Varsity Blues

Time for apprenticeships to graduate?

A comparison of the earnings, employment, productivity and taxpayer returns of graduates to those of apprentices

A Million Jobs report sponsored by Pera Training

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A Million Jobs Report

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Written by William Walter & Shishir Malhotra

Edited by Marion Osborne

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About Million Jobs

The Million Jobs Campaign is committed to representing one million young unemployed adults. We make their case in the media and ensure politicians – from all parties – take action to tackle youth joblessness.

The Million Jobs campaign is fuelled by the passions and talents of our youth. Young adults shape every aspect of the campaign, for example talented young designers created the "busy bee" logo, aspiring young writers showcase their talents in regular blogs and we work hard to connect young people directly to the media and politicians, so they can speak for themselves.

If we are going to tackle youth unemployment, it is essential that politicians up their game.

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1. Foreword

Having access to a skilled workforce is vital to businesses of all sizes. A key component of equipping people with the expertise and ability to participate effectively in the jobs market is an efficient and well-functioning education and training system. Policymakers have a duty to ensure an education system is designed in such a way that it equips people of all abilities with a range of skills and knowledge required to meet the demands of the labour market.

The cross-party commitment to apprenticeships is welcome, but it remains clear that more needs to be done. Work is needed to dispel the myth of 'university or bust' that still exists among many young people and their friends and family.

At Jaguar Land Rover we welcome the valued contribution this report makes to the education and skills debate. It provides compelling evidence that university is not appropriate for everybody and that more needs to be done in two important areas. Firstly, to educate and inform school leavers about the other options open to them besides university and, secondly, to tackle the negative culture and attitudes that still dissuade many young people from adequately exploring the apprenticeship option.

Bethany Evans

Head of Learning & Development

Jaguar Land Rover

2. Executive Summary

Youth unemployment is a significant challenge facing policymakers. Unemployment takes a heavy toll; it not only harms lives, but also has considerable economic and financial implications for governments and society at large. For young people finishing school their next steps will have a substantial bearing on the rest of their lives. For those looking to continue their learning, there are a number of options available, including university, an apprenticeship or college. It is vital that young people make an informed choice based on accurate information. Despite this, the Government has yet to commission an analysis to compare directly the merits and weaknesses of the full range of options available to school leavers.

Using data sets from the Labour Force Survey (LFS), British Household Panel Survey (BHPS) and Unistats, we have compared two of these options: apprenticeships and university degrees. The purpose of our analysis is to determine the relative benefit these routes offer to young people, employers and taxpayers. Our analysis concludes that, contrary to public perception, apprenticeships offer more favourable returns, both to the taxpayer and to school leavers, relative to a significant proportion of university graduates. We also find that both subject studied and university attended have a considerable bearing on lifetime earnings and net returns to the Exchequer.

School Leavers

While there are a wide variety of factors influencing a young person's choice between an apprenticeship and a degree, our study focuses on two of these: earnings and employment potential. Importantly, ours is the first study of its kind to investigate, in detail, the effects of institution attended and subject studied on future earnings. From a lifetime income perspective we find apprenticeships are often as competitive, and in many cases more competitive than a significant proportion of graduate degrees. In terms of employment prospects, our findings show the significant detrimental impact the financial crisis took on both apprenticeship completers and graduates. Since 2005, however, apprenticeship completers under the age of 25 have broadly enjoyed more favourable rates of employment and unemployment than their graduate counterparts. When looking at employment and unemployment across the workforce as a whole, graduates fare better.

Due to limitations on the availability of LFS data, it was not possible to determine the effect of Higher Education Institution (HEI) type on graduate employment or unemployment. Nevertheless, based on our analysis of forecast earnings, it is reasonable to conclude that both institution attended and subject studied also play an important role in employment prospects. Another shortcoming arising from data limitations was our inability to determine whether individuals were employed in jobs commensurate with their respective skill levels.

Employers

Our study relied upon qualitative evidence to determine the relative merits of degrees versus apprenticeships. Our evidence was in tune with widespread media reports that the introduction of the new modern apprenticeship scheme has seen a renewed sense of employer confidence in apprenticeships.[1] Although, there are indications that more needs to be done to inform and educate small business owners to the value apprentices have to offer. This growing interest in apprenticeships is in contrast to that of degrees where we find evidence of waning confidence in the qualification among employers.

Taxpayers

In identifying the relative returns to the Exchequer between the two routes, we once again sought to determine the impact of HEI type and subject studied. We estimate that the average apprenticeship completer will contribute over two-thirds (64 per cent) of the net tax contribution of a graduate from a 'new' university. Irrespective of subject studied, graduates provide a greater net return to the Exchequer than the average apprentice

1 *Cooper, K. (2013, November 10). Return of the Apprentice. The Sunday Times, p. 5.*

(although the margins for certain subjects are slim).

Graduates that have studied degrees classified as 'media & information studies' contribute the least amount of tax revenue, with an average of £248,517, or £42,398 more than the average apprentice (£206,119). For 'arts' graduates the difference grows to £54,198, while for those studying for a 'humanities' degree the difference is £81,558.

For 'new' university graduates the premium over apprentices falls further. 'Media & information studies' graduates contribute the least to the Exchequer over their working life: £217,757, or £11,638 more than the average apprentice. For 'arts' graduates the difference is £22,438, while for those with a humanities degree the difference increases to £47,518. Using NVQ levels 4 and 5 as a proxy, our analysis suggests higher level apprentices provide 65 per cent of the net return to the taxpayer compared to the average university graduate and 73 per cent of the return from a 'new' university graduate.

Higher level apprentices provide a net return only 5 per cent below that for the average graduate studying a discipline classed as 'media & information studies'. After accounting for HEI type, we can see that 'new' university graduates in the 'arts' and 'media & information studies' provide net returns below those of higher level apprentices. The respective percentage differences are 3 and 8 per cent. A shortcoming of this approach, however, is that it only focuses on the expected net Exchequer returns on an individual basis. It fails to account for the considerably larger investment required to realise graduate returns relative to those for an apprentice. On a per pound basis, the returns become significantly more favourable for apprentices (£74:£1) compared to those for the average degree (£57:£1). The only degree subjects to generate a per pound return in excess of those of an apprenticeship are 'medicine' and 'engineering'. The per pound return of an apprenticeship relative to a degree become even more pronounced when HEI type is accounted for.

Graduates from 'new' universities offer a less favourable rate of return than the average graduate. On a per pound basis, the returns for graduates from 'new' universities are 6 per cent lower than those of the average graduate (51 per cent compared to 57 per cent).

The only 'new' university degree course to provide a more favourable per pound return relative to apprenticeships is 'medicine' at 86 per cent. An important consideration is the proportion these various degree subjects account for in the total number of degrees. Whilst medical degrees are the most lucrative for the Exchequer, they make up only 3 per cent of the total number of degrees awarded. In contrast, the three subjects offering the least favourable returns to the taxpayer: 'humanities', 'arts' and 'media & information studies', constitute one-fifth (20 per cent) of all degrees. The bottom six subjects in terms of taxpayer returns constitute 60 per cent of all graduate degrees.

Perceptions

As part of our investigation, we commissioned a poll of school leavers to analyse their attitudes toward apprenticeships and university. The results of our survey suggest there is much more to be done in terms of providing clear information about the practicalities and career paths provided by apprenticeships. The Government has a responsibility to encourage the take up of apprenticeships among school leavers. Over a quarter (28 per cent) felt that more information provided by the Government would encourage them to consider undertaking an apprenticeship after school or sixth form.

Despite the compelling evidence to suggest that they offer considerably better earnings potential compared to degrees, apprenticeships are still seen as a minority option by British school leavers. Only 2 per cent said that the majority of their peers plan to become an apprentice, and just 6 per cent said they are planning on becoming an apprentice themselves. More than half of school leavers felt apprenticeships are of no interest to them.

It is clear apprenticeships are still struggling to acquire social status. Fewer than one in six school leavers said that they are preferred over university by their parents and friends. Most striking is that of those school leavers surveyed, they were more than twice as likely to associate university, rather than apprenticeships, with providing a good long-term earnings

potential and job prospects. This suggests apprenticeships are primarily associated with traditional trades, and the career paths that these entail, rather than opening up prospects within the wider job market, despite evidence to the contrary. However, school leavers were notably more likely to associate apprenticeships as opposed to university with providing a clear career path. In light of the rise in tuition fees and the uncertainty of the graduate market, this clarity of direction was striking. There are clear drivers to encouraging the uptake of apprenticeships among school leavers. Three in five school leavers not planning on undertaking an apprenticeship say that a guarantee of a job or qualification at the end of the apprenticeship would encourage them to do so, while half say that a clearer idea of the earnings potential would have this effect. Emphasising these key attributes could reposition apprenticeships as a desirable and practical route for school leavers.

Summary

Our analysis offers compelling evidence that apprenticeships provide greater returns to the for school leavers relative to a large proportion of graduate degrees, particularly those from 'new' universities. We also find that for young people apprenticeships offer a higher average rate of employment and a lower rate of unemployment compared to graduate degrees.

Despite this, our report found that apprenticeships are still seen as a minority option by British school leavers. Only two per cent said that the majority of their peers are planning on undertaking an apprenticeship and only six per cent said they planned to themselves. More than half of school leavers believe apprenticeships struggle for social legitimacy, with less than one in six school leavers saying they are preferred over university by their parents and friends.

School leavers are more than twice as likely to associate university, rather than apprenticeships, with providing a good long-term earnings and employment potential. This suggests apprenticeships are primarily associated with traditional trades and the career paths these entail, rather than opening up prospects within the wider jobs market, despite evidence to the contrary.

3. Introduction

Youth unemployment is one of the most significant challenges facing policymakers in the UK today. Recent figures show the number of people aged 19-24 'not in employment education or training' is 20.5 per cent, or one in five.

Chart 1 shows the unemployment rate among 19-24 year olds since March 1992. It shows the devastating effect the financial crisis and subsequent recession has had on young people. The rate of unemployment has surpassed its peak of 18 per cent seen during the depths of the recession in the early nineties and is only now beginning to subside.[2]

The chart also shows that youth unemployment, while being heavily impacted by the financial crisis, has been rising since 2003, suggesting a broader underlying problem. Experts have failed to reach agreement on the cause. Arguments range from the changing nature of the British economy and the rising minimum wage to a failure of the education system to equip young people with the skills necessary to enter the workforce, or a combination of these factors. Despite this, commentators have reached a consensus on the negative effects of unemployment upon young people.

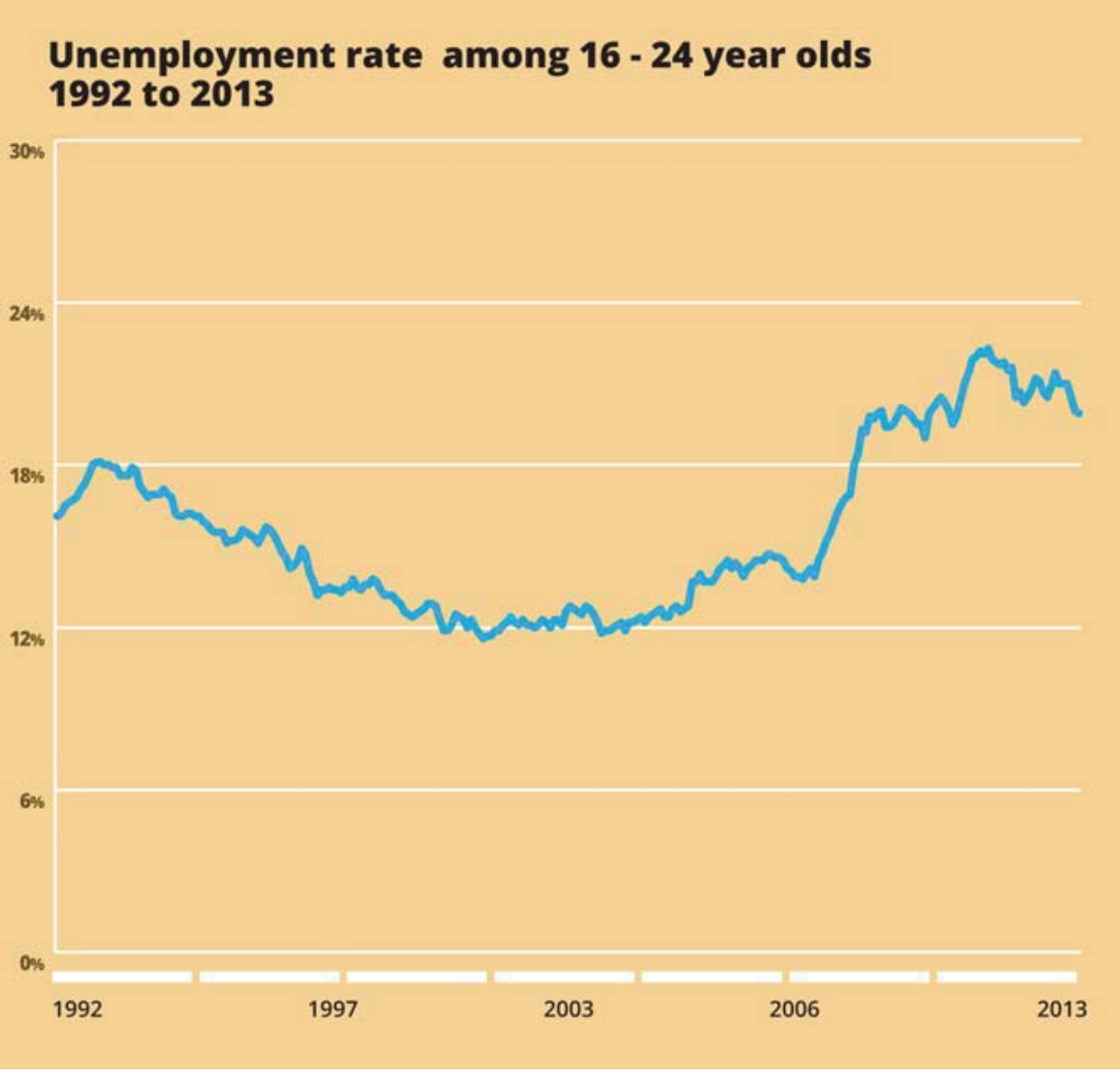

Chart 1

2 Source: Labour Force Survey

Sustained periods of unemployment at a young age have significant long-term implications. It can lead to higher instances of mental illness, longer periods spent out of work later in life and lower potential wages when in work.[3] Investigations into the effects of unemployment among young people show that a year out of work reduces earnings ten years later by about 6 per cent and mean individuals spend an extra month unemployed every year up to their mid-thirties. These effects diminish slowly in later adult life but are still present well into peoples' forties.[4] These penalties not only harm lives, but also have considerable economic and financial implications for governments and society at large, both in the short term - through paying more unemployment benefit and lost tax revenue - and in the long-term through reduced productivity, lower earnings, and more unemployment. It is essential that policymakers do all that they can to alleviate the problems of youth unemployment and help young people get back into work.

One mechanism through which policymakers can reduce the level of youth unemployment is the provision of education and training. Recent changes mean that those starting year 11 in England in September 2013 or later are required to stay in some form of education or training until the age of 18. This can include full-time education (school or college), an apprenticeship, or full-time employment combined with part-time education or training. For those choosing to continue their studies beyond the age of 18, there are four main options:[5]

- **Honours degree courses** - An honours degree is a course of study leading to a qualification such as a Bachelor of Arts (BA), Bachelor of Science (BSc), or Bachelor of Law (LLB). This typically takes three or four years to complete full time.

- **Foundation degrees** - Foundation degrees are designed and delivered in partnership with employers and higher education providers (universities and colleges). Typically, they are taught in a college but awarded by a university.

- **Higher apprenticeships** - Apprenticeships offer students the chance to learn on the job, building up knowledge and skills, gaining work-based qualifications such as a National Vocational Qualification (NVQ), and earning money at the same time.

- **HND/HNCs** - Higher National Diplomas and Certificates are job-related qualifications available in a wide range of vocational areas. HNCs take one year full-time or two years part-time. Full-time HNDs take two years to complete and can be used as a qualification in their own right, or for entry to the second or third year of a degree course. As with degree courses, they can also be taken on a sandwich basis and include an industrial placement.

Of these routes, the most popular is university. The percentage of graduates in the population has more than doubled over the past twenty years. But this expansion in the UK university sector has been met with significant criticism from leading academics and industry experts. In June 2014, Sir Roderick Floud, former president of Universities UK, declared Britain had "too many universities", adding that institutions in cities such as London, Leeds, Oxford and Sheffield should be closed or merged. He argues the existing system of higher education is "unnecessary and inefficient".[6] Criticism of universities is not just an English phenomenon. In June *The Sunday Times* published a feature in which advice from an expert in online education, Jackie Lavin, was cited. Lavin has called on the Irish government to abandon full-time undergraduate degrees in favour of work placements and online study. Similar calls have also been made in Scotland.[7] Over the past ten years, the growth in the university sector has been met with a similar resurgence in apprenticeship numbers. The expansion in apprenticeships, coupled with increasing complaints of an inefficient and costly higher education system has led to a long line of experts and academics, such as former Conservative education secretary, Lord Baker, to urge school-leavers to consider apprenticeships as a viable and worthwhile alternative to university.[8] *The*

3 *Vaitilingam, R. (2009). Recession Britain. Economic & Social Research Council*

4 *HM Government. (2011). Opening Doors, Breaking Barriers: A Strategy for Social Mobility. HM Government.*

5 *Career Pilot. (n.d.). Higher education at 18/19 or later. Retrieved 06 26, 2014, from Career Pilot: http://www.careerpilot.org.uk/info/higher-education-at-1819-or-late/types-of-higher-education-course/*

6 *Paton, G. (2014, June 19). Close half of Britain's universities, leading academic says. The Daily Telegraph.*

7 *Monaghan, G. (2014, June 8). Students told online study and a job is better than degree. The Sunday Times.*

8 *Paton, G. (2014, July 4). More pupils taking apprenticeships straight from school. The Daily Telegraph.*

Observer's Katie Allen has called for political parties to tackle the youth unemployment epidemic by focussing their efforts away from getting more young people into university and instead pushing them toward apprenticeships.[9] Similarly, Brian Mulligan, a lecturer and programme manager in the Centre for Online Learning at the Sligo Institute of Technology, argues that full-time education for graduates is an outdated luxury and points instead to the advantages of the apprenticeship model.[10]

Heavyweight think tanks have also intervened. Earlier this year, the centre-left think tank, IPPR, published a report in which it found that in the UK, university graduates were filling 20 per cent of low-skilled jobs. To alleviate the problem, the report's authors suggested school leavers would be better off doing hands-on apprenticeships rather than saddling themselves with significant university debts.[11] The Duke of York has also waded into the debate, arguing the British education system has become too focussed on youngsters automatically being channelled towards going to university and that more of a focus should be put on skills.[12]

With the exception of the IPPR report, however, these calls are based largely on anecdotal evidence rather than quantifiable data. This report is intended to be the first of its kind to use quantitative data to compare directly and evaluate, in detail, the effectiveness of the two options from three different perspectives:

1. **Employee:** which of the two options provides the greatest prospect for employment and earnings?

2. **Employer:** which offers the greatest benefit to employers in terms of productivity gains and increased profits?

3. **Taxpayer:** which delivers the greatest potential in terms of return on taxpayer investment?

Ultimately, the report is intended to help inform decision-making by these three groups.

9 *Allen, K. (22, June 2014). Education, education, education means nothing without a job. The Observer.*

10 *Monaghan, G. (2014, June 8). Students told online study and a job is better than a degree. The Sunday Times.*

11 *Jonathan Clifton, S. T. (2014). Winning the Global Race: Jobs, Skills and the Importance of Vocational Education. London: IPPR.*

12 *Duke of York: young people need skills - not just a university degree. (2014, April 8). London Evening Standard.*

About Apprenticeships

Apprenticeships are paid jobs that incorporate both in work training and classroom based education. Upon completion the apprentice receives a nationally recognised qualification. The costs of completing an apprenticeship are typically split between the government and the employer, with the proportion paid by the government dependent on the age of the trainee.[13]

For apprentices aged 16-18, the government covers all of the training costs. For those aged 19-24, the proportion falls to 50 per cent, and for those over the age of 25 the government will pay up to 50 per cent.

Learning a skill or a trade under the instruction of an 'expert' is detailed throughout history, although the origins of the modern day apprenticeship can be traced back to the Middle Ages where forms of apprenticeship existed within guilds. 1814 saw the repeal of the 1563 Statute of Artificers and with it the relaxation of controls and requirements on those wishing to undertake an apprenticeship.

The reduction in requirements triggered a growth in apprenticeship numbers. By the late nineteenth century, apprenticeships began to spread from traditional artisan trades, such as printing and construction, to newer trades arising from the industrial revolution, such as engineering.[14]

In the mid-1960s, almost one-third of men undertook an apprenticeship upon leaving school. The 1980s saw the decline of the UK's manufacturing industry and with it a significant reduction in the number of apprenticeship places. By 1990, apprenticeship numbers had dwindled to 53,000. Responding to complaints of a skills shortage among the British workforce, in 1993 the Major Government announced plans for a new apprenticeship scheme to address the skilled labour challenges the country faced. By 1995, the new modern apprenticeship scheme became fully operational.

Today, apprenticeships are enjoying a renaissance. There are a wide variety of different disciplines or 'frameworks' on offer, which fit into 13 broad sector subject areas. These subject areas range from art, media and publishing, to more traditional areas, such as engineering and manufacturing technologies.

The majority of people beginning an apprenticeship over recent years have chosen frameworks in the service sectors, such as business administration and retail. This reflects both the modern nature of the economy as well as the diverse offering of modern apprenticeships. In June 2014, *The Economist* featured an extensive report into the new wave of innovative British technology start-ups. It highlights that both Virgin Media and British Airways have promised to train up to 2,000 technology apprentices.[15]

For the academic year 2011/12, 520,600 apprenticeship starts were recorded, marking a 54 per cent increase in take-up compared to the academic year 2009/10. 2011/12 saw women account for the majority of apprenticeship starts for the first time. Chart 2 shows the increasing growth in apprenticeship starts since 2002/03.[16]

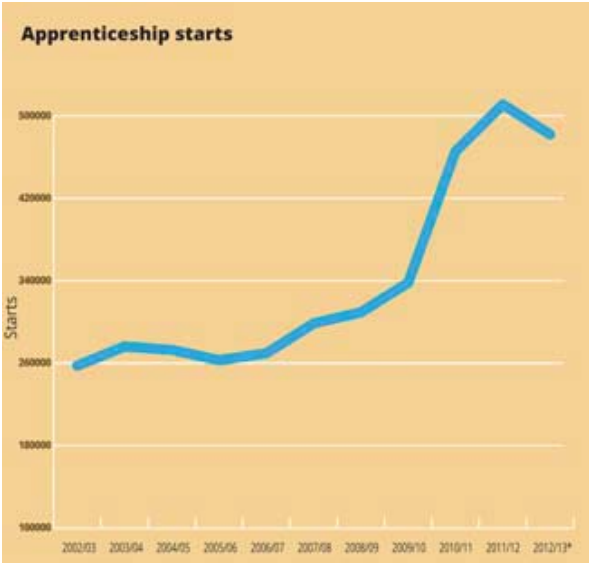

Chart 2

13 *Rhodes, C. (2012). Apprenticeships Policy. Westminster: House of Commons Library.*

14 *Butler, D. A. (2011). Indentured and modern apprenticeship in the horseracing industry - a gendered analysis Warwick: Warwick University, Department of Sociology.*

15 *The Economist. (2014, June 19). Jammin' in the capital. The Economist.*

16 *Source: Labour Force Survey*

Qualifications and Credit Framework (QCF) level	Apprenticeship Level	Equivalent Qualification	Description[17]
LEVEL 1		5 GCSEs graded D-G	
LEVEL 2	Intermediate	5 GCSEs graded A*-C	
LEVEL 3	Advanced	A-Levels	Intermediate apprenticeships cover work-based learning qualifications, such as functional skills and a level 2 competence qualification. They also include paid work and a sector specific knowledge-based qualification. In certain sectors, such as retail, the knowledge and competency based qualifications may be gained as a single, integrated qualification.
LEVEL 4	Higher level Apprenticeships First year of a Bachelor's Degree	Foundation Degree	Level 4 -7 qualifications are classed as 'higher level' apprenticeships. They include paid work, even more advanced work-based qualifications, such as a level 4 competence qualification and a sector-specific knowledge-based qualification.
LEVEL 5		Foundation Degree Second year of Bachelor's Degree	Level 5 apprenticeships are classified as higher education programmes.
LEVEL 6		Bachelor's Degree	The new level 6 and 7 professional apprenticeships were announced in late 2012. These apprenticeships are offered in subjects such as law, accountancy and advanced engineering.
LEVEL 7		Master's Degree	

Table 1

Timeline of Apprenticeships

Middle Ages - Forms of apprenticeships exist within guilds.

1563 – Elizabethan Statute of Artificers introduced setting out terms & conditions for training (including duration of seven years for master-apprentice relationship).

1600 – 1800 - Apprenticeships expand with new legislation on working conditions, environment and the conduct of apprentices in leisure time.

1802 – Health & Morals of Apprentices Act passed. Provides for 12-hour working day and requirement that factory apprentices are taught reading, writing and arithmetic.

1814 – Repeal of 1563 Statute after which practising a skill, although un-apprenticed, no longer illegal.

Late 19th century – Apprenticeships spread from artisan trades to newer industries, such as engineering and shipbuilding.

Mid 1960s – Growing concern about effectiveness of apprenticeship training. Apprenticeships face criticism for being too exclusive, male-dominated and for focusing too heavily on time rather than outcomes and for failure to embrace new and expanding industries. Nearly one-third of male school leavers in the UK enter apprenticeships.

1960s/70s – Apprenticeships receive state support via industrial training boards.

1990 – Apprenticeship numbers fall to 53,000. Decline exacerbated by rising post-16 participation in full-time education, lack of public funding for apprenticeships and effect of the Youth Training Scheme and Youth Training Programme.

Mid-1990s – Government begins to rebuild apprenticeships in adjusted economic and institutional context.

1993 – In response to concerns about skills shortages, especially at intermediate levels, Government announces plans for new apprenticeship scheme at level 3.

1995 – Modern Apprenticeship scheme fully operational.

1997 – Number of Modern Apprenticeship programme elements reformed.

1998 – Training Standards Council (subsequently the Adult Learning Inspectorate) begins an inspection of work-based learning providers.

2000 – Level 2 apprenticeships introduced.

2003/04 – Technical certificate introduced in 2003/04 requiring theoretical knowledge from apprentices.

2005 – Apprenticeships blueprint introduced to provide updated guidance for Sector Skills Councils on how to define apprenticeship frameworks.

2007 – Responsibility for inspection of work-based learning providers transferred to Ofsted.

April 2009 – National Apprenticeship Service (NAS) announced and launched.

2009/10 (Academic year in England) –279,700 apprenticeship starts compared to 239,900 previous academic year.

2011 – Skills Minister John Hayes MP announces measures to reduce barriers to taking on an apprentice.

History of Universities

A university is an institution of higher education and research that grants academic degrees in a variety of subjects and provides both undergraduate education and postgraduate education. The first university to be established in England was the University of Oxford. While the precise date of the university's founding is unclear, teaching existed in Oxford in some form from 1096. In 1209, Cambridge University was established as a seat of learning. Partly due to opposition from Oxford and Cambridge universities, no further establishments were awarded university status in England for a further 600 years until the 1830s, when universities were established in London and Durham. Prompted by the English civic university movement, 1880 – 1909 saw the establishment of six civic universities in major English industrial cities.

Manchester became the headquarters of the federal Victoria University in 1880, which had colleges in Leeds and Liverpool. In the first decade of the twentieth century Leeds and Liverpool set up their own universities along with Birmingham, Sheffield and Bristol. These were collectively called 'civic' (later informally referred to as 'Red Brick') universities as they were founded to bring benefits of higher education to provincial life. Younger civic universities created later were founded in Reading, Nottingham, Southampton, Hull, Exeter and Leicester. In 1961 the Macmillan Government commissioned the Robbins report into higher education. In 1963, the committee published its findings and advocated a significant expansion of the higher education system. The report anticipated that by 1980 most higher education would be provided by universities or teacher training institutions. The report's recommendations triggered the creation of 24 universities in the 1960s, known as the 'Plate Glass' universities. The decade also saw the creation of 'polytechnics', which were intended to complement the older, more academically orientated universities and focus on professional and vocational programmes of study, offered on both a full and part-time basis.

Trinity College, Oxford University

As a result of the Further and Higher Education Act 1992, the division between universities and polytechnics was abolished leading to a doubling of the number of universities in England.

These 'former-polytechnics' are the institutions most commonly referred to now as 'new' universities. Today there are over 189 Higher Education Institutions (HEIs) in the UK with the ability to award degrees, of which 152 are based in England. The significant rise in the number of HEIs, particularly over the past two decades, is reflected in the number of graduates in the UK labour market (chart 3). In 2013, the Office for National Statistics (ONS) estimated there were 12 million graduates in the UK, or 38 per cent of the working age population.

This rise in the proportion of graduates is not exclusive to the UK. *The Economist* magazine recently published a front page article discussing the changing nature of the global higher education industry. [17] It highlighted that attending university is no longer the privilege of the few, but has become a middle-class entitlement, thanks mainly to government support. It points out that some 3.5 million Americans and 5 million Europeans will graduate this summer. In the emerging world too, universities are booming: China has added nearly 30 million places in 20 years.

17 *The Economist. (2014, June 28). Higher education: Creative destruction. The Economist.*

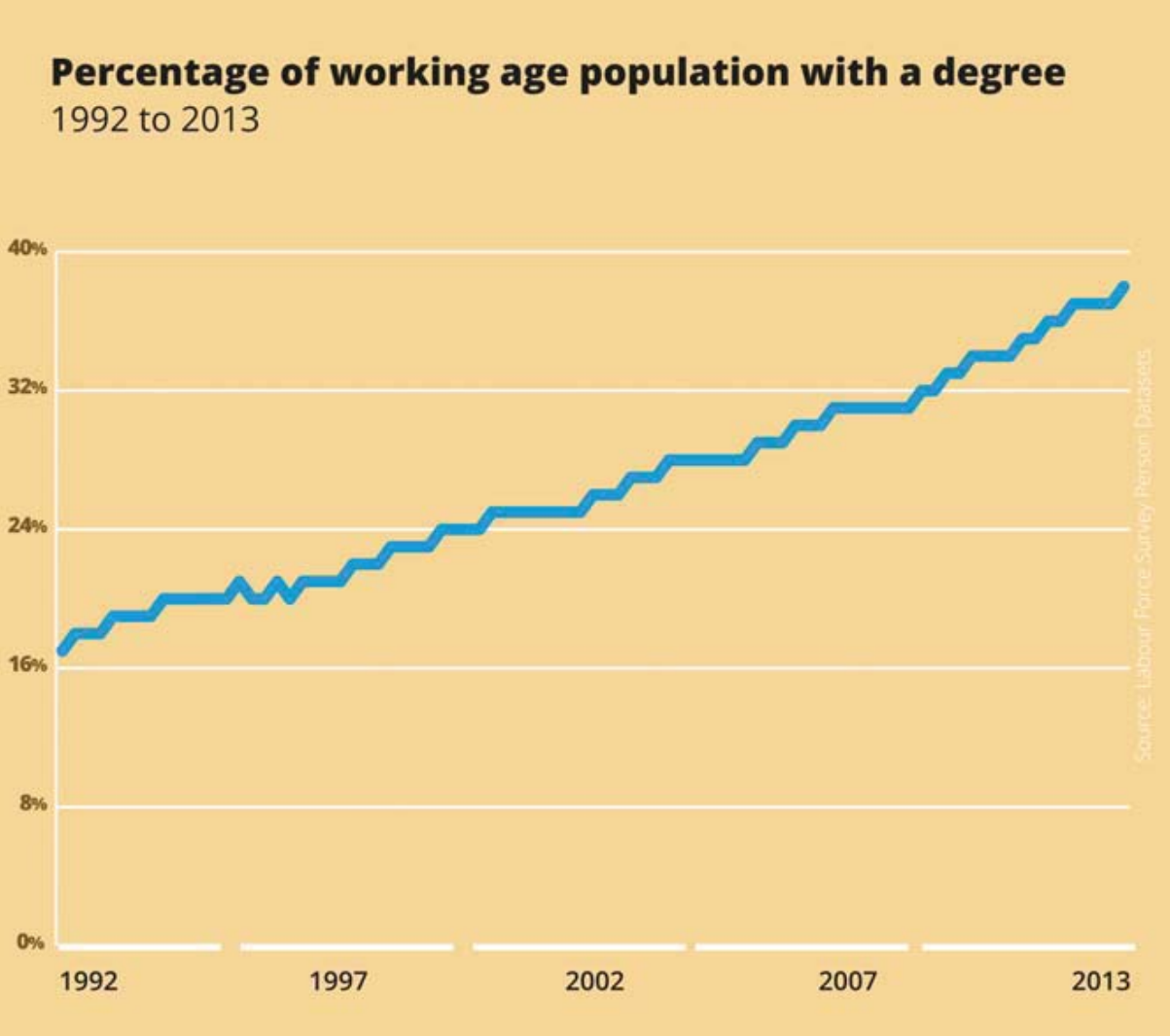

Chart 3

Timeline of universities[18]

1096 – First university established in Oxford around this date.

1209 - Cambridge University established as seat of learning.

1830s - Universities established in London and Durham.

1880 - 1909 - Establishment of six civic universities founded in major English industrial cities.

1963 - Robbins Report recommends substantial expansion of higher education.

1988 - Education Reform Act creates Polytechnics and Colleges Funding Council (PCFC) and Universities Funding Council (UFC).

1992 - Further and Higher Education Act abolishes division between universities and polytechnics.

1997 - Dearing Report into higher education published.

1997 - Quality Assurance Agency for higher education (QAA) established to provide integrated quality assurance service.

1998: Teaching and Higher Education Act introduces measures to change financial support for students, including:

18 *HEFCE. (2011, November 22). Recent history of higher education in England. Retrieved June 26, 2014, from Higher Education Funding Council for England: http://www.hefce.ac.uk/about/intro/abouthighereducationinengland/historyofheinengland/*

- Replacement of maintenance grant for living expenses loans
- Tuition fees paid by all except poorest students
- Availability of supplementary hardship loan
- Bursaries for students entering teacher training or health and social care courses

1999: White Paper 'Learning to Succeed' proposes new structure for post-16 education and training.

2002-03: Roberts Review of research assessment recommends revising RAE with new method for assessing the quality of research. New RAE process announced February 2004.

2004: Higher Education Act introduces measures to widen access to HEIs and improve competitiveness, including:

- Introduction of variable tuition fees
- Re-introduction of maintenance grants for students from lower-income households
- Creation of Office for Fair Access and Arts and Humanities Research Council
- Designation of the Office of the Independent Adjudicator, to review student complaints unrelated to matters of academic judgement.

2005: National Student Survey begins.

2006: Government announces RAE will be replaced after 2008 with new assessment system.

2007: Burgess Group recommends the Higher Education Achievement Report (HEAR).

2010: Browne Review recommends major changes to higher education in England, including rise in tuition fees cap to £9,000.

2011: White Paper 'Students at the Heart of the System' takes forward Browne Review proposals.

It is no longer a case of 'university or bust' for young people's career prospects. Apprenticeships offer a viable alternative.

4. Apprenticeships and university degrees – the school leaver perspective

For an 18-year-old school leaver deciding whether to undertake an apprenticeship or to go to university, there are two key financial considerations. The first is which offers the greatest earnings potential and, secondly, which of the two offers the greatest likelihood of securing gainful employment upon completion.

Earnings potential

Apprenticeships

A number of studies have compared the earnings premium of both apprenticeships and university degrees. A 2013 study by the Centre for Economic and Business Research (CEBR) found that in 2012/13, a worker that had completed an apprenticeship received a wage on average 10 per cent higher than a worker without an apprenticeship.[19]

Another study by the National Audit Office (NAO) found that completing an apprenticeship increased the wage of the average employee by 13.2 per cent.[20] The study also sought to break the premium down by level of apprenticeship completed. It found that intermediate level (level 2) apprenticeships gave completers a 10.6 per cent premium, while advanced apprenticeships (level 3) gave a 17.9 per cent premium compared to individuals with a level 2 qualification. Table 2 provides a useful summary of the various studies that have investigated the wage premiums associated with apprenticeships. To calculate the premium associated with the two levels of apprenticeship, the studies compared individuals with advanced apprenticeships to individuals with level 2 qualifications and individuals with intermediate apprenticeships to individuals with level 1 or other level 2

Author	Report title	Time span	Weekly/ hourly earnings	Advanced apprenticeship premium	Foundation (intermediate) Apprenticeship premium
McIntosh	A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications	2004-2005	Weekly	17.7%	15.6%
Conlon et al replicating McIntosh	BIS Research Paper No. 53: Returns to Intermediate and Low Level Vocational Qualifications, 2011	2004-2009	Weekly	22.4%	11.7%
Conlon et al specification	BIS Research Paper No. 53: Returns to Intermediate and Low Level Vocational Qualifications, 2011	2004-2009	Hourly	13.3%	7.9%
NAO specification	Estimating economic benefits from apprenticeships – Technical paper	2004-2010	Weekly	17.9%	10.6%
NAO specification	Estimating economic benefits from apprenticeships – Technical paper	2004-2010	Hourly	12.9%	7.9%
NAO replicating McIntosh	Estimating economic benefits from apprenticeships – Technical paper	2004-2010	Weekly	21.5%	13.1%
N.B: All figures have a 99 per cent confidence interval					

Table 2

19 CEBR. (2013). Productivity Matters: The Impact of Apprenticeships on the UK Economy. London.

20 Richard Douglas, M. J.-A. (2012). Adult Apprenticeships. National Audit Office (NAO).

qualifications. A number of differences can be observed between the results of the various studies. The two papers to replicate McIntosh's methodology both find premiums in the region of 22 per cent for advanced apprenticeships (level 3) and 12 per cent for intermediate apprenticeships (level 2). The NAO attribute the difference in findings to a number of factors, including differences in the treatment groups used between studies and differences in the time period examined. The authors explain the differences in premium between studies where the dependent variable was hourly pay rather than weekly earnings to evidence that qualified apprentices work, on average, longer hours than those without an apprenticeship. Studies have also investigated the effects of variables such as age, gender and employment sector upon wage premiums. While they have determined that these factors do play a role, for the purposes of this study, and to help draw a direct comparison with the effects of university degrees, these factors will not be taken into consideration, although this is an area for further research.

Degrees

As is the case with apprenticeships, a number of investigations have tried to identify the premium associated with obtaining a university degree compared to those without a degree. Unlike the apprenticeship studies, however, these have tended to examine the premium associated with obtaining the qualification over the whole working life of the individual rather than simply hourly or weekly earnings.

Table 3 summarises the findings of various studies that have explored the higher earnings potential associated with obtaining a university degree.[21]

The studies identified below all seek to use data sets from the Labour Force Survey (LFS) to determine the Net Present Value (NPV) of average working life earnings associated with obtaining a university degree relative to those individuals with two or more A-Levels, but no university degree.

Author	Report title	Time span	Advanced earnings premium
Walker & Zhu, BIS (2013)	The impact of university degrees on the lifecycle of earnings: some further analysis	1993 – 2010	**£210,000**
London Economics, BIS (2011)	The returns to higher education qualifications	1996 – 2009	**£125,000 £108,000**
PWC, UUK (2007)	The economic benefits of a degree	2000 – 2005	**£120,000**
PWC, Royal Society of Chemistry/Institute of Physics (2005)	The economic benefits of higher education qualifications	2000 – 2004	**£129,000**
O'Leary & Sloane (2005)	The returns to a university education in Great Britain	1994 – 2002	**£150,000**

Table 3

21 *DBIS. (2013). BIS Research Paper No. 146: The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants".*

The differences between the net discounted graduate premiums identified by the studies are due to various factors, including time series and methodological differences, such as assumptions around wage growth and different earnings profile simulation methodology.

A 2011 study commissioned by the Department for Business Innovation and Skills (DBIS) and produced by London Economics explores the graduate premium in net discounted terms, both taking into account rises in tuition fees and ignoring them.[22] The paper found that factoring in the 2004 tuition fees rise to £3,000 per year caused the premium to fall by £17,000 from £125,000 to £108,000.

However, in a subsequent paper DBIS update their analysis to reflect the impact of the 2010 tuition fees increase.[23] The paper explains that *"updating to reflect the change to a £6,000 - £9,000 system, internal analysis found that this did not greatly diminish the premium (the main qualification attainment costs are foregone earnings)"* incurred as a result of studying for that qualification.

Tables 2 and 3 provide a useful overview of the existing research into the respective premiums associated with the two forms of qualification.

While table 3 demonstrates the extensive empirical research into the earnings premium associated with a university degree, there is relatively little analysis of the premium by HEI type.

One of the few studies to investigate the question found that the quality of institution is positively correlated to earnings. It estimates the earnings differential associated with attending a higher quality institution is about 6 per cent on average.[24]

The paper also examined the earnings differential between institutions in the second, third and fourth quartile of quality distribution compared to institutions in the first quartile (lowest quality). The findings suggest that if a student attends an institution in the fourth quartile (highest quality) they will receive wages 10 to 16 per cent higher than those in the first. However, if an individual attends an institution in the second highest quartile of quality, this earnings differential drops to between 5 and 7 per cent above those in the first.

A 2013 DBIS study also investigated the effect of HEI type on graduate earnings. It found a positive correlation between institution quality and earnings premium.[25] The study grouped institutions into one of three categories: Russell Group, 'old' (pre-1992 institutions) and 'new' (post-1992 institutions).[26]

It found the greatest earnings differential exists between Russell Group universities and 'new' institutions with graduates from the former earning on average 13 per cent more (16 per cent for men and 9 per cent for women). Graduates from 'old' universities also enjoyed a greater earnings differential above their counterparts from 'new' universities in the region of 10 per cent (12 per cent for men and 7 per cent for women). After further analysis, the authors conclude that the earnings differentials identified are due to selection effects (students at higher quality institutions are of a higher ability) rather than the quality of the institution attended.

Importantly, however, the authors caveat these findings by highlighting their controls for ability are imperfect and that it is impossible with the data currently available to draw a firm conclusion as to the precise extent that selection impacts upon earnings differentials.

Earnings of graduates compared to apprenticeship completers

While the studies outlined above go some way in helping to inform decision-makers about the earnings advantages of either university degrees or apprenticeships, they are unhelpful for those seeking to compare directly the two options. In the UK, there has yet to be a detailed study to compare directly the two forms of qualification. Higher level apprenticeships (levels 4-7) have only been introduced recently, so few data sets exist on the salaries of their

22 *Cambridge Economics & Warwick Institute for Employment Research. (2011). BIS Research Paper No. 38: Measuring the Economic Impact of Further Education. DBIS.*

23 *DBIS. (2013). BIS Research Paper No. 146: The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants".*

24 *Iftikhar Hussain, S. M. (2009). University Quality and Graduate Wages in the UK. ECONSTOR.*

25 *Professor Ian Walker, Y. Z. (August 2013). BIS Research Paper No.112: The impact of university degrees on the lifecycle of earnings: some further analysis. DBIS.*

26 *See appendix 1 for list of HEIs by grouping.*

successful completers. Secondly, a degree is typically perceived as equivalent to a level 5 or 6 qualification and so is deemed inappropriate to compare to level 2 or 3 apprenticeships.

While the LFS does contain earnings data by HEI type as well as earnings for different apprenticeship levels, this information is restricted and only available for use by Government departments. In order for this study to draw a comparison, it is necessary for us to draw on data from a number of sources. Chart 4 below uses the most recent data available from both Unistats and the LFS. Unistats provides figures for average annual earnings by institution six months after graduating, while the LFS provides figures for earnings by age and qualification obtained.

In order to draw a comparison, we have assumed the majority of graduates six months after graduating will fall into the 21-24 age range.

Chart 4 plots the average earnings six months after graduating against the average UCAS tariff entry requirements by institution.[27] It shows that while the correlation is weak, average earnings are positively correlated to entry requirements. Factoring average apprenticeship earnings for those aged 21-24 allows us to draw a comparison to those of graduates by institution. The graph shows that apprentices aged 21-24 have average annual earnings of £17,769. This is 11 per cent above the lowest ranked institution, Falmouth University, and is above the average earnings of 22 other higher education institutions.

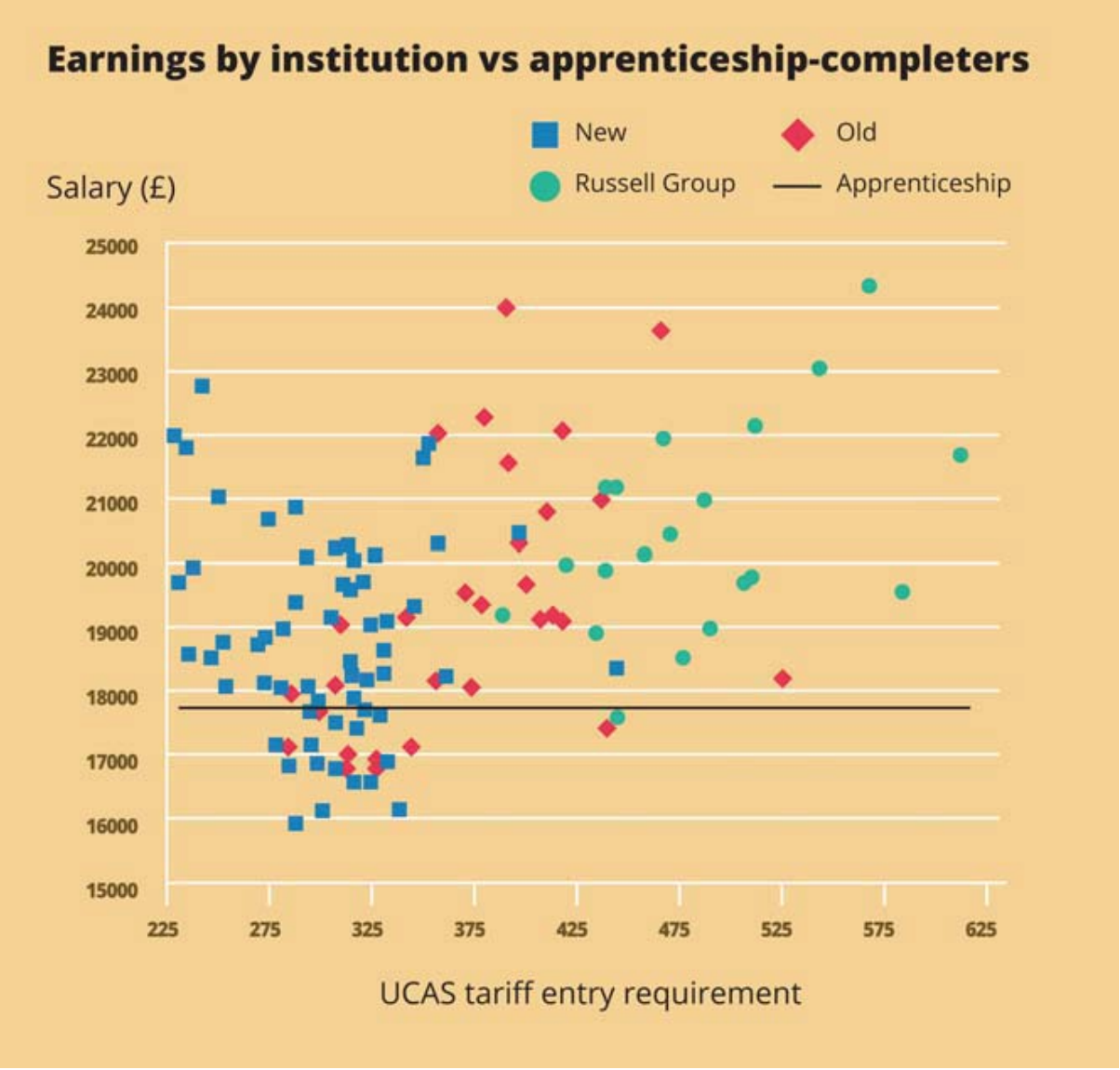

Chart 4

27 *The UCAS tariff is a means of allocating points to compare post-16 qualifications used for entry to higher education.*

However, our analysis only provides a snapshot of graduate earnings six months after graduating. It may be the case that graduate earnings increase at a faster rate beyond the six month period. Unfortunately, the Unistats data sets do not have an adequate sample size to determine average earnings by institution beyond this point.

Despite this shortcoming, the data sets suggest that on average - and ignoring level achieved - apprenticeship earnings are at least on a par with a significant proportion of graduates six months after graduating.[28]

Our analysis so far has not accounted for lifetime earnings. It may be the case, for example, that while graduate earnings rise on a par with those of apprentices six months after graduating, that over the average working life of an individual they are well in excess of those for the average apprentice, or vice versa.

To examine the earnings potential of university degrees and apprenticeships in more detail, chart 5 uses information from the British Household Panel Survey (BHPS) and the LFS. Wave 12 of the BHPS, conducted in 2002, contains information by HEI type attended, grouping institutions into three categories: Russell Group, 'old' (pre-1992 institutions) and 'new' (post-1992 institutions). [29]

Data sets from the BHPS reveal the earnings differential between these three groups of institutions. It shows that 'new' universities have a negative average earnings premium of around 6 per cent compared to the average for a degree. Russell group universities have an average earnings premium 6 per cent above the average for a degree and, finally, graduates from 'old' universities have an average earnings differential on a par with those for degrees as a whole. Using these data, and assuming that the percentage earnings differentials observed between institution type in 2002 have remained constant, we can apply the proportional difference to average lifetime degree earnings to see how graduates have fared relative to apprentices each year between 2005 - 2013.[30] Chart 5 uses LFS lifetime earnings data to compare the proportion of graduates with average lifetime earnings below those of the average lifetime apprenticeship completer's, while accounting for different variables.

The first column (grey) shows the proportion of graduates that have earnings below those of the average apprenticeship completer without accounting for graduate debt, the extra wages earned by apprentices while graduates are studying or HEI type. The second column (red) factors in graduate debt. The third column (green) shows the effect of the extra wages

Too many young people end up on the dole after university. This report shows that it is time for apprenticeships to graduate.

28 *Average for all graduates, ignoring institution and subject studied.*

29 *'New' also contains a fourth category 'other' in which there are a very small number of institutions.*

30 *These years have consistent variables with which to draw a comparison*

apprentices are likely to receive when studying for their qualification compared to a graduate who will not be earning during their period of study. Lastly, the fourth column (red), applies the negative earnings premium identified in our analysis of the BHPS data for graduates from 'new' universities.

The graph shows that over the period the proportion of graduates with lifetime earnings less than the average lifetime earnings of an apprenticeship completer has remained broadly constant at around 28 per cent. This figure of 28 per cent is in line with ONS research published earlier this year by Frank Field MP, which found that between April and June 2013, 27 per cent of graduates earned less than the average wage enjoyed by apprentices.[31]

Chart 5 shows that after factoring in debt the proportion of graduates earning less than the average lifetime earnings of an apprentice increases by an average of 1 per cent.[32] The extra earnings apprentices receive from earning while studying relative to their graduate counterparts increases the proportion still further, by an average of 4 per cent. Finally, using our earlier analysis of wave 12 of the BHPS, we can estimate the impact of HEI type on earnings.Limiting the analysis only to those who attended a 'new' university increases the proportion of those earning less than the average lifetime earnings of an apprenticeship completer by 6 per cent, taking the proportion to 39 per cent (once debt and foregone earnings are accounted for).

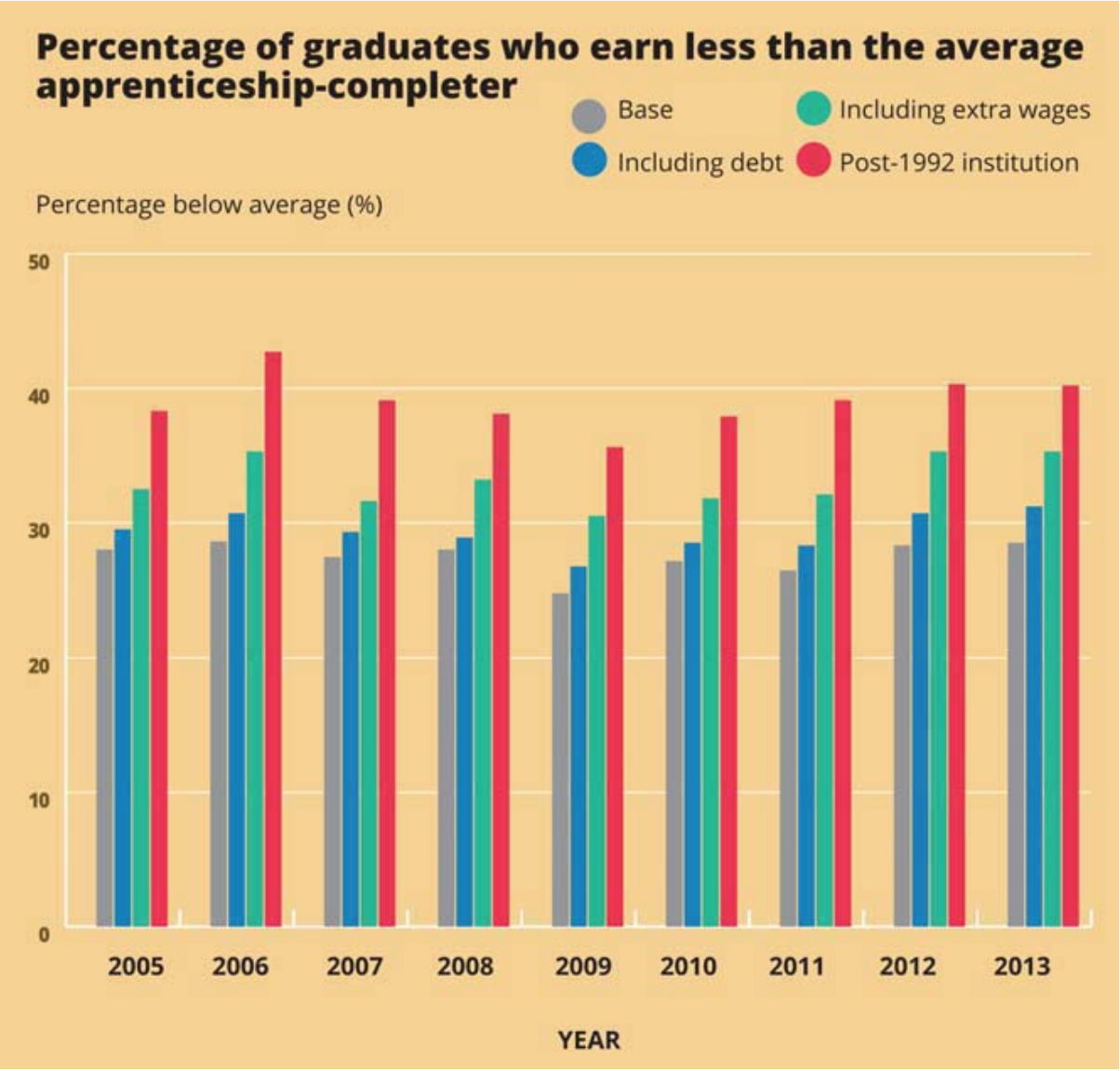

Chart 5

31 *Paton, G. (2014, January 17). Graduates earning less than those on apprenticeships. The Daily Telegraph.*

32 *The percentage increase depends on the shape of the distribution curve for each year*

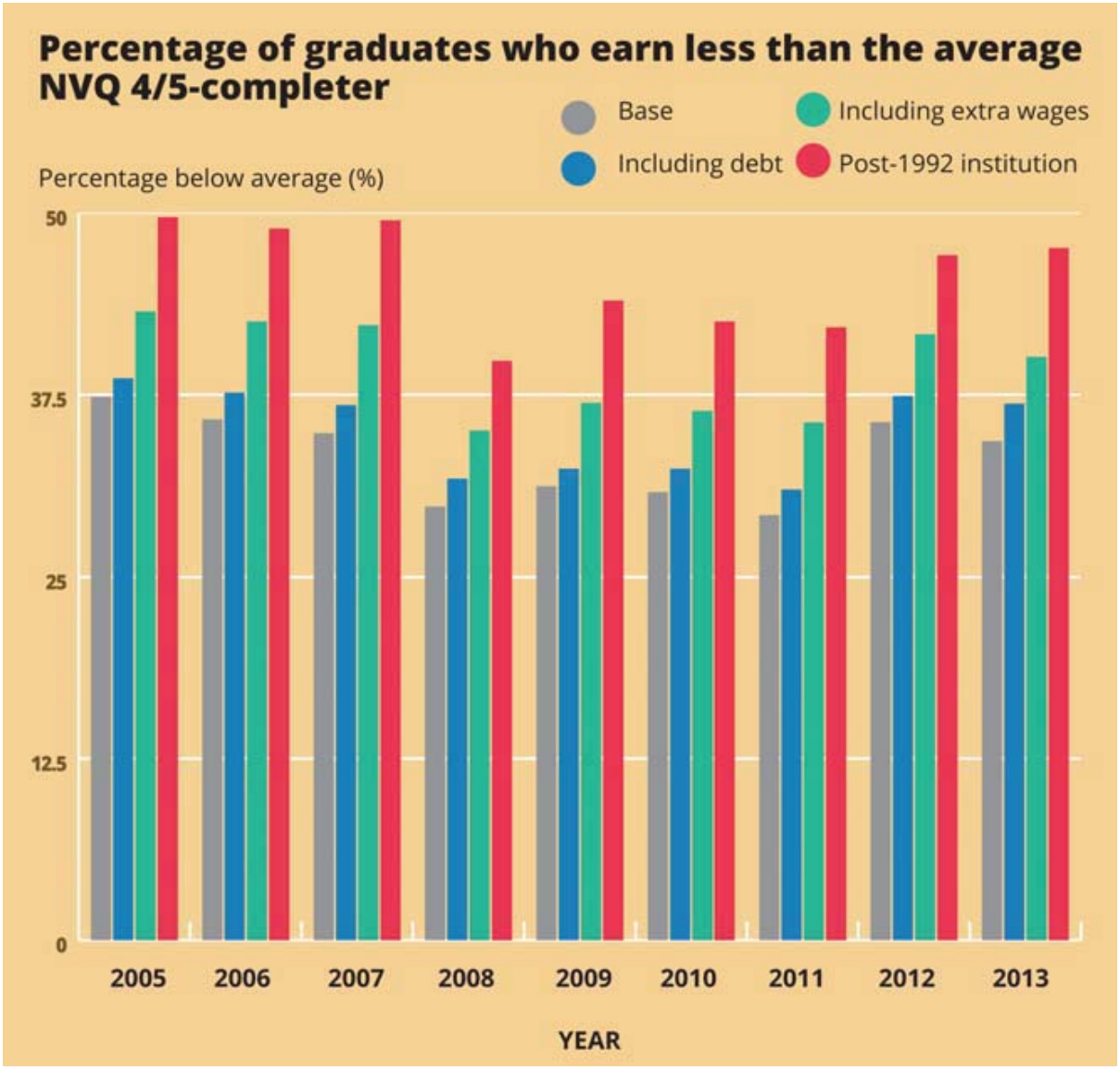
Percentage of graduates who earn less than the average NVQ 4/5-completer
Base
Including extra wages
Including debt
Post-1992 institution
Percentage below average (%)
50
37.5
25
12.5
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
YEAR

Chart 6

While these findings suggest apprentices earn a premium over a significant proportion of graduates, particularly those from 'new' universities, due to limitations in the data sets available we are unable to determine whether the differentials identified by the BHPS between HEI types have been maintained. Our analysis is also limited by LFS sample sizes, which mean we are unable to compare reliably the various levels of apprenticeships. Instead, our analysis so far has had to rely on data from the LFS for all apprenticeships, irrespective of level obtained.

A significant drawback to this generalised approach is that the generic apprenticeships category is made up predominantly of level 2 and 3 apprentices, whose respective equivalent academic qualifications are GCSEs and A-Levels and therefore provide graduates with a distorted premium.

Due to the limited LFS sample sizes and insufficient time series data we are unable to compare directly degrees to higher level apprenticeships.

Instead, and in an attempt to overcome this problem, in chart 6 we use NVQ levels 4 and 5 as a proxy for level 4 and 5 higher level apprenticeships. Using this analysis, we estimate the proportion of graduates from 'new' universities earning less than the average higher apprenticeship completer increases by an average of 7 per cent to just under half (46 per cent) (chart 6). However, without large enough data sets for higher level apprentices, we are unable to determine the extent to which using NVQ level 4 and 5 data are a reliable proxy. Another application for the HEI type earnings differentials is upon graduate age earnings data.

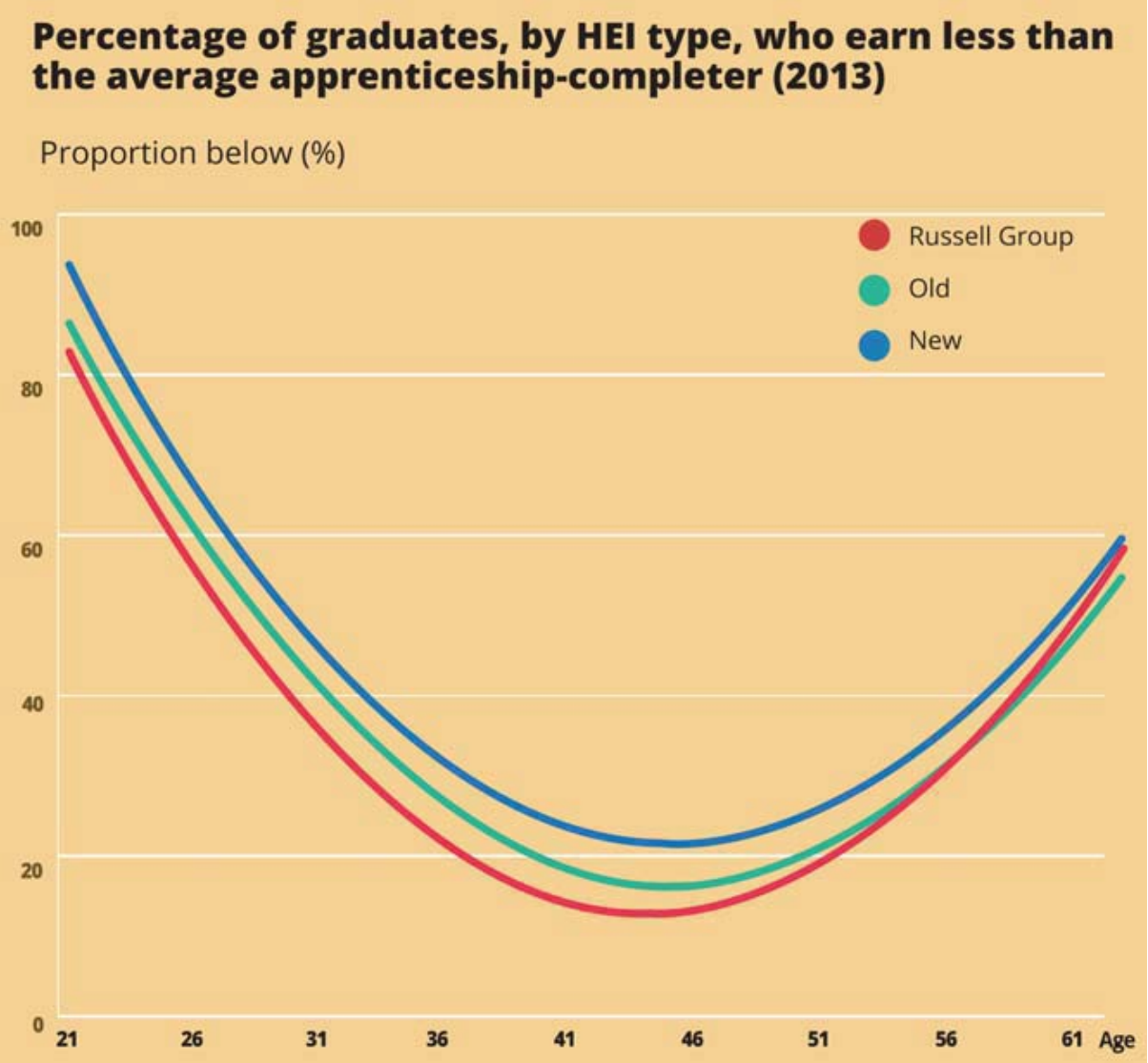

Chart 7

Chart 7 shows the proportion of graduates, by age, whose earnings are below those of the average annual earnings for the average apprenticeship completer. We can see that after graduating in their early twenties, graduates' earnings tend to increase well into their forties (two decades after graduating), peaking at around the age of 45, at which point around 12 per cent of graduates from Russell group universities and 20 per cent - one in five from 'new' institutions will still be earning less than the average annual salary of apprenticeship completers as a whole (irrespective of age).[33]

After peaking in their mid-to-late forties, graduate earnings tend to decline relative to the average annual salary of all apprentices until the age of retirement, at which point over half of those with a degree will be earning less than the average annual wage of apprentices as a whole.

To investigate the earnings of graduates compared to those of apprentices in more detail, charts 8 and 9 build on our earlier analysis to examine the impact of subject studied upon graduate earnings relative to the average earnings of apprenticeship completers (with chart 9 once again using NVQ level 4 and 5 data as a proxy for higher level apprentices). The data used to populate the two charts is sourced from the LFS, which records degree subject studied and categorises these into a broad range of topic areas.

Both graphs suggest subject studied has a significant bearing on graduate earnings. Chart 8 shows that medical graduates have the highest average lifetime earnings, with the vast majority (98 per cent) earning, over the course of their working life, more than the average apprentice (ignoring for debts, extra wages and institution attended). Similarly, the graph shows that the majority of those graduating in the STEM subjects (science, technology, engineering and maths) have earnings in excess of the average for an apprenticeship completer. However, over half (54 per cent) of those graduating with a humanities degree from a 'new' university have lifetime earnings below those of the average apprenticeship completer, once debt and extra wages are considered.

Those graduating in the 'arts' or 'media & information studies' fare the worst relative to apprentices. After taking into account lost earnings and graduate debt, over two-thirds of graduates in 'media & information studies' from 'new' universities (69 per cent) earn less than the average apprentice. For the arts, the equivalent figure is 58 per cent.

The exact proportions of graduates, by degree subject, earning less than the average lifetime earnings of an apprenticeship - once debt, extra wages and attendance at a 'new' university are accounted for - are as follows:

- Medicine - 10 per cent
- Engineering - 21 per cent
- Physical Sciences - 28 per cent
- Maths & Computing - 29 per cent
- Languages - 35 per cent
- Linguistics, English & Classics - 41 per cent
- Biological Sciences - 42 per cent
- Law & Social Studies - 42 per cent
- Business & Finance - 45 per cent
- Humanities - 54 per cent
- Arts - 58 per cent
- Media & Information Studies - 69 per cent

33 *The graph compares graduate earnings, by age, to those of the average annual earnings of apprenticeship completers as a whole. We are unable to compare graduate earnings by age to those of apprenticeships by age, due to inadequate apprenticeship sample sizes.*

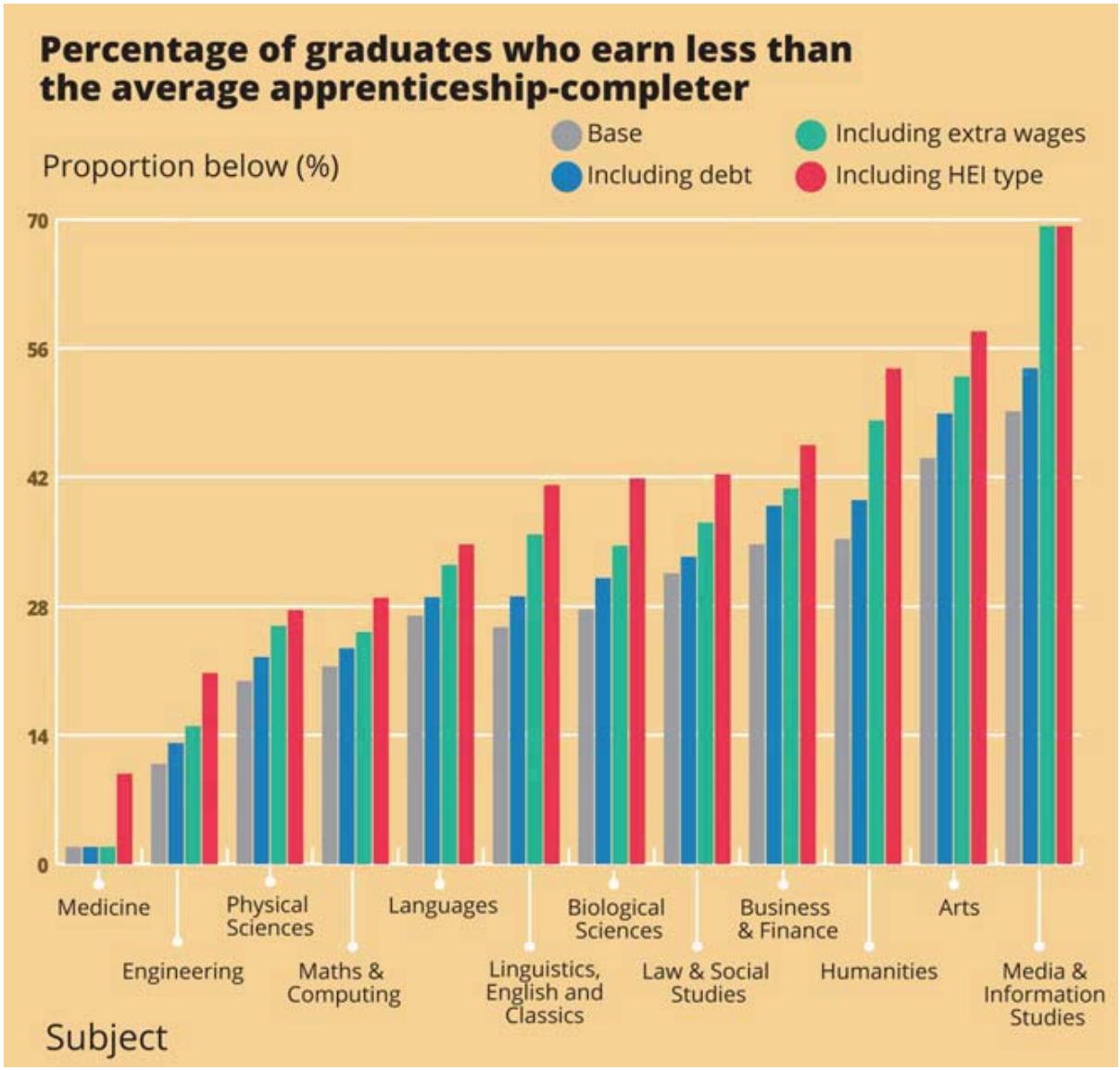
Percentage of graduates who earn less than the average apprenticeship-completer
Proportion below (%)
Base
Including debt
Including extra wages
Including HEI type
70
56
42
28
14
0
Medicine
Engineering
Physical Sciences
Maths & Computing
Languages
Linguistics, English and Classics
Biological Sciences
Law & Social Studies
Business & Finance
Humanities
Arts
Media & Information Studies
Subject

Chart 8

Chart 9 develops our analysis to compare graduate earnings by subject to those with an NVQ level 4 or 5. It paints an even starker picture, with the proportion of graduates with lifetime earnings below those of the average NVQ level 4 or 5 completer 7 per cent greater than for apprentices as a whole. Three-quarters (74 per cent) of 'media & information studies' graduates from 'new' universities have earnings less than those of the average NVQ level 4 or 5 completer. For 'arts' graduates the figure is 64 per cent, or two-thirds. The exact proportions of graduates, by degree subject, earning less than the average lifetime earnings of an NVQ level 4 or 5 completer - once debt, extra wages and attendance at a 'new' university are accounted for - are as follows:

- Medicine - 15 per cent
- Engineering - 27 per cent
- Physical Sciences - 33 per cent
- Maths & Computing - 38 per cent
- Languages - 42 per cent
- Linguistics, English & Classics - 50 per cent
- Biological Sciences - 50 per cent
- Law & Social Studies - 50 per cent
- Business & Finance - 52 per cent
- Humanities - 63 per cent
- Arts - 64 per cent
- Media & Information Studies - 74 per cent

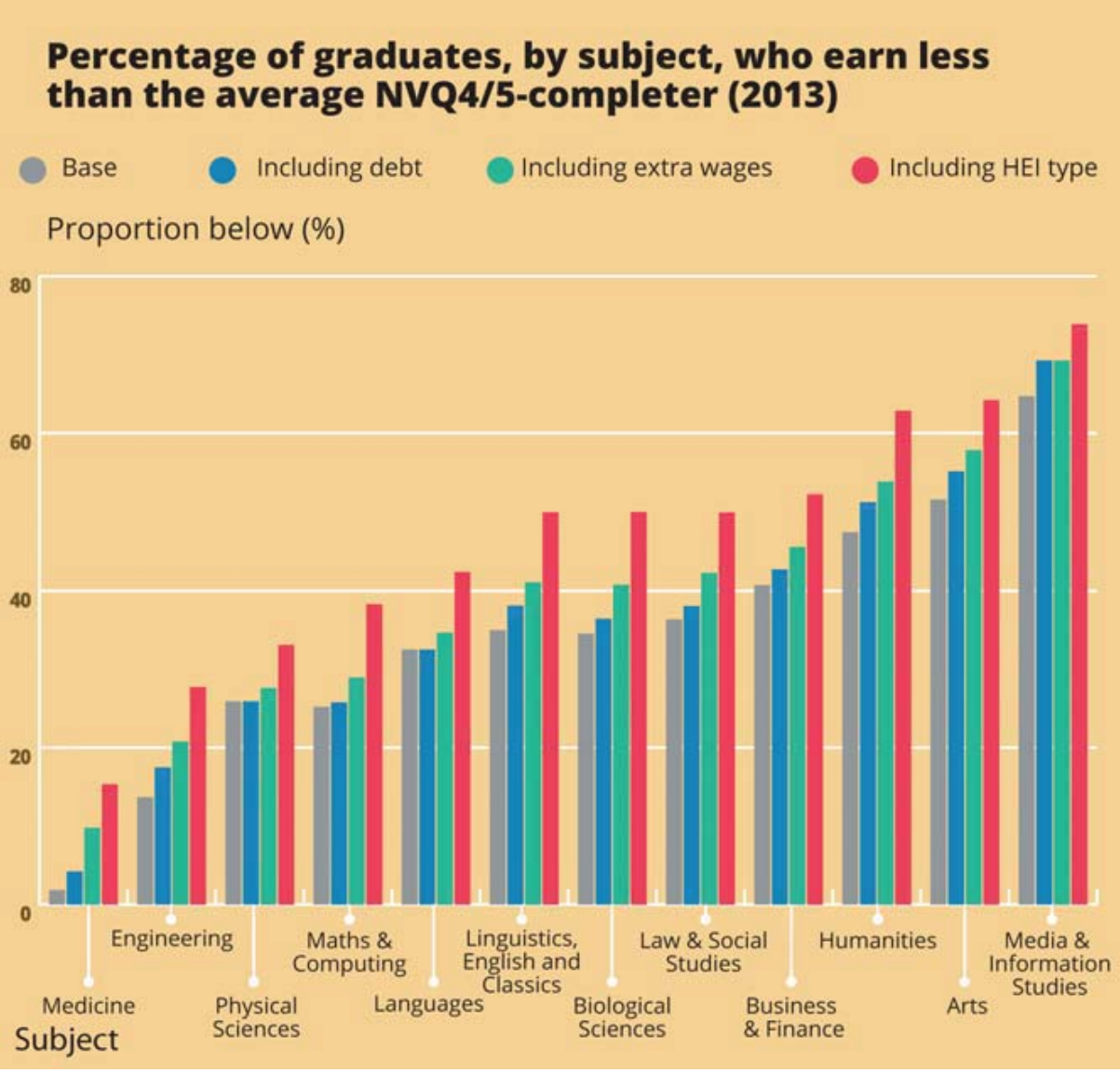

Chart 9

Our findings show that HEI type and subject studied have a significant bearing on lifetime earnings. Our analysis also indicates that, contrary to popular belief, and after factoring in the high levels of debt many graduates will incur in order to obtain their qualification, a degree is often not the most effective route to maximise lifetime earnings for many young people.

Case Study | Walé Sanusi

Walé, 22, is in the first year of his level 6 apprenticeship at CBRE, the global commercial property consultancy, where he will become a fully qualified chartered surveyor. While working as a personal trainer and on summer camps to earn money he was considering the various pathways into the property industry to achieve his long-term ambition. While he was aware that university was an option, he opted for the apprenticeship route.

He is currently working in the specialist markets division, which includes pubs, leisure and care homes. On a daily basis he communicates with local councils and agents to organise viewings and works with clients to research properties. He is gaining expertise in using the various property search engines, writing skills and team work, while gaining experience working in a professional, corporate environment. Walé feels fortunate for the opportunity to work in the largest property consultancy in the world and feels he is gaining invaluable expertise that will help him in his long-term career.

Case Study | Ashleigh Hudson

Ashleigh Hudson, 23, is an apprentice administration assistant at Gentoo Group, a housing network based in Sunderland. Having left school early with no basic skills or qualifications, Ashleigh found it difficult to find work. At 19, she hadn't heard of apprenticeships. When she first came across them at her local Job Centre, she initially rejected them on account of the low wage. However, after further research and advice from her support worker, she was encouraged and motivated by the formal qualifications she would acquire upon successfully completing the course.

Currently in the second year of her two-year apprenticeship, at the end of her first year she obtained a level 2 apprenticeship in business administration. She is now studying for an advanced apprenticeship in social media. Ashleigh spends two days a week working with the communications team, focusing on social media and digital marketing. She is interested in a future role in the communications and marketing team where she can deploy her acquired skills. She would recommend apprenticeships to other young people, explaining that while "university is great for some people, earning a wage, getting work experience, and a qualification at the same time is fantastic".

Summary of key findings:

- Although the correlation is weak, average earnings are positively correlated against university entry requirements.
- Apprentices aged 21-24 have average annual earnings of £17,769. This is 11 per cent above the lowest ranked institution, Falmouth University, and is above the average earnings of 22 higher education institutions.
- Our analysis suggests that on average - and ignoring for level achieved - apprenticeship earnings are at least on a par with a significant proportion of graduates six months after leaving university.
- Over the period 2005-2013, the proportion of graduates earning less than the average wage of an apprenticeship completer has remained broadly constant at around 28 per cent.
    - After factoring in debt, the proportion of graduates earning less than the average lifetime earnings of an apprentice increases by an average of 1 per cent.
    - The extra earnings apprentices receive from earning while studying relative to their graduate counterparts increases the proportion still further, by an average of 4 per cent.
    - Attending a 'new' university increases the proportion of those earning less than the average lifetime earnings of an apprenticeship completer by 6 per cent, taking the proportion to 39 per cent (once debt and foregone earnings are accounted for).
    - Due to limitations on the available data we are unable to determine whether the differentials identified by the BHPS between HEI types have been maintained.
- We estimate the proportion of graduates from 'new' universities earning less than the average higher apprenticeship completer increases by an average of 7 per cent to just under half (46 per cent)
- Graduates' earnings continue to increase well into their forties, peaking at around the age of 45, at which point around 12 per cent of graduates from Russell group universities and 20 per cent - one in five - from 'new' institutions will still be earning less than the average annual salary of an apprenticeship completer. After peaking in their mid to late forties, graduate earnings tend to decline until the age of retirement at which point over half of those with a degree will be earning less than the average apprenticeship wage.
- Subject studied has a significant bearing on graduate earnings.
- Medical graduates have the highest average lifetime earnings, with the vast majority (98 per cent) earning, over the course of their working life, more than the average apprentice.

Case Study | Jerome Clarke

Jerome is currently an apprentice at Little Bridge World, an online English language tutoring programme. He is in his third academic year at City University studying for a Bachelor's degree in Computer Science. After his placement year in industry, Jerome decided to spread his final year across two years so he could study and work at the same time.

He chose this option so that he could "gain hands on practical experience that you can't learn from studying, especially in coding".

The experience has improved his ability to work independently and significantly increased his confidence. Before starting his apprenticeship, he felt that coding was his least strong area, but his apprenticeship gave him the opportunity to fully comprehend and practice it. He has improved his skills and accelerated his learning.

Jerome has been offered a full-time job at Little Bridge upon the successful completion of his apprenticeship.

- The majority of those graduating in the STEM subjects (science, technology, engineering and maths) have earnings in excess of the average for an apprenticeship completer.
- Over half (54 per cent) of those graduating with a degree in the humanities from a 'new' university have lifetime earnings below those of the average apprenticeship completer.
- Those graduating with degrees in the 'arts' or 'media & informtion studies' fare the worst relative to apprentices. After taking into account lost earnings and graduate debt, over two-thirds of graduates in media & information studies from 'new' universities (69 per cent) earn less than the average apprentice. For the arts, the equivalent figure is 58 per cent.
- Three-quarters (74 per cent) of 'media & information studies' graduates from 'new' universities have earnings less than those of the average NVQ level 4 or 5 completer. For 'arts' graduates the figure is 64 per cent or two-thirds.
- The proportion of graduates with lifetime earnings below those of the average NVQ level 4 or 5 completer is 7 per cent more than for apprentices as a whole.

- HEI type and subject studied have a significant bearing on lifetime earnings. Our analysis also indicates that, contrary to popular belief, and after factoring in the high levels of debt many graduates will incur in order to obtain their qualification, a degree is often not the most effective route to maximise lifetime earnings for many young people.

Employment prospects

Another key consideration for a young person deciding whether to undertake an apprenticeship or a university degree is the relative prospect for employment upon successfully completing each qualification. Compared to wage returns, the literature on employment rates for apprentices and graduates is less extensive. As is the case with earnings potential, the studies that do exist fail to compare directly the two.

Apprenticeships

One of the few studies to examine the employment premium associated with apprenticeships of different levels was a 2011 DBIS study.[34] The investigation analysed LFS data to derive employment estimates associated with various forms of vocational qualification. It found the employment premium of a level 2 apprenticeship to be 2.7 per cent relative to those whose previous highest qualification was at level 1 and below. For level 3 apprenticeships the employment premium is estimated at around 3.8 per cent compared to those whose previous highest qualification was at level 1 or below, 1.05 per cent for those whose previous highest qualification was at level 2 and 0.3 per cent for those with previous qualifications at level 3 or above.

Degrees

Studies of the graduate employment premium are more numerous. A 2011 study by London Economics found that an undergraduate degree increases the probability of being employed by 3.3 per cent (4.2 per cent for women and 2.1 per cent for men) compared to those without a university degree.[35] A 2013 study found that over their working life graduates enjoy a steeper age-employment profile than their non-graduate counterparts.[36] Finally, an internal DBIS analysis of Q1 2013 data from the LFS showed that over 86 per cent of all young first degree (18-30 year old) graduates were employed, compared to around 60 per cent of 18-30 year olds whose highest qualification was at level 3 or below.[37] However, no study has sought to disaggregate the employment premium by HEI type.

Employment rates of graduates compared to apprenticeship completers

Using data from the LFS, we are able to compare the proportions of young apprenticeship completers and graduates in unemployment and employment. Charts 10 and 11 compare the proportions of apprenticeship completers and graduates, under the age of 25, in unemployment and employment.[38] Both graphs clearly show the effect of the financial crisis upon the proportions of graduates and apprenticeship completers in unemployment and employment. They also show that apprenticeship completers under the age of 25 have broadly enjoyed more favourable proportions of employment and unemployment than their graduate counterparts.

Focusing specifically on the unemployment proportions, chart 10 shows that as the financial crisis took hold in 2008, the proportion for both groups began to grow. The proportion of unemployed apprentices was at its greatest in 2009 at 11 per cent, while the proportion of unemployed graduates grew more slowly and peaked a year later in 2010. The proportions for both groups then fell until 2011, at which point the two cohorts diverge.

In 2012, as speculation surrounding a double-dip recession consumed the media, graduate unemployment returned to its 2009 peak of 11 per cent, whereas unemployment among apprentices continued to fall to a little over six per cent in 2012. The figures for 2013 showed a slight rise in apprenticeship unemployment, taking it to 7.5 per cent while the graduate level subsided slightly in 2013. The figures also suggest that over the period there has been a mild increase in the gap in unemployment levels between the two groups in apprentices' favour.

34 *Cambridge Economics & Warwick Institute for Employment Research. (2011). BIS Research Paper No. 38: Measuring the Economic Impact of Further Education. DBIS.*

35 *London Economics. (2011). BIS Research Paper No.45: The Returns to Higher Education Qualifications. DBIS.*

36 *Professor Ian Walker, Y. Z. (August 2013). BIS Research Paper No.112: The impact of university degrees on the lifecycle of earnings: some further analysis. DBIS.*

37 *DBIS. (2013). BIS Research Paper No. 146: The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants".*

38 *N.B. The difference between the employed and unemployed proportions are those classed as 'economically inactive'.*

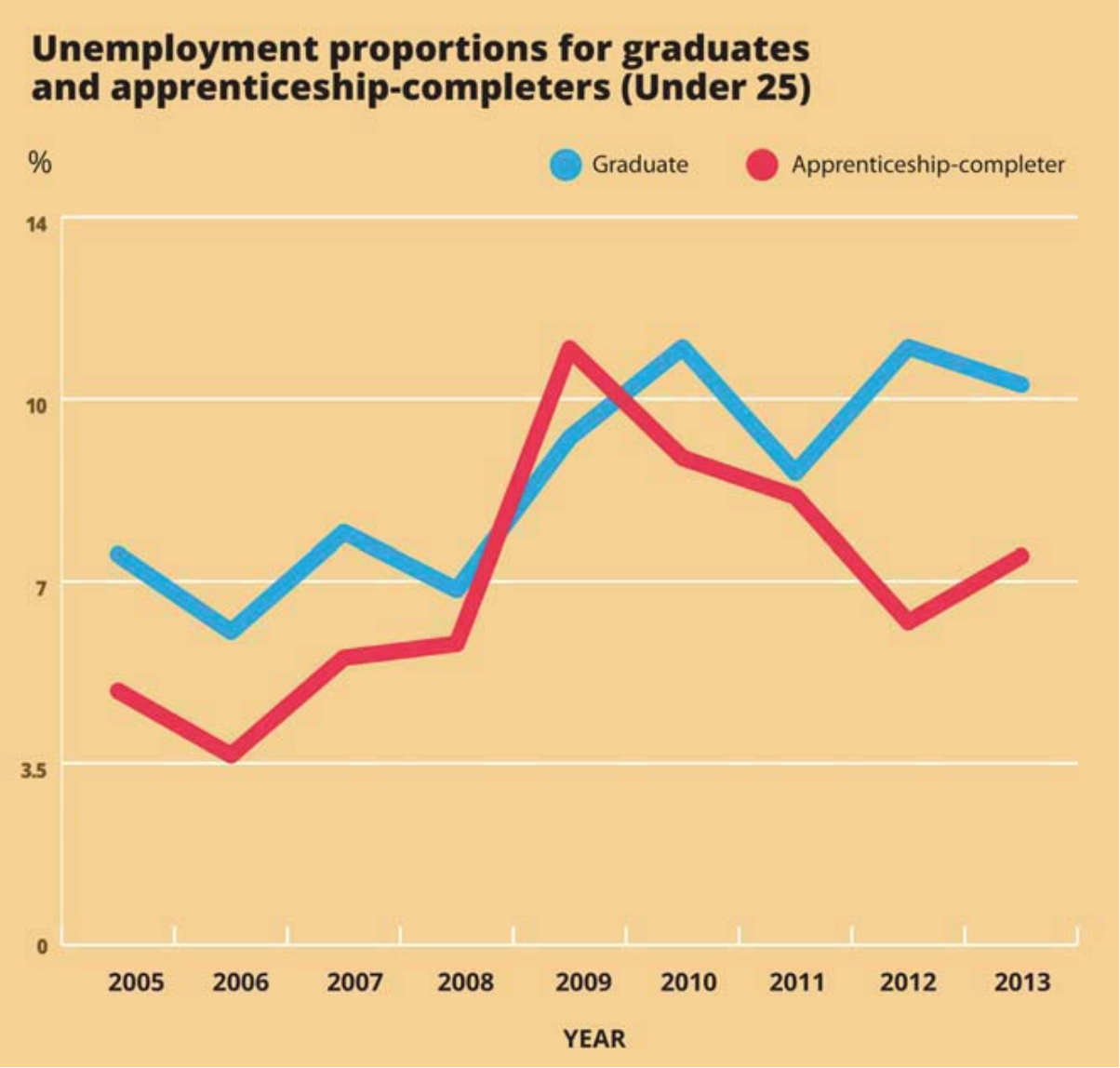

Chart 10

Similarly, chart 11 shows that over the same period apprenticeship completers under the age of 25 have broadly enjoyed a more favourable level of employment than graduates. Again, we can also see that the difference in the level of employment between the two groups has widened over the period to the detriment of graduates. In 2005, the employment level for graduates and apprentices were 88 and 91 per cent respectively. In 2007, as the financial crisis began, the level of employment for apprentices fell to a low of 84.4 per cent in 2010. It subsequently recovered to 90 per cent in 2013.

By comparison, the graduate employment level increased to 89 per cent in 2008 - one per cent above that for apprentices - at which point it began to fall. It reached a low of 83.8 per cent in 2010 before rising to 87 per cent in 2011 and then falling again to 84 per cent in 2012. Relative to their pre-crash levels, the 2013 unemployment and employment levels show an increasing divergence in apprentices' favour. One explanation for this is that graduates increasingly have to study longer to obtain additional qualifications, such as master's degrees, to gain employment.

Another possible explanation could be that graduates are finding it increasingly difficult to find 'graduate level' jobs, and so are delaying their entry into the jobs market. Due to limitations with the data sets, we cannot determine the effect of HEI type on graduate employment and unemployment levels. Judging by the evidence supporting the effect of HEI

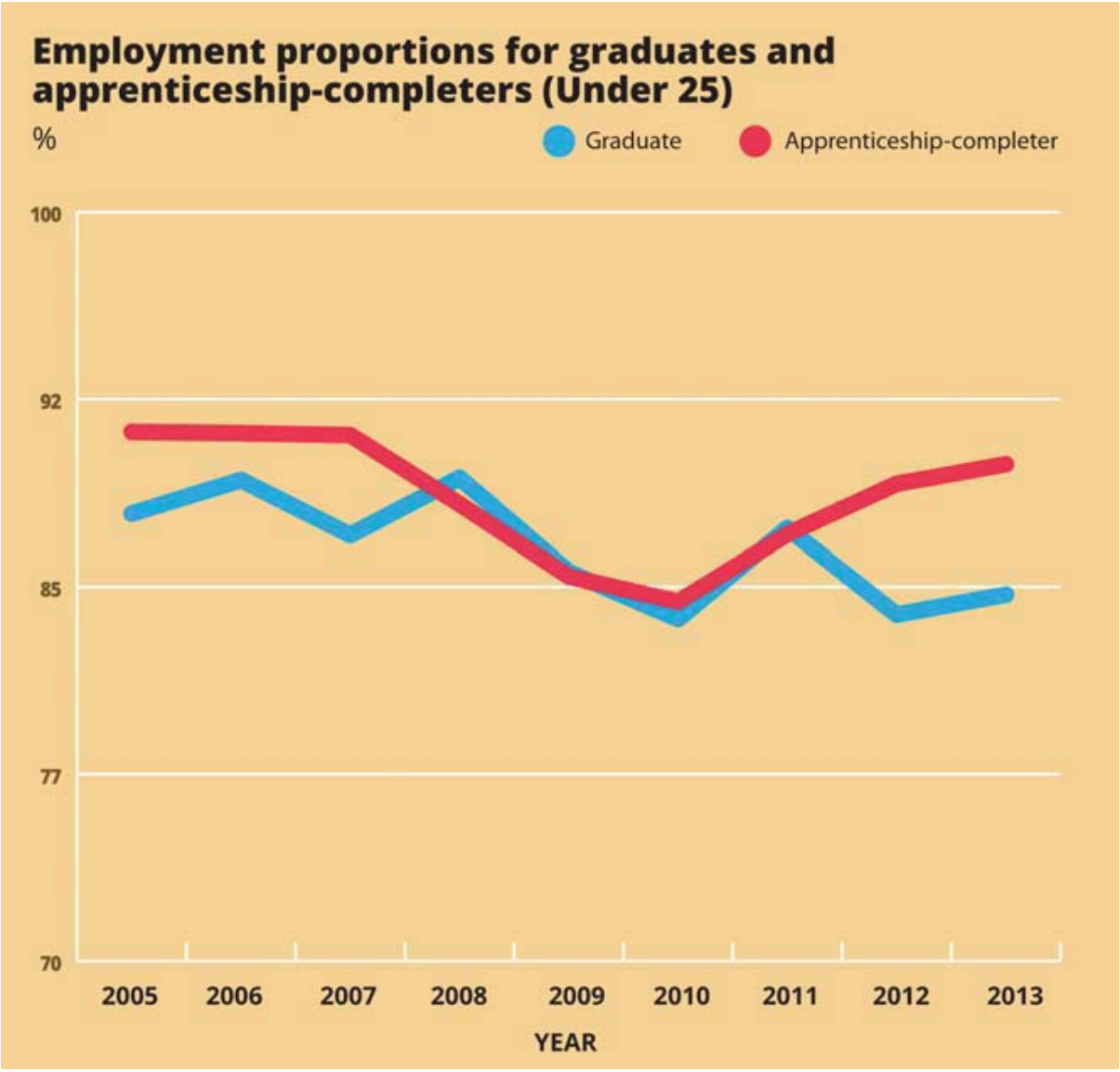

Chart 11

type on earnings, however, it seems reasonable to assume that HEI type does play an important role. We are also unable to identify in any significant detail whether the individuals are employed in jobs commensurate to their respective skill levels. For example, it may be the case that while the unemployment rate for graduates is higher, the proportion employed in appropriate jobs may be above that for apprentices.

When looking at the employment (chart 12) and unemployment (chart 13) rate across the workforce as a whole, graduates fare better. The overall employment rates between the two groups show graduates have consistently seen a higher level than apprenticeship completers. Graduates have also been less affected by the recent recession. The difference in employment levels between the two groups has increased. In 2005 there was a five per cent difference in graduates' favour, with figures for 2013 showing that this margin increased to seven per cent.

The unemployment levels show a similar corresponding pattern. In 2005, both cohorts shared a similar level of unemployment at around 2.5 per cent. The recession appears to have had a more pronounced impact on apprentices with the unemployment level reaching a high of 5.5 per cent in 2010 compared to 3.5 per cent for graduates. In 2013 the level of overall unemployment for apprentices is one per cent higher than that for graduates.

The contrast between the two sets of graphs is interesting and the explanation not immediately clear. The economic recession has clearly had a lasting long-term impact on both groups, with the overall graduate employment rate being the only measure to have returned to its pre-recession level. One possible explanation - and one well documented in the media - is that degrees are losing their value in the eyes of employers and so increasingly young graduates have to study for additional qualifications beyond their graduate degree to secure a job. Another contributing factor could be the success of the modern apprenticeship scheme.[39] Younger apprenticeship completers will have benefited from the new and more rigorous system. The scheme places more emphasis on transferable skills, thus making it easier for apprenticeship completers to find work. The new scheme has also improved quality control measures, which in turn has helped promote employer confidence in modern apprenticeships.

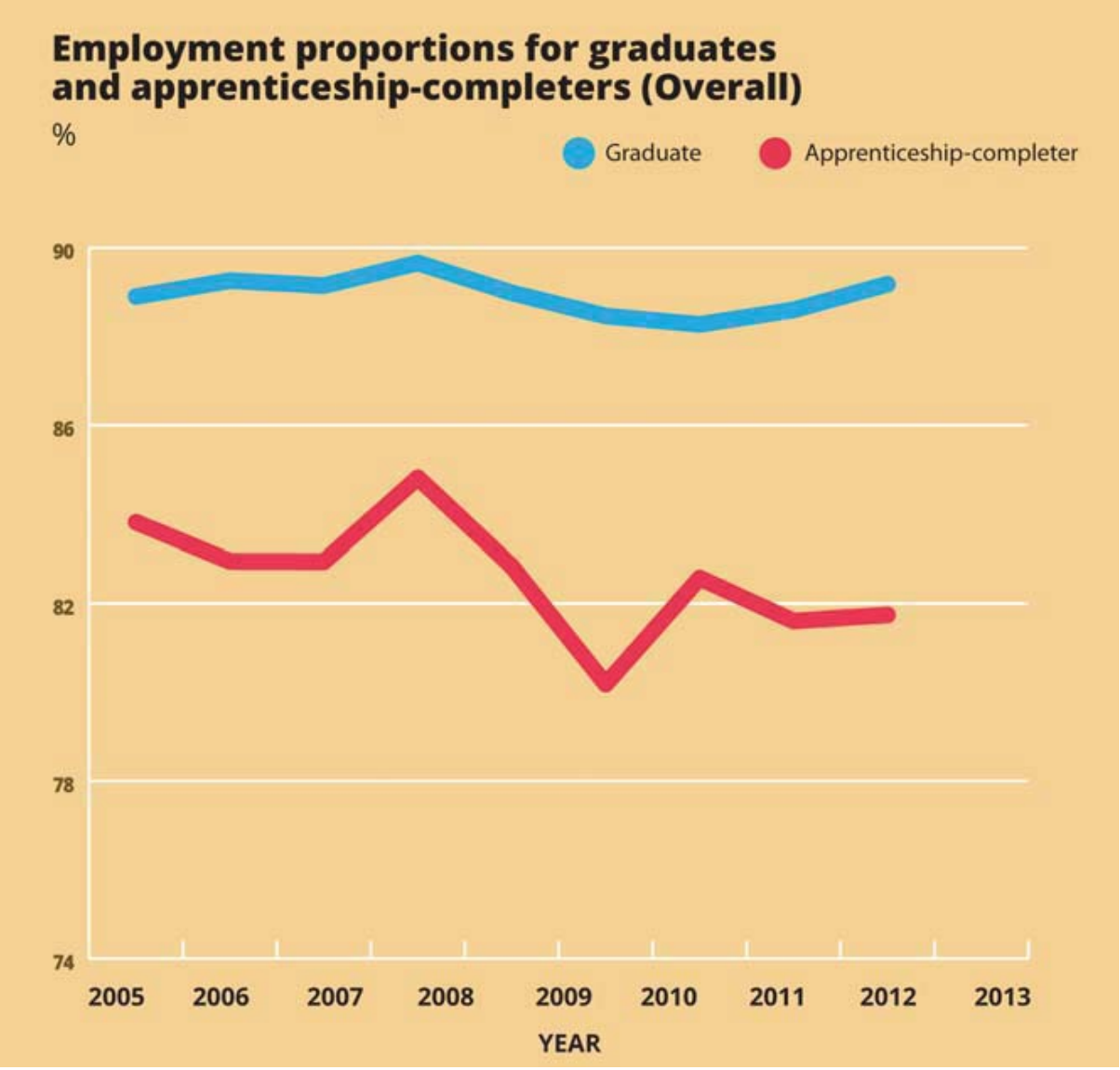

Chart 12

39 *Paton, G. (2014, July 4). More pupils taking apprenticeships straight from school. The Daily Telegraph.*

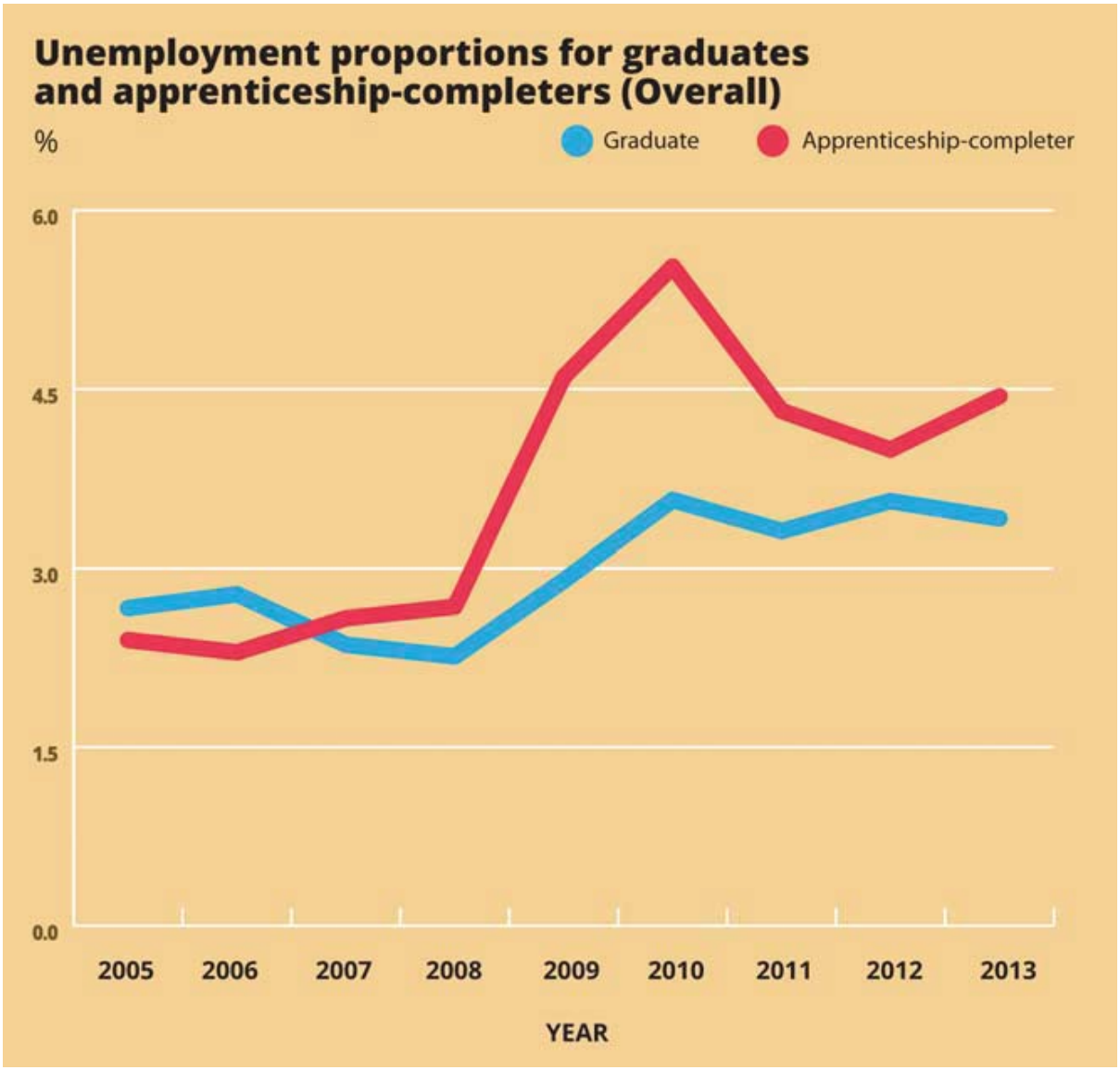

Chart 13

Falmouth University has the worst graduate earnings potential of any higher education insitution in the United Kingdom.

Summary of key findings:

- Our findings show clearly the significant and detrimental impact the financial crisis has had on the employment and unemployment rates for both cohorts of graduates and apprenticeship completers.
- In terms of the under-25 cohort specifically, our key findings were:
    - Between 2005 and 2013, apprenticeship completers under the age of 25 broadly enjoyed a more favourable level of unemployment than their graduate counterparts.
    - Over the period, the apprenticeship unemployment level peaked in 2009 at 11 per cent, while the graduate level rose more slowly and peaked a year later in 2010.
    - In 2012, as speculation surrounding a double-dip recession consumed the media, graduate unemployment returned to its 2009 peak of 11 per cent, whereas unemployment among apprentices continued to fall to a little over six per cent in 2012. The figures for 2013 showed a slight rise in apprenticeship unemployment, taking it to 7.5 per cent while the graduate level subsided slightly in 2013.
    - Over the period there has been a mild increase in the gap in unemployment levels in apprentices' favour.
    - Apprenticeship completers under the age of 25 also enjoyed a more favourable level of employment than graduates.
    - The difference in the level of employment between the two groups has widened over the period to the detriment of graduates.
    - Relative to their pre-crash levels, the 2013 unemployment and employment levels show an increasing divergence in apprentices' favour. One explanation for this is that graduates increasingly have to study longer to obtain additional qualifications, such as master's degrees, to gain employment.
    - Another possible explanation could be that graduates are finding it increasingly difficult to find 'graduate level' jobs, and so are delaying their entry into the jobs market.
- In terms of the employment and unemployment levels across apprentices and graduates of all ages, we found:
    - When looking at the employment and unemployment level across the workforce as a whole, graduates fare better.
    - The overall employment levels between the two groups show graduates have consistently enjoyed a higher level than apprenticeship completers.
    - Graduates have also been less affected by the recent recession.
    - The divide in employment levels between the two groups has increased - in 2005 there was a five per cent difference in graduates' favour, with figures for 2013 showing that this margin increased to seven per cent.
    - The unemployment levels show a similar corresponding pattern. In 2005, both cohorts shared a similar level of unemployment at around 2.5 per cent. The recession appears to have had a more pronounced impact on apprentices with the unemployment level reaching a peak of 5.5 per cent in 2010 compared to 3.5 per cent for graduates.

5. Apprenticeships and University Degrees – the employer perspective

For an employer looking to recruit an additional member of staff, an important factor is often the candidate's level of educational attainment. Educational qualifications are an important common denominator through which employers are able to gauge an individual's skills and expertise. They provide employers with a guide to what prospective employees are likely to bring to an organisation in terms of productivity gains, improved competitiveness and, ultimately, increased profit.

A key consideration for policymakers when designing an education system is the value it will provide to employers and the market place. An effective education system should adequately equip people of all abilities with a range of skills and knowledge necessary to meet the demands of the labour market and minimise the necessity for employers to provide additional training. Assessing the suitability of that system in delivering benefits to employers should be of primary importance to policymakers. However, quantifying the effectiveness of the system as a whole, or individual forms of qualification in delivering tangible benefits, such as productivity gains, presents a significant challenge. Consequently, studies and reviews are relatively limited and tend to focus more on subjective analyses, such as employer surveys and opinion. Some problems and shortcomings associated with the current system are already widely documented. In July this year the Confederation of British Industry (CBI) warned that large numbers of teenagers are underequipped for the world of work. They are urging more school-leavers to undertake apprenticeships and vocational qualifications.[40]

Similarly, and despite the 18 per cent increase in the number of 16 and 17-year-olds going straight into an apprenticeship this year, the workforce is struggling to supply the demand from industry.[41] The Institute of Mechanical Engineers (IME) has publicised the challenges its members have faced in recruiting new engineers. The engineering industry needs 87,000 new engineers to meet demand and yet has managed to recruit only 51,000.[42]

Evidence of demand failing to meet supply is widespread. In June 2014, Norton Motorcycles owner, Stuart Garner, appealed to the Government to fund a programme of training for apprentices in the motorcycling manufacture industry.[43] The previous week, *The Sunday Telegraph* reported that a shortage of apprentices in the construction industry was leading to a lack of critical building materials, which was likely to hamper the UK's economic recovery.[44] These are all indications of a worrying malaise and inadequacy of our country's education system.

Degrees

As we identified in the previous chapter, studies investigating the strengths and weaknesses of tertiary education, such as degrees, tend to be mutually exclusive to those investigating apprenticeships. A 2007 study by the then Department for Education and Skills found that employers valued graduates over non-graduates as they felt they were: more likely to challenge existing systems and processes; identify innovative approaches to problems; use their initiative and act autonomously; demonstrate a higher level of flexibility and problem solving skills; and assimilate knowledge quickly to deliver new ideas.[45]

Similarly, a 2006 study, titled: 'Beyond private gain: the public benefits of higher education' used the Total Entrepreneurship Activity (TEA) index to look at levels of entrepreneurial activity across 17 countries. It established a positive correlation between educational attainment and entrepreneurship.[46] However, as is the case with studies examining the employment and earnings premium associated with obtaining a degree, few studies seek to differentiate

40 *Paton, G. (2014, July 4). CBI: too many school leavers 'underequipped for life'. The Daily Telegraph.*

41 *Paton, G. (2014, July 4). More pupils taking apprenticeships straight from school. The Daily Telegraph.*

42 *Engineering UK. (2014). The state of engineering: Synopsis, recommendations and calls for collaborative action.*

43 *Hurley, J. (2014, July 7). Going for Growth: Norton rides again but they can't make the motorbikes fast enough. The Times.*

44 *Tovey, A. (2014, July 1). Crisis in construction apprenticeships to be investigated. The Sunday Telegraph.*

45 *DBIS. (2013). BIS Research Paper No. 146: The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants".*

46 *Bloom DE, H. M. (2006). Beyond Private Gain: The Public Benefits of Higher Education. In International Handbook of Higher Education (pp. 293-308).*

their findings by HEI type or subject studied. Instead, they erroneously treat graduates as a homogenous group.

Apprenticeships

Studies of the benefits associated with completing apprenticeships tend to be more quantitative than those of degrees.

A 2013 study by the Centre for Economic and Business Research (CEBR) specifically investigated the productivity gains associated with completing an apprenticeship. The study looked at the productivity gains for the UK economy as a whole as well as upon individual sectors and found completing an apprenticeship raises productivity across all sectors.

It estimates that apprenticeships raise the productivity of a typical completer by:[47]

- £83 per week in the retail sector
- £114 in the healthcare, public services and care sector
- £268 in the business, administration & legal sector
- £401 in the construction and planning sector; and
- £414 in the engineering and manufacturing sector

These sectors cover over four fifths of the UK economy and were expected to account for 87 per cent of English apprenticeship completions for the period 2012/13.

The authors explain that the productivity gains in the retail and commercial enterprise sector are comparatively modest because apprenticeships in this sector have historically entailed shorter spells of on-the-job training, which yielded smaller sustained productivity increases. New quality measures, including minimum apprenticeship durations of 12 months, except in certain limited circumstances, the authors predict, are likely to mean greater productivity gains in the future.

In the engineering and manufacturing sector apprenticeships are more established, consequently they tend to be of longer duration and with more intensive training, thus resulting in larger sustained productivity gains.

For the economy as a whole, the CEBR estimates that apprenticeships raised the productivity of a typical completer by £214 per week for the period 2012/13. In terms of employers as a whole, the study forecast that the 2012/13 cohort of apprenticeship completers will provide £2.4 billion worth of gross productivity gains to the UK economy.

The paper also predicts that these productivity benefits are likely to become more pronounced should the apprenticeship programme grow as forecast. Overall, the authors conclude that the new modern apprenticeship programme is achieving its ambition of "improving business performance and hence economic growth by increasing the skills of the workforce".

A 2005 discussion paper by the Centre for Economic Performance (CEP) used econometric analysis to investigate the impact of work-based training on productivity and wages.[48] While the paper did not specifically investigate apprenticeships, it did identify a statistically and economically significant effect of training on value added per head in the UK. An increase of one percentage point in the proportion of employees trained is associated with approximately a 0.6 per cent increase in productivity and a 0.3 per cent increase in wages.

47 CEBR. (2013). Productivity Matters: The Impact of Apprenticeships on the UK Economy. London.

48 Lorraine Dearden, H. R. (2005). The Impact of Training on Productivity and Wages: Evidence from British Panel Data. Centre for Economic Performance.

Case Study | CBRE

CBRE, the global commercial real estate services firm, launched an apprenticeship scheme in April 2013. Successful completion of the six-year scheme results in the apprentice becoming a chartered surveyor. The scheme was launched to improve diversity and to provide an alternative entry route to the industry. CBRE regard the scheme as an "investment in the next generation." The company actively recruits candidates through school engagement programmes. The schools have responded well to the engagement. The company are now offering work experience and shadow days for 15-year-olds to have the opportunity of experiencing a working environment and gaining a better idea of what the apprenticeship entails before applying.

The six-year scheme is open to young people aged 16-24. The first two years of study are for a BTEC and NVQ in surveying, followed by a fully funded three year Bachelor's degree, before taking the Assessment of Professional Competence (APC) in their final year to become a fully qualified chartered surveyor. The apprentices spend four days a week at work and one day at the Chartered Surveyors Training Trust (CSTT) college. The starting salary is £12,000. The apprentices are seen as very similar to the graduates on the graduate scheme and have alreadyreceived excellent feedback. The scheme has already had a huge positive impact on the company and service line heads are actively seeking apprentices for their departments.

Degrees and apprenticeships compared

There has yet to be an empirical study to compare directly the productivity gains of graduates to those of apprenticeship completers. A 2013 report commissioned by DBIS investigated the relationship between graduates and economic growth across countries.[49]

It analysed the relative contributions of high, medium and low skills growth to output growth for a range of developed countries between 1982 and 2005 (chart 14). It found growth in lower level skills made a negative contribution to output growth across all countries. However, when comparing high and medium skills growth, the picture was not as uniform. While, overall, high skills growth made a greater contribution than medium skills growth, there were a number of exceptions: Belgium, Denmark, France and Spain, where growth in medium level skills outstripped the contribution made by higher skills to the rise in output growth.

Looking at the UK, it found that growth in higher level skills accounted for 20 per cent of output growth, compared to 11 per cent for medium level skills growth. Given that degrees are classed as 'higher' skills and that the forms of apprenticeship in existence during the period examined would be classed as 'medium' skills, the findings would infer that graduates make a greater contribution to productivity and output growth than apprenticeship completers. However, by grouping qualifications into one of three categories, it is not possible to draw firm conclusions as to the direct impact of one specific type of qualification relative to another. As we have identified in our earlier analysis, type of qualification, including subject studied and institution attended play an important part in determining lifetime earnings as well as employment prospects. We can assume therefore that these factors will also play a role in determining levels of productivity.

Unfortunately, due to limitations in the data available, and the level of empirical analysis required, this report is unable to determine the impact upon productivity and output growth for an apprenticeship completer compared to that of a graduate. Instead, our analysis will focus on more qualitative assessments of the relative merits of the two options from an employer's perspective.

49 *Dawn Holland, I. L. (2013). BIS Research Paper No. 110: The relationship between graduates and economic growth across countries. DBIS.*

Case Study | PricewaterhouseCoopers

PricewaterhouseCoopers (PwC), the multinational Professional Services firm headquartered in London, launched their Professional Services Higher Apprenticeship framework in autumn 2012. The launch of the higher apprenticeship programme marked a continuation of the company's commitment to recruit young people. They have recruited over 680 school and college leavers since 2003. The scheme is seen by the company as an opportunity to increase the size and diversity of their talent pool, and with it the opportunity to improve social mobility.

There is considerable competition for the positions. PwC anticipate expanding the programme over the coming years. As with CBRE, the company engages with schools and has established a paid work experience programme. The Professional Services Higher Apprenticeship framework is an externally recognised 2-year structured development programme, offering pathways in audit, tax and consulting at level 4, which is completed alongside work. Each pathway is three pronged, comprising technical knowledge, practice and business skills, developed through a blend of face-to-face, online and work-based learning. Every apprentice is assigned an assessor to provide support on a one-to-one basis and a people manager to help career development.

The programme is designed to complement the established graduate scheme, by providing a different entry points for young people. Both routes offer the same opportunities within PwC. Higher apprentices have already had a positive impact financially on the company. They offer fresh perspectives and new energy to the company's client teams and provide vital support to key projects."

Case Study | Little Bridge World

Based in Hammersmith, Little Bridge World provides an online English language educational learning resource for children around the world. While Little Bridge has a history of mentoring students, it introduced its first apprenticeship programme in July 2013. The current apprenticeship lasts one year and aims to enable the apprentice to achieve a broader knowledge of computer coding and gain an understanding of more computer languages, for example, through in-house training sessions in C++.

Roz Young, the company's Business Manager, has found apprentices are "more work-place focused than graduates who typically have no real experience in the working environment. "The programme has had a hugely positive impact on the company. Apprentices are a wonderful ambassador for Little Bridge both within the organisation and outside. At our recent coding day, the apprentices were able to connect with the young students who came to participate and interact with them on a completely different level to everyone else."

A 2011 survey of its members by the British Chamber of Commerce (BCC) provides compelling insight into the state of business confidence in the current qualifications system.[50] Worryingly, the survey found that business confidence in qualifications is low at all levels. The majority (55 per cent) lacked confidence in recruiting a graduate, while an even larger proportion (71 per cent) was either indifferent or hesitant about recruiting a school leaver with A-Levels or equivalent. Only one in ten employers expressed confidence in recruiting someone that had been unemployed for six months or longer, thus exacerbating the problem of finding work for the unemployed.

The survey found businesses are experiencing difficulty in recruiting the right member of staff for vacant positions. Nearly half (45.4 per cent) of the businesses surveyed found it difficult to find the right member of staff for a position, while only 28 per cent found it very or quite easy. Business confidence in school leavers is also low, according to the survey. To address the problem, the BCC called for more to be done to support young people to develop employment skills as well as formal qualifications. The findings suggest that professionalism and communication skills among young people are lacking.

To address this, the BCC suggest that within each core subject the practicable application of the subject should be part of the syllabus, allowing for greater transfer of knowledge into skills that businesses need. They go on to criticise the Department for Education for not doing enough to incorporate enterprise skills and employability into the main curriculum. Apprenticeships received a more favourable analysis within the report. It found that businesses that do offer apprenticeship programmes view them as beneficial to their long-term development. 82 per cent of the businesses that did take on an apprentice did so in order to build the skills capacity within their businesses. The report also noted that those firms that have taken on an apprentice are more likely to want to expand than businesses that have not taken on an apprentice.

However, the study also found that a majority of businesses do not see apprenticeships as relevant to their business sector. Over half (54 per cent) of the businesses explained that apprentices were not relevant to their business sector as a barrier to taking one on. The report's authors argue that this suggests a failure on the part of the Government to communicate effectively the range of frameworks on offer through the new modern apprenticeship scheme. The report calls for apprenticeship frameworks to be more adaptable to business needs. The authors argue rigid frameworks have resulted in many businesses viewing apprenticeships as irrelevant to their sector or business and that a modular system would enable businesses to create specific frameworks specialised to individual business needs. Lack of awareness of modern apprenticeships among businesses is reflected in apprenticeship recruitment. The study found that only one fifth of businesses had taken on an apprentice between March 2010 and April 2011 and even fewer (15 per cent) planned to over the next 12 months.

The report identified that the greatest potential to increase the number of apprentices exists among businesses with 100-249 employees. Organisations of this size have more capacity to take on apprentices compared to less well-resourced and time constrained smaller businesses. It called on the National Apprenticeship Service, Chambers of Commerce and others to help boost take-up among these companies. Based on an examination of the existing empirical evidence of productivity returns by qualification type, it is not possible to determine whether apprentices or graduates offer the greater potential to employers in terms of productivity returns.

Despite this, a review of the qualitative evidence, including the case studies compiled for this report, suggests there are significant shortcomings within the existing university education system. The fact that employers have a low confidence rate in graduates is worrying and lends credibility to the argument, identified earlier in the report, that the expansion of the university system has led to degrees becoming devalued in the eyes of employers.

By contrast, the qualitative evidence suggests that the introduction of the new modern

50 *British Chambers of Commerce. (October 2011). Skills for business: more to learn?*

apprenticeship scheme has triggered a renewed sense of confidence and belief in apprenticeships among employers in certain sectors. However, the findings also suggest more needs to be done to educate and inform employers of the potential benefits modern apprentices can bring to their organisation.

As a matter of urgency, DBIS should commission an in-depth empirical analysis of the productivity gains of graduates by subject studied, degree class obtained, and institution attended and compare these findings to those for apprentices. The findings of this study should form the basis of future funding decisions.

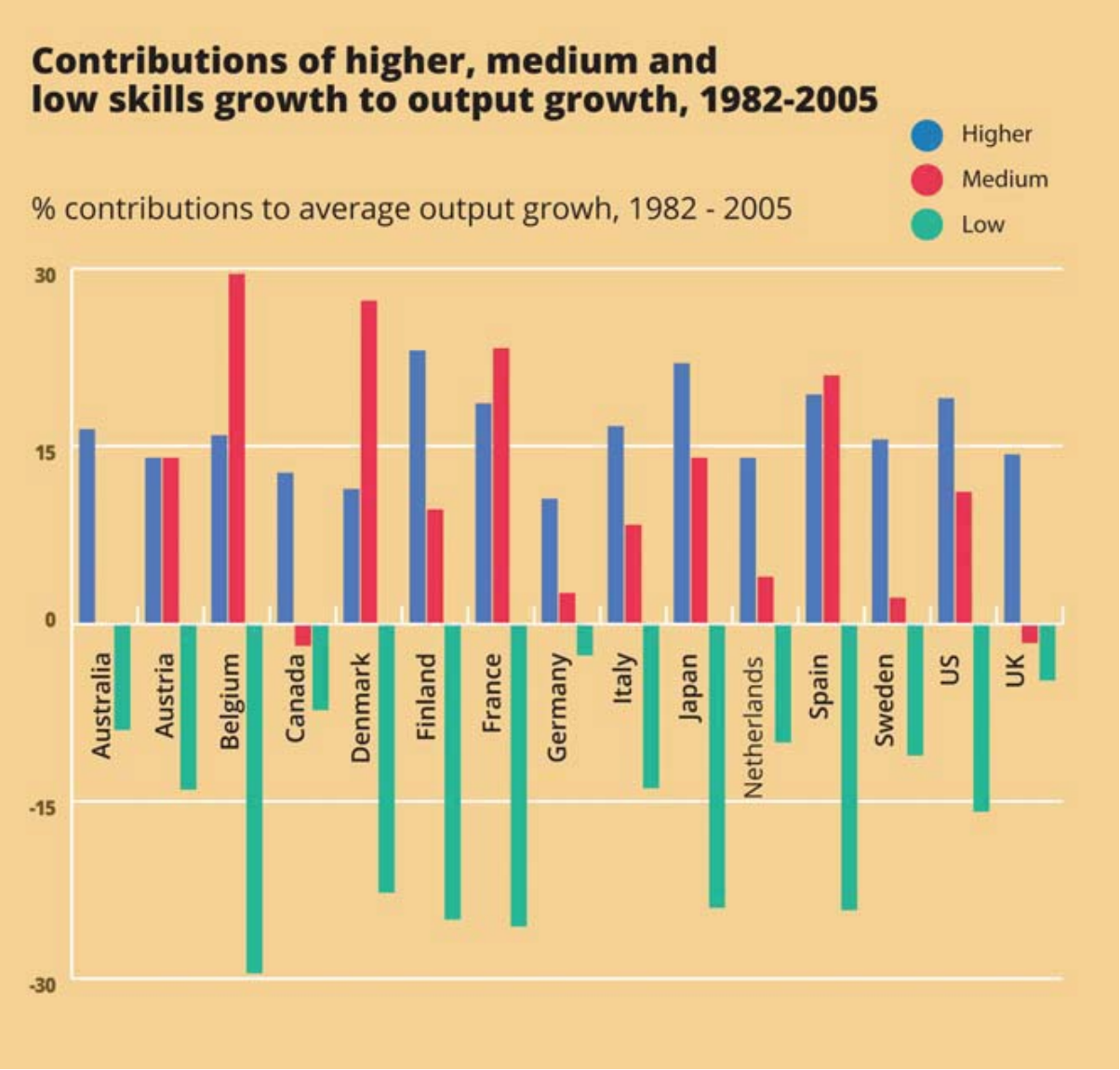

Chart 14

Summary of key findings:

- There has yet to be an empirical study to compare directly the productivity gains of graduates with those of apprenticeship completers.
- A 2013 study by the DBIS found growth in higher level skills, such as degrees, accounted for 20 per cent of output growth from 1982 – 2005, compared to 11 per cent for medium level skills, such as apprenticeships.
- However, it is not possible to draw firm conclusions as to the direct impact of one specific type of qualification against another.
- A 2011 survey of its members by the British Chamber of Commerce found that business confidence in qualifications is low at all levels.
    - The majority (55 per cent) lacked confidence in recruiting a graduate.
    - Businesses that do offer apprenticeship programmes view them as beneficial to their long-term development.
    - A majority of businesses did not see apprenticeships as being relevant to their business sector.
    - Authors argue that this suggests a failure on the part of the Government to communicate effectively the range of frameworks on offer through the new modern apprenticeship scheme.
    - Lack of awareness of modern apprenticeships among businesses is reflected in apprenticeship recruitment. The study found that only a fifth of businesses had taken on an apprentice between March 2010 and April 2011 and even fewer (15 per cent) planned to over the next 12 months.
- A review of the qualitative evidence, including the case studies compiled for this report, suggests two things:
    - Firstly, that there are significant shortcomings within the existing university education system. The fact that employers have a low confidence rate in graduates is worrying and lends credibility to the argument, identified earlier in the report, that the expansion of the university system has led to degrees becoming devalued in the eyes of employers.
    - Secondly, that the introduction of the new modern apprenticeship scheme has triggered a renewed sense of confidence and belief in apprenticeships among employers in certain sectors.

Matthew Hancock MP was a driving force for apprenticeships in the United Kingdom as Minister for Skills & Enterprise

6. Apprenticeships and University Degrees – the taxpayer perspective

Policymakers have a duty to ensure taxpayer funds are used effectively. Given the choice between various investment options, they should select the option that offers the greatest return on investment - be it monetary or otherwise - for the taxpayer.

In terms of educational investment decisions, policymakers should prioritise investment in those options that offer the greatest prospects for sustained employment and heightened earnings potential for prospective candidates. The more time a person spends in work at a higher rate of earnings, the greater the tax revenue will be to the Government.

A number of studies have sought to examine the return on investment to the taxpayer of different forms of educational qualification, including degrees and apprenticeships. However, no study has sought to compare directly the return to the taxpayer of apprenticeship completers with those of graduates.

Degrees

In a 2013 research paper DBIS analysed data from the LFS from 1993 to 2010. It estimates the net working benefits to the Exchequer as a result of individuals gaining a first degree compared to two or more A-Levels to be on average £287,500 (£260,000 for men and £315,000 for women).[51]

The authors cited methodological differences for the reason it found a larger net discounted graduate premium than earlier studies. Another study conducted in 2007 by PricewaterhouseCoopers (PwC) estimated the rate of return to the Exchequer in 2006 of those with a degree to be 12.1 per cent prior to the introduction of tuition fees and loans. Following the introduction of fees and loans this fell to 11 per cent.[52] The study examined returns to HE qualifications by subject and level of HE qualification (from HNC/HND to postgraduate). It calculated rates of return for individuals (12.1 per cent prior to the introduction of fees and loans and 13.2 per cent after). It also calculated rates of return to the Exchequer – noting the fall in this rate since the 2006 changes involved a resource transfer from the Exchequer to the individual.

A 2011 investigation by London Economics found that the mean gross Exchequer benefit associated with undergraduate degree level provision stands at around £100,000 in present value terms.[53]

The net Exchequer benefit associated with undergraduate degree level provision stands at £89,000 (£102,000 for men and £59,000 for women). The associated rate of return achieved by the Exchequer from funding these qualifications stands at 10.8 per cent overall (11.4 per cent for men and 9.6 per cent for women), the report found.

Apprenticeships

Investigations into the return on investment of apprenticeships are considerably less common than those for degrees.

A 2011 study into the economic impact of further education calculated the Net Present Value (NPV) of successfully completing a level 2 apprenticeship to be £136,000. For a level 3 apprenticeship this figure increased to £154,000.[54] The paper estimates that the Net Present Value (NPV) for every pound of Government funding for level 2 and level 3 apprenticeships to be £42 and £35 respectively.

In addition, the study calculates that based on the funding allocations for 2008 and 2009, the NPV of the further education system to the economy is around £75 billion, of which level 2 apprenticeships contribute £6bn (based on a funding allocation of £179m) and level 3 apprenticeships £7bn (based on a funding allocation of £298m).

51 *Professor Ian Walker, Y. Z. (August 2013). BIS Research Paper No.112: The impact of university degrees on the lifecycle of earnings: some further analysis. DBIS.*

52 *PricewaterhouseCoopers LLP. (2007). The Economic Benefits of a Degree. Universities UK.*

53 *DBIS. (2013). BIS Research Paper No. 146: The Benefits of Higher Education Participation for Individuals and Society: key findings and reports "The Quadrants".*

54 *Cambridge Economics & Warwick Institute for Employment Research. (2011). BIS Research Paper No. 38: Measuring the Economic Impact of Further Education. DBIS.*

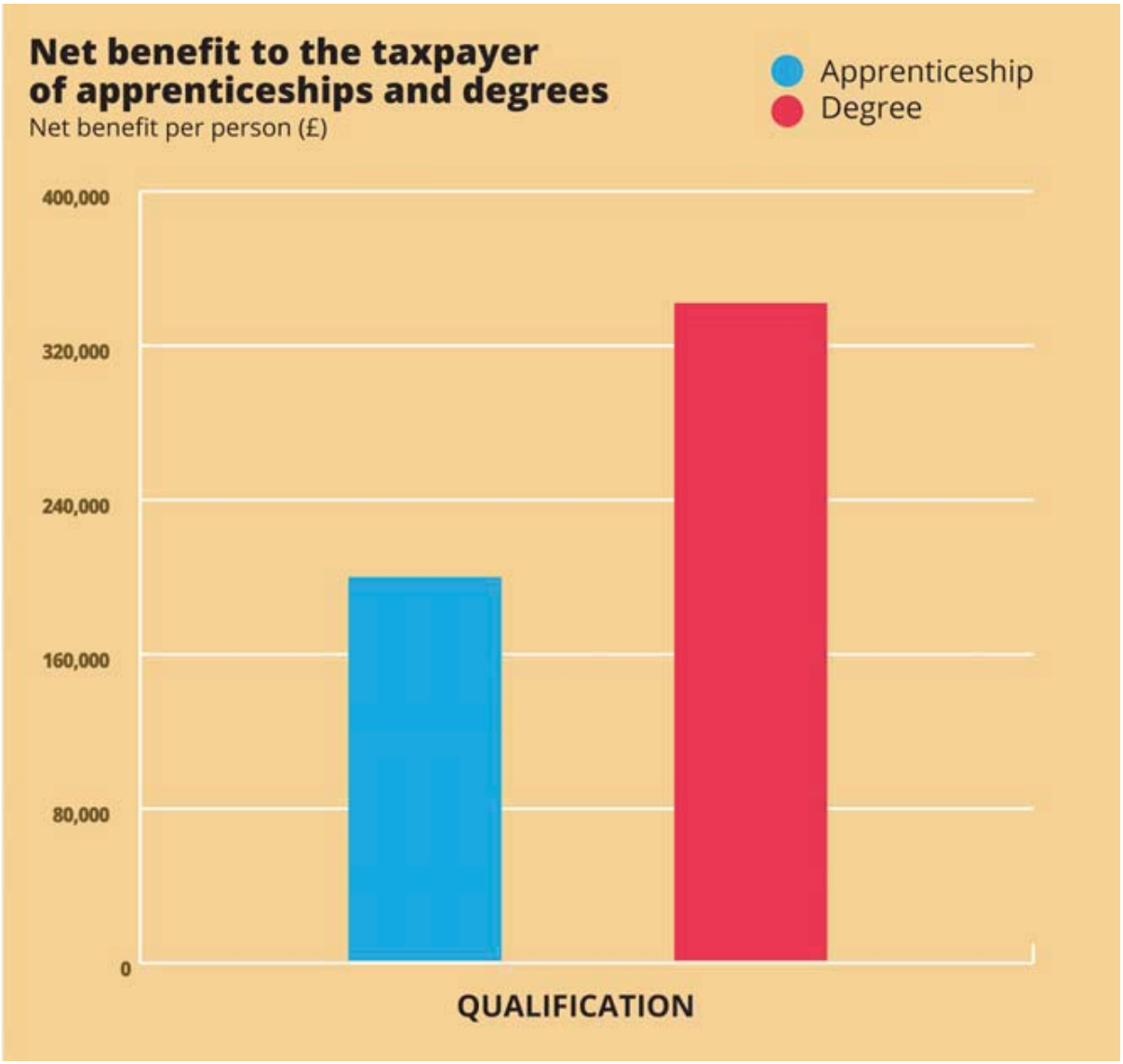

Chart 15

Degrees and apprenticeships compared

Using publicly available information, we are able to calculate an estimate for the return on investment to the taxpayer to graduate funding compared with apprenticeship funding. For the academic year 2012/13, there were 510,000 apprenticeship starts and 1,803,840 degree starts.[55] [56] During this year, the Government budgeted £1.4bn of funding to apprenticeships and £314m of funding directly to HEIs. In addition to the direct institutional funding, the value of the Government loan book for the 2012/13 cohort of students entering higher education that year was estimated at £10.35bn. An additional £1.26bn was to be spent on maintenance grants, taking the total Government expenditure to £11.61bn. A 2013 study commissioned by the Million Plus campaign estimates that 39.6 per cent, or £4.04bn, of the loan book for the 2012/13 academic year will be 'lost' as a result of write-offs and subsidies. Adding to this figure the £1.26bn spent on maintenance grants and other smaller costs, the study estimates that the total cost to the taxpayer in terms of write-offs and loans will be £5.47bn. This is in contrast to a total cost to the taxpayer for apprenticeships of £1.44bn during 2012/13.[57]

As we have previously identified, graduates incur an opportunity cost associated with studying for a degree while they could be working,

55 *Mirza-Davies, J. (2014). Apprenticeship Statistics . Westminster: House of Commons Library.*

56 *Higher Education Statistics Agency. (n.d.). Free Online Statistics - Students & qualifiers. Retrieved June 30, 2014, from Higher Education Statistics Agency: https://www.hesa.ac.uk/free-statistics*

57 *London Economics. (2013). Behind the Headlines | Higher education funding in England: do the alternatives add up? Million Plus.*

therefore the Exchequer will earn lower tax revenue during this period. We estimate that as a result of an individual studying for a university degree, the cost to the Exchequer in terms of lost tax revenue will be on average £3,786 per person, or £6.83bn for the 2012/13 cohort of degree starters (assuming a three-year degree course).

Multiplying these figures by the respective cohort sizes provides an estimate for the net tax revenue to the Exchequer across the working life of each cohort. The total tax receipt for the graduate cohort is £695.3bn compared to £107.0bn for the apprenticeship cohort. Subtracting the net costs associated with each form of qualification as previously identified, and dividing by the size of each cohort, gives a net benefit to the Exchequer of £206,119 for an individual apprenticeship completer compared to £360,837 for a graduate (chart 15).

Chart 15 shows that the net gain for the taxpayer for funding an apprenticeship is equal to 57 per cent of that for a graduate.

We have seen from our lifetime earnings analysis in chapter 4 that HEI type and subject studied have a significant bearing on lifetime earnings; we can assume therefore that these two variables will also have an impact on Exchequer returns. Chart 16 factors in the earnings differential identified from our analysis of wave 12 of the BHPS data to determine the impact of HEI type on taxpayer returns, specifically that for 'new' universities. It shows that attending a 'new' university reduces the average contribution a graduate will make to the Exchequer by £40,040 to £320,797. Over their working life, the average apprentice will contribute 64 per cent of the net contribution of a graduate from a 'new' university will make to the Exchequer.

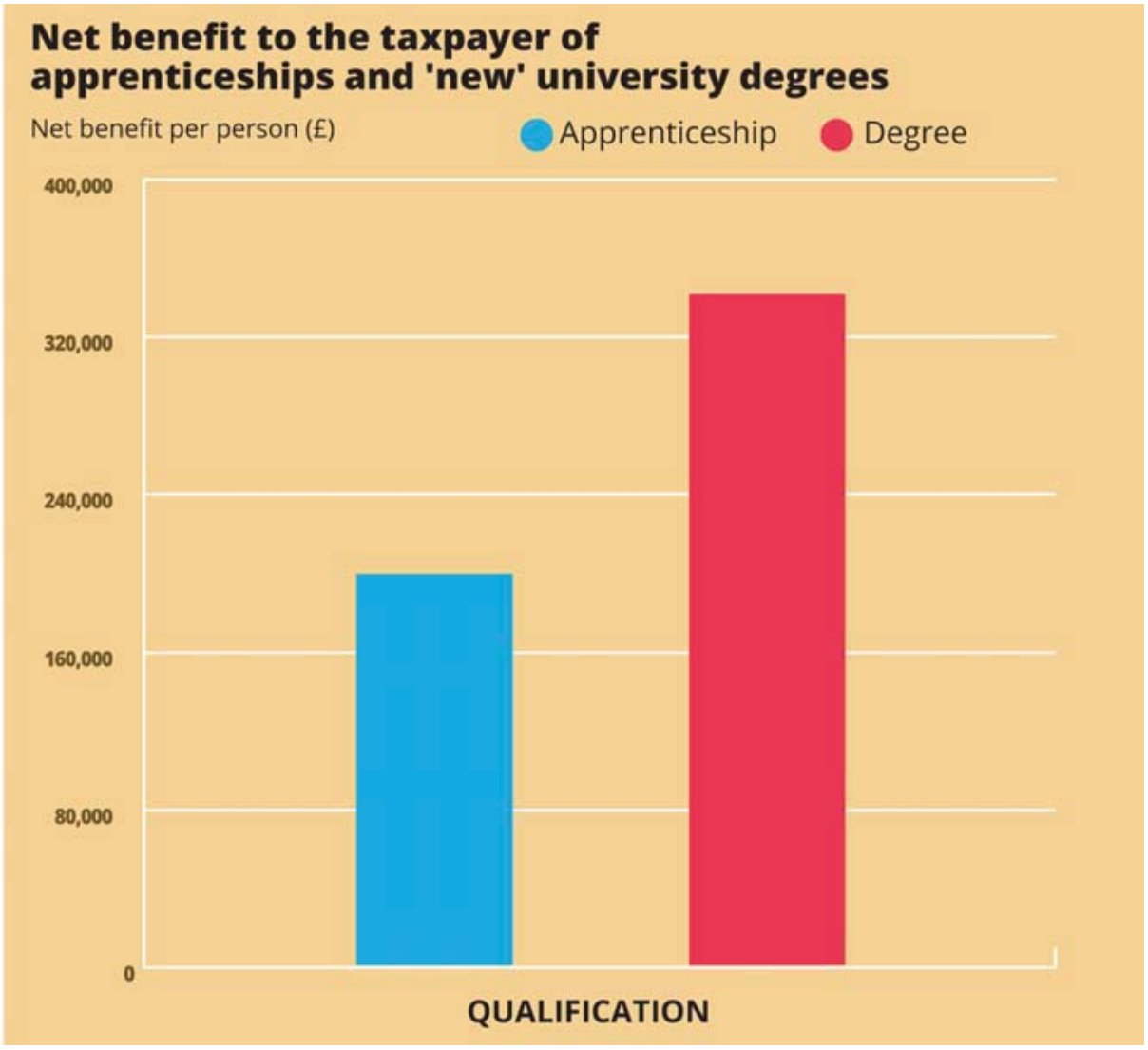

Chart 16

Chart 17 and 18 build on our analysis to investigate the effect of both subject studied and HEI type on net taxpayer returns. Chart 17 shows that, irrespective of subject, graduates provide a greater net return to the Exchequer than the average apprentice (although the margins for certain subjects are slim).

Looking specifically at graduates, those that have studied degree subjects classified as 'media & information studies' contribute the least amount of tax revenue, with an average of £248,517 or £42,398 more than the average apprentice (£206,119). For 'arts' graduates the difference rises to £54,198, while for those studying a humanities degree the figure is £81,558.

For 'new' university graduates (chart 17) the premium over apprentices falls further. 'Media & information studies' graduates contribute the least to the Exchequer: £217,757, or £11,638 more than the average apprentice. For 'arts' graduates the difference is £22,438, while for those with a humanities degree the difference increases to £47,518.

Charts 17 and 18 also allow us to compare the various graduate returns to those with a level 4 or 5 NVQ. Using these NVQs as a proxy for higher level apprentices, our analysis suggests they provide 65 per cent of the net return to the taxpayer of the average university graduate and 73 per cent of the return from a 'new' university graduate.

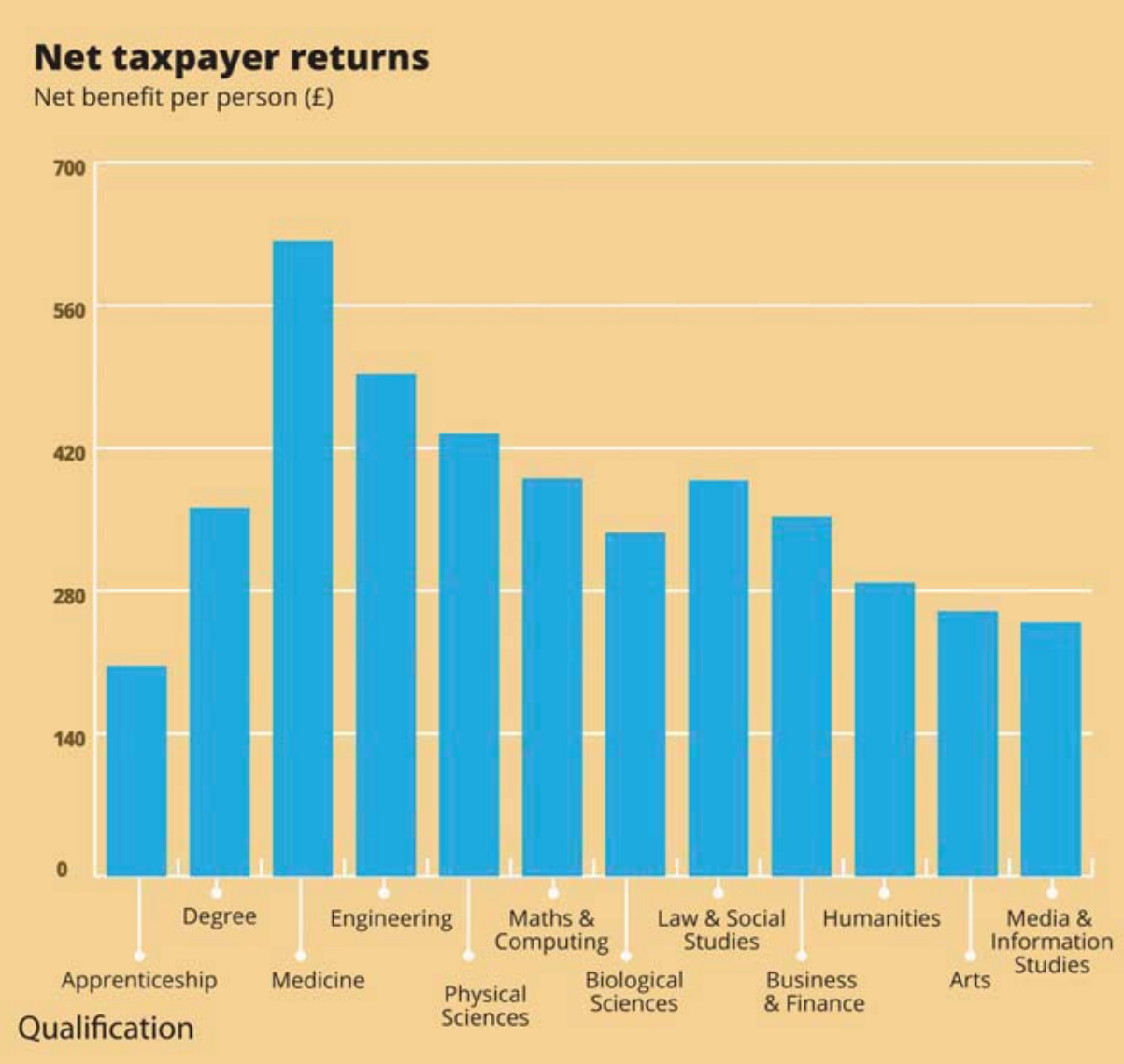

Chart 17

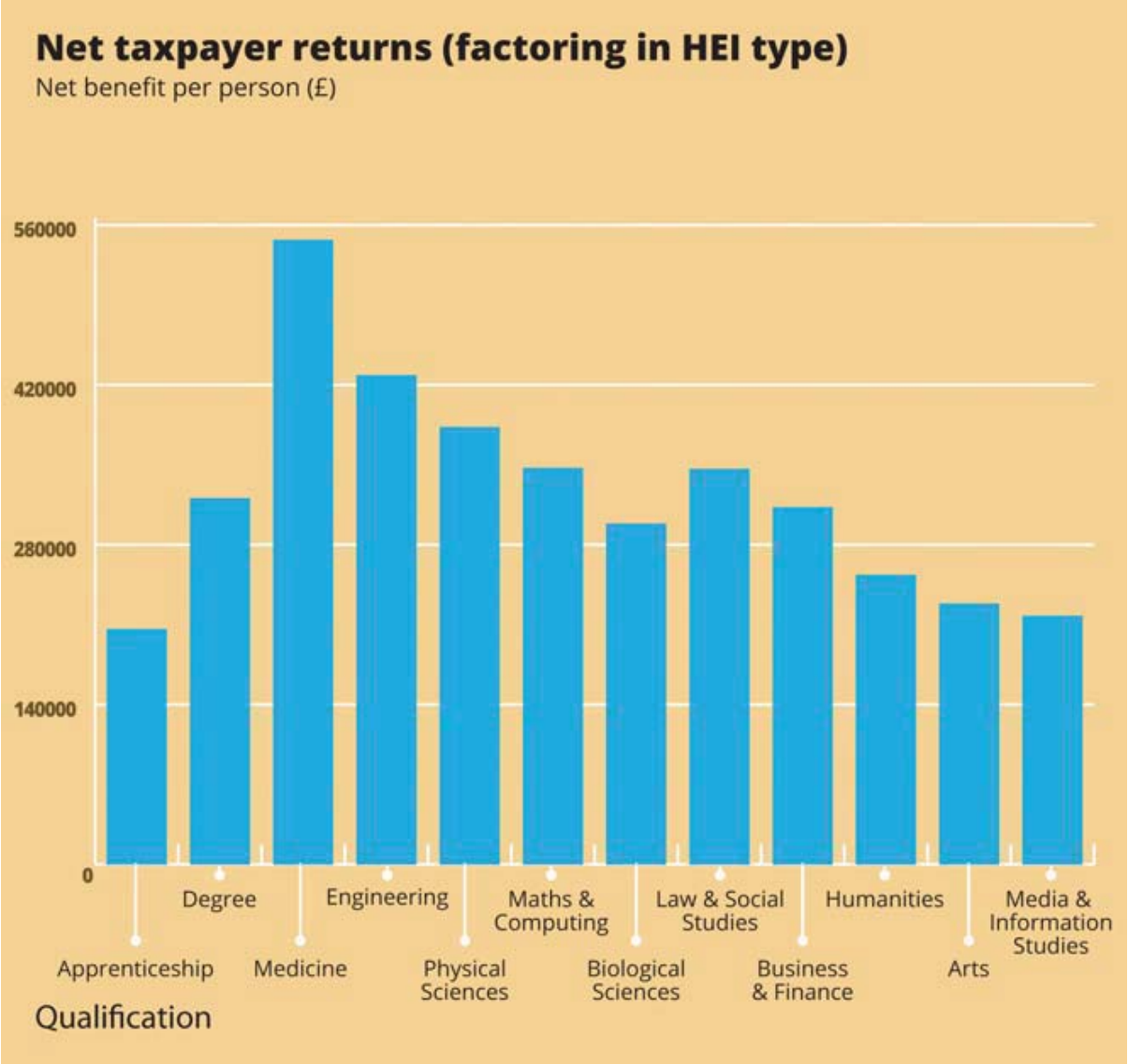

Chart 18

When we examine subject specific returns, we can see that higher level apprentices provide a net return only five per cent below that for the average graduate studying a discipline classed as 'media & information studies'. After accounting for HEI type, we can see that 'new' university graduates in the 'arts' and 'media & information studies' provide net returns below those of higher level apprentices. The respective differences are 3 and 8 per cent. But, as we have previously emphasised, without large enough data sets for higher level apprenticeships, we are unable to determine the extent to which NVQ level 4 and 5 data serve as a reliable proxy. Our analysis so far has focused on the expected net Exchequer returns on an individual basis.

One shortcoming of this approach is that it fails to account for the considerably larger investment required to realise graduate returns.

To account for the differing levels of required investment, chart 19 calculates the estimated return for every pound of investment to fund a graduate degree relative to an apprenticeship. It shows that on a per pound basis, the returns for apprenticeships become significantly more favourable (a £74 return for every £1 invested) compared to those for the average degree (a £57 return for every £1 invested); for level 4 or 5 NVQ's, the per pound return increases to £85.

The only degree subjects to generate a per pound return in excess of those of an apprenticeship are 'medicine' and 'engineering'. As we can see from chart 20, per pound returns of apprenticeships relative to degrees become

even more favourable to apprenticeships when HEI type is factored in. Graduates from 'new' universities offer a less favourable rate of return than the average graduate. On a per pound basis, the returns for graduates from 'new' universities are £6 less than those of the average graduate (£51 compared to £57).

The only 'new' university degree course to provide a more favourable per pound return relative to apprenticeships or NVQ level 4 or 5 completer is 'medicine' at £86 returned for every £1 invested.

However, it is important to also take into account the proportions of graduates by subject. Chart 20 shows that medical degrees makeup only 3 per cent of the total number of degrees. In contrast, the three subjects offering the least favourable returns to the taxpayer: 'humanities', 'arts' and 'media & information studies', constitute one fifth (20 per cent) of all degrees. The bottom six subjects in terms of taxpayer returns constitute over half (60 per cent) of all degrees.

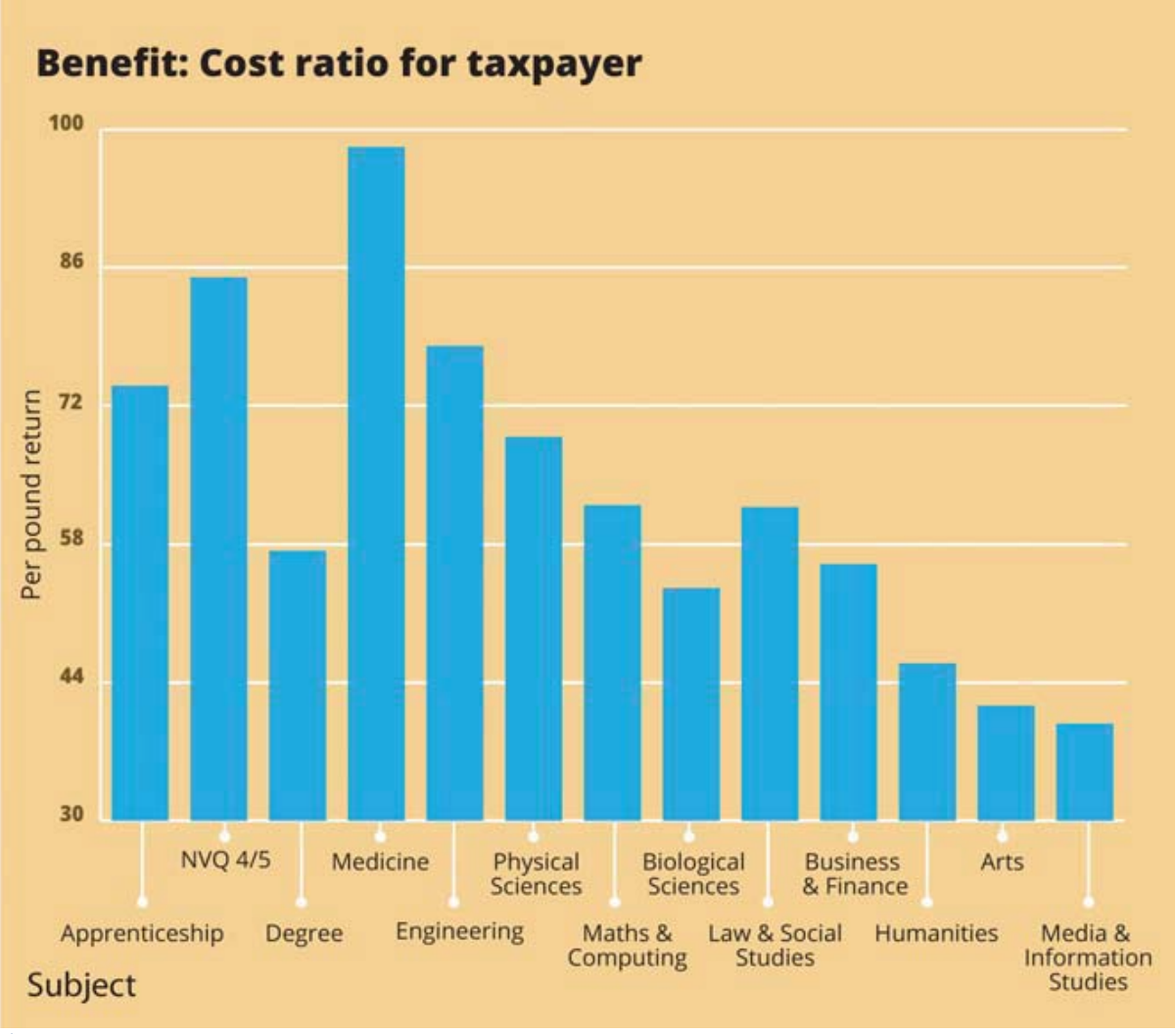

Chart 19

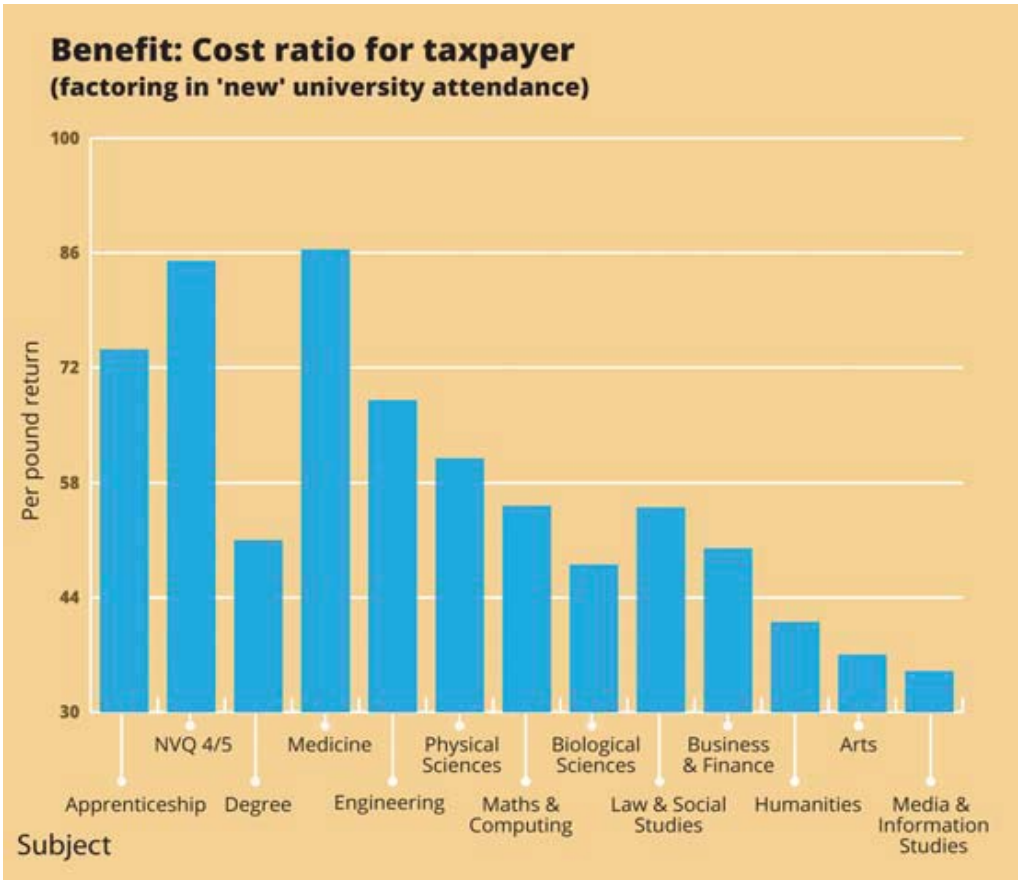

Chart 20

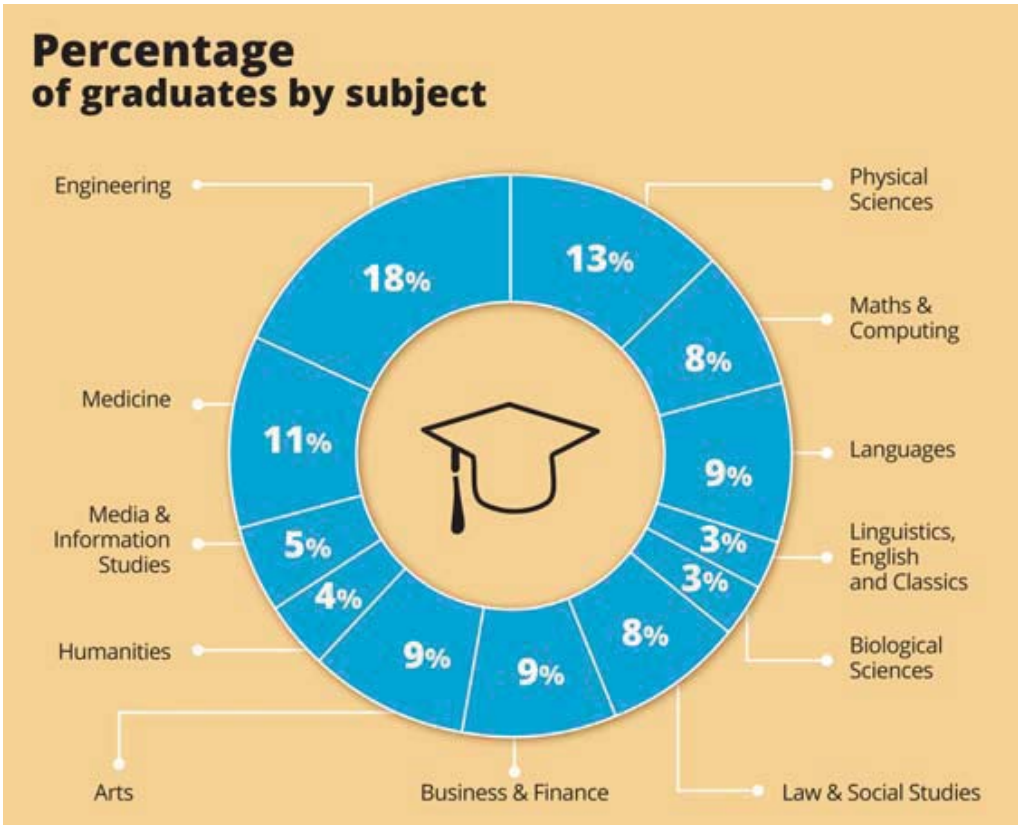

Chart 21

Summary of key findings:

- As a result of an individual studying for a university degree, the opportunity cost to the Exchequer in terms of lost tax revenue will be on average £3,786 per person, or £6.83bn for the 2012/13 cohort of degree starters (assuming a three-year degree course).
- The net gain for the taxpayer for funding an apprenticeship is equal to 57 per cent of that for a graduate.
- Attending a 'new' university reduces the average contribution a graduate will make to the Exchequer by £40,040 to £320,797 over their lifetime.
- Over working life, the average apprentice will contribute to the Exchequer 64 per cent of the net contribution of a graduate from a 'new' university.
- Irrespective of subject studied, graduates provide a greater net return to the Exchequer than the average apprentice (although the margins for certain subjects are slim).
- 'Media & information studies' graduates contribute the least amount of tax revenue, with an average of £248,517, or £42,398 more than the average apprentice (£206,119). For 'arts' graduates the difference rises to £54,198, while for those studying a humanities degree the figure is £81,558.
- For 'new' university graduates the premium over apprentices falls further. 'Media & information studies' graduates from 'new' universities contribute least to the Exchequer: £217,757, or £11,638 more than the average apprentice. For 'new' university 'arts' graduates the difference is £22,438, while for those with a 'humanities' degree the difference increases to £47,518.
- Using NVQs 4 & 5 as a proxy for higher level apprentices, our analysis suggests higher level apprentices provide 65 per cent of the net return to the taxpayer of the average university graduate and 73 per cent of the return from a 'new' university graduate.
- Higher level apprentices provide a net return only five per cent below that for the average graduate studying a discipline classed as 'media and information studies'. After accounting for HEI type, we can see that 'new' university graduates in the 'arts' and 'media & information studies' provide net returns below those of higher level apprentices. The respective percentage differences are 3 and 8 per cent.
- On a per pound basis, the returns for apprenticeships become significantly more favourable - a £74 return for every £1 invested, compared to those for the average degree (a £57 return for every £1 invested).
- The only degrees to generate a return in excess of an apprenticeship are 'medicine' and 'engineering'.
- The per pound returns of apprenticeships relative to degrees become even more favourable to apprenticeships when HEI type is factored in.
- Graduates from 'new' universities offer a less favourable rate of return than the average graduate. On a per pound basis, the returns for graduates from 'new' universities are 6 per cent less than those of the average graduate (51 per cent compared to 57 per cent).
- The only 'new' university degree course to provide a more favourable per pound return relative to apprenticeships is 'medicine' at 86 per cent.
- Medical degrees makeup only 3 per cent of the total number of degrees. In contrast, the three subjects offering the least favourable returns to the taxpayer: 'humanities', 'arts' and 'media & information studies', constitute one fifth (20 per cent) of all degrees.
- The bottom six subjects in terms of taxpayer returns constitute 60 per cent of all graduate degrees.

7. Apprenticeships in an international context

Formal apprenticeship programmes exist in a number of countries across the developed world, although the nature and design of these programmes are not synonymous with one another. In 2010, the London School of Economics and Political Science produced a study for the Apprenticeships Ambassadors Network comparing the English apprenticeship system to those of other countries.[58] This chapter summarises the key findings of that report to provide context and perspective to the English system.

How do apprenticeship participation rates vary?

Participation rates vary widely across countries. Chart 22 shows the contrasting numbers of apprentices per 1000 employed people for the academic year 2008-2009 across seven developed countries.

The chart demonstrates that Austria, Germany and Switzerland that have well established dual education systems that combine apprenticeships in a company and vocational education at a vocational school in one course, tend to have higher apprenticeship participation rates than those with less entrenched apprenticeship systems. For the academic year 2008/09 Switzerland and Germany had around four times as many apprentices as England and Ireland. Similarly, France had a higher proportion of apprentices than England and Ireland, although the participation rate was below those of the dual system countries.

How old are apprentices?

Age is also another distinguishing variable. In France and the three dual system countries examined, apprentices are only available to those under the age of 25.

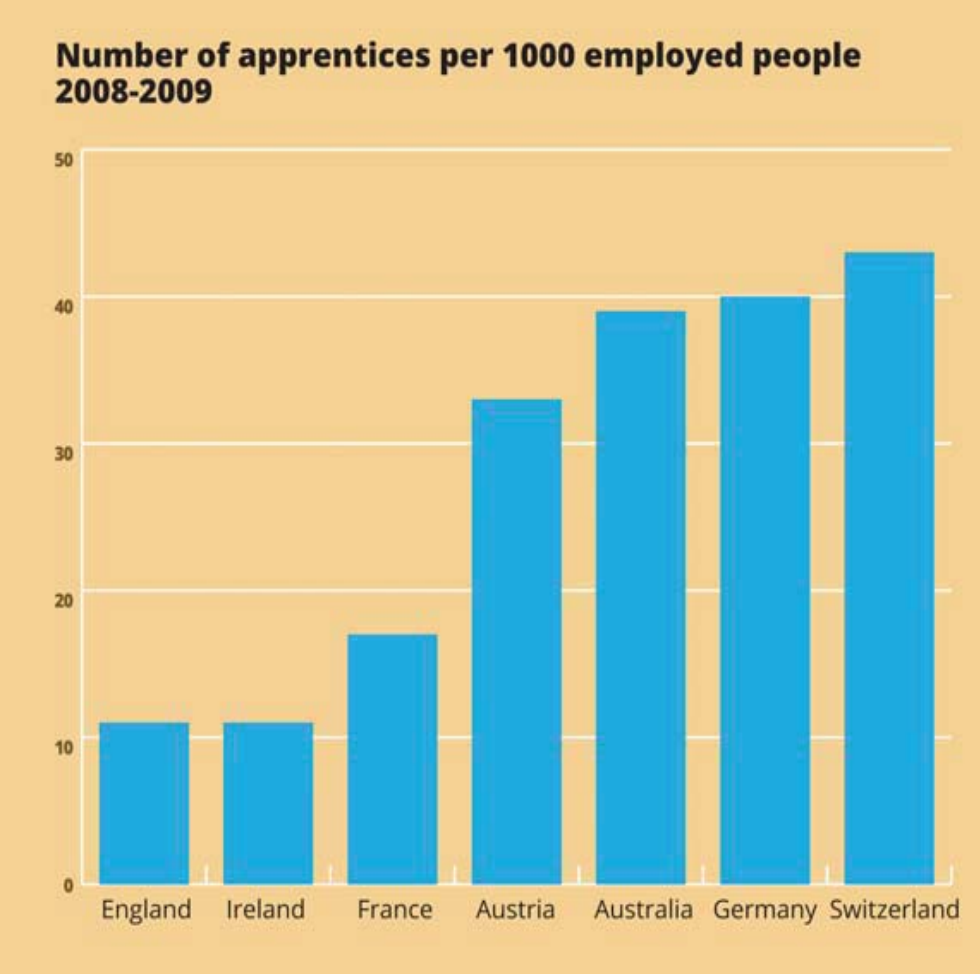

Chart 22

58 *London School of Economics and Political Science. (2010). The State of Apprenticeships in 2010. Apprenticeship Ambassadors Network.*

In England and Australia, over-25s account for significant proportions of apprentices. In Australia, almost half of all apprentices are over 25, while in England the proportion is close to one quarter. In England, the over-25s also makeup the largest proportion of new apprenticeship starters.

How long do apprentices take to complete?

The length of time to complete an apprenticeship varies widely between countries. Apprenticeships in the majority of countries last for three years, or in Ireland's case, four. Australia and England are the main exceptions to the rule. In Australia, while traditional apprenticeships last for three years, traineeships last for around 12 months and in England the average duration for all apprenticeships is between one and two years.

How do attainment levels compare?

In terms of qualification levels, in the dual system countries and in Ireland the overwhelming majority of apprenticeships are studied at level 3. Australia, England and France are relatively unique in that they offer apprenticeships at different levels. In Australia apprenticeships can be studied at certificate 2 and certificate 3, although the majority are completed at certificate 3. In France apprenticeships begin at level 2 with the option to continue studying up to degree level. Just under half of all apprenticeships are at level 2. As we examined earlier, the apprenticeship system in England has been modernised and now offers the opportunity to study up to degree level and beyond. Despite this, England is the only country where level 2 completers outnumber those at other levels.

How does funding for apprenticeships vary?

In dual system countries, funds for off-the-job training are paid directly to vocational colleges. Assessment costs are met by employers' organisations, employee organisations and the government through the chambers of commerce. Due to the apprenticeship wage structure, and despite the costs incurred, on average employers break even on the costs associated with training apprentices in these countries. In Switzerland, apprentice wages are comparatively lower, so employers tend to make a net gain on training an apprentice. As a result, the supply of apprenticeship places tends to meet demand. Australia adopts a similar approach to England's whereby payments are made to those employers taking on apprentices, with the payment dependent on the age of that apprentice.In Austria, Germany and France, the respective governments make fixed payments to employers as an incentive for them to recruit additional apprentices beyond their existing skill needs and to those who are recruiting an apprentice for the first time.

Apprenticeships in Australia

Apprenticeships in Australia, like England, have seen a renaissance over the past ten years. Figures for 2008 show that there were 424,000 people enrolled in an apprenticeship programme, of whom one third were aged 16-19. The growth in apprenticeship numbers has been triggered by a number of factors, including the changing nature of the economy as well as reforms to the apprenticeship system itself to make it more structured and rigorous.

The reforms, which have included the introduction of lower level apprenticeships, are intended to improve accessibility to potential candidates and strengthen the usefulness of the system to employers. In Australia, all 17-year-olds are required to be enrolled in either full or part-time education and/or training which can include doing an apprenticeship. Over the past three decades, the level of post-compulsory educational participation in Australia has increased sharply. More effort has been put in by policymakers to create alternative options for school leavers choosing not to go to university. In particular, Vocation Education and Training (VET) pathways have been introduced into schools to provide a more structured mechanism through which pupils can pursue a vocational education.

Unlike many European countries, apprenticeships do not dominate the vocational education system in Australia. In 2008, just over one-fifth (21 per cent) of those in the vocational education system were pursuing

an apprenticeship. Due to Australia's federal structure, the provision for careers guidance in schools is handled at a state level. In New South Wales the state requires each secondary school to have a qualified careers adviser. In addition, the federal government has invested heavily in Australian Apprenticeship Centres (AACs) that are intended to serve as a facilitation portal through which apprentices and prospective employers can meet. The centres serve as mediator and information provider throughout the duration of the apprenticeship. Demand for apprentices is considerably higher than in England. In Australia, just under one-third of all Australian employers employed apprentices in 2009 with high levels of employer satisfaction recorded.

Apprenticeships in Austria

Austria has a formalised dual education structure, so called because the system combines apprenticeships in a company and education at a vocational school in one course. The practical experience the apprentice learns in the workplace is supplemented by theoretical learning in the vocational school. Education in Austria is compulsory until the age of 15, although 90 per cent stay on in some form of education or training beyond this point. Approximately one-fifth remain in academic education which ultimately leads on to university entrance. The remainder pursue a technical/ vocational education or apprenticeship.

Apprenticeships in Austria are a major route of post-compulsory education and training for those opting not to enter into higher education. Around 40 per cent of all young people opt to undertake an apprenticeship, which can range from two to four years to complete, although the majority last for three years. In 2008, there were just over 132,000 young people in Austria pursuing an apprenticeship; this equates to 33 apprentices for every 1000 employed people. The overwhelming majority of apprentices (93 per cent) are aged between 15 and 18 years old. In a bid to stem an increasing tide of youth unemployment, the Austrian government recently invoked a series of reforms to the apprenticeship system. These have included financial incentives to employers to increase the supply of apprenticeship places. In addition, the government has sought to develop a more formalised route to higher education and university study for those wishing to develop their apprenticeship training further.

In terms of funding, public funds cover the cost of off-the-job training in vocational schools. As in the UK, in addition to the allowance firms pay to their apprentices the government also pays a subsidy to the firm's employer. The level of subsidy diminishes as an apprentice becomes more experienced.

Apprenticeships in France

Following a period of reform in the 1980s, apprenticeships in France, as in several other countries, have enjoyed a period of growth.

In 1987, and again in the early nineties, the legislation regulating the apprenticeship system was amended to grant apprentices access to higher level qualifications at NVQ 3 and above. These reforms triggered an upsurge in the numbers of young people pursuing apprenticeships. In 2008, there were close to half a million young people enrolled on an apprenticeship course in France, which equated to 17 apprentices for every 1000 employed people. This represented a doubling in the numbers of apprentices since the early 1990s, with the growth being driven exclusively by those opting to pursue apprenticeships at higher levels (NVQ 3 – 5).

Education in France is mandatory until the age of 16, although the vast majority (90 per cent) opt to continue their education beyond this point. For those continuing their studies, there are a range of options, including: general academic education, general technological education, full-time vocational education in the upper secondary school (lycée) or an apprenticeship. Those opting to pursue the vocational route can study for NVQ 2 and NVQ 3 qualifications in a wide variety of occupations. Vocational courses include a range of general education subjects and last for 2 or 3 years, full-time in a vocational lycée or part-time in an apprenticeship. Apprentices in France study for the same nationally recognised qualifications as students on full-time vocational courses in vocational lycées. Consequently, those opting for the apprenticeship route can access the same level of qualifications as those continuing

on to university through the general academic path. Unlike in England where there is no upper age limit, apprentices in France must be aged between 16 and 25. In 2009, the average age was just under 19 years of age. At present, those with apprenticeships in France benefit from higher rates of employment than those with the equivalent level of qualification from a full-time school.

Apprenticeships in Germany

The German education system, like that of Austria's, is based on a dual system approach. Apprenticeships in Germany serve as the path to employment and further career training for almost two-thirds of young people. Despite efforts by the federal and regional governments, demand for apprenticeship places continues to outstrip supply, with some young people, particularly lower-ability applicants, having to wait several years for a position. Of those that do secure apprenticeship places, completion rates are high, with many courses offering the potential to progress onto university.

Apprenticeships in Germany, like the majority of countries, normally last for three years. However, those candidates that are judged capable have the option to complete within two. At age 12, pupils are assigned to one of three types of secondary school: Gymnasium (grammar schools), Realschule (less academically intensive secondary schools) and comprehensive schools. The decision as to which school a pupil will be sent is based on the advice of teachers and in consultation with parents. There are broadly even splits in terms of the proportion of school children going to each school.

While compulsory education ends at the age of 15/16, students are still obliged to continue with their studies in either a full or part-time capacity. The obligation to study part-time can be completed either by undertaking an apprenticeship or through a one year full-time attendance after the end of compulsory full-time school. Apprenticeships are the selected route for the majority (70 per cent) of school leavers who opt not to enrol in higher education. In total, around two-thirds of an age group will have completed an apprenticeship by the age of 25. In 2007, 1.6 million young people in Germany were enrolled in an apprenticeship. This figure represents 40 apprentices for every 1000 employed people. The majority of apprentices are in service industry occupations, with around 40 per cent based in the industrial sector.A survey of German school leavers conducted in 2008, found the majority (56 per cent) expressed a desire to undertake an apprenticeship. The links between industry and the education system is also better established than in the majority of other countries. Around one-quarter of all German firms take on an apprentice with an even larger proportion actively participating in the education system. In terms of funding, German companies that recruit apprentices do not receive direct subsidies from public funds. Instead, the cost of the in-school vocational training is met by the regional education authority.

Apprenticeships in Ireland

1991 saw a radical overhaul of the apprenticeship system in Ireland. The existing time-served model was replaced with a new standards-based system. Until recently, apprenticeship numbers in Ireland were growing rapidly. Growth was driven through a combination of apprenticeships being held in higher regard by employers as a result of reform, coupled with the considerable economic growth the country witnessed, beginning in the mid-nineties and leading up to the financial crash in 2008.

Despite the rise in apprenticeship numbers, like England, a disproportionate number of completers are male. As is the case in countries such as France and Germany, the Irish apprenticeship system offers the opportunity for successful apprenticeship completers to go on to university. Education is compulsory up until the age of 16. Like Germany, secondary schools in Ireland fall into one of three categories: voluntary (aided), comprehensive or vocational. Unlike Germany however, secondary schools are divided into 'Junior Cycle' (Middle School) and 'Senior Cycle' (High School). Typically, apprenticeships are undertaken upon leaving Senior Cycle and last for four years, comprising of seven phases. Apprenticeship training conforms to the same requirements, irrespective of occupation. Successful completion of all phases leads to a national award of an Advanced Certificate of Further Education and Training Awards Council

(FETAC) level 6, which is broadly equivalent to a Higher National Certificate (HNC) in England. As of 2008, there were approximately 23,000 young people in apprenticeships in Ireland, which equated to 11 apprentices for every 1000 employed people.

Apprenticeships in Switzerland

Apprenticeships in Switzerland are well established and highly regarded. Like Germany, around two-thirds of young people choose to undertake an apprenticeship, two thirds of which last for three years, with the remainder taking four years. Following the end of compulsory education at age 15/16, roughly two thirds of a cohort continues to vocational education and, of these, 80 per cent go on to undertake an apprenticeship, while the remaining 20 per cent will enter full-time vocational school. As is the case with the French and Irish systems, Swiss apprenticeships also provide completers with the option of going on to university. Figures for 2008 show that there were just under 200,000 young people enrolled on an apprenticeship course. At the time, this was equal to 43 apprentices for every 1000 employed people.

The study estimates that around one-third of those opting to do an apprenticeship in Switzerland, were they in England, would choose the A-Level/university route to the jobs market. In 2005, apprentices constituted 5.6 per cent of all employment, with just under one fifth (17.8 per cent) taking on one or more apprentices. In terms of funding, unlike most other countries, Swiss firms do not receive a direct subsidy for taking on an apprentice. Instead, the costs of off-the-job vocational training are covered by the federal and regional governments.

In Switzerland firms cover their training costs within the period of apprenticeship and, on average, manage to make a profit from recruitment and training of a new apprentice. Consequently, demand for apprentices in Switzerland is higher than in other countries.

8. Perceptions of apprenticeships

Apprenticeships are undoubtedly rising in popularity among school leavers, as evidenced by the recent growth in apprentices. Furthermore, our analysis has revealed that apprenticeships are competitive relative to university degrees from a number of perspectives. They offer greater prospects for employment and earnings relative to some degrees.

From an employer perspective, there is anecdotal evidence to suggest that apprenticeships are associated with lower training costs relative to graduates. Finally, in terms of net tax revenue to the Exchequer, apprenticeships offer greater returns than some degrees.

Despite this, less than one third of young people chose vocational training after their secondary education in Britain compared with 67 per cent in Austria and 71 per cent in the Netherlands[59].

Many commentators have attributed this to both the negative perceptions surrounding apprenticeships as well as the lack of awareness of apprenticeships among school leavers and their parents. A 2009 study[60] by the Young Foundation investigating the perceptions of apprenticeships among young people and their parents, found that employment prospects were a major issue for many people.

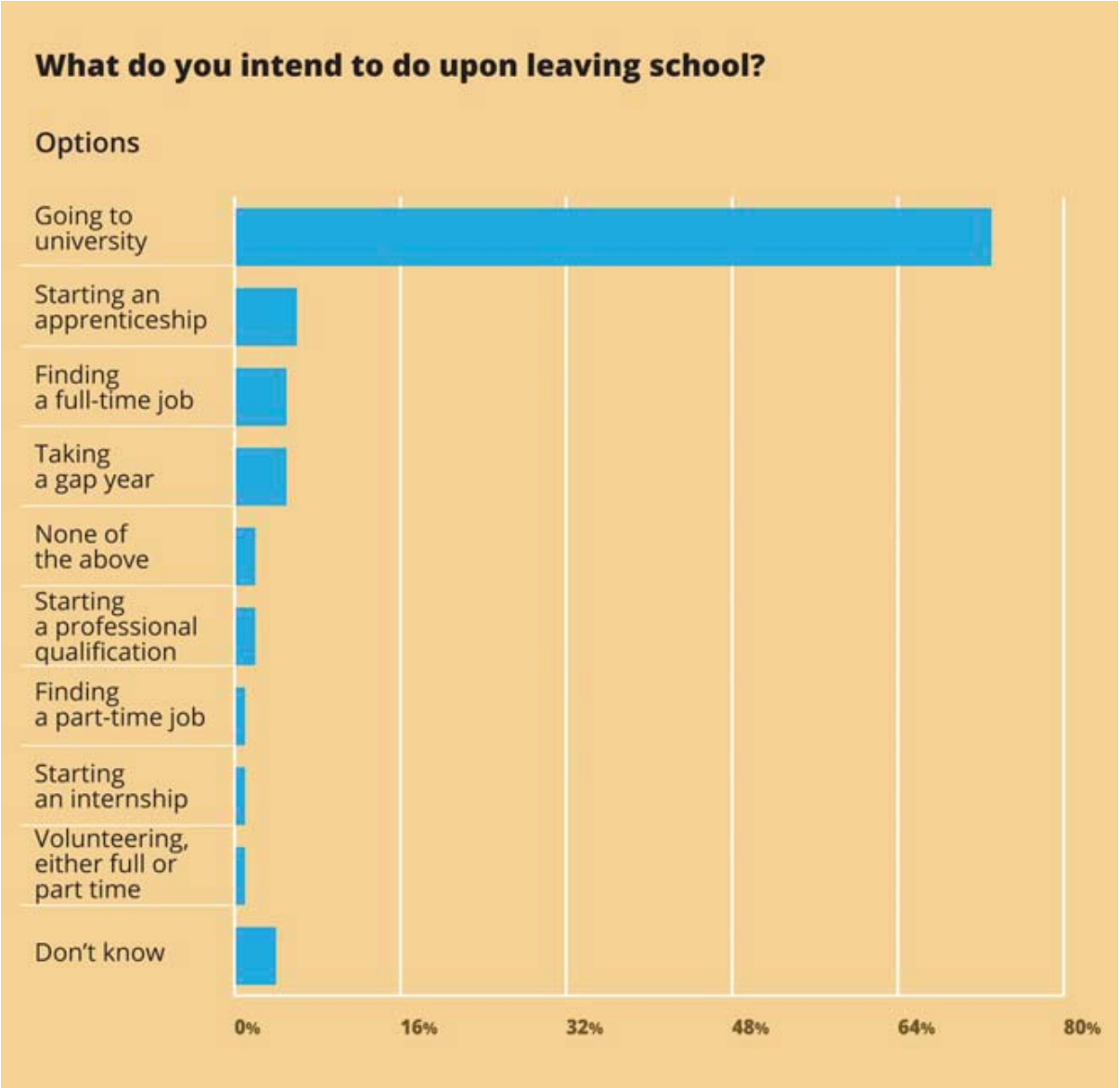

Chart 23

59 *Cooper, K. (2013, November 10). Return of the Apprentice. The Sunday Times, p. 5.*

60 *Marcio Brophy, B. M. (July 2009). Thinking about apprenticeships: perceptions and expectations of employers, parents and young people. The Young Foundation.*

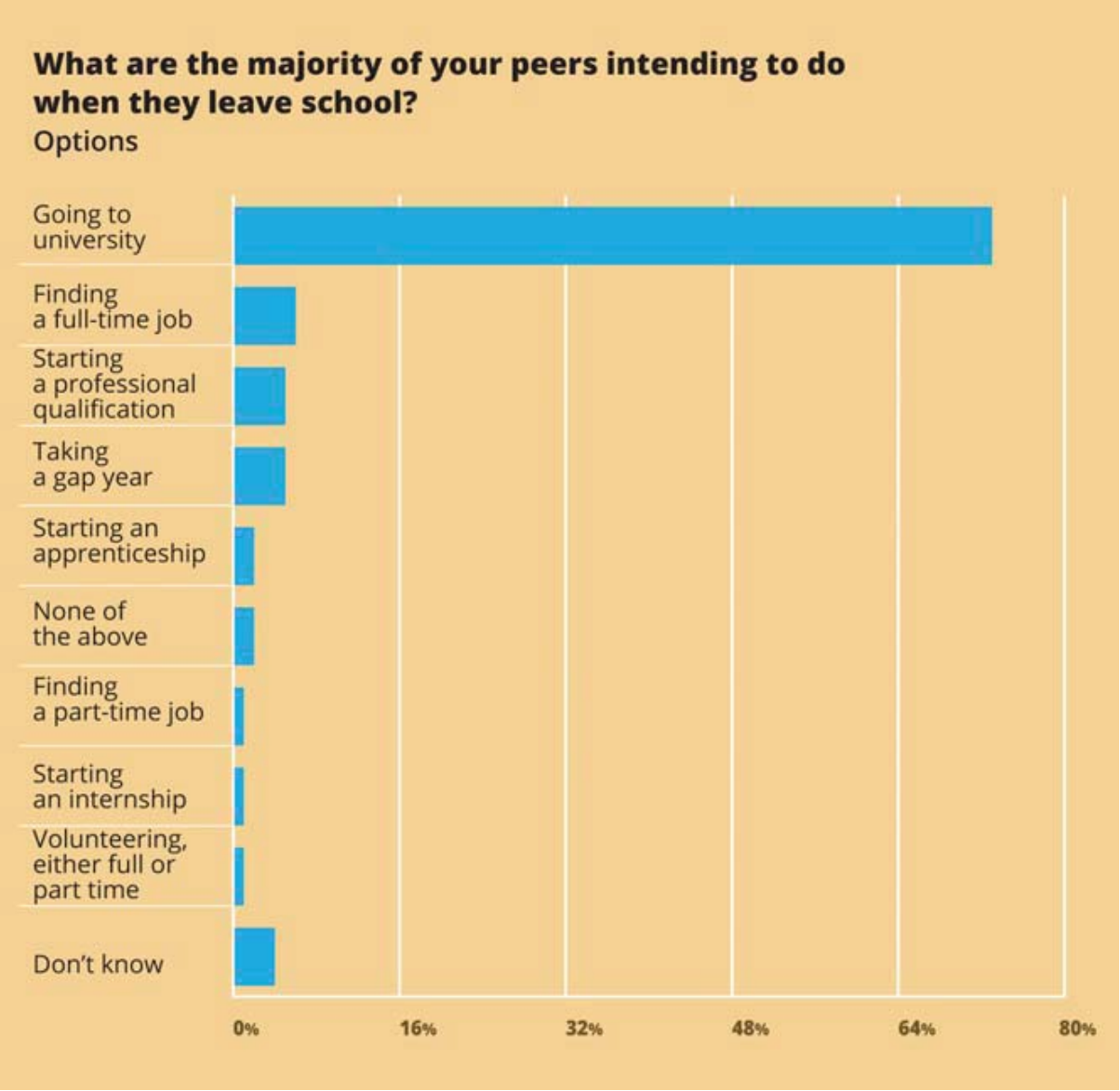

Chart 24

Parents that were concerned with their children's employability were clear that they would not recommend an apprenticeship to their children unless it gave them a professional qualification, such as a National Vocational Qualification (NVQ). Parents from black and minority ethnic backgrounds expressed the strongest opinion, explaining that they would not recommend an apprenticeship unless it was equivalent to a degree. Lack of awareness among young people is also an issue.

A survey[61] last year of 1000 small, medium and large businesses commissioned by the Edge Foundation in conjunction with City & Guilds found that 83 per cent felt young people need to be made more aware of the options available to them to progress to their chosen career. 78 per cent felt there needed to be a better alternative to A-Levels for young people who favour practical learning, while 60 per cent of those surveyed felt that the UK Government was not doing enough to support vocational education.

61 *Edge Foundation and City & Guilds. (2013). Views on Vocational Qualifications. Retrieved November 13, 2013, from Edge Foundation: http://www.edge.co.uk/media/123350/report.pdf*

72 per cent agreed that vocational qualifications were essential for improving the skills of young people and that vocational qualifications provide high quality work-based training that help people into the workplace. Interestingly, a small majority, 53 per cent, agreed vocational qualifications are more valuable than academic qualifications at preparing people for the workplace.

Despite this, there is evidence to suggest that perceptions of apprenticeships among women are changing, albeit slowly. Figures for the academic year 2012/13 showed that women now account for the majority (55 per cent) of apprenticeship starters. To investigate perceptions of apprenticeships relative to university degrees in more detail, our study commissioned the polling agency ComRes to survey 500 British school leavers aged 16 – 18. The findings were weighted to ensure they were representative of all British young people aged between 16 and 18 by age and gender.

The survey showed that university remains the primary choice for British school leavers, with three quarters (73 per cent) saying that they plan on going to university after finishing school or sixth form, compared to less than one in ten (6 per cent) who say that they are planning on starting an apprenticeship.

Similar proportions of British school leavers explained that they were planning on starting an apprenticeship (6 per cent) as taking a gap year or finding a full-time job (5 per cent for each, respectively). Only very small proportions of British school leavers say that they are planning on starting a professional qualification (2 per cent), volunteering, starting an internship or finding a part-time job (1 per cent for each).

Of particular interest is the fact that female school leavers (79 per cent) are significantly more likely than their male counterparts (67per cent) to say that they are planning on going to university after school or sixth form, while the opposite is true of apprenticeships, where boys (9 per cent) are more likely than girls (3 per cent) to say that they are planning on starting an apprenticeship.

Reflecting the trend in personal plans, nearly eight in ten (78 per cent) of those surveyed said that the majority of their peers are planning on going to university, with just 2 per cent saying that the majority of their peers are planning on starting an apprenticeship. While apprenticeships are the second most popular choice for school leavers in terms of their post-school plans, these fall behind full-time jobs (7 per cent), taking a gap year and starting a professional qualification (3 per cent for each, respectively).

Just 2 per cent of school leavers say that the majority of their peers are planning on starting an apprenticeship. While a small proportion of British school leavers are planning on undertaking an apprenticeship, these are seen as a minority option overall. British school leavers who are planning on going to university themselves are most likely to say that the majority of their peers are also planning on going to university (82 per cent). Just 2 per cent of those surveyed who are planning on going to university say that the majority of their peers are planning on undertaking apprenticeships, highlighting the social barriers that need to be overcome in terms of legitimising this option. In terms of careers guidance, four in five (80 per cent) British school leavers have received careers guidance regarding university from their school or sixth form, compared to just under half (46 per cent) who have received careers advice regarding apprenticeships.

It is clear that university is seen as the natural next step for school and college leavers, with 80 per cent saying that they have received guidance regarding university from their institutions. Less than half (46 per cent) of school leavers have received guidance regarding apprenticeships from their school or sixth form college, a characteristic that is consistent across age groups, suggesting that a significant proportion of schools and colleges fail to see apprenticeships as relevant to GCSE students and beyond. 19 of the 31 school leavers interviewed who are planning to undertake an apprenticeship say that they have received guidance on apprenticeships from their school or sixth form. This suggests that effective careers guidance in schools, when provided, has a positive impact on the tendency of school leavers to undertake apprenticeships.

It is concerning that fewer than one in ten school leavers (8 per cent) have not received careers

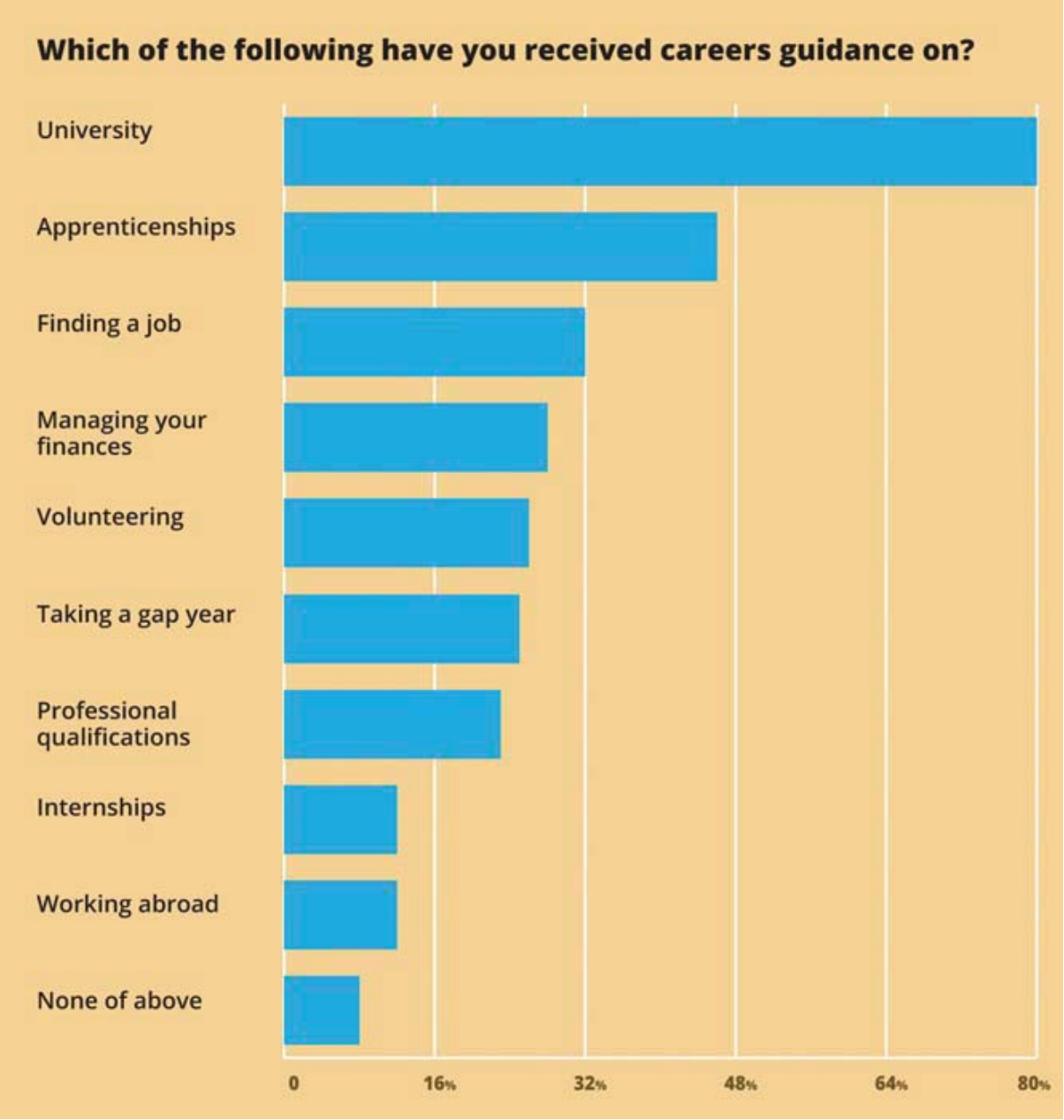

Chart 25

guidance on any of the options surveyed, with those aged 16 (12 per cent) notably more likely to give this response than those aged 18 (4 per cent). The survey also suggests that school leavers are most likely to have received information from their school or sixth form regarding the industries (67 per cent) and the types (65 per cent) of apprenticeships available.

Just under three fifths (58 per cent) of those surveyed who have received careers advice about apprenticeships say that they received information regarding the application process and potential career paths they provide. One third (36 per cent) received information regarding the structure of apprenticeships, and one fifth received information about the routes from apprenticeships into higher apprenticeships (20 per cent) and foundation degrees (17 per cent). There are clear gender differences in terms of the types of information received about apprenticeships among school leavers.

Male school leavers are notably more likely than females to have received information regarding the structure of apprenticeships (45 per cent vs 25 per cent), routes from apprenticeships into higher apprenticeships (25 per cent vs 15 per cent) and routes from apprenticeships to foundation degrees (22 per cent vs 12 per cent).

When asked about specific words or phrases they would associate with university degrees and apprenticeships (chart 26), school leavers are most likely to associate apprenticeships with a focus on practical learning (89 per cent) and the provision of useful skills (85 per cent), alongside a low level of debt (83 per cent). Those surveyed were notably more likely to associate these attributes with apprenticeships, compared with university.

Unsurprisingly, the majority of school leavers are more likely to associate apprenticeships with a low level of debt (83 per cent), compared with only 6 per cent who associate this with university.

A key benefit offered by apprenticeships, in the eyes of school leavers, is the ability to provide a clear career path. School leavers are more likely to associate apprenticeships, as opposed to university, with providing this (66 per cent vs 53 per cent). However, they are notably more likely to associate university (81 per cent) with providing a good long term earning potential (just 41 per cent associate this with apprenticeships); and good job prospects (83 per cent). Just over half of British school leavers associate this with apprenticeships (54 per cent). School leavers were less likely to associate apprenticeships, as opposed to university, with being well respected (27 per cent vs 92 per cent), and providing a recognised qualification (31 per cent vs. 89 per cent).

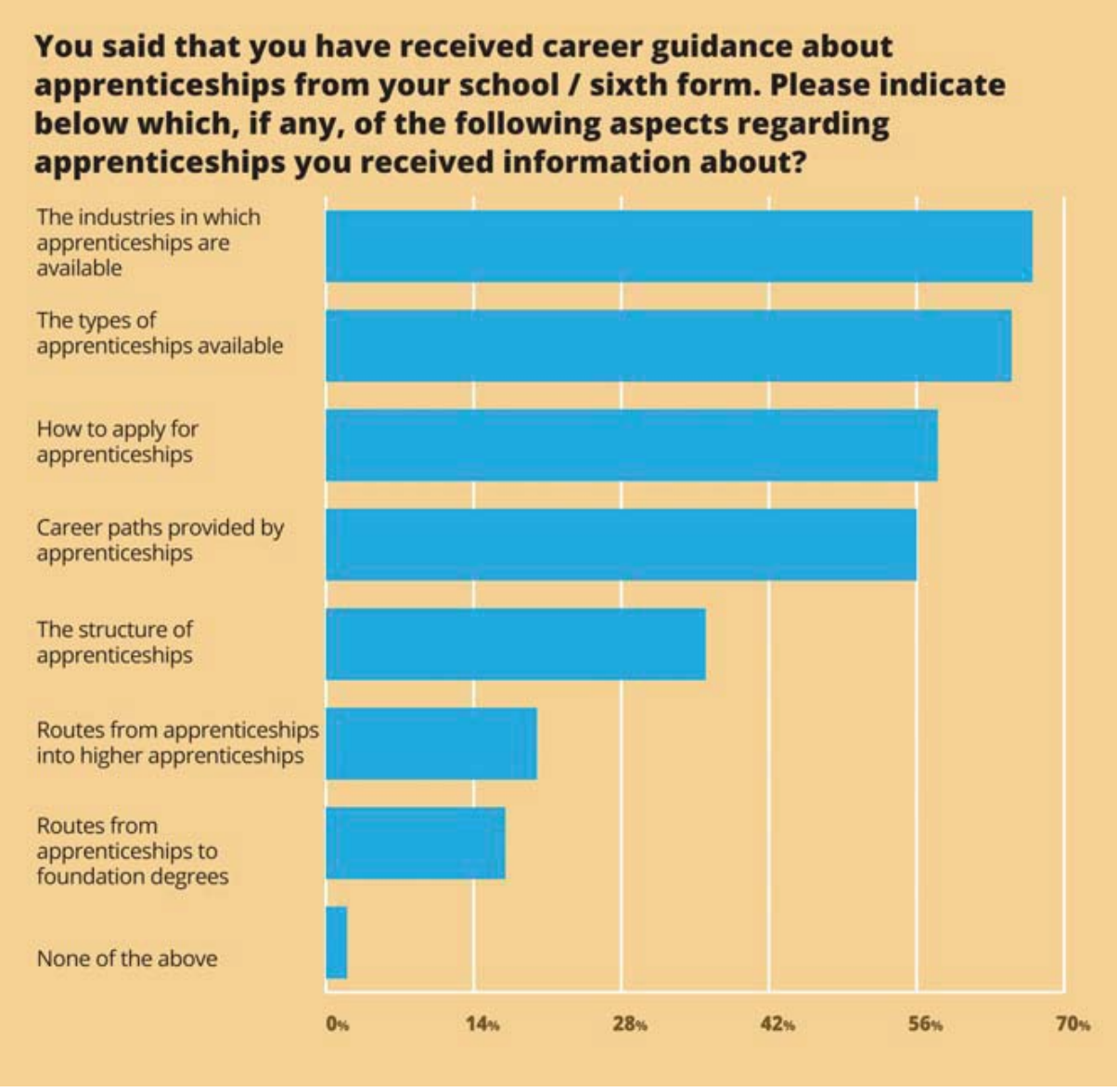

Chart 26

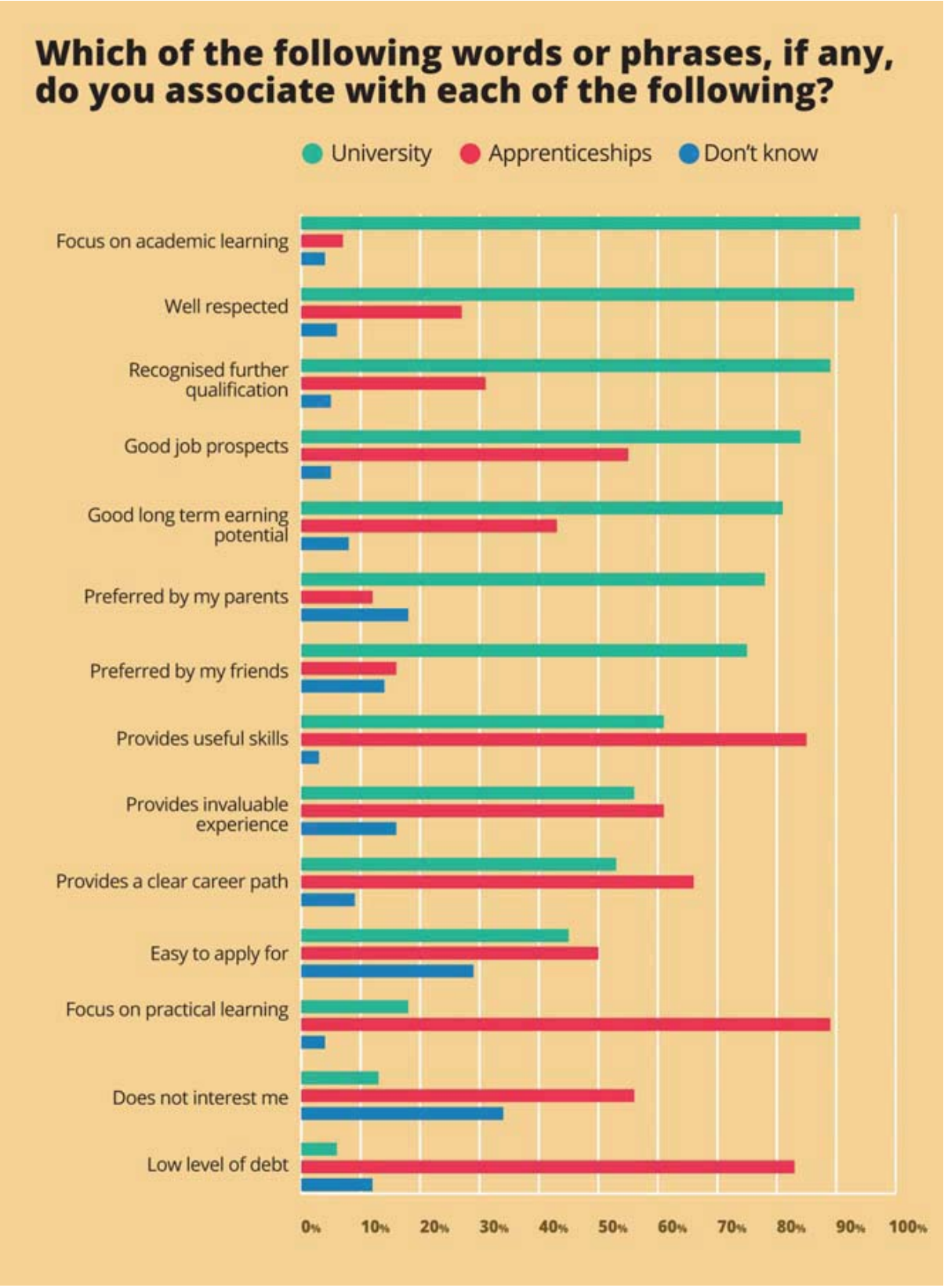
Which of the following words or phrases, if any, do you associate with each of the following?
University
Apprenticeships
Don't know
Focus on academic learning
Well respected
Recognised further qualification
Good job prospects
Good long term earning potential
Preferred by my parents
Preferred by my friends
Provides useful skills
Provides invaluable experience
Provides a clear career path
Easy to apply for
Focus on practical learning
Does not interest me
Low level of debt
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

Chart 27

This disparity is further borne out in terms of perceived preferences among family and peer groups; over three quarters of school leavers say that university is preferred by their parents (77 per cent) and friends (75 per cent), with fewer than one in six saying this of apprenticeships (16 per cent and 12 per cent respectively).There is a wide spread of preferred universities among school leavers (chart 28). Around one in ten school leavers planning on going to university are hoping to go to Oxbridge, with a third hoping to attend a Russell Group university. While two in five are hoping to attend another university and a fifth say that they don't know yet. In terms of preferred courses (chart 28), the most popular for those planning on going to university are 'business and administrative studies' (10 per cent) followed by 'maths and computer sciences' (9 per cent) and 'law' (9 per cent). 15 per cent of those planning on going to university do not know what subject they are hoping to study; rising to more than a quarter (27 per cent) of those aged 16. A preference for undertaking an apprenticeship compared with studying, and the ability to earn as they learn are the primary drivers for those school leavers opting to undertake an apprenticeship (chart 29).

It is encouraging to note that apprenticeships are seen as legitimate options in their own right, among those planning on undertaking them. Just 9 of the 31 school leavers surveyed say that they are planning on undertaking an apprenticeship because they don't have the grades to get into university, and just two say that they do not know what else to do. 23 of the 31 school leavers planning on undertaking an apprenticeship say that they are doing so because they would prefer an apprenticeship to studying, with 21 saying they are considering an apprenticeship because they can earn as they learn. Similar numbers are doing so because an apprenticeship will require less debt than going to university, because apprenticeships provide a clear career path (20 for each, respectively) and because an apprenticeship makes more sense in the industry or job that they want to work in (19).

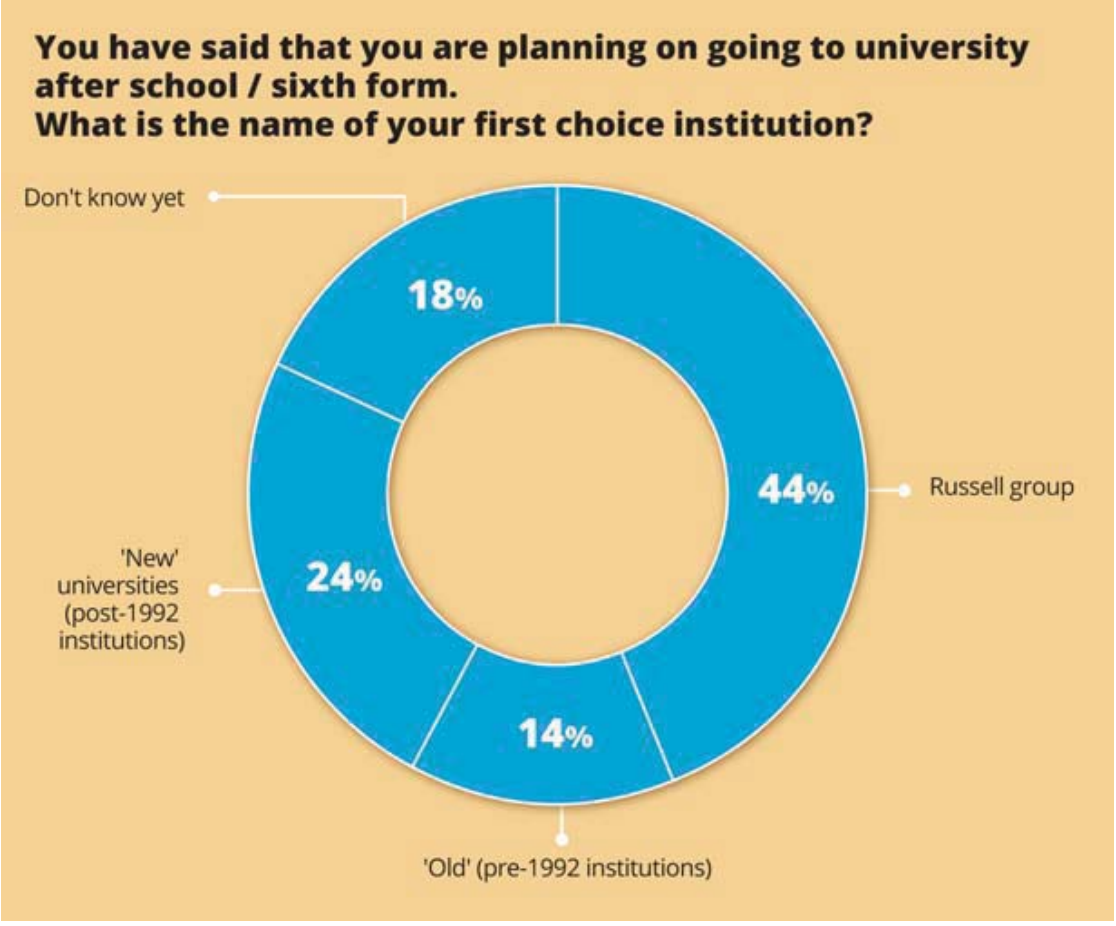

Chart 28


You have said that you are planning on going to university after school / sixth form. What subject are you hoping to study?
Business and Administrative studies
Mathematical and Computer Sciens
Law
Physical/Environ-mental Sciences
Medicine and dentistry
Medical related subjects
Creative Arts and Design
Mass Communications and Documentation
Languages, literature
Biological Sciences
Engineering
Social Studies
Historical and Philosophical studies
Education
Veterinary Sciences, Agriculture and related
European Languages Literature and related
Architecture, building and Planning
Don't know yet
0
2%
4%
6%
8%
10%
12%
14%
16%

Chart 29

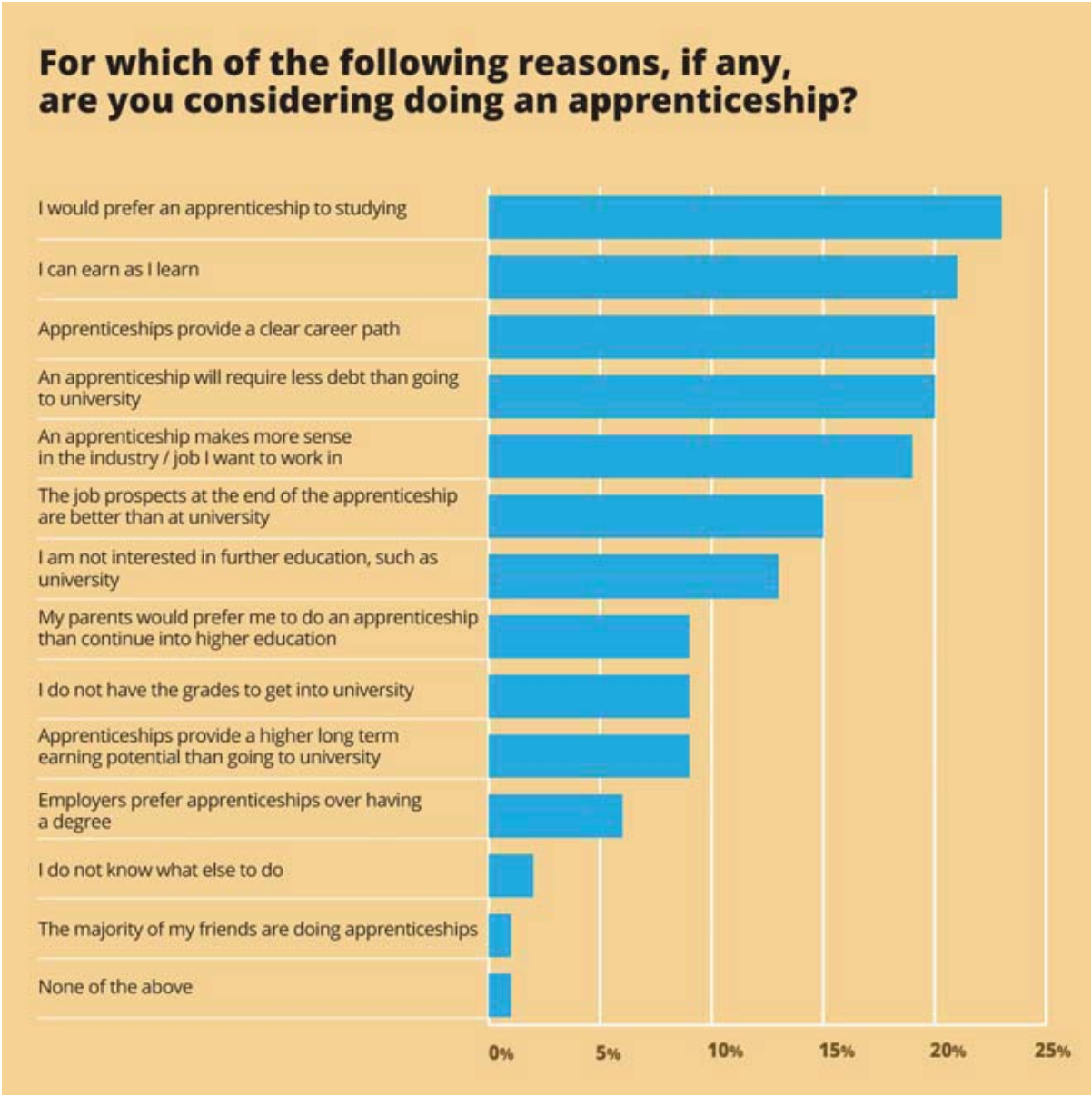

Chart 30

Interestingly, half of those surveyed that are planning on undertaking an apprenticeship cite the belief that job prospects at the end of an apprenticeship are better than at university. A guarantee of a job or qualification at the end of the apprenticeship (59 per cent) and a clearer idea of the earnings potential (50 per cent) are the primary drivers to considering an apprenticeship, among British school leavers.

Illustrating the practicalities of apprenticeships is a key way to encourage British school leavers to undertake them (chart 30). Three in five (59 per cent) of school leavers not planning on doing an apprenticeship say that a guarantee of a job or qualification at the end of the apprenticeship would encourage them to consider undertaking this route, while half (50 per cent) say that a

Over two fifths of school leavers who are not planning on doing an apprenticeship say that a clearer idea of what you would do as part of an apprenticeship, and a clearer idea of the career path involved (45 per cent for each, respectively), would encourage them to consider this option, with a similar proportion saying that a greater awareness of the industries in which apprenticeships are available (41 per cent) would do so.

An increase in the information available about apprenticeship is a direct way to encourage British school leavers to consider apprenticeships. Two fifths (39 per cent) of school leavers that are not planning on undertaking an apprenticeship say that more information from employers in terms of the

value of apprenticeships would encourage them to consider undertaking this, with similar proportions saying that more information provided by their school or sixth form and more information provided by businesses as to the value of apprenticeships (35 per cent for each, respectively) would encourage them to do so.

The Government has a key role to play in encouraging the take up of apprenticeships among school leavers. Over a quarter (28 per cent) felt that more information provided by the Government would encourage them to consider undertaking an apprenticeship after school or sixth form.

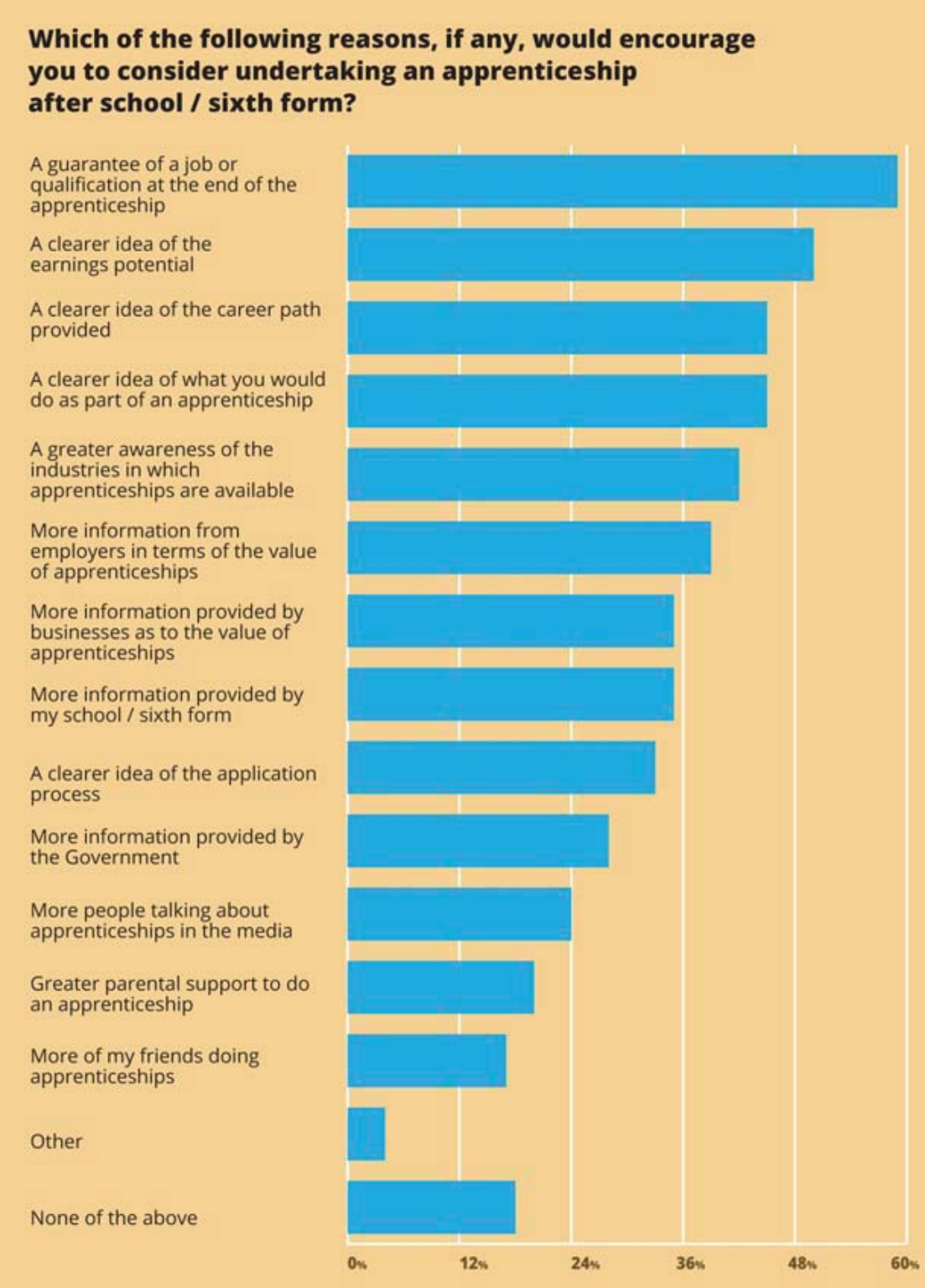

Chart 31

Summary of key findings:

- It is clear that there is much more to be done in terms of providing clear information about the practicalities and career paths offered by apprenticeships.

- The Government has a key role to play in encouraging the take up of apprenticeships among school leavers. Over a quarter (28 per cent) felt that more information provided by the Government would encourage them to consider undertaking an apprenticeship after school or sixth form.

- Apprenticeships are still seen as a minority option by school leavers, with just 2 per cent saying that the majority of their peers are planning to undertake an apprenticeship, and just 6 per cent saying that they are planning to undertake an apprenticeship themselves. More than half of school leavers say that apprenticeships are not of interest to them and that apprenticeships struggle for social legitimacy, with less than one in six British school leavers saying that they are preferred over university by their parents and friends.

- Furthermore, school leavers are more than twice as likely to associate university, rather than apprenticeships, with providing good long term earnings potential, and good job prospects, suggesting that apprenticeships are primarily associated with traditional trades, and the career paths that these entail, rather than opening up prospects within the wider job market, despite evidence to the contrary.

- However, school leavers are notably more likely to associate apprenticeships, as opposed to university, with providing a clear career path. In light of the rise in tuition fees and the uncertainty of the graduate market, this is something with great appeal.

- The survey shows there are clear drivers to encouraging the uptake of apprenticeships among British school leavers: three in five school leavers that are not planning on undertaking an apprenticeship say that a guarantee of a job or qualification at the end of the apprenticeship would encourage them to do so, while half say that a clearer idea of the earnings potential would have this effect. Emphasising these key attributes could situate apprenticeships as a more desirable and practical economic option for our school leavers.

Million Jobs' former Director, Lottie Dexter, Pimlico Plumbers' Charlie Mullins and Matthew Hancock MP speak at Conservartive Party conference fringe event hosted by Pera Training in 2013

9. Conclusions

Our analysis has shown that university degrees and apprenticeships have varying strengths and weaknesses relative to one another. The merits and drawbacks of each option are also dependent on the perspective of the relevant stakeholder group, be it school leavers, employers or taxpayers.

School Leavers

In terms of the perspective of school leavers, we investigated two factors shaping their choice between university and an apprenticeship: future earnings potential and employment potential.

We acknowledge that these are not the only factors influencing the route taken by a young person leaving school; however, they are nonetheless significant.

Earnings potential

Unsurprisingly, our analysis identified a positive correlation between UCAS tariff entry requirements and earnings.

More significantly, the data indicate that apprenticeship completers aged 21-24 have average annual earnings of £17,769. When compared to graduate earnings by institution six-months after graduating, this is 11 per cent above the lowest ranked institution, Falmouth University, and is above the average earnings of 22 higher education institutions.

Our analysis suggests that on average – and ignoring for level achieved – apprenticeship earnings are at least on a par with a significant proportion of graduates' six-months after graduating.

However, and as we pointed out earlier in our analysis, it may be the case that graduate earnings increase at a faster rate beyond the six-month graduate earnings period. Unfortunately, the Unistats data sets do not provide a sufficient sample size to determine average earnings by institution beyond this point.

In terms of lifetime earnings, we found that over the period 2005-2013, the proportion of graduates earning less than the average wage of an apprenticeship completer has remained broadly constant 28 per cent.

Using data from a combination of sources, we sought to examine the average earnings of the two routes in more detail. We also tried to determine the impact of a range of variables on earnings, including HEI type, debt and foregone earnings.

We identified that after factoring in debt, the proportion of graduates earnings less than the average lifetime earnings of an apprentice increases by an average of 1 per cent. The extra earnings apprentices receive from earning while studying relative to their graduate counterparts increases the proportion still further, by an average of 4 per cent.

Attending a 'new' university increases the proportion of those earning less than the average lifetime earnings of an apprenticeship completer by 6 per cent, taking the proportion to 39 per cent (once debt and forgone earnings are accounted for).

Using NVQ levels 4 and 5 as a proxy for higher level apprentices. We investigated how graduates compared to higher level apprentices.

We estimate the proportion of graduates from 'new' universities earning less than the average higher apprenticeship completer increases by an average of 7 per cent to just under half (46 per cent).

However, due to limitations on the data available, we were unable to determine whether the differentials identified by the BHPS between HEI types have been maintained and whether NVQs level 4 and 5 are reliable proxies for higher level apprentices.

We also investigated how graduate earnings change over their working life. We found graduate earnings increase well into their forties and peak at around the age of 45, at which point around 12 per cent of those from Russell Group universities and 20 per cent, or one in five, from 'new' institutions will still be earning less than the average annual salary of an apprenticeship

completer. After peaking in their mid-to-late forties, graduate earnings tend to decline until the age of retirement at which point over half of graduates will be earning less than the average lifetime wage of an apprentice.

Medical graduates have the highest average lifetime earnings, with the vast majority (98 per cent) earning, over the course of their working life, more than the average apprentice.

The majority of those graduating in STEM subjects (science, technology, engineering and maths) have earnings in excess of the average for an apprenticeship completer.

Over half (54 per cent) of those graduating with a degree in the humanities from a 'new' university have lifetime earnings in excess of the average for an apprenticeship completer.

Those graduating with degrees in 'arts' or 'media & information studies' fare the worst relative to apprentices. After taking into account lost earnings and graduate debt, over two-thirds of graduates in 'media & information studies' from 'new' universities (69 per cent earn less than the average wage for an apprenticeship completer. For 'arts' graduates, the equivalent figure is 58 per cent.

The exact proportions of graduates, by degree subject, earning less than the average lifetime earnings of an apprenticeship - once debt, extra wages and attendance at a 'new' university are accounted for - are as follows:

- Medicine - 10 per cent
- Engineering - 21 per cent
- Physical Sciences - 28 per cent
- Maths & Computing - 29 per cent
- Languages - 35 per cent
- Linguistics, English & Classics - 41 per cent
- Biological Sciences - 42 per cent
- Law & Social Studies - 42 per cent
- Business & Finance - 45 per cent
- Humanities - 54 per cent
- Arts - 58 per cent
- Media & Information Studies - 69 per cent

Our analysis also found that the proportion of graduates with lifetime earnings below those of the average NVQ level 4 or 5 completer is 7 per cent more than for apprentices as a whole.

Three-quarters (74 per cent) of 'media & information studies' graduates from 'new' universities have earnings less than those of the average NVQ level 4 or 5 completer. For 'arts' graduates the figure is 64 per cent or two-thirds.

The exact proportions of graduates, by degree subject, earning less than the average lifetime earnings of an NVQ level 4 or 5 completer - once debt, extra wages and attendance at a 'new' university are accounted for - are as follows:

- Medicine - 15 per cent
- Engineering - 27 per cent
- Physical Sciences - 33 per cent
- Maths & Computing - 38 per cent
- Languages - 42 per cent
- Linguistics, English & Classics - 50 per cent
- Biological Sciences - 50 per cent
- Law & Social Studies - 50 per cent
- Business & Finance - 52 per cent
- Humanities - 63 per cent
- Arts - 64 per cent
- Media & Information Studies - 74 per cent

Our findings show that HEI type and subject studied have a significant bearing on lifetime earnings. Our analysis also indicates that, contrary to popular belief, and after factoring in the high levels of debt many graduates will incur to obtain the qualification, a degree is often not the most effective route to maximise lifetime earnings for many young people.

While earnings potential should not be the main motivation behind making the choice between university and an apprenticeship, it is nonetheless important for many young people. As such, it is vital that they make the decision based on accurate information.

Too often university degrees are treated by politicians as a homogenous unit. Our findings clearly show that the concept of 'the graduate'

is a falsehood and that there is an enormous range, at least in terms of earnings, between graduates depending on subject studied and institution attended.

There is some evidence to suggest that degrees are becoming increasingly competitive. The Economist[62] recently published an article arguing that rising costs, changing demand and disruptive technology mean the higher education system is undergoing a revolution. The article discusses the rise of the 'MOOC', or 'Massive Open Online Course', which offer students the chance to listen to star lecturers and get a degree for a fraction of the cost of attending university.

The article suggests that top brand universities, such as Harvard, Oxford, Cambridge and Durham will be able to sell their MOOCs around the world, whilst mediocre universities may see revenues and staff numbers decline as a result of falling demand.

Employment prospects:

Our analysis of the employment prospects between graduates and apprentices has also shown interesting findings.

In terms of the 2005-2013 under-25 unemployment rates for the two cohorts, we found that apprenticeships have broadly enjoyed a more favourable rate of unemployment than graduates.

Over the period, the apprenticeship unemployment rate peaked in 2009 at 11 per cent, while the graduate rate rose more slowly, peaking a year later in 2010.

In 2012, as speculation surrounding a double-dip recession gripped the media, graduate unemployment returned to its 2009 peak of 11 per cent, whereas unemployment among apprentices continued to fall to a little over six per cent in 2012. The 2013 figures show a slight rise in apprenticeship unemployment, taking it to 7.5 per cent while the graduate rate subsided slightly in 2013.

Apprenticeship completers under the age of 25 also enjoyed a more favourable rate of employment than graduates.

Relative to their pre-crash levels, the 2013 unemployment and employment rates show an increasing divergence in apprentices' favour. One explanation for this is that graduates increasingly have to study longer to obtain additional qualifications, such as master's degrees, to gain employment.

Another possible explanation could be that graduates are finding it increasingly difficult to find 'graduate level' jobs, and so are delaying their entry into the jobs market.

In terms of the employment rates across the workforce as a whole, graduates fare better.

The overall employment rates between the two groups show graduates have consistently enjoyed a higher rate than apprenticeship completers. They have also been less affected by the recession than apprentices.

The divide in employment rates between the two groups has increased - in 2005 there was a five per cent difference in graduates' favour, with figures for 2013 showing that this margin increased to seven per cent.

The unemployment rates show a similar corresponding pattern. In 2005, both cohorts shared a similar rate of unemployment at around 2.5 per cent. The recession appears to have had a more pronounced impact on apprentices with the unemployment rate reaching a peak of 5.5 per cent in 2010 compared to 3.5 per cent for graduates.

Due to limitations on the availability of the LFS data, it is not possible to determine the effect of HEI type on graduate employment or unemployment rates. Although, judging by the evidence supporting the effect of HEI type on earnings, it seems reasonable to assume that HEI type does play an important role.

In addition, we are unable to determine in any significant detail whether the individuals are employed in jobs commensurate to their respective skill levels. For example, it may be the case that while the unemployment rate for graduates is higher, the proportion employed in appropriate jobs may be above that for apprentices.

62 *The Economist. (2014, June 28). Higher education: Creative destruction. The Economist.*

Employers:

There has yet to be an empirical study to compare directly the productivity gains of graduates to those of apprenticeship completers.

The limited research that does exist has sought to categorise qualifications into broad groupings, which makes it impossible to draw a direct comparison between the two specific types of qualification.

In order to determine a sense of how the two routes compare, we have had to rely on qualitative assessments. Recent surveys and news reports suggest a growing disenchantment with graduates and imply a sense of degrees becoming devalued.

A 2011 survey of its members by the British Chamber of Commerce found that business confidence in qualifications is low at all levels.

Over half (55 per cent) of the businesses polled expressed a lack of confidence in recruiting a graduate.

In contrast those businesses that offered apprenticeships viewed them as beneficial to their long-term development.

However, the report also found that the majority of businesses did not see apprenticeships as relevant to their business sector.

The study found that only a fifth of businesses had taken on an apprentice between March 2010 and April 2011 and even fewer (15 per cent) planned to over the next 12 months.

The authors argue this suggests a failure on the part of the Government to communicate effectively the range of frameworks on offer through the new modern apprenticeship scheme.

The qualitative evidence suggests that the introduction of the new modern apprenticeship scheme has triggered a renewed sense of confidence and belief in apprenticeships among employers in certain sectors. But there are signs that more needs to be done to inform small businesses of the value of apprenticeships.

Furthermore, there is evidence to suggest a steady devaluation in the currency of graduate degrees.

Taxpayers:

Using information from previous studies and sources, ours was the first publicly available attempt to compare directly the returns, from the taxpayer's point of view, of graduate degrees relative to apprenticeships.

We estimate that as a result of an individual studying for a university degree, the opportunity cost to the Exchequer in terms of lost tax revenue will be on average £3,786 per person, or £6.83bn for the 2012/13 cohort of degree starters (assuming a three-year degree course).

Previous studies estimated that 39.6 per cent - or £4.04bn - of the higher education loan book for the 2012/13 academic year will be 'lost' as a result of write-offs and subsidies.

Using this figure, we were able to determine that over his or her working life, the average apprenticeship completer gives a net benefit to the Exchequer of £206,119 (57 per cent) compared to £360,837 for a graduate.

From left to right: Richard Grice (Pera Training), Matthew Hancock MP, Lottie Dexter (formerly Million Jobs), Charlie Mullins (Pimlico Plumbers)

Using our previous analysis of graduate earnings, we estimate that attending a 'new' university reduces the average contribution graduates make to the Exchequer over their lifetime by £40,040 to £320,797 over their lifetime.

The average apprenticeship completer will contribute, over their working life, 64 per cent of the net tax contribution of a graduate from a 'new' university.

When we examined the impact of course subject, we found that irrespective of subject studied, graduates provide a greater net return to the Exchequer than the average apprentice (although the margins for certain subjects are slim).

Graduates that have studied degrees classified as 'media & information studies' contribute the least amount of tax revenue, with an average of £248,517 or £42,398 more than the average apprentice (£206,119). For 'arts' graduates the difference rises to £54,198, while for those studying a humanities degree the figure is £81,558.

For 'new' university graduates the premium over apprentices was reduced further. 'Media & information studies' graduates contribute the least to the Exchequer: £217,757, or £11,638 more than the average apprentice. For 'arts' graduates the difference is £22,438, while for those with a humanities degree the difference increases to £47,518.

Using NVQs 4 and 5 as a proxy for higher level apprentices, our analysis suggests higher level apprentices provide 65 per cent of the net return to the taxpayer of the average university graduate and 73 per cent of the return from a 'new' university graduate.

Higher level apprentices provide a net return only five per cent below that for the average graduate studying a discipline classed as 'media and information studies'. After accounting for HEI type, we can see that 'new' university graduates in the 'arts' and 'media & information studies' provide net returns below those of higher level apprentices. The respective percentage differences are 3 and 8 per cent.

Although, as we have previously highlighted, without large enough data sets for higher level apprenticeships, we are unable to determine the extent to which NVQ level 4/5 data are a reliable proxy.

However, a shortcoming of our analysis is that it has focused on the expected net Exchequer returns on an individual basis. It fails to account for the considerably larger investment required to realise graduate returns relative to those for an apprentice.

On a per pound basis, the returns for apprenticeships become significantly more favourable (£74:£1) compared to those for the average degree (£57:£1).

The only degree subjects to generate a per pound return in excess of those of an apprenticeship are 'medicine' and 'engineering'.

We also found that the per pound returns of apprenticeships relative to degrees become even more favourable to apprenticeships when HEI type is factored in.

Graduates from 'new' universities offer a less favourable rate of return than the average graduate. On a per pound basis, the returns for graduates from 'new' universities are 6 per cent less than those of the average graduate (51 per cent compared to 57 per cent).

The only 'new' university degree course to provide a more favourable per pound return relative to apprenticeships is 'medicine' at 86 per cent.

While it is unlikely that these per pound returns would be maintained if the total level of investment in apprenticeships was to be increased to that of university degrees, it does nonetheless present compelling evidence that apprenticeships offer a more lucrative return to the taxpayer than a significant proportion of degrees.

An important consideration to consider is the proportion these various degree subjects account for in the total number of degrees.

Whilst medical degrees are the most lucrative for the Exchequer, they make up only 3 per cent of the total number of degrees awarded. In contrast, the three subjects offering the least favourable returns to the taxpayer:

'humanities', 'arts' and 'media & information studies', constitute one fifth (20 per cent) of all degrees.

The bottom six subjects in terms of taxpayer returns constitute 60 per cent of all graduate degrees.

Perceptions:

The results of our survey suggest that there is much more to be done in terms of providing clear information about the practicalities and career paths provided by apprenticeships.

The Government has a responsibility to encourage the take up of apprenticeships among school leavers. Over a quarter (28 per cent) felt that more information provided by the Government would encourage them to consider undertaking an apprenticeship after school or sixth form.

Despite the compelling evidence to suggest that they offer considerably better earnings potential compared to degrees, apprenticeships are still seen as a minority option by British school leavers. Only 2 per cent said that the majority of their peers are planning to become an apprentice, and just 6 per cent said they are planning an apprenticeship themselves. More than half of school leavers felt apprenticeships are not of interest to them.

Apprenticeships are still struggling to acquire social status. Fewer than one in six British school leavers said that they are preferred over university by their parents and friends.

Most striking is that of those school leavers surveyed, they were more than twice as likely to associate university, rather than apprenticeships, with providing a good long-term earning potential, and good job prospects. This suggests apprenticeships are primarily associated with traditional trades, and the career paths that these entail, rather than opening up prospects within the wider job market, despite evidence to the contrary.

However, school leavers were notably more likely to associate apprenticeships, as opposed to university, with providing a clear career path. In light of the rise in tuition fees and the uncertainty of the graduate market, this clarity of direction was striking.

There are clear drivers to encouraging the uptake of apprenticeships among school leavers. Three in five school leavers that are not planning on undertaking an apprenticeship say that a guarantee of a job or qualification at the end of the apprenticeship would encourage them to do so, while half say that a clearer idea of the earnings potential would have this effect. Emphasising these key attributes could reposition apprenticeships as a desirable and practical economic decision for school leavers.

Summary:

Our analysis has offered compelling evidence that apprenticeships provide greater returns to the taxpayer and more lucrative earnings potential for school leavers relative to a large proportion of graduate degrees, particularly those from 'new' universities.

We also find that for young people apprenticeships offer a higher average rate of employment and a lower rate of unemployment compared to graduate degrees.

Despite these findings, our report found that apprenticeships are still seen as a minority option by British school leavers. Just two per cent said that the majority of their peers are planning on undertaking an apprenticeship and only six per cent said they were planning on undertaking an apprenticeship themselves. More than half of school leavers believe apprenticeships struggle for social legitimacy, with less than one in six British school leavers saying they are preferred over university by their parents and friends.

School leavers are more than twice as likely to associate university, rather than apprenticeships, with providing a good long-term earnings and employment potential. This suggests that apprenticeships are primarily associated with traditional trades and the career paths these entail, rather than opening up prospects within the wider jobs market, despite evidence to the contrary.

10. Recommendations:

Culture, brand and identity

Addressing the misperceptions and cultural problems associated with apprenticeships must be of primary importance, both to policy makers and to the industry itself.

Progress is undoubtedly being made - the rising numbers of apprentices suggest young people and employers are waking up to the opportunities offered by vocational qualifications and in particular apprenticeships. But as this report highlights, more needs to be done if policymakers are to achieve their goal of higher apprenticeships being held in the same regard as university degrees. Change will not happen overnight; instead it will be a slow and gradual process.

A significant advantage graduates have over apprentices is their brand and identity. Irrespective of institution attended, graduates benefit from an infrastructure and system of organisations that champion their goals, while also providing them with a sense of community that apprentices lack.

1. To promote the apprenticeship image and to help foster a sense of being part of a collective with its own brand and identity, the Government should work with the National Apprenticeship Service (NAS), employers and key industry players to see the establishment of a 'National Union of Apprentices'. The organisation will be run by apprentices for apprentices. It will also serve as a conduit for media enquiries and a campaigning organisation for apprentices' needs.

2. Like the National Union of Students (NUS), the NUA would coordinate a discount card scheme for its members. The card scheme would allow apprentices to receive discounts with major retailers. Small steps such as these will help to provide apprentices with a sense of collective identity, which is currently missing.

3. The NUA would work closely with the National Apprenticeship Service (NAS) in order to stage 'apprenticeship fairs' at schools nationwide. The fairs would provide a forum whereby employers, apprenticeship providers and apprentices can showcase the variety of opportunities that apprenticeships have to offer.

4. While the NUA would be targeted at younger apprentices, a Royal Society of Apprentices should also be set up which would appeal more to older apprenticeship completers. The organisation could help establish alumni networks, which will also help to contribute to a sense of belonging. The organisation would also serve as a bridge between those that completed their apprenticeships before the introduction of the modern apprenticeship scheme and those that completed it afterwards.

5. Students currently apply to university via the online UCAS (University and College Admissions Service). A simple step to help elevate the prestige of apprenticeships and bring them on a par with degrees would be to integrate the two admissions systems.

6. Degrees also benefit from a more formalised system of recognition than apprenticeships. Higher level apprentices should be granted post nominal letters like graduates.

7. Like graduates, apprentices should enjoy a formalised graduation ceremony. The annual events could be coordinated by the NAS at a regional level and would provide the opportunity for apprentices to feel a sense of prestige in their achievement.

8. The NAS should also organise an annual awards ceremony to reward apprentices that have excelled in certain fields.

9. The descriptions of the existing apprenticeship levels are confusing and cumbersome. The system should be reordered to reflect the new higher level apprenticeships. There should be three bands -foundation, intermediate and advanced - of which the different apprenticeship levels are allocated to. The bands could be:

- Foundation apprenticeships (level 1, 2)
- Intermediate apprenticeships (level 3, 4)
- Advanced apprenticeships (level 5,6,7)

Educational awareness

The recommendations outlined above, if implemented properly, will go some way to addressing the negative perceptions and lack of identity associated with apprentices.

However, they do not address the misconceptions we identified in terms of the disconnect between actual and perceived earnings and employment potential between university and an apprenticeship.

10. To help tackle this problem, the Government should annually publish a detailed and comprehensive data set outlining the earnings and employment potential for graduates and apprentices.

This report clearly shows that the status quo of treating graduate degrees as a homogenous group is antiquated. In order to create a workforce for the 21st century, the country needs to have a competitive qualification system to support it.

11. To increase competition and to help better inform consumer demand, the Government must collect and publish data sets that are detailed enough to allow student bodies and other organisations to populate matrices of earnings and employment potential. These matrices would work in a similar way to university guides, but would be broader in scope and would allow candidates to assess the graduate earnings and employment potential by institution attended and subject studied. These data sets could also be compared to those for higher level apprentices in various specialisms, allowing school leavers to make an informed choice about the best education option for them.

12. The information should form a cornerstone of in-school education about the relative merits and drawbacks of apprenticeships compared to degrees. By helping to inform young people at an earlier age, policymakers can help to reduce the prevailing prejudice against in-work training.

- The data should also play a major role in helping to inform government spending allocations to HE institutions.

Boosting demand

Collecting and publishing these data sets can also help apprenticeships in other aspects. Providers have commented that while the reform has led to a boom in the number of apprenticeship places being undertaken, demand has failed to keep up with the reforms that have been introduced.

13. In order to encourage employer demand, the Government should commission a study to quantify the productivity gains offered by apprentices. This information should then be used to create an online productivity barometer that would help inform employers of the potential benefits apprenticeships can offer their businesses.

Part of the reason countries such as Germany and Switzerland were more resilient than the UK during the recent recession was due to the flexible and diverse nature of their vocational education systems, which provided workers with a higher level of transferable skills.

14. The government should also look to scrap the VAT rate levied against private apprenticeship providers in order to bring them into line with public apprenticeship providers.

11. Methodology

Main Sources

The data sets were collected from various sources, including the Labour Force Survey (LFS), the British Household Panel Survey (BHPS), and the Higher Education Statistics Agency (HESA). Various reports and analyses were also used to complement and verify the secondary research in this paper – see the bibliography for a complete list.

Employee

Data from the HESA and LFS were used to produce chart 4 (Unistats). Weighted salary information (accounting for an institution's region) from Unistats (HESA) was matched with The Times university rankings to produce the scatter plot in chart 4. This was then colour-coded by type of institution (Russell Group; Old; New). This was then compared with recent LFS salary data for apprenticeship-completers aged 21-24.

Charts 5 (wages) was produced from secondary analysis of LFS and BHPS data. First, LFS data were used to compute the proportion of graduates earning less than the average for an apprenticeship-completer. The data were then manipulated to factor in the debt accrued by a graduate (including tuition fees and maintenance costs), and also the extra wages earned by an apprenticeship completer during their apprenticeship.

Using wave-12 (2002/03) BHPS data, a wage-differential for graduates studying at different types of HEI was identified, adding another layer to the analysis. This process was completed for the years between and including 2005-2013.

In order to estimate the impact of higher level apprenticeships (level 4 and above), the analysis was repeated using NVQs in place of apprenticeships. Chart 6 (NVQ) shows the results of this analysis.

Charts 8 & 9 (subject studied) used detailed subject level data from the 2013 LFS to compare different degree subjects with apprenticeships. The analysis is the same as above.

For charts 9, 10, 11 & 12 (employment), LFS employment data for graduates and apprenticeship completers was extracted and then disaggregated by age. A proportional analysis was adopted.

Taxpayer

Charts 14, 15, 16, 17, 18, 19 & 20 (taxpayer) are generated from secondary analysis of LFS data and modelling from Million+.[63] This paper models the net costs/benefits of higher and further education by accounting for various revenue streams between workers and the state, including loan write-offs and lifetime earnings and tax-payments. This was disaggregated by subject using 2013 LFS data.

63 *London Economics. (2013). Behind the Headlines | Higher education funding in England: do the alternatives add up? Million Plus.*

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Appendix 1 – HEI type

Russell group:

- University of Birmingham
- University of Bristol
- University of Cambridge
- Cardiff University
- Durham University
- University of Edinburgh
- University of Exeter
- University of Glasgow
- Imperial College London
- King's College London
- University of Leeds
- University of Liverpool
- London School of Economics & Political Science
- University of Manchester
- Newcastle University
- University of Nottingham
- University of Oxford
- Queen Mary University of London
- Queen's University Belfast
- University of Sheffield
- University of Southampton
- University College London
- University of Warwick
- University of York

“Old” (pre-1992 institutions)

- Aston University (1966)
- University of East Anglia (1963)
- University of Essex (1964/5)
- University of Kent (1965)
- Lancaster University (1964)
- University of Sussex (1961)
- University of Bath (1966)
- University of Bradford (1966)
- Brunel University (1966)
- City University London (1966)
- Heriot-Watt University (1966)
- Keele University (1962)
- Loughborough University (1966)
- University of Salford (1967)
- University of Stirling (1967)
- University of Strathclyde (1964)
- University of Surrey (1966)
- University of Ulster (1968)

“New” universities (post-1992 institutions)

- Anglia Ruskin University
- Birmingham City University
- University of Brighton
- Bournemouth University
- University of Central Lancashire
- Coventry University
- De Montfort University
- University of East London
- Edinburgh Napier University
- University of Glamorgan
- Glasgow Caledonian University
- University of Greenwich
- University of Hertfordshire
- University of Huddersfield
- Kingston University
- Leeds Metropolitan University
- University of Lincoln
- Liverpool John Moores University
- London Metropolitan University
- London South Bank University
- Manchester Metropolitan University
- Middlesex University
- Northumbria University
- Nottingham Trent University
- Oxford Brookes University
- University of Plymouth
- University of Portsmouth

- Sheffield Hallam University
- Staffordshire University
- University of Sunderland
- Teesside University
- University of the West of England
- University of Westminster
- University of Wolverhampton
- University of Abertay Dundee
- University of the Arts London
- The Arts University Bournemouth
- Bath Spa University
- University of Bedfordshire
- Bishop Grosseteste University
- University of Bolton
- BPP University
- Buckinghamshire New University
- Canterbury Christ Church University
- University of Chester
- University of Chichester
- Cranfield University
- University of Cumbria
- University of Derby
- Edge Hill University
- Falmouth University
- University of Gloucestershire
- Glyndŵr University
- Harper Adams University
- University of the Highlands and Islands

- Leeds Trinity University
- Liverpool Hope University
- Newman University
- University of Wales, Newport
- University of Northampton
- Norwich University of the Arts
- Queen Margaret University
- The Robert Gordon University
- University of Roehampton
- Royal Agricultural University
- Southampton Solent University
- Swansea Metropolitan University
- University of Wales Institute, Cardiff
- University of the West of Scotland
- University of West London
- University of Winchester
- University of Worcester
- York St John University

Appendix 2 - Unistats

University	Rank	Type	Tariff	Salary (£)	Apprenticeship salary (£)
Falmouth University	77=	New	289	15940.43	17769.1628
York St John University	64=	New	301	16111.59	17769.1628
Bath Spa University	70	New	339	16140.96	17769.1628
University of Lincoln	57=	New	324	16608.25	17769.1628
Arts University Bournemouth	52=	New	316	16608.70	17769.1628
University for the Creative Arts	99	New	307	16759.43	17769.1628
Leeds Trinity University	104	New	286	16835.05	17769.1628
University of Northampton	59	New	299	16851.34	17769.1628
Aberystwyth University	82	Old	327	16882.80	17769.1628
Manchester Metropolitan University	89	New	333	16921.25	17769.1628
Bangor University	56	Old	313	16957.55	17769.1628
University of Hull	63	Old	344	17117.19	17769.1628
University of Ulster	73=	Old	284	17143.40	17769.1628
University of Chester	52=	New	296	17145.83	17769.1628
Leeds Metropolitan University	103	New	278	17158.00	17769.1628
Lancaster University	12=	Old	439	17387.34	17769.1628
University of Huddersfield	66	New	317	17408.23	17769.1628
University of Winchester	57=	New	307	17536.50	17769.1628
Liverpool John Moores University	83	New	327	17606.28	17769.1628
University of Salford	98	Old	300	17677.93	17769.1628
University of Gloucestershire	91=	New	295	17717.31	17769.1628
Nottingham Trent University	61	New	321	17726.86	17769.1628
University of Birmingham	16	Russell	444	17795.15	17769.1628
University of Central Lancashire	88	New	298	17810.48	17769.1628
University of the Arts London	77=	New	316	17914.30	17769.1628
University of Greenwich	101	Old	286	17977.81	17769.1628
University of Worcester	102	New	281	18024.79	17769.1628
University of Chichester	68	Old	307	18034.43	17769.1628
University of Stirling	51	Old	374	18048.44	17769.1628
Staffordshire University	108	New	254	18077.11	17769.1628
University of the Highlands and Islands	116	New	294	18077.59	17769.1628
University of Sunderland	96=	New	272	18103.45	17769.1628
Keele University	44	Old	356	18158.99	17769.1628
Birmingham City University	91=	New	323	18160.14	17769.1628
University of St Andrews	4	Old	524	18210.85	17769.1628
Sheffield Hallam University	77=	New	316	18217.62	17769.1628
Swansea University	47	New	360	18221.23	17769.1628
Harper Adams University	64=	New	332	18251.89	17769.1628
De Montfort University	86	New	313	18361.32	17769.1628
University of Aberdeen	40	New	443	18379.24	17769.1628
University of Abertay Dundee	105	New	315	18383.62	17769.1628
Anglia Ruskin University	110	New	248	18555.14	17769.1628
University of Glasgow	25	Russell	477	18580.06	17769.1628
Buckinghamshire New University	113	New	237	18591.67	17769.1628
Northumbria University	62	New	331	18634.98	17769.1628
University of Bolton	119	New	270	18752.97	17769.1628
University of Cumbria	95	New	253	18775.74	17769.1628
Canterbury Christ Church University	90	New	273	18819.26	17769.1628
Southampton Solent University	114	New	282	18950.76	17769.1628
Cardiff University	33=	Russell	433	18962.48	17769.1628
University of Edinburgh	22	Russell	489	19018.30	17769.1628
University of Bradford	84=	Old	311	19024.30	17769.1628
Edinburgh Napier University	100	New	325	19057.56	17769.1628
Queen Margaret University Edinburgh	71=	New	332	19101.45	17769.1628
University of East Anglia	17	Old	418	19104.32	17769.1628
Newman University, Birmingham	73=	New	307	19107.14	17769.1628
University of Sussex	32	Old	407	19117.92	17769.1628
University of Brighton	76	New	304	19133.65	17769.1628

University	Rank	Type	Tariff	Salary (£)	Apprenticeship salary (£)
University of Leicester	14	Old	413	19165.45	17769.1628
University of Essex	39	Old	342	19173.98	17769.1628
Queen's University, Belfast	29=	Russell	388	19223.61	17769.1628
University of Reading	35	Old	378	19336.67	17769.1628
Bournemouth University	67	New	345	19353.52	17769.1628
University of Derby	84=	New	288	19358.27	17769.1628
Goldsmiths, University of London	48	Old	370	19523.81	17769.1628
University of Oxford	2	Russell	583	19605.43	17769.1628
Cardiff Metropolitan University	87	New	312	19609.11	17769.1628
Plymouth University	73=	New	315	19617.01	17769.1628
University of Hertfordshire	96=	New	312	19666.06	17769.1628
Royal Holloway, University of London	28	Old	400	19696.60	17769.1628
University of Warwick	10	Russell	506	19702.80	17769.1628
University of the West of England	60	New	322	19719.39	17769.1628
Glyndwr University	109	New	232	19725.35	17769.1628
Durham University	6	Russell	510	19756.93	17769.1628
University of East London	120	New	238	19879.40	17769.1628
University of Nottingham	23	Russell	439	19902.79	17769.1628
University of Liverpool	36	Russell	420	19942.24	17769.1628
Coventry University	45	New	294	20061.93	17769.1628
University of Portsmouth	55	New	316	20089.24	17769.1628
University of Westminster	106=	New	327	20120.14	17769.1628
University of Manchester	26	Russell	457	20169.67	17769.1628
Kingston University	111	New	313	20261.20	17769.1628
Edge Hill University	69	New	307	20280.43	17769.1628
Glasgow Caledonian University	81	New	356	20303.33	17769.1628
Aston University Birmingham	29=	Old	398	20349.48	17769.1628
University of Exeter	8	Russell	470	20439.90	17769.1628
University of Dundee	49	New	396	20443.77	17769.1628
Roehampton University	80	New	275	20666.67	17769.1628
Loughborough University	21	Old	411	20805.74	17769.1628
University of the West of Scotland	117	New	288	20887.13	17769.1628
University of Bristol	15	Russell	487	20994.47	17769.1628
School of Oriental and African Studies	24	Old	437	20996.31	17769.1628
Middlesex University	94	New	250	21024.39	17769.1628
University of Southampton	20	Russell	438	21145.39	17769.1628
University of Sheffield	18=	Russell	442	21151.27	17769.1628
Heriot-Watt University	38	Old	391	21536.97	17769.1628
The Robert Gordon University	52=	New	350	21634.39	17769.1628
University of Cambridge	1	Russell	610	21657.97	17769.1628
Oxford Brookes University	50	New	352	21817.46	17769.1628
University of West London	112	New	234	21851.75	17769.1628
King's College London	27	Russell	467	21976.05	17769.1628
London Metropolitan University	121	New	229	22000.00	17769.1628
Brunel University	46	Old	357	22019.22	17769.1628
University of Surrey	12=	Old	418	22069.42	17769.1628
University College London	9	Russell	511	22133.58	17769.1628
University of Kent	33=	Old	380	22279.61	17769.1628
London South Bank University	118	New	242	22744.60	17769.1628
London School of Economics and Political Sci.	3	Russell	542	23009.46	17769.1628
Queen Mary, University of London	37	Russell	417	23117.17	17769.1628
University of Strathclyde	42	Old	465	23638.74	17769.1628
City University	43	Old	390	23974.83	17769.1628
Imperial College London	5	Russell	567	24325.32	17769.1628


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