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Issues paper

This report is for information

This report examines the early career employment outcomes of UK-domiciled students who qualified from a full-time, first degree course in the academic year 2008-09. It identifies differences in employment outcomes for different equality groups among those qualifying from publicly funded English higher education institutions, and examines whether differences seen in a graduate's early career persist into the medium term.

Differences in employment outcomes

Equality and diversity characteristics

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND

Contents

Differences in employment outcomes: Equality and diversity characteristics

To	Heads of HEFCE-funded higher education institutions
Of interest to those responsible for	Learning and teaching, Planning, Skills, Equalities, Student data, Graduate employability and careers
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Enquiries to	Alison Brunt, tel 0117 931 7166, email a.brunt@hefce.ac.uk, or Quantitative Analysis for Policy Team, email qapt@hefce.ac.uk

Executive summary

Purpose

1. This report examines the early career employment outcomes of UK-domiciled students who qualified from a full-time first degree course in the academic year 2008-09. It identifies differences in employment outcomes for different equality groups among those qualifying from publicly funded English higher education institutions, and examines whether differences seen in a graduate's early career persist into the medium term.

2. Interactive graphs accompany this document, and provide more detailed data relating to some of the profiles and employment rates discussed here. They can be accessed on the HEFCE website at www.hefce.ac.uk/analysis/employment.

Context

3. Research to understand differences in the higher education (HE) outcomes achieved by students from different backgrounds has previously looked at their retention in HE, their level of attainment, and whether they gain employment or progress to further study. Understanding how differences in graduates' early career outcomes can persist into the medium term forms part of HEFCE's ongoing programme of work in this area, and this report seeks to extend the existing evidence base by incorporating this additional dimension.

4. In future, the availability of HM Revenue and Customs data and HEFCE's ability to track graduates throughout their careers will vastly enhance the evidence base relating to medium and longer term graduate outcomes. Until such time, this report fills some of the information gap that currently exists in this area.

5. This report seeks to build on previous HEFCE work that has highlighted significant differences between student groups (when controlling for other background characteristics) in terms of academic attainment in HE and in terms of employment and further study outcomes. It looks at UK-domiciled students who qualified from a full-time first degree course in the academic year 2008-09, and considers their employment and further study outcomes at both six months and three-and-a-half years (40 months) after they left HE. The report specifically examines differences in the employment outcomes of different equality groups.

6. We have not attempted to identify the specific causes behind the findings. We can show, however, that some suggestions about differences in HE employment outcomes, while plausible, are not supported by the evidence. The report uses statistical modelling techniques to isolate the effects of a number of different equality and diversity characteristics on the employment outcomes of students six months and 40 months after they left HE[1]. We have used these techniques to establish whether the patterns seen in the observed employment outcomes are robust to the effects of other measurable factors and unobserved institutional effects. This approach helps to determine whether these background and study characteristics might be responsible for the patterns we have observed.

7. For example, it might be supposed that employability differentials among HE qualifiers were the direct result of the higher education institution (HEI) that the student attended, rather than the qualifications they held upon entry to HE or some other aspect of their educational or socio-economic background. However, the modelling techniques employed in the report eliminate this possibility by making explicit allowance for differences in the outcomes of students from different HEIs. We can therefore be confident that our findings are not the result of institutional effects.

Key points

8. This study looks at UK-domiciled students who qualified from a full-time, first degree course in the academic year 2008-09, and considers differences identified in the employment outcomes of different equality groups. The key findings from this investigation largely focus on whether differences seen in a graduate's early career persist into the medium term on the basis of the actual outcomes observed among these qualifiers. The main body of this report provides a fuller understanding of these differences, including in the context of statistical modelling.

Overall there is a substantial improvement in graduate outcomes between six and 40 months after leaving HE.

9. The proportion of qualifiers employed in professional and managerial roles or in further study 40 months after leaving HE was 77.8 per cent: this 'professional employment rate' was 13.7 percentage points higher than the equivalent figure six months after leaving.

