuals as possible that might influence both the probability of starting an apprenticeship and the apprentice’s later earnings, such as prior attainment, the secondary school attended and demographics. In some specifications, we also control for post-education/apprenticeship experience as this can be very different according to the path chosen, even amongst those who have the same highest level of education.

Our findings show a positive differential for having started an apprenticeship in many contexts. However, the extent of this differential depends on the apprenticeship sector. Furthermore, it is not always higher than the average payoff from only doing classroom-based qualifications, whether academic or vocational. The earnings differential from starting an apprenticeship is much higher for men than for women, partly reflecting the different sectors in which they pursue an apprenticeship.⁵⁰ It is particularly high for those men who do an ‘advanced apprenticeship’ in engineering. In fact, those who complete an advanced apprenticeship in engineering earn more than those with a degree in engineering at age 28. After controlling for all observable characteristics, the earnings differential is about the same at this age.

The remainder of this report is structured as follows. In Section 2, we describe the data used for this analysis, how we construct the educational categories of interest, and the methodology. In Section 3, we describe some salient features of apprenticeships in England for young people, including how this has evolved over time. In Section 4, we investigate who gets on to an apprenticeship programme based on demographics, location and prior attainment. In Section 5, we estimate the earnings differential from starting an apprenticeship and also consider how this varies according to whether the apprenticeship has been completed and the level of the apprenticeship (intermediate or advanced). We explore the earnings differential to starting an apprenticeship in different sectors. Finally, for men, we compare the earnings differential of achieving an advanced apprenticeship compared to achieving a university degree. We conclude in Section 6.

⁵⁰ The authors are currently further exploring the gender difference in the earnings differential attributable to apprenticeships. This will be published as a discussion paper within the Centre for Vocational Education Research in the near future.

2. Data and methodology

By combining data from the National Pupil Database (NPD), the Individual Learner Record (ILR) and Higher Education Statistics Agency (HESA), we are able to track students' participation into publicly funded education from primary school up to Further and Higher Education in England. We focus on the cohort of students who left compulsory schooling (at age 16) in the academic year 2002/03 for which we have good information on all educational outcomes through school and for whom records can be linked to earnings data from the tax records of HMRC.⁵¹ The cohort is composed of over 565,000 students.

We have information on students' educational participation every year up until they leave publicly-funded education completely. We classify students based on their highest level of education achieved throughout the whole period. This is observed up to when they are aged 27/28. Table 1 reports students' highest education achievement for the whole cohort and separately for females and males.

In the English system, 'level 2' is considered equivalent to the educational level that should be achieved by the end of secondary school. However, many people pursuing post-16 vocational education undertake 'level 2' courses. This is especially common if individuals do not get good GCSE grades by the end of compulsory education. We divide those with level 2 as their highest level of education into 3 sub-categories: those with GCSEs only (who achieve at least one GCSE at grade A*-C); those with a level 2 vocational education and those with a level 2 qualification and who started an apprenticeship. As we will see in the next section, this is usually an 'intermediate apprenticeship'.

We separate those with a highest educational qualification of 'level 3' into the following subcategories: those with A-levels only; those with a vocational qualification (of whom about 25% also have A-levels); and those who started an apprenticeship, which is most often an 'advanced apprenticeship'. Amongst those who started an apprenticeship, 27% of men and 41% of women have A-levels, with the remainder having a vocational qualification.

As Table 1 illustrates, about 30% of this cohort had level 2 as their highest level of education - of which close to 30% had started an apprenticeship; just over 20% had level 3 as their highest level of education - of which 32% of men and 17% of women had started an apprenticeship. Tertiary education is mainly at university, with very little sub-degree level education (at level 4 or 5). About 27% of men and 33% of women undertake tertiary education in this cohort before the age of 28. Only a small percentage of men and women with tertiary education also have apprenticeships (as documented below). Finally, a significant minority of the cohort - 21% of men and 14% of women - left the system with very low-level education (below level 2).

⁵¹ The last available tax year of HMRC records is 2014/2015, bearing in mind that the tax year terminates on April 5th. Therefore, this cohort will be aged 27-28 over the course of the tax year. It is technically possible to link the cohort undertaking GCSEs in 2001/02 to their tax records. However, some of the education data was not available to us and there was not as high participation in apprenticeships in this cohort, which is of primary interest in this paper.

Table 1: Highest education attainment for the cohort of students taking their GCSEs in 2002/03

<i>Highest level of Education</i>	Men		Women	
	N.	%	N.	%
<i>Below level 2</i>	61,332	21%	37,977	14%
<i>Level 2</i>				
Academic (GCSEs)	38,011	13%	36,366	13%
Vocational w/o apprenticeship	22,268	8%	19,851	7%
Apprenticeship	24,460	9%	22,969	8%
<i>Level 3</i>				
Academic (A/AS Levels)	24,735	9%	25,460	9%
Vocational w/o apprenticeship	19,866	7%	25,329	9%
Apprenticeship	18,941	7%	12,111	4%
<i>Tertiary</i>				
Level 4 or 5	6,186	2%	8,753	3%
Degree	71,799	25%	89,378	32%
Total	287,598		278,194	

Note: 26% of men and 17% of women with level 4 or 5 as their highest level of education and 2.7% of men and 2.4% of women with a degree also have started an apprenticeship. However, the apprenticeship is usually completed or interrupted before they achieve their highest education.

Although our analysis is mainly based on the cohort who undertook their GCSE exams in 2003, we can also consider how apprenticeship starts have changed over time. This is discussed below and, in particular, we look at whether the probability of starting an apprenticeship has changed for the cohort that did their GCSEs in 2003 and in 2011 - the latest year we can consider given that most young people start an apprenticeship within five years of completing their compulsory education.

For the 2003 cohort, we would like to assess whether, conditional on the highest level of education achieved, there is a payoff to commencing an apprenticeship programme over and above other forms of education at age 28, which is the latest we can observe them – in 2015. It makes sense to compare young people with apprenticeships to others within the same category (as defined by highest level of education) rather than to people with much higher levels of education and a very different labour market trajectory. Having said that, we will be comparing the earnings of men who complete an advanced apprenticeship to university graduates as the average earnings for the former group are particularly high. We will consider whether the differential still exists after controlling for all observable characteristics.

Even when comparing individuals within the same broad categories, we need to bear in mind that those starting an apprenticeship might differ in many respects from those who do not. It is important to control for these characteristics in regression analysis as otherwise the association between starting an apprenticeship and later earnings might simply reflect these omitted variables, such as prior attainment, that are also likely to have a direct influence on earnings. Although the linked data sets enable us to control for very important characteristics of students that potentially influence both whether they gain access to an apprenticeship and labour market outcomes, there are potentially important omitted characteristics. For example, one would expect employers to screen students on many qualities that are

not available in these data, such as motivation and non-cognitive abilities. To the extent that these omitted variables both positively influence the probability of getting on to an apprenticeship and labour market earnings, the association between starting an apprenticeship and later earnings will not reflect the true return. In this case, the earnings differential will be larger than the true return to starting an apprenticeship.

With these caveats in mind, we will estimate the following OLS regression:

$$Y_i = \beta_0 + \beta_1 \text{Vocational} + \beta_2 \text{Apprenticeship} + \beta_3 X_i + \alpha_s + \epsilon_i$$

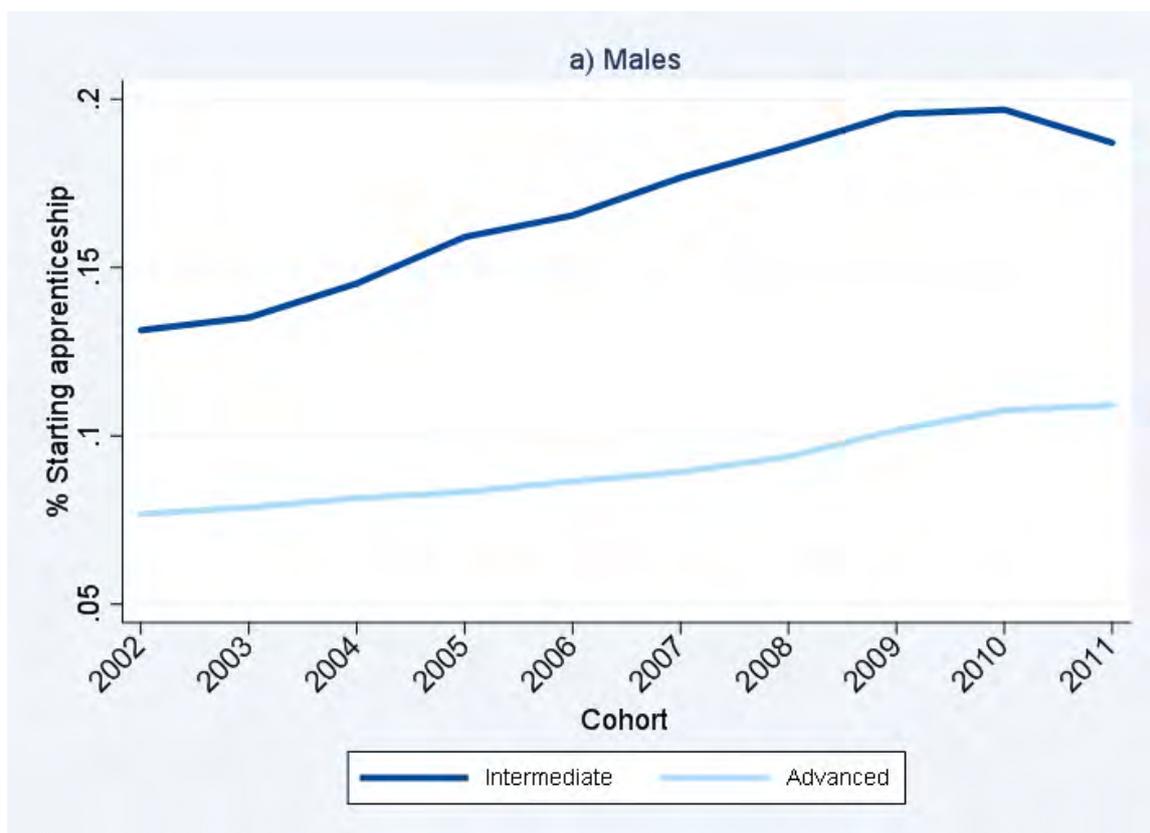
where Vocational and Apprenticeship are mutually exclusive dummies that indicate whether the individual has a vocational qualification (but not an apprenticeship), or he/she has started an apprenticeship. The omitted category or reference group are individuals who only have an academic qualification. Y represents log earnings for individual i , as observed at age 28 (in 2015), which is the latest point at which they can be observed in our data. We do not have information on hours of work. It is important to note that this earnings measure will capture the differential attributable both to wages and the time spent working.

The main coefficient of interest β_2 represents the differential associated with starting an apprenticeship in terms of the outcome Y . We also include a vector of individual characteristics X_i , namely demographic characteristics, prior attainment at age 11 (Key Stage 2) and age 16 (GCSE). Demographic characteristics are ethnicity, whether the student was eligible to receive free school meals when in secondary school and whether English is the main language spoken at home. Measures of prior attainment are the points scores obtained in English, maths and science at age 11 as well as the points score obtained at age 16 in GCSEs. Finally we include a secondary school fixed effect α_s . We run this regression separately for students whose highest vocational achievement is level 2 and level 3 and for males and females.

3. Apprenticeships in England

Amongst those who finished their compulsory education in 2003 at age 16, about 17% of the cohort started an apprenticeship at some stage and we only observe new starts between the age of 16 and 22 (no new starts between age 23 and 28). Almost all apprenticeships are either intermediate or advanced for this age group, with higher apprenticeships a new phenomenon.⁵² About 60% of apprenticeship starts were classified as intermediate, although many do more than one apprenticeship. Figure 1 plots the share of each cohort starting an apprenticeship up to those who finished their compulsory schooling in 2011. The share has increased over time. For those who completed compulsory schooling in 2011, 23% of the cohort started an apprenticeship within five years. The increase has been greater for intermediate apprenticeships up to about the 2010 cohort. This may be related to recent reforms on the duration of intermediate apprenticeships around this time.⁵³

Figure 1: Share of intermediate and advanced apprenticeships by cohort and by gender (for the period 2003-2016)



⁵² From the 2003 cohort, we could find only 13 men and 5 females who started an apprenticeship at level 4 by the age of 28. For the 2011 cohort, 1,513 men and 902 women started an apprenticeship at level 4 within 5 years of undertaking their GCSEs. Notice, however, that higher apprenticeships were introduced in 2010.

⁵³ See Nafilyan and Speckesser, 2017.

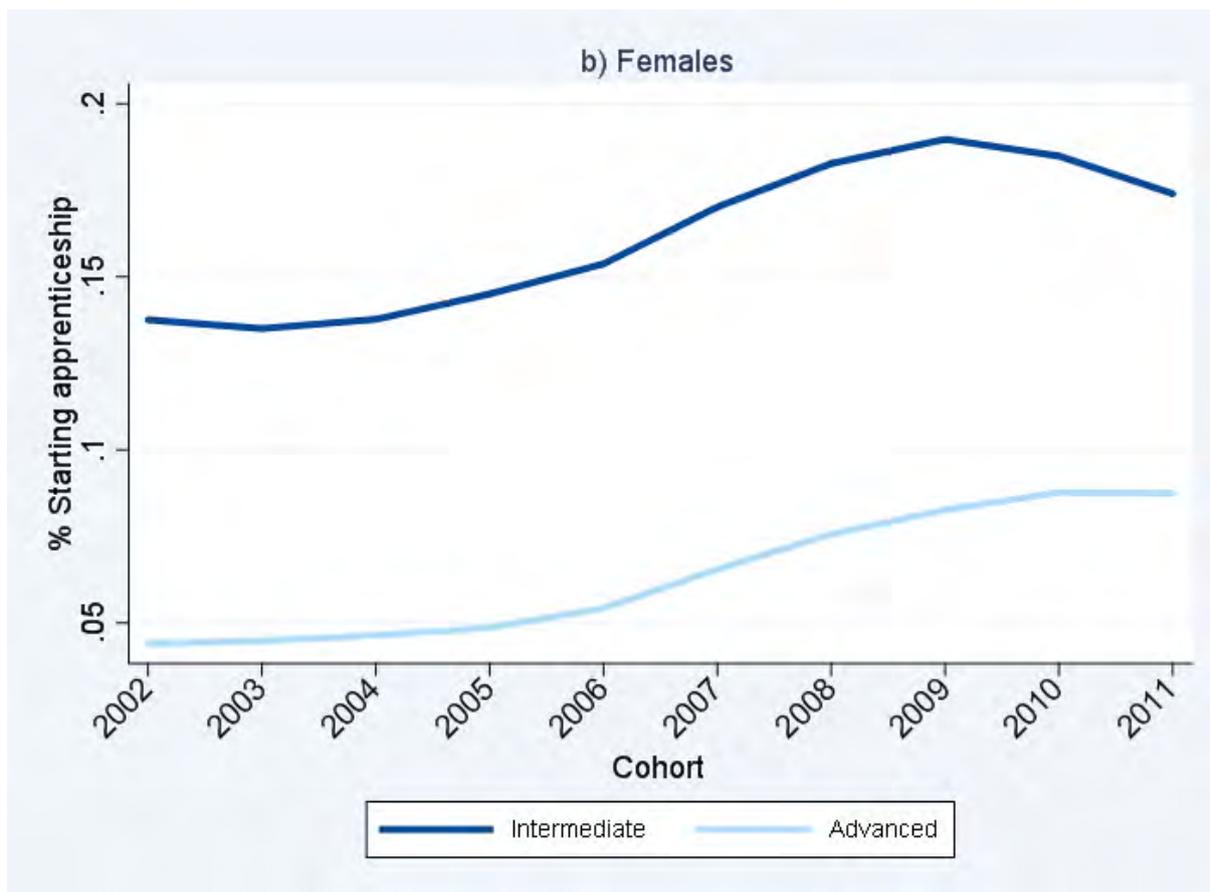


Table 2 shows characteristics of apprenticeships for men and women respectively at these different levels. This is shown for men and women who completed their GCSEs in 2003 and is similar in many respects to those who completed their GCSE in 2011 (shown in Appendix Table A1).⁵⁴ Apprenticeships are made up of a number of different components or aims. At this time, only half of those starting an advanced apprenticeship achieved most or all of their aims. This is lower for those starting an intermediate apprenticeship. A recent study compares starts and completers for all apprentices (not only young people) for those starting an apprenticeship in 2011/12.⁵⁵ This finds a non-completion rate of at least one-third and possibly up to 45%. Thus, non-completion of apprenticeships continues to be an important issue, especially since the government target is based on starts. However, we primarily consider the earnings differential to starting an apprenticeship (as opposed to completing it) since the benefit of an apprenticeship is not necessarily primarily related to certification. It might also include the benefits of being trained on-the-job, completing some - even if not all - of the aims, and the contacts through which another job might be obtained.

The next panel of Table 2 shows the highest qualification achieved for those who started an apprenticeship. The vast majority achieved a highest qualification of level 2 or level 3. However, a significant minority of those starting an intermediate apprenticeship do not have a qualification of level 2. Very few obtained a degree or a qualification at level 4 (foundation degree). For intermediate apprentices, most obtained a qualification of level 2 academic (GCSEs) or vocational. For advanced apprentices, most obtained a qualification of level 3 vocational – 59% for men and 49% for women. The second biggest category is level 2 vocational – 17% for men and 24% for women. The educational profile of those with intermediate and advanced apprenticeships motivates how we construct comparison

⁵⁴ Notable differences include a higher share of apprentices with a vocational qualification at level 2 or 3 and a reduction in the average completion and duration of apprenticeships.

⁵⁵ See Bursnall et al. (2017)

groups. Typically we compare those within the same highest level of education to each other, distinguishing between those with academic qualifications (GCSE or A-levels), vocational, and apprenticeship. The latter category contains those who either have a vocational or academic qualification or some combination of the two.

Table 2: Characteristics of Intermediate and Advanced Apprenticeships (2002/03 cohort)

	Intermediate apprenticeships		Advanced apprenticeships	
	Men	Women	Men	Women
Percentage of the whole cohort	11%	11%	8%	5%
Started Intermediate Apprenticeship	-	-	36%	52%
More than one apprenticeship at the same level (whole cohort)	2%	2%	1%	0%
Progressed to the next level of apprenticeship (whole cohort)	2%	2%	0%	0%
<i>Of starts:</i>				
Majority aims achieved	42%	43%	51%	47%
All aims achieved	39%	41%	44%	44%
Actual duration (months)	12	11	20	14
Planned duration (months)	17	16	30	20
<i>Highest Qualification achieved</i>				
Less than level 2	18%	14%	4%	2%
Level 2 Academic	17%	19%	7%	7%
Level 2 Vocational	45%	43%	17%	24%
Level 3 Academic	7%	9%	4%	5%
Level 3 Vocational	8%	9%	59%	49%
Level 4/5	1%	2%	5%	6%
Degree or more	3%	5%	4%	5%
<i>Apprenticeship main sector</i>				
Health, Public Services and Care	5%	22%	1%	35%
Science and Mathematics	0%	0%	0%	0%
Agriculture, Horticulture and Animal Care	3%	2%	1%	2%
Engineering and Manufacturing Technologies	21%	1%	53%	2%
Construction, Planning and the Built Environment	29%	0%	26%	0%
Information and Communication Technology	5%	1%	3%	1%
Retail and Commercial Enterprise	17%	37%	4%	23%
Leisure, Travel and Tourism	3%	2%	1%	6%
Arts, Media and Publishing	0%	0%	1%	0%
Education and Training	0%	0%	0%	0%
Preparation for Life and Work	3%	2%	3%	3%
Business, Administration and Law	13%	32%	6%	28%
Observations	30,807	30,982	22,609	12,477

For both men and women, there is strong concentration within apprenticeship sectors, although the sectors differ according to gender. For intermediate apprenticeships, most men are classified within Engineering and Manufacturing Technologies (21%), Construction Planning and the Built Environment (29%), Retail and Commercial Enterprise (17%) or Business, Administration and Law (13%). For advanced apprenticeships, there is even more concentration, as 53% are classified as within Engineering and Manufacturing Technologies and 26% are within Construction, Planning and the Built Environment. For women doing intermediate apprenticeships, the biggest sectors are Health, Public Services and Care (22%), Retail and Commercial Enterprise (37%) and Business, Administration and Law (32%). At the advanced level, these are also the biggest sectors with the shares as follows: Health Public Services and Care, 35%; Retail and Commercial Enterprise, 23%; Business, Administration and Law, 28%.

In Table 3, we show a more refined definition of apprenticeship sector for the 10 most popular sectors by level. Panel A gives this information for men whereas Panel B gives this information for women. Average earnings at age 28 is also shown. For advanced apprenticeships, the top 3 sectors for men are Engineering, Building and Construction and Transportation Operations and Management. Those men who undertake the most popular (Engineering) earn more than men who undertook other types of apprenticeship. Average earnings at age 28 for a man who started an engineering apprenticeship is £29,265. For women at the advanced level, the top three apprenticeship sectors are Child Development and Wellbeing, Administration and Service Enterprises (hairdressing for example). All three have low average earnings at age 28 relative to the top ten sectors for men. They are £12,038, £16,514 and £12,045 for Child Development and Wellbeing, Administration and Service Enterprises respectively. Such gender differences suggest that we do need to treat men and women differently when considering payoffs. It is also illustrative of the huge variation to the potential payoff to an apprenticeship. In Appendix Table A2, we show the top ten sectors for the cohort who did their GCSE exam in 2011. Although the most popular sectors have not changed that much, the degree of concentration in particular sectors has decreased a little for men.

Table 3: Detailed sector composition of Intermediate and Advanced apprenticeships

Panel A: 10 Most Popular Sectors of Apprenticeships for men

	Intermediate apprenticeships			Advanced apprenticeships			
	N.	%	Average earnings	N.	%	Average earnings	
Building and Construction	4806	24%	19,562	Engineering	5767	32%	29,265
Administration	2779	14%	19,095	Building and Construction	4081	23%	24,044
Engineering	1841	9%	23,378	Transportation Operations and Maintenance	3942	22%	23,426
Transportation Operations and Maintenance	1771	9%	19,182	Administration	691	4%	22,072
Hospitality and Catering	1143	6%	17,573	ICT Practitioners	562	3%	27,134
Retailing and Wholesaling	1099	5%	17,580	Foundations for Learning and Life	539	3%	25,627
Warehousing and Distribution	908	4%	20,859	Accounting and Finance	494	3%	26,090
Health and Social care	770	4%	17,862	Hospitality and Catering	472	3%	20,025
Sport, Leisure and Recreation	752	4%	19,262	Manufacturing Technologies	289	2%	28,437
ICT for Users	723	4%	19,679	Sport, Leisure and Recreation	254	1%	21,064

Panel B: 10 Most Popular Sectors of Apprenticeships for women

	Intermediate apprenticeships			Advanced apprenticeships			
	N.	%	Average earnings	N.	%	Average earnings	
Administration	6806	32%	14,438	Child Development and Well Being	2432	24%	12,038
Service Enterprises (e.g. Hairdressing)	3563	17%	11,218	Administration	2239	22%	16,514
Health and Social care	2118	10%	12,211	Service Enterprises (e.g. Hairdressing)	1282	13%	12,045
Child Development and Well Being	2079	10%	10,715	Health and Social care	700	7%	15,161
Retail and Wholesaling	2079	10%	12,554	Accounting and Finance	700	7%	21,052
Hospitality and Catering	1249	6%	12,446	Travel and Tourism	493	5%	14,849
Foundations for Learning and Life	495	2%	12,836	Hospitality and Catering	489	5%	14,852
Animal Care and Veterinary Services	418	2%	13,287	Nursing and Vocations Allied to Medicine	385	4%	13,237
Sport, Leisure and Recreation	394	2%	14,585	Foundations for Learning and Life	291	3%	14,602
Business Management	351	2%	15,093	Retail and Wholesaling	237	2%	15,349

4. Who gets an apprenticeship?

In Tables 4 and 5, we show characteristics of individuals who obtained an intermediate and advanced apprenticeship for men and women respectively. We also show summary statistics for the top decile of earners at age 28 amongst those who started an apprenticeship. For comparison, we show the same summary statistics for the entire cohort - those undertaking their GCSE exam in 2003. The variables are measured in the last year of compulsory schooling when individuals were aged 16.

Table 4: Summary statistics for men starting an intermediate or advanced apprenticeship

	Cohort average	Intermediate	Advanced	Top 10% apprenticeship earners
English as first language	91%	97%	98%	98%
White	80%	89%	90%	90%
Eligible for FSM	14%	12%	7%	6%
10% least deprived areas ¹	11%	9%	11%	11%
10% most deprived areas ¹	10%	9%	6%	10%
Originally from London	14%	7%	7%	14%
KS2 English grade	54	50	53	55
KS2 Maths grade	59	54	60	63
5 GCSEs graded A*-C	46%	30%	49%	55%
Very good secondary school ²	28%	25%	27%	27%
Observations	287,598	38,856	22,609	4,356

Notes: 1. This ranking is based on the Income Deprivation Affecting Children Index which measures proportion of children under 16 in a local area who live in low income households. 2. A 'Very good' secondary school is defined as being graded as excellent, outstanding or really good by OFSTED (2003).

Table 5: Summary statistics for women starting an intermediate or advanced apprenticeship

	Cohort average	Intermediate	Advanced	Top 10% apprenticeship earners
English as first language	91%	96%	97%	97%
White	80%	88%	89%	87%
Eligible for FSM	14%	14%	11%	9%
10% least deprived areas ¹	10%	7%	8%	10%
10% most deprived areas ¹	10%	11%	8%	10%
Originally from London	14%	8%	7%	16%
KS2 English grade	60	56	58	62
KS2 Maths grade	57	51	55	61
5 GCSEs graded A*-C	57%	37%	49%	63%
Very good secondary school ²	31%	25%	27%	29%
Observations	278,194	37,565	12,477	3,424

Notes: 1. This ranking is based on the Income Deprivation Affecting Children Index which measures proportion of children under 16 in a local area who live in low income households. 2. A 'Very good' secondary school is defined as being graded as excellent, outstanding or really good by OFSTED (2003).

All categories of apprentice are more likely to speak English as a first language and to be white compared to the cohort as a whole.⁵⁶ They are also much less likely to come from London. Those who start an intermediate apprenticeship are similar to the average in the cohort in terms of eligibility for free school meals and the probability of coming from a prosperous or deprived area (as measured by the IDACI index), although they are a little less likely to come from a deprived area and (if male) to have been eligible to receive free school meals.⁵⁷ They have below average results in terms of GCSE and primary school attainment in English and maths. They are also less likely to have attended a 'very good' secondary school - as measured by whether Ofsted evaluates the school as outstanding or very good.

Advanced apprentices are less likely to have been eligible for free school meals than the cohort as a whole and to have come from the 10% most deprived areas. Differences are more striking for men than for women. Men who pursue advanced apprenticeships are higher achieving at GCSEs than the average but the opposite is true for women. They are fairly similar to the average in terms of the probability of attending a very good secondary school - although more so for men than for women. If we consider the top 10% of earners who start an apprenticeship at some stage (as measured at age 28), they have a similar profile to those who start advanced apprenticeships, with the most striking differences being that they have higher achievement at GCSE and are much more likely to come from London than others with an apprenticeship (although similar to the cohort as a whole).

One question is whether those starting an apprenticeship in more recent times have very different characteristics than the cohort we are considering. To investigate this, we estimate Probit models of the probability of starting an apprenticeship conditional on observable characteristics. We do not find much evidence that apprentices are selected differently in more recent times than they were for the cohort we are considering. This is explained in the Appendix (Table A3).

In Tables 6 and 7 - for men and women respectively - we show summary statistics of individual characteristics according to the highest level of education achieved and whether he/she has ever started an apprenticeship. In this case, we combine different levels of apprenticeship, although intermediate apprenticeships will be more common for those qualified to level 2 and advanced apprenticeships for those qualified to level 3.⁵⁸ Columns (1) to (3) of each table show summary statistics for those whose highest qualification is level 2, dividing this into academic (GCSE), vocational and those with an apprenticeship. Columns (4)-(6) show summary statistics for those whose highest qualification is level 3, dividing this into academic (A-levels), vocational and those with an apprenticeship. Columns 7 and 8 show summary statistics for those with higher levels of education: level 4/5 (column 7), a degree (column 8). The final column shows summary statistics for the whole cohort.

This shows that those starting an apprenticeship are more likely to be classified as white and to speak English as a first language than any other group defined by educational attainment. They are also less likely to come from London. This is true for both men and women.

Based on eligibility to receive free school meals, those with level 2 as a highest qualification and who commenced an apprenticeship are less likely to be disadvantaged than others with a similar level of education (within the level 2 group). However, there is much more 'selection' according to disadvantage amongst those who are qualified to level 3. Those who started an apprenticeship are much less likely to have been eligible to receive free school meals than the cohort as a whole: 6% and 9% for men and women respectively, compared to 14% in the cohort as a whole. However, they are quite similar in this respect to those whose highest qualification is A-levels, and very different from those with a level 3 vocational qualification (but no apprenticeship) who are more likely to come from a disadvantaged background. Level 3 school leavers with A-levels or an apprenticeship come from the 10% most deprived areas with about the same probability - which is also similar to university graduates. It is clear that someone from a disadvantaged background has a relatively small probability of being amongst either

⁵⁶ The under-representation of ethnic minorities is not due to their application behaviour (at least for those who apply for apprenticeships using the National Apprenticeship Service). In fact, they apply in greater numbers and are less likely to be selected. See the report by the Learning and Work Institute (2017).

⁵⁷ The IDACI index is the Income Deprivation Affecting Children Index (IDACI).

⁵⁸ We show some regressions whether the payoffs to starting an intermediate apprenticeship and advanced apprenticeship are distinguished within educational level.

university graduates or those whose highest qualification is A-levels or those who start an advanced apprenticeship. However, whereas university graduates are more likely to be drawn from the least deprived areas (16-17% compared to 10-11% in the cohort), those with a level 3 qualification and who started an apprenticeship are much closer to the average for the cohort in this respect. When compared to university graduates, they are much less likely to have attended a 'very good' secondary school. Thus, although not from the poorest backgrounds, those with a level 3 qualification who start an apprenticeship are not from a socio-economic elite either.

Much of what drives the relationship between disadvantage and educational progression is academic achievement when at school. When we look at a measure of academic achievement while at school (5 or more GCSEs at grades A*-C), it is clear that those who ultimately attain higher-level qualifications are those who did better in the GCSE exam. In particular, there is huge difference between those who achieved a degree compared with all other groups - though they are closer to those who stopped their education at A-levels, as these students also performed very well at GCSE. This measure illustrates that those who start apprenticeships look very different in terms of their educational background than those with degrees (and A-levels). They look a lot more like those who undertook vocational qualifications at their respective levels, although apprentices are clearly 'positively selected' within these groups; they have higher prior attainment than those with a vocational qualification at the same level.

Finally, we show average years of post-compulsory education and years of labour market experience (after leaving the education system) for these groups. When considering the payoffs to apprenticeship, it is important to bear in mind that such individuals will often have lower years of experience, as measured after they complete their education + apprenticeship. We will estimate payoffs using regressions with and without controlling for years of experience.⁵⁹ A further point to note is that those with degree level education spend much longer in the education system than those with a level 3 qualification and thus have less labour market experience. As they have such different labour market trajectories, an analysis at the age of 28 is going to be more limited when comparing apprentices to those with degrees (as opposed to those with qualifications at a similar level).

⁵⁹ The 'on-the-job' experience which is during an apprenticeship is part of the apprenticeship process itself and included within our estimate of the earnings differential to starting an apprenticeship.

Table 6: Summary statistic by highest level and type of education for men

	Level 2			Level 3			Tertiary		
	Academic (GCSEs)	Vocational	With apprenticeship	Academic (A-Levels)	Vocational	With apprenticeship	Level 4/5	Bachelor's degree	Whole Cohort
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
English as first language	91%	92%	97%	90%	90%	98%	94%	86%	91%
White English	79%	81%	89%	79%	78%	90%	84%	74%	80%
Eligible for FSM	15%	19%	12%	8%	12%	6%	7%	7%	14%
10% least deprived areas ¹	8%	7%	8%	14%	10%	12%	13%	17%	11%
10% most deprived areas ¹	11%	13%	9%	6%	9%	5%	6%	5%	10%
Originally from London	17%	12%	8%	18%	15%	8%	10%	18%	14%
KS2 English grade	53	47	50	61	54	54	57	63	54
KS2 Maths grade	57	50	54	70	58	61	64	72	59
5 GCSEs graded A*-C	33%	15%	25%	87%	52%	56%	72%	88%	46%
Very good secondary school ²	26%	21%	25%	33%	27%	28%	29%	37%	28%
Years of post-compulsory education	0	3	3	2	3	4	6	6	3
<i>Labour markets characteristics</i>									
Employed for at least one day (2015)	89%	88%	90%	90%	91%	89%	90%	94%	89%
Self-employed	3%	3%	4%	1%	2%	4%	2%	2%	2%
Number of worked days	289	283	290	303	302	299	308	314	293
Yearly earnings in 2015	19709	17862	20467	22464	20755	25558	25430	26591	21515
Years of experience ³	8	7	7	8	8	7	6	6	7
Observations	38,011	22,268	24,460	24,735	19,866	18,941	6,186	59,516	287,598

Notes: 1. This ranking is based on the Income Deprivation Affecting Children Index which measures proportion of children under 16 in a local area who live in low income households. 2. A 'Very good' secondary school is defined as being graded as excellent, outstanding or really good by OFSTED. 3. Counting years with positive earnings after completion of education.

Table 7: Summary statistic by highest level and type of education for women

	Level 2			Level 3			Tertiary		Whole Cohort
	Academic (GCSEs)	Vocational	With apprenticeship	Academic (A-Levels)	Vocational	With apprenticeship	Level 4/5	Bachelor's degree	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
English as first language	91%	93%	96%	90%	93%	97%	93%	86%	91%
White English	80%	83%	88%	79%	83%	89%	84%	74%	80%
Eligible for FSM	18%	20%	15%	9%	12%	9%	9%	7%	14%
10% least deprived areas ¹	7%	6%	6%	13%	9%	9%	11%	16%	10%
10% most deprived areas ¹	13%	14%	11%	7%	8%	7%	7%	6%	10%
Originally from London	16%	11%	9%	17%	13%	7%	10%	18%	14%
KS2 English grade	57	52	55	65	58	60	61	67	60
KS2 Maths grade	53	46	50	64	54	57	59	68	57
5 GCSEs graded A*-C	37%	21%	28%	88%	57%	63%	74%	91%	57%
Very good secondary school ²	28%	23%	25%	35%	29%	28%	30%	40%	31%
Years of post-compulsory education	0	3	2	2	3	3	7	6	4
<i>Labour markets characteristics</i>									
Employed for at least one day (2015)	88%	87%	90%	90%	90%	90%	89%	93%	89%
Self-employed	1%	1%	1%	1%	1%	1%	1%	1%	1%
Number of worked days	284	282	289	301	300	302	304	314	297
Yearly earnings in 2015	13621	12119	12538	18500	15113	15586	20401	22809	17579
Years of experience ³	8	7	7	8	8	7	5	6	7
Observations	36,366	19,851	22969	25,460	25,329	12,111	8,753	70,817	278,194

Notes: 1. This ranking is based on the Income Deprivation Affecting Children Index which measures proportion of children under 16 in a local area who live in low income households. 2. A 'Very good' secondary school is defined as being graded as excellent, outstanding or really good by OFSTED. 3. Counting years with positive earnings after completion of education.

5. Is there a payoff to having an apprenticeship?

We then assess whether, conditional on the highest level of education achieved, there is a payoff to commencing an apprenticeship programme over and above other forms of education using the methodology described in Section 2. Before discussing the regression results which include controls, we describe raw patterns in the data over time.

Trends in Earnings

Figures 2 and 3 show trends in earnings over time for men and women at levels 2 and 3 respectively (where their highest level of qualification was either level 2 or level 3). Although in general we are interested in earnings at age 28 in 2015, these figures plot log earnings each year these groups have completed education and are in the labour market. They show trends for the cohort who completed their compulsory education in 2003 (at age 16). Hence, everyone is about the same age, although the sample composition will change year-on-year as not everyone has positive earnings every year. Furthermore, the groups have different years of post-education experience, partly driven by when they finish their education and start working (as well as years in employment). These differences are not reflected in the figures, although they will be taken into account in the regression analysis, which tries to measure the earnings differential attributable to starting an apprenticeship net of the other individuals' observable characteristics.

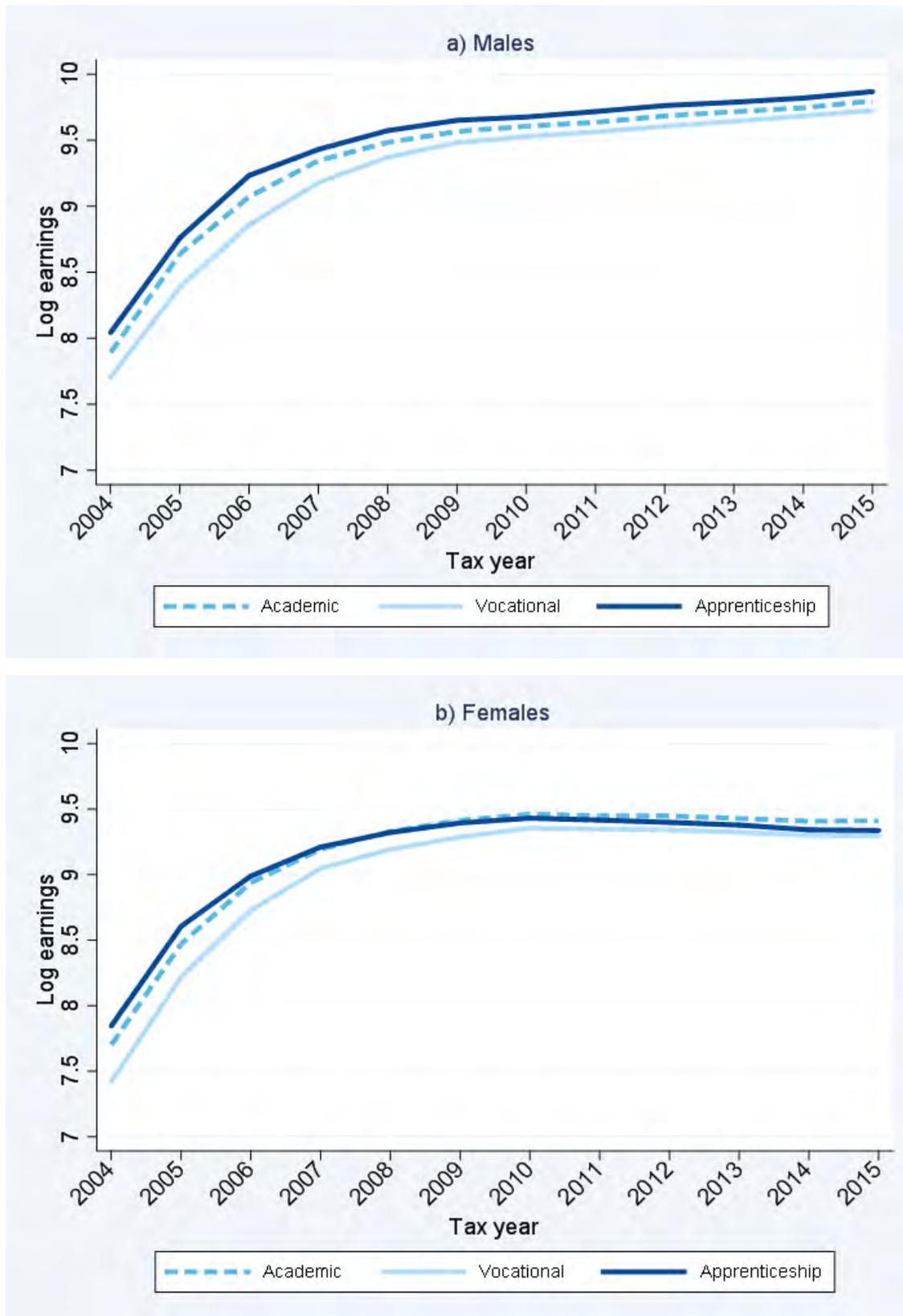
We begin by considering average (unadjusted) log earnings for those whose highest level of qualification is at level 2.⁶⁰ Figure 2 shows that women earn less on average than men and have a flatter earnings profile. This is true for all educational categories. For both men and women, those with a vocational qualification (but no apprenticeship) earn less than those in other groups. For men, those with an apprenticeship earn more on average in each year. For women, the raw differential starts out as slightly higher for apprentices (compared to those with GCSEs only) but this is reversed by age 28. The difference is small, however, in Figure 3, we show log earnings for those whose highest qualification is level 3.⁶¹ For men, the raw differential to having started an apprenticeship is clearly positive and is higher than earnings for both other categories: individuals with A-levels or an equivalent vocational qualification. The raw difference in log earnings between individuals with A-levels or an equivalent vocational qualification is much smaller. The situation is very different for women. In early years, the raw differential to starting an apprenticeship is positive. But by age 28, those with A-levels have higher average log earnings than those who started an apprenticeship or those with a vocational qualification. Furthermore, there is not much difference between average log earnings at age 28 between those with an apprenticeship and those with a vocational qualification.

These figures suggest that men with a highest qualification of level 3 and who started an apprenticeship fare particularly well relative to other groups, with medium-term benefits of starting an apprenticeship less obvious for women (in the raw data). We now consider what happens when we control for other characteristics in a regression context, thus controlling properly for observable characteristics that might obscure the true relationship between starting an apprenticeship and average earnings.

⁶⁰ In tables 6 and 7, we report average annual earnings of men and women respectively in 2015 (when this cohort were aged 28). The average earnings for those with only GCSEs was £19,709 and £13,621 for men and women respectively. Those with (at most) a level 2 vocational qualification earned £22,268 and £24,460 for men and women respectively. This is £24,460 (for men) and £12,538 (for women) if they also started an apprenticeship within 5 years of leaving school. Note that these numbers do not control for any other characteristics. Also, whereas the numbers used in our regression results are trimmed (to exclude the top and bottom percentiles), here they are untrimmed.

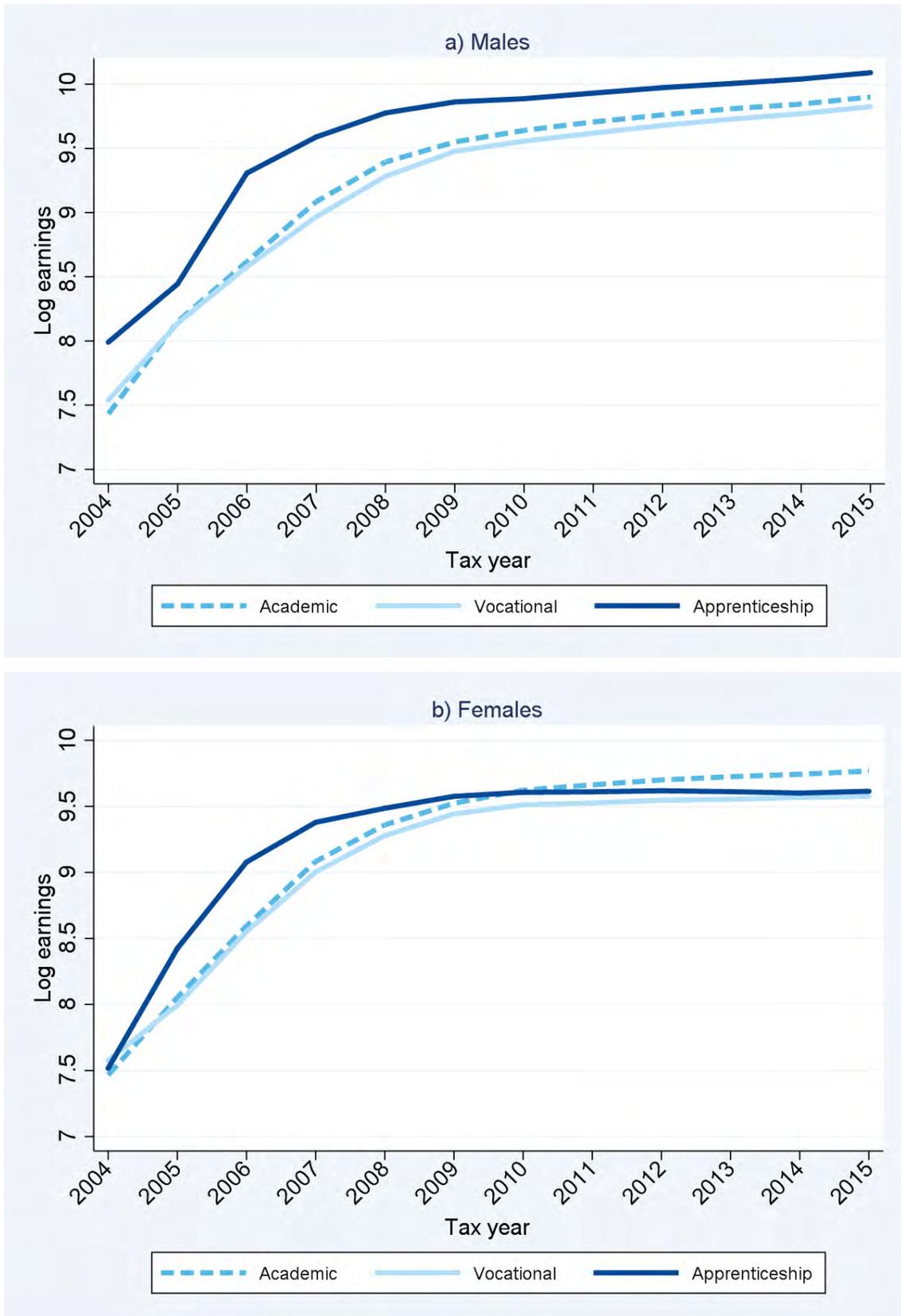
⁶¹ For those educated up to level 3, men and women with only A-levels earned £22,464 and £18,500 on average at age 28. For those with (at most) a level 3 vocational qualification, the average earnings were £20,755 (for men) and £15,113 (for women). For those who has also started an apprenticeship, the average was £25,558 and £15,586 for men and women respectively.

Figure 2: Earnings profiles of people whose highest education attainment is at level 2



Note: Log Gross Earnings over time for the 2003 cohort. Earnings obtained when the individual is in education are excluded from the graph.

Figure 3: Earnings profiles of people whose highest education attainment is at level 3



Note: Log Gross Earnings over time for the 2003 cohort. Earnings obtained when the individual is in education are excluded from the graph.

Payoffs: Level 2 as highest qualification

Table 8 (see Tables section) shows regression results with three specifications for men (columns 1-3) and for women (columns 4-6). We first report the average (log) earnings differential with no controls. Then - as explained above - we include controls for demographics, prior attainment and school attended. And finally, we also add years of experience after the end of education or an apprenticeship - noting that the 'on-the-job' experience done as part of an apprenticeship is included within the 'effect' that we would like to measure. Controlling for post-education experience adjusts estimates for the fact that people who follow different education routes necessarily enter the labour market at different times (as shown in Tables 6 and 7). In general, it is not completely unambiguous whether to include years of actual experience in the regression (although the convention would be to include this) as the educational qualification might directly affect years of employment - which is an outcome in itself.

For men and women, the earnings differential to having started an apprenticeship gets stronger as controls are added. Even without controlling for years of experience the earnings differential at age 28 is 11% and 4% for men and women respectively compared to the baseline (which is those who leave education with only GCSEs). As those with GCSEs have more labour market experience, the differential increases substantially when this is taken account of (in specifications 3 and 6). The earnings differential is then about 10% for men and 12% for women. It is also higher than the payoff to a vocational (non-apprenticeship) qualification at this level, which in turn is associated with higher average earnings than leaving school with only GCSE qualifications. Vocational qualifications at this level is only higher than the payoff to GCSEs (for men) when including years of experience as a control. The relative payoff to having completed an apprenticeship (as opposed to starting one) is even higher and is reported in Appendix Table A4.1. Given that unobserved attributes such as motivation are very likely to affect both completion and earnings, we shouldn't make too much of the difference between completers and non-completers. However, most of the earnings differential is attributable to starting an apprenticeship in the first place (rather than completing one).

As discussed above, although individuals with level 2 as a highest qualification are more likely to commence an intermediate apprenticeship, a significant number also undertake an advanced apprenticeship. Table 9 shows the same regressions where the two types of apprenticeship are distinguished. There is a much higher differential from having started an advanced apprenticeship rather than an intermediate apprenticeship. However, again, one should not make too much of this as there is very likely to be unobserved attributes affecting both the level of apprenticeship and earnings.

Another interesting exercise is to compare the payoffs to starting an apprenticeship with achieving vocational qualifications without an apprenticeship, but including a control for the main vocational sector of learning. For example, it might be that those starting an apprenticeship have a very different sector of learning to others with a vocational qualification (but no apprenticeship). We report the results of these regressions in Table 10.⁶² It is interesting to note that including this additional control makes very little difference to the average earnings differential.

Payoffs: Level 3 as highest qualification

Table 11 shows results where we consider only those with level 3 as their highest qualification. The baseline consists of those individuals who achieve A-levels as their highest qualifications. For men, the average payoff to having an apprenticeship is much larger. Even without controlling for experience, the earnings differential at age 28 is 24%. This increases to nearly 37% when controlling for experience. In contrast, there is very little difference in the average earnings differential from leaving education with level 3 vocational qualifications compared to A-levels after controls have been added.

For women, the situation is very different. The raw differential to starting an apprenticeship is negative but goes to zero after including basic controls. However, the differential becomes positive when controlling for experience and is about 9%. The average differential to leaving education with vocational qualifications (as opposed to A-levels) is negative in the raw data but is narrowed substantially when

⁶² In this regression, we exclude those with only academic qualifications as they do not have a vocational sector of learning. In Table 10, the omitted category is those with a vocational qualification but no apprenticeship.

basic controls are included. It remains negative (at about 5%) when experience is also included. Thus, for women, there is a positive payoff to having started an apprenticeship only after controlling for experience. Thus, conditional on observable characteristics and experience, the average earnings differential to starting an apprenticeship is positive relative to leaving education with either A-levels or classroom-based vocational qualifications.

When we distinguish between completers and non-completers, there is a higher payoff for the former. This is shown in the Appendix (Table A4.2). When controls are included, there isn't much difference between the payoffs to completers versus non-completers, suggesting that the latter group are not really losing out much on average.

Table 12 shows results where we distinguish between those who started an advanced apprenticeship and those who started an intermediate apprenticeship. The average payoff is much higher for the former group. However, in Table 13, we compare those with an apprenticeship to those with a vocational qualification and include a control for the sector of learning (again excluding those with academic qualifications, see footnote 62). This shows that much of the differential payoff to having started an intermediate apprenticeship compared to an advanced apprenticeship is driven by the sector of learning. Nonetheless, the payoff to having an advanced apprenticeship is higher by some margin even after taking account of the sector of learning. As those undertaking an advanced apprenticeship are different from those undertaking an intermediate apprenticeship for reasons that are not fully measured in the data, one should not interpret these differences as causal. However, they provide suggestive evidence that an apprenticeship is a good investment for those able to get one.

We have considered whether there is an additional payoff or penalty to having an apprenticeship conditional on demographics such as whether the individual was eligible to receive free school meals when at school, whether from London, and whether a person attended a 'good secondary school'. However, the payoff to these groups is about the same as the average.⁶³ Thus, although those from disadvantaged backgrounds are less likely to access advanced apprenticeships than the average student, the earnings premium attached to starting an apprenticeship is the same for them as for others.

Payoffs to apprenticeships in different sectors

Table 14 shows the earnings differential for men according to the sector of the apprenticeships, where small sectors are aggregated together into one category. Columns (1) to (3) show the average earnings differential for those whose highest level of education is level 2 and columns (4) to (6) show the average earnings differential for those whose highest level of education is level 3. As before, controls are progressively added to the regression. The baseline is those with GCSEs only (with regard to level 2) and A-levels only (with regard to level 3).⁶⁴ The results show that the average payoff at age 28 to starting an apprenticeship is higher in all sectors of apprenticeship at both levels 2 and 3 relative to the baseline (omitted category) and also relative to undertaking a vocational qualification without an apprenticeship. This is true whether or not we add a control for experience. However, the average payoff is very different across sectors. Although it is always high, it is highest for those with an apprenticeship in engineering. This is true at both levels 2 and 3. Also, within sector, the average payoff to having an apprenticeship is always higher (relative to the baseline) for those with a level 3 qualification as their highest level (rather than level 2). This most likely reflects the greater prevalence of 'advanced apprenticeships' in this group.

Table 15 shows results from the same set of regressions for women, except in this case the sectors of apprenticeship are different, reflecting their prevalence. Considering those with a highest qualification of level 2, there is a relatively high payoff (compared to the baseline) for those who started an apprenticeship in healthcare, administration or 'another sector' (the miscellaneous group). This payoff is also significantly higher than having a vocational level 2 qualification as the highest qualification. The payoff to starting an apprenticeship in childcare is also positive but only when controlling for experience and it is less than having a vocational level 2 qualification (with no apprenticeship). There is no payoff to having an apprenticeship in service enterprises - the second most popular sector of apprenticeships for women, which includes hairdressing.

⁶³ The results of this analysis can be provided by the authors on request.

⁶⁴ 'GCSEs only' include individuals who achieved at least one GCSE at Grade C or above.

When we consider those with level 3 as their highest educational qualification, the outlook is worse, whether we compare average payoffs to the baseline or to those with a level 3 vocational qualification but no apprenticeship. The only sectors with relatively high average payoffs are administration and the miscellaneous 'other' category - and even then, they are much lower than men starting level 3 apprenticeships. Those starting apprentices in childcare or services enterprises have lower payoffs than those whose highest qualification is A-levels or a vocational equivalent (as demonstrated by comparing coefficients to the first row). Those starting an apprenticeship in healthcare have an average payoff which is about the same as those whose highest qualification is A-levels (conditional on all observable characteristics) and higher than those whose highest qualification is level 3 vocational (but no apprenticeship).

The overall picture is one where young men have a very high earnings differential to starting an apprenticeship in all sectors, although the magnitude varies depending on the sector. On the other hand, the differential for women is lower and only exists (on average) in some sectors.

Advanced apprenticeship v degree for men

Having established that apprenticeships are associated with higher earnings for those qualified up to level 3, another interesting question is how they compare to those who have a university degree. In Section 5, we saw that male apprentices have very different characteristics to those holding a university degree. In particular, they have much lower educational attainment at school (on average) and spend much less time in the education system. The latter issue makes it particularly difficult to make a comparison when the cohort is only aged 28, as university graduates enter the labour market much later and thus have less experience. Here we compare men who have completed an advanced apprenticeship with those who have completed a university degree.⁶⁵ Figure 4a shows the earnings profile over time for those men who achieved an advanced apprenticeship compared to those who achieved a university degree. Figure 4b shows the earnings profile over years of experience (where this starts after individuals have completed their education/apprenticeship). Figure 4a illustrates that men with an advanced apprenticeship enter the labour market much earlier than those with a degree. Figure 4b shows that those with a university degree have a steeper age-earnings profile as they begin their career. While those with an advanced apprenticeship earn more on average, the differential converges over time and we do not see what happens beyond the age of 28. Furthermore, these calculations do not take into account student debt repayments.

In Table 16, we report results in a regression context, where we progressively include controls. Specifically, we estimate the average earnings differential for achieving an advanced apprenticeship compared to achieving a degree (which is the baseline). In columns (1) to (3) the baseline is achieving any degree and in columns (4) to (6) the baseline is achieving an engineering degree. In the upper panel, we show the average differential for achieving any type of advanced apprenticeship and in the lower panel, we report regressions where we break this down according to the sector of the apprenticeship. The raw earnings differential attached to achieving an advanced apprenticeship (over a university degree) is 11 percent at age 28. Although this increases after conditioning on a lot of observable characteristics (column 2), the magnitude goes back to about 11 percent when also controlling for experience. When we break this down by sector, it is clear that the differential is considerably higher for those with an advanced apprenticeship in engineering. Even conditional on observable characteristics and experience, they earn about 27% more on average than those with a university degree at age 28. The average differential, though positive, is lower in other sectors and is only negligible for those with an advanced apprenticeship in administration.

We then compare men who achieved an advanced apprenticeship to men with a degree in engineering (as opposed to any type of degree). When we make this comparison, those with a degree in engineering always earn more when controlling for experience (and by a considerable margin). The only exception is an engineering apprenticeship. Conditional on observable characteristics, those who achieve an advanced apprenticeship in engineering have the same average earnings differential as those with an engineering degree at age 28.

⁶⁵ We exclude the small number of people who have an advanced apprenticeship as well as a highest qualification at levels 4 & 5

Conclusion

In many contexts, there is an average earnings differential from starting an apprenticeship for a young person. It is higher for completers than non-completers, for 'advanced apprenticeships' than 'intermediate apprenticeships' and for men than women. The average differential is strongly dependent on the sector chosen with the differential being strongest for engineering. Men who complete an advanced apprenticeship in engineering earn more on average than men with a degree in engineering at age 28 - although this differential disappears after taking account of all observable characteristics and post-education labour market experience. At the opposite 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). Thus, much like university degrees, one should think of the potential 'returns' to an apprenticeship as being variable across subject specialism. In the light of strong differences by sector, it is disturbing that there is such strong gender segregation and that women do not enter the sectors with higher earnings prospects. Furthermore, this has not changed over the last ten years. One might also ask whether apprenticeships with no positive earnings differential have any advantage in terms of pedagogy/productivity.

We also show evidence of inequality of opportunity for who can get on to an apprenticeship programme. For example, those from minority backgrounds (as defined by ethnicity or whether English is the first language spoken) are under-represented. Economically disadvantaged groups are also under-represented, especially among men. For example, among men, the percentage of those eligible to receive free school meals who start an advanced apprenticeship is the same as those who complete a university degree; the same is true for those who live in the most disadvantaged areas. On the other hand, those who start an apprenticeship are more representative of the cohort when it comes to the probability of being drawn from the more prosperous areas (unlike graduates, who are strongly over-represented). Furthermore, advanced apprenticeships are clearly accessible to those with GCSE grades that are close to the average for the cohort (and below average in the case of women). This is unlike the average university graduate, who leaves school with a much higher level of educational attainment. Thus, on various indicators, it appears that apprenticeships are drawn from a more representative sample of the population even if they are not at all commonly observed amongst the poorest groups.

Since apprenticeships for young people are relatively scarce compared to say, university degrees, it is important to address barriers to creating more such opportunities where there is clearly a positive payoff. Most businesses will not benefit from the focus on training provision for levy-payers as this only applies to the largest employers (accounting for only 2% of employers in the UK). Furthermore, the incentives to recruit 16-18 year olds have been reduced.⁶⁶ In addition to increasing the incentive for businesses to recruit young people as apprentices (as opposed to apprenticeships for older people), there is also a need to address the under-representation of those from poor backgrounds and those from minority groups. Finally, opportunities to get on apprenticeships with good earnings prospects are clearly greater for men than for women. This is a major concern going forward if apprenticeships are to become a more dominant part of the landscape for young people in England.

⁶⁶ <https://feweek.co.uk/2017/01/05/funding-reform-will-see-16-18-apprenticeships-drop-by-two-thirds>

Tables

Table 8: Apprenticeship payoffs at age 28 for men and women whose highest qualification is level 2

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 2 vocational	-0.098*** (0.010)	-0.006 (0.011)	0.074*** (0.011)	-0.064*** (0.012)	0.042** (0.013)	0.107*** (0.013)
Level 2 with apprenticeship	0.081*** (0.009)	0.112*** (0.010)	0.229*** (0.010)	-0.030** (0.011)	0.038** (0.012)	0.145*** (0.011)
N. years of experience			0.099*** (0.002)			0.115*** (0.002)
<i>P</i> -value (<i>H</i> ₁ : Vocational ≠ Apprenticeship)	0.000	0.000	0.000	0.007	0.749	0.002
N	55106	55106	55106	45632	45632	45632
<i>Controls:</i>						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDACI score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is GCSEs and no apprenticeship.

Table 9: Apprenticeship payoffs at age 28 by apprenticeship type (highest education level 2)

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 2 vocational	-0.098*** (0.010)	-0.007 (0.011)	0.074*** (0.011)	-0.064*** (0.012)	0.042** (0.013)	0.107*** (0.013)
Level 2 with Intermediate apprenticeship	0.055*** (0.010)	0.097*** (0.011)	0.195*** (0.011)	-0.043*** (0.012)	0.027* (0.012)	0.119*** (0.012)
Level 2 with Advanced apprenticeship	0.171*** (0.015)	0.163*** (0.015)	0.345*** (0.016)	0.029 (0.019)	0.087*** (0.021)	0.268*** (0.021)
N. years of experience			0.100*** (0.002)			0.116*** (0.002)
<i>P-value (H1: Intermediate ≠ Advanced)</i>	0.000	0.000	0.000	0.000	0.005	0.000
N	55106	55106	55106	45632	45632	45632
<i>Controls:</i>						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is GCSEs and no apprenticeship.

Table 10: Apprenticeship payoffs at age 28 based on the apprenticeship level

	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Level 2 with Intermediate apprenticeship	0.168*** (0.012)	0.123*** (0.014)	0.151*** (0.013)	0.131*** (0.014)	0.041** (0.014)	0.024 (0.016)	0.055*** (0.015)	0.045** (0.016)
Level 2 with Advanced apprenticeship	0.293*** (0.017)	0.198*** (0.019)	0.328*** (0.019)	0.293*** (0.020)	0.093*** (0.022)	0.061* (0.025)	0.191*** (0.025)	0.196*** (0.025)
<i>P-value (H1: Intermediate ≠ Advanced)</i>	0.000	0.000	0.000	0.000	0.016	0.138	0.000	0.000
N	26925	26925	26925	26925	22801	22801	22801	22801
<i>Controls:</i>								
Demographic characteristics		✓	✓	✓		✓	✓	✓
Key Stage 4 results		✓	✓	✓		✓	✓	✓
Key Stage 2 results		✓	✓	✓		✓	✓	✓
Secondary Schools fixed effects		✓	✓	✓		✓	✓	✓
Years of experience			✓	✓			✓	✓
Sector of highest vocational education				✓				✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and Maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is vocational level 2 and no apprenticeship.

Table 11: Apprenticeship payoffs at age 28 for men and women whose highest qualification is level 3

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 3 vocational	-0.094*** (0.010)	-0.018 (0.011)	0.023* (0.011)	-0.194*** (0.010)	-0.075*** (0.011)	-0.046*** (0.011)
Level 3 with apprenticeship	0.191*** (0.009)	0.242*** (0.010)	0.368*** (0.011)	-0.140*** (0.011)	-0.023 (0.012)	0.092*** (0.012)
N. years of experience			0.103*** (0.002)			0.096*** (0.003)
<i>P-value (H1: Vocational ≠ Apprenticeship)</i>	0.000	0.000	0.000	0.000	0.000	0.000
N	47184	47184	47184	43145	43145	43145
<i>Controls:</i>						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDACI score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is A-Levels and no apprenticeship.

Table 12: Apprenticeship payoffs at age 28 by apprenticeship type (highest education level 3)

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 3 vocational	-0.094*** (0.010)	-0.014 (0.011)	0.027* (0.011)	-0.194*** (0.010)	-0.074*** (0.011)	-0.045*** (0.011)
Level 3 with Intermediate apprenticeship	0.038* (0.015)	0.083*** (0.016)	0.189*** (0.016)	-0.141*** (0.015)	-0.041* (0.016)	0.064*** (0.016)
Level 3 with Advanced apprenticeship	0.242*** (0.010)	0.302*** (0.011)	0.437*** (0.011)	-0.139*** (0.013)	-0.007 (0.014)	0.116*** (0.014)
N. years of experience			0.104*** (0.002)			0.096*** (0.003)
<i>P-value (H1: Intermediate ≠ Advanced)</i>	0.000	0.000	0.000	0.895	0.056	0.003
N	47184	47184	47184	43145	43145	43145
<i>Controls:</i>						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is GCSEs and no apprenticeship.

Table 13: Apprenticeship payoffs at age 28 based on the apprenticeship level

	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Level 3 with Intermediate apprenticeship	0.144*** (0.017)	0.113*** (0.019)	0.176*** (0.019)	0.119*** (0.019)	0.044** (0.016)	0.026 (0.018)	0.101*** (0.017)	0.046* (0.018)
Level 3 with Advanced apprenticeship	0.339*** (0.010)	0.321*** (0.011)	0.408*** (0.012)	0.245*** (0.015)	0.058*** (0.014)	0.079*** (0.015)	0.168*** (0.016)	0.097*** (0.018)
<i>P-value (H1: Intermediate ≠ Advanced)</i>	0.000	0.000	0.000	0.000	0.442	0.009	0.001	0.013
N	27159	27159	27159	27159	24702	24702	24702	24702
<i>Controls:</i>								
Demographic characteristics		✓	✓	✓		✓	✓	✓
Key Stage 4 results		✓	✓	✓		✓	✓	✓
Key Stage 2 results		✓	✓	✓		✓	✓	✓
Secondary Schools fixed effects		✓	✓	✓		✓	✓	✓
Years of experience			✓	✓			✓	✓
Sector of highest vocational education				✓				✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is vocational level 3 and no apprenticeship.

Table 14: Men apprenticeship payoffs by most popular apprenticeship sectors

	Level 2			Level 3		
	(1)	(2)	(3)	(4)	(5)	(6)
Vocational with no apprenticeship	-0.098*** (0.010)	-0.007 (0.011)	0.074*** (0.011)	-0.094*** (0.010)	-0.016 (0.011)	0.024* (0.011)
Apprenticeship in Engineering	0.241*** (0.019)	0.230*** (0.021)	0.376*** (0.020)	0.358*** (0.014)	0.393*** (0.015)	0.550*** (0.015)
Apprenticeship in Construction	0.030 (0.017)	0.070*** (0.018)	0.224*** (0.018)	0.118*** (0.016)	0.191*** (0.017)	0.340*** (0.017)
Apprenticeship in Administration	0.070*** (0.020)	0.083*** (0.022)	0.163*** (0.021)	0.067** (0.023)	0.113*** (0.024)	0.206*** (0.024)
Apprenticeship in Transportation	0.099*** (0.018)	0.135*** (0.019)	0.260*** (0.020)	0.205*** (0.014)	0.289*** (0.016)	0.373*** (0.016)
Apprenticeship in another sector	0.059*** (0.012)	0.099*** (0.013)	0.192*** (0.013)	0.113*** (0.015)	0.150*** (0.015)	0.268*** (0.015)
N. years of experience			0.099*** (0.002)			0.105*** (0.002)
N	55106	55106	55106	47184	47184	47184
Controls:						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men whose highest education is respectively GCSEs and A-Levels with no apprenticeship.

Table 15: Women apprenticeship payoffs by most popular apprenticeship sectors

	Level 2			Level 3		
	(1)	(2)	(3)	(4)	(5)	(6)
Vocational with no apprenticeship	-0.064*** (0.012)	0.040** (0.013)	0.106*** (0.013)	-0.194*** (0.010)	-0.082*** (0.011)	-0.052*** (0.011)
Apprenticeship in Childcare	-0.175*** (0.024)	-0.067** (0.026)	0.082** (0.025)	-0.385*** (0.023)	-0.212*** (0.025)	-0.087*** (0.025)
Apprenticeship in Healthcare	-0.077** (0.025)	0.066* (0.027)	0.189*** (0.026)	-0.276*** (0.040)	-0.113* (0.044)	0.014 (0.043)
Apprenticeship in Administration	0.095*** (0.016)	0.133*** (0.018)	0.197*** (0.017)	-0.014 (0.016)	0.082*** (0.017)	0.174*** (0.017)
Apprenticeship in Service enterprises	-0.175*** (0.020)	-0.109*** (0.022)	0.022 (0.021)	-0.351*** (0.028)	-0.216*** (0.030)	-0.068* (0.029)
Apprenticeship in another sector	0.030 (0.016)	0.081*** (0.017)	0.189*** (0.016)	-0.059*** (0.016)	0.025 (0.017)	0.142*** (0.017)
N. years of experience			0.115*** (0.002)			0.096*** (0.003)
N	45632	45632	45632	43145	43145	43145
Controls:						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is women whose highest education is respectively GCSEs and A-Levels with no apprenticeship.

Table 16: Payoffs of Advanced apprenticeship v. degree for men

	Obtained any Degree			Obtained a degree in Engineering		
	(1)	(2)	(3)	(4)	(5)	(6)
Achieved a level 3 apprenticeship	0.116*** (0.009)	0.331*** (0.012)	0.113*** (0.012)	-0.094*** (0.015)	0.075** (0.026)	-0.087** (0.027)
N. years of experience			0.127*** (0.003)			0.089*** (0.006)
N	52104	52104	52104	10637	10637	10637
Level 3 apprenticeship in Engineering	0.285*** (0.018)	0.456*** (0.020)	0.266*** (0.020)	0.075*** (0.021)	0.214*** (0.034)	0.061 (0.034)
Level 3 apprenticeship in Construction	0.041* (0.018)	0.266*** (0.020)	0.083*** (0.020)	-0.169*** (0.021)	-0.004 (0.033)	-0.150*** (0.033)
Level 3 apprenticeship in Administration	0.023 (0.034)	0.220*** (0.037)	-0.012 (0.038)	-0.188*** (0.036)	-0.036 (0.053)	-0.208*** (0.053)
Level 3 apprenticeship in Construction	0.082*** (0.014)	0.348*** (0.017)	0.062*** (0.018)	-0.128*** (0.018)	0.062 (0.032)	-0.150*** (0.034)
Level 3 apprenticeship in another sector	0.097*** (0.019)	0.273*** (0.021)	0.068** (0.021)	-0.113*** (0.021)	0.035 (0.033)	-0.129*** (0.034)
N. years of experience			0.128*** (0.003)			0.091*** (0.006)
N	52104	52104	52104	10637	10637	10637
<i>Controls:</i>						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men who have obtained a degree.

Appendix

Table A1: Characteristics of Intermediate and Advanced Apprenticeships (2010/11 cohort)

	Intermediate apprenticeships		Advanced apprenticeships	
	Men	Women	Men	Women
Percentage of the whole cohort	14%	13%	11%	9%
Started Intermediate Apprenticeship	-	-	43%	57%
More than one apprenticeship at the same level (whole cohort)	3%	3%	1%	1%
Progressed to the next level of apprenticeship (whole cohort)	4%	4%	0%	0%
<i>Of starts:</i>				
Planned duration (months)	15.51	13.8	23.8	16.3
<i>Highest Qualification achieved</i>				
Less than Level 2	3%	2%	0%	0%
Level 2 Academic	14%	13%	3%	3%
Level 2 Vocational	45%	36%	16%	17%
Level 3 Academic	9%	14%	6%	8%
Level 3 Vocational	28%	34%	69%	70%
Level 4/5	1%	1%	5%	2%
Degree or more	1%	1%	1%	1%
<i>Apprenticeship main sector</i>				
Health, Public Services and Care	6%	22%	2%	37%
Science and Mathematics	0%	0%	0%	0%
Agriculture, Horticulture and Animal Care	4%	2%	1%	2%
Engineering and Manufacturing Technologies	19%	1%	36%	2%
Construction, Planning and the Built Environment	19%	0%	18%	0%
Information and Communication Technology	4%	1%	14%	2%
Retail and Commercial Enterprise	20%	30%	5%	19%
Leisure, Travel and Tourism	6%	2%	8%	3%
Arts, Media and Publishing	0%	0%	1%	1%
Education and Training	0%	1%	1%	3%
Preparation for Life and Work	1%	1%	1%	1%
Business, Administration and Law	21%	39%	14%	30%
Observations	40,395	34,534	31,467	24,259

Table A2: Detailed sector composition of Intermediate and Advanced apprenticeships (2011 cohort)

Panel A: 10 Most Popular Sectors of Apprenticeships for Men

Intermediate apprenticeships			Advanced apprenticeships		
	N.	%		N.	%
Building and Construction	7538	19%	Engineering	8238	26%
Administration	7326	18%	Building and Construction	5639	18%
Transportation Operations and Maintenance	3769	9%	ICT Practitioners	3924	12%
Hospitality and Catering	3737	9%	Transportation Operations and Maintenance	2854	9%
Engineering	2878	7%	Administration	2450	8%
Sport, Leisure and Recreation	2420	6%	Sport, Leisure and Recreation	2384	8%
Warehousing and Distribution	1677	4%	Accounting and Finance	1201	4%
Retailing and Wholesaling	1494	4%	Hospitality and Catering	826	3%
Public Services	1345	3%	Business Management	396	1%
Service Enterprises	1246	3%	Health and Social Care	351	1%

Panel B: 10 Most Popular Sectors of Apprenticeships for Women

Intermediate apprenticeships			Advanced apprenticeships		
	N.	%		N.	%
Administration	12280	36%	Administration	5351	22%
Service Enterprises (e.g. Hairdressing)	4733	14%	Child Development and Well Being	5084	21%
Health and Social care	4624	13%	Service Enterprises (e.g. Hairdressing)	3517	14%
Hospitality and Catering	3572	10%	Health and Social care	2883	12%
Child Development and Well Being	2941	9%	Accounting and Finance	1010	4%
Retail and Wholesaling	1930	6%	Hospitality and Catering	759	3%
Sport, Leisure and Recreation	774	2%	Direct Learning Support	582	2%
Business Management	645	2%	Sport, Leisure and Recreation	577	2%
Animal Care and Veterinary Services	512	1%	Business Management	494	2%
Marketing and Sales	368	1%	Nursing and Subjects and Vocations Allied to Medicine	469	2%

Table A3: Marginal effects on the probability of starting an intermediate or advanced apprenticeship, by gender and by cohort

This table shows marginal effects from a Probit model where the dependent variable is whether an individual starts an apprenticeship (intermediate or advanced) relative to the rest of the cohort. For example, the coefficient on 'English as a first language' is 0.068. This means the men who speak English as a first language are more likely to start an intermediate apprenticeship by 6.8 percentage points than others. This is controlling for other variables in the regression. The main point of this table is to see that the probability of starting an apprenticeship conditional on these characteristics have not changed very much for the cohort that finished their compulsory education in 2003 or 2011. Thus, while the number of apprenticeships did increase (as shown in Figure 1), the profile of those undertaking an apprenticeship did not change very much.

	Men				Women			
	Intermediate		Advanced		Intermediate		Advanced	
	2003	2011	2003	2011	2003	2011	2003	2011
English as first language	0.068*** (0.018)	0.068*** (0.015)	0.054*** (0.025)	0.043*** (0.018)	0.052*** (0.018)	0.055*** (0.016)	0.018*** (0.026)	0.023*** (0.019)
White	0.037*** (0.011)	0.068*** (0.011)	0.027*** (0.012)	0.041*** (0.013)	0.032*** (0.011)	0.060*** (0.012)	0.015*** (0.015)	0.035*** (0.014)
Eligible for FSM	-0.023*** (0.010)	-0.021*** (0.009)	-0.036*** (0.014)	-0.038*** (0.012)	-0.011*** (0.010)	-0.008*** (0.009)	-0.011*** (0.015)	-0.015*** (0.012)
10% least deprived areas ¹	-0.020*** (0.011)	-0.028*** (0.010)	-0.008*** (0.012)	-0.001 (0.011)	-0.033*** (0.012)	-0.032*** (0.011)	-0.011*** (0.015)	-0.009*** (0.012)
10% most deprived areas ¹	-0.008*** (0.012)	0.014*** (0.011)	-0.020*** (0.015)	-0.013*** (0.014)	0.002 (0.011)	0.007* (0.011)	-0.004** (0.016)	0.001 (0.014)
Originally from London	-0.056*** (0.011)	-0.056*** (0.010)	-0.028*** (0.013)	-0.017*** (0.011)	-0.050*** (0.011)	-0.032*** (0.010)	-0.019*** (0.016)	-0.013*** (0.012)
KS2 English grade	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
KS2 Maths grade	-0.000*** (0.000)	-0.000 (0.000)	0.001*** (0.000)	0.001*** (0.000)	-0.001*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	0.000 (0.000)
5 GCSEs graded A*-C	-0.088*** (0.008)	-0.120*** (0.008)	-0.001 (0.009)	0.010*** (0.009)	-0.099*** (0.008)	-0.127*** (0.008)	-0.014*** (0.011)	-0.028*** (0.010)
Very good secondary school ²	-0.005** (0.007)	-0.015*** (0.007)	-0.003* (0.008)	-0.009*** (0.007)	-0.012*** (0.007)	-0.017*** (0.007)	-0.005*** (0.010)	-0.008*** (0.008)
Pr(Y=1), mean X	0.13	0.18	0.08	0.11	0.13	0.17	0.04	0.09
N	249603	245076	249603	245076	249202	243453	249202	243453

Notes: * p<0.05, **p<0.01, ***p<0.001; 1. This ranking is based on the Income Deprivation Affecting Children Index which measures proportion of children under 16 in a local area who live in low income households. 2. A 'Very good' secondary school is defined as being graded as excellent, outstanding or really good by OFSTED (2003).

Table A4.1: Apprenticeship payoffs at age 28 for men and women whose highest qualification is Level 2 by completion status

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 2 vocational	-0.098*** (0.010)	-0.005 (0.011)	0.075*** (0.011)	-0.064*** (0.012)	0.043** (0.013)	0.107*** (0.013)
Level 2 with non-completed apprenticeship	0.052*** (0.011)	0.077*** (0.012)	0.203*** (0.012)	-0.060*** (0.013)	0.004 (0.014)	0.118*** (0.014)
Level 2 with completed apprenticeship	0.124*** (0.012)	0.164*** (0.013)	0.266*** (0.013)	0.008 (0.014)	0.081*** (0.014)	0.179*** (0.014)
N. years of experience			0.099*** (0.002)			0.115*** (0.002)
P-value (H1: completed ≠ non-completed)	0.000	0.000	0.000	0.000	0.000	0.000
N	55106	55106	55106	45632	45632	45632
Controls:						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is GCSEs and no apprenticeship.

Table A4.2: Apprenticeship payoffs at age 28 for men and women whose highest qualification is level 3 by completion status

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Level 3 vocational	-0.094*** (0.010)	-0.017 (0.011)	0.023* (0.011)	-0.194*** (0.010)	-0.075*** (0.011)	-0.046*** (0.011)
Level 3 with non-completed apprenticeship	0.157*** (0.012)	0.204*** (0.013)	0.350*** (0.014)	-0.159*** (0.016)	-0.045** (0.017)	0.085*** (0.017)
Level 3 with completed apprenticeship	0.212*** (0.010)	0.267*** (0.011)	0.380*** (0.012)	-0.129*** (0.013)	-0.009 (0.014)	0.096*** (0.014)
N. years of experience			0.103*** (0.002)			0.096*** (0.003)
P-value (H1: completed ≠ non-completed)	0.000	0.000	0.000	0.087	0.056	0.540
N	47184	47184	47184	43145	43145	43145
Controls:						
Demographic characteristics		✓	✓		✓	✓
Key Stage 4 results		✓	✓		✓	✓
Key Stage 2 results		✓	✓		✓	✓
Secondary Schools fixed effects		✓	✓		✓	✓
Years of experience			✓			✓

Standard errors in parentheses: * p<0.05, ** p< 0.01, *** p< 0.001

Notes: Yearly gross earnings in 2015 prices. Excluded top and bottom 1% of yearly earnings distribution. Regressions include the following controls: demographic characteristics (White British, English as first language, FSM eligibility, IDAC1 score), prior attainment in Key Stage 4, prior attainment in Key Stage 2 (English and maths) and secondary schools' fixed effects. The omitted category is men and women whose highest education is A-Levels and no apprenticeship.

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