10. Similarly the 'employment rate' – the proportion of qualifiers who were in either employment or further study – increased by 6.4 percentage points, from 90.0 per cent to 96.4 per cent in this period.

Differences in employment rates diminish between six and 40 months after leaving HE.

11. We find that differences seen in employment and professional employment rates six months after leaving HE have reduced substantially by 40 months for a number of the characteristics examined. In particular:

a. The large variation in employment rates among graduates from different subject areas diminishes as careers develop.

[1] The measurable factors that have been accounted for in statistical modelling are: age (as at 31 August in the 2008-09 academic year of graduation); disability status; ethnicity; an area-based measure of disadvantage (POLAR3 quintile); sex; subject of study; region of domicile; prior attainment (in terms of qualifications held on entry to HE); degree classification; previous school type; teaching arrangements (whether or not the student was taught by an HEI's partner institution under a franchising arrangement); sandwich year; institution attended.

Six months after graduation employment rates varied considerably across subject areas; from 82.1 per cent among computer science qualifiers to 99.6 per cent for qualifiers from medicine and dentistry. Forty months after leaving HE computer science remained the subject area with the lowest employment rate. However, having increased to 94.2 per cent this results in variation in the employment rates observed across subject areas falling to below 6 percentage points.

Variation in 'professional employment rates' – the proportion of qualifiers who were in either professional employment or further study – also reduced across graduates' early careers.

b. Employment rates among Chinese qualifiers increase dramatically across their early careers.

Differences in employment rates among many ethnic groups diminish between six and 40 months after leaving HE. The lowest employment rate (of 78.4 per cent, among Chinese qualifiers) was 12.8 percentage points lower six months after graduation than the highest rate, observed among White qualifiers (91.2 per cent). At 40 months White qualifiers were again found to have the highest rate (97.2 per cent), with Chinese qualifiers having a similar rate (96.5 per cent). At this point in graduates' careers, these rates were around 9 percentage points higher than the lowest employment rate, observed among Black African qualifiers (88.1 per cent).

c. Female qualifiers have higher employment rates across their early careers, but male qualifiers make considerable gains to catch them up.

Employment and professional employment rates of male qualifiers increased across their early careers relative to female qualifiers. At six months, the employment rate for female qualifiers was 5.1 percentage points higher, but by 40 months the difference had reduced such that female qualifiers had a rate that was only 1.7 percentage points higher.

d. Higher professional employment rates among mature qualifiers do not persist.

Six months after leaving HE, mature qualifiers aged 30 and over had a professional employment rate of 76.1 per cent. Forty months after graduation the professional employment rate of mature qualifiers was 79.6 per cent. These rates were the highest for all age groups, but the differences between all age groups narrow considerably between six and 40 months.

But there are a number of characteristics where differences do not reduce across a graduate's early career, especially with regards to professional employment.

12. However, for some characteristics and particularly in consideration of the professional employment rate, we find that differences seen six months after leaving HE have not reduced by 40 months and instead have remained persistent or increased. In particular:

a. Lower professional employment rates among disadvantaged students persist across their early careers.

Six months after leaving HE, professional employment rates ranged from 59.7 per cent among the most disadvantaged qualifiers (as measured by quintile 1 of HEFCE's Participation of Local Areas – POLAR3 – classification) to 67.4 per cent among the least disadvantaged qualifiers (POLAR3 quintile 5): a difference of 7.7 percentage points.

These differences remain largely unchanged in outcomes observed 40 months after graduation. While the most disadvantaged qualifiers saw professional employment rates increase by 14.4 percentage points across their early careers (to 73.1 per cent), the least disadvantaged qualifiers saw a similar increase of 15.1 percentage points (to 80.5 per cent).

b. Ethnic groups see differences in their professional employment rates widen.

Conversely to the change identified in employment rates, differences in professional employment rates among ethnic groups appear to increase slightly across a graduate's early career.

Black Caribbean qualifiers had the lowest rate of professional employment six months after graduation, of 55.4 per cent. This was 9.3 percentage points lower than the highest rate of 64.7 per cent, observed among White qualifiers. Forty months after leaving HE the difference between the highest and lowest professional employment rates had widened to 13.2 percentage points. Black African qualifiers had the lowest rate at this stage of graduates' early careers (65.9 per cent), while Asian Indian and White qualifiers had the highest rates (79.1 per cent and 78.7 per cent respectively).

c. Similarities in the professional employment rates of male and female qualifiers diminish as careers develop, with a higher proportion of male qualifiers in professional employment or further study.

The professional employment rate of male qualifiers increased relative to female qualifiers between six and 40 months after leaving HE. While male qualifiers had a professional employment rate only 0.3 percentage points higher than female qualifiers six months after graduation, the male qualifiers' rate was 1.9 percentage points higher 40 months after graduation.

13. Interactive graphs accompany this document and provide access to further, detailed data relating to the profiles and employment rates discussed above. They can be accessed on the HEFCE web-site at www.hefce.ac.uk/analysis/employment.

Action required

14. This document is for information only.

Introduction

15. Improving student access to, and success in, higher education (HE) is one of HEFCE's key priorities. Tackling inequality is central to our strategy for widening access, for improving retention and student success, and for supporting progression to employment or further study.

16. To do this, HEFCE has worked with the Higher Education Academy and Equality Challenge Unity to support research and best practice. The continual development of a sophisticated understanding of the outcomes achieved by students from different backgrounds is another crucial aspect of our work in this area. These outcomes include their retention in higher education, their levels of attainment, and whether they gain employment or progress to further study.

17. HEFCE's 2010 report 'Student ethnicity: Profile and progression of entrants to full-time, first degree study' (HEFCE 2010/13) looked at the profile, progression and attainment of the 2002-03 cohort of UK-domiciled full-time first degree entrants and found significant differences in the achievement of first and upper second class degrees by ethnic group[2].

18. Further work has built up the evidence base in this area. 'National Student Survey results and trends analysis 2005-2013' (HEFCE 2014/13) has illustrated differences in student satisfaction levels among a variety of student and course characteristics[3]. HEFCE has also highlighted statistically significant differences between student groups (when controlling for other background characteristics) in terms of both academic attainment in HE – in our 'Differences in degree outcomes' series (HEFCE 2014/03 and 2015/21) – and in terms of employment and further study outcomes – in 'Higher education and beyond: Outcomes from full-time first degree study' (HEFCE 2013/15)[4].

19. Understanding whether, and if so how, differences in graduates' early career outcomes persist into the medium term forms part of HEFCE's on-going programme of work in this area. This report seeks to extend the existing evidence base by incorporating this important aspect. It looks at UK-domiciled students who qualified from a full-time, first degree course in the academic year 2008-09, and considers their employment and further study outcomes at both six months and three and a half years after they left HE. Importantly, this study links the three-and-a-half year outcomes of individual qualifiers to the six-month outcomes of those same individuals to examine whether differences seen in a graduate's early career persist into the medium term. In this way, differences in the employment outcomes of different equality groups are specifically examined.

20. This report will go on to demonstrate the dynamism apparent in a graduate's early career. While the results reported here serve to fill some of the information gap that currently exists in relation to longer term graduate outcomes, further work is required to more fully understand the transitions made by graduates during the critical stages of their early careers following graduation. In future the availability of HM Revenue and Customs data and HEFCE's ability to track graduates throughout their careers will vastly enhance the evidence base relating to

[2] Available at www.hefce.ac.uk/pubs/year/2010/201013/.
[3] Available at www.hefce.ac.uk/pubs/year/2014/201413/.
[4] Available at www.hefce.ac.uk/pubs/year/2014/201403/ , www.hefce.ac.uk/pubs/year/2015/201521/ and www.hefce.ac.uk/pubs/year/2013/201315/ respectively.

medium- and long-term graduate outcomes, providing greater detail of how graduates progress through different career trajectories.

21. Interactive graphs accompany this document and provide more detailed data relating to some of the profiles and employment rates discussed here. They can be accessed on the HEFCE web-site at www.hefce.ac.uk/analysis/employment.

Data sources

22. Data is drawn from the Higher Education Statistics Agency (HESA) individualised student records from the academic year 2008-09. The HESA student record collects information about the attributes of each individual HE student registered at a UK higher education institution (HEI) in a given year, as well as details of the study they were undertaking and any qualifications they achieved. For the purposes of this report we refer to students who obtained a recognised HE qualification from an HEI in England during 2008-09 as 'qualifiers'. The majority of HE qualifiers are at first degree level and we have restricted our analysis to this population to avoid further complicating an already complex set of results, and to maintain consistency with related studies which have reported on this population in some detail.

23. Data regarding the early careers of qualifiers recorded in the HESA student records can be obtained from the Destination of Leavers from Higher Education (DLHE) survey. This survey is a census of all UK- and European Union-domiciled individuals who completed higher education courses in the UK in each academic year, and is collected by HESA. The 2008-09 DLHE survey examined for the purposes of this study provides information on a student's employment or further study circumstances six months after they gained a qualification in the 2008-09 academic year.

24. A sample of respondents to the 2008-09 DLHE survey were contacted again three-and-a-half years (40 months) after leaving HE to participate in the Longitudinal Destination of Leavers from Higher Education (LDLHE) survey. This follow-up survey collects a wide range of information on a 2008-09 qualifier's employment or further study circumstances on 26 November 2012.

Structure of this report

25. This report examines employment outcomes with regard to a number of student and course characteristics in order to identify any differences in the outcomes achieved. The characteristics considered are as follows:

- Student characteristics:
  - age (as at 31 August in the 2008-09 academic year of graduation, that is at the start of final year)
  - disability status
  - ethnicity
  - Participation of Local Areas (POLAR3) classification of young participation in HE
  - region of student's domicile
  - sex
- Course characteristics:

- degree subject area.

26. For each of the characteristics listed in paragraph 25 we consider the employment outcomes observed at both six and 40 months after a qualifier has left HE, through some simple univariate summaries. Within each category, we then seek to isolate the effects of that given characteristic through the use of statistical modelling techniques. We have employed regression techniques to establish whether the patterns seen in the simple univariate summaries of employment outcomes are robust to the effects of other measurable factors and unobserved institutional effects. This helps to determine whether other factors might account for the patterns we have observed.

27. This approach, and the structure used to communicate our findings, is demonstrated within the initial definition of the populations considered by this study, discussed in paragraphs 28 to 43.

Defining the populations considered

28. The cohort examined by this study is that of UK-domiciled students who qualified from a full-time first degree[5] course registered at an English HEI in 2008-09.

29. These qualifiers have been tracked through to their responses to the DLHE and (if they fell within the sample contacted to participate in the follow-up survey) LDLHE surveys to determine their employment circumstances six months and 40 months after graduating from their full-time first degree course.

30. In 2008-09 there were 199,895 UK-domiciled qualifiers from full-time first degree programmes at English HEIs who were eligible to participate in the DLHE survey. A total of 165,615 of them responded to that survey, giving an overall response rate of 82.9 per cent. This rate is high and relates to the whole cohort (rather than just a sample), which indicates that proportions based on respondents should be representative.

31. Table 1 provides an indication of response rates to the 2008-09 DLHE survey among UK-domiciled full-time first degree qualifiers. It shows that 152,085 of those who responded were in employment, in further study or unemployed and looking for work, which gives the 'base population' for our onward analysis. This population excludes 5,280 qualifiers who failed to provide a valid response to the DLHE. Table 1 also excludes a further 8,255 qualifiers who gave valid responses but were not in employment, further study or looking for work (including taking time out to travel and being temporarily or permanently unable to work).

[5] 'First degree' refers to an honours or ordinary degree programme of study (for example BA, BSc). The coverage of this term includes four-year sandwich courses, extended first degrees (such as integrated masters programmes) and programmes leading towards eligibility to register with a statutory regulatory body (such as the General Teaching Council). Note that the term 'first' in this context does not imply that it is necessarily an individual learner's first instance of study on a degree programme. This does not include foundation degrees or other undergraduate qualifications, such as Diplomas and Certificates of Higher Education (Dip HE and CertHE), or Higher National Certificates and Diplomas (HNC and HNDs).

Table 1: Response rates of full-time first degree qualifiers to the 2008-09 DLHE survey six months after leaving HE

Response to DLHE	Number of qualifiers	Proportion of total UK-domiciled full-time first degree qualifiers in 2008-09	Proportion of 'base' DLHE population in 2008-09
Employed in a professional role (including in combination with further study)	68,240	34.1%	44.9%
Employed in other role (including in combination with further study)	41,045	20.5%	27.0%
Further study only	26,760	13.4%	17.6%
Subtotal: Employed or in further study	**136,045**	**68.1%**	**89.5%**
Unemployed and looking for work	16,040	8.0%	10.5%
Subtotal: In employment, in further study or looking for work*	**152,085**	**76.1%**	**100.0%**
Other	8,255	4.1%	
Subtotal: Provided a valid response to DLHE**	**160,340**	**80.2%**	
Invalid response	5,280	2.6%	
Subtotal: Responded to DLHE	**165,615**	**82.9%**	
No response	34,275	17.1%	
Total	**199,895**	**100.0%**	

Notes: The 'base population' is indicated with an asterisk (*) and excludes qualifiers who failed to provide a valid response or who gave responses indicating that they were not in employment or further study but were not looking for work. The 'respondent population' is indicated with a double asterisk (**) and excludes only those who failed to provide a valid response to the DLHE survey.

Defining the employment circumstances considered

32. The employment circumstances of the 2008-09 cohort of UK-domiciled full-time first degree qualifiers from English HEIs have been defined in terms of two measures. Firstly we consider the proportion of qualifiers in the base population who were in employment or further study at the census point. This measure is referred to throughout the remainder of this report as the **'employment rate'**, and is defined as the proportion of respondents in the base population who

indicated that their primary activity was any one of: full-time work, part-time work, voluntary or unpaid work, work and further study, further study alone or creating a portfolio.

33. The second measure that we consider for the purposes of this study is one referred to as the '**professional employment rate'**. This measure is defined as the proportion of qualifiers in the base population who, at the census point, were in either in further study or employed in a professional or managerial occupation[6].

34. Table 1 shows that 136,045 of those qualifiers in the base population were in employment or further study: this gives an overall employment rate of 89.5 per cent. It also shows that 68,240 qualifiers reported that they were in professional employment or further study, a professional employment rate of 62.5 per cent. The proportion of qualifiers assumed to be unemployed six months after leaving higher education was 10.5 per cent.

35. The Longitudinal DLHE survey of 2008-09 leavers involved re-contacting around 270,000 of the total respondents from the 2008-09 DLHE survey (including all those who had left HE having gained postgraduate and other undergraduate qualifications, or having studied part-time). The total number of respondents to the LDLHE survey was 62,205, of whom 29,030 had gained a full-time first degree qualification in 2008-09. This means that 18.1 per cent of the 2008-09 DLHE respondent population outlined in Table 1 also gave a response to the LDLHE survey. Of these qualifiers, 28,470 qualifiers provided a valid response and reported that 40 months after leaving HE they were in employment, further study or unemployed and looking for work (and thus fell within the LDLHE base population). Table 2 outlines the response rates of the 2008-09 cohort to the LDLHE.

[6] Professional and managerial occupations are defined on the basis of the Standard Occupational Classification of the graduate's employment. These codes are derived from the job title that a graduate reports in their DLHE or LDLHE response, and are aggregated into nine major groups. Those major groups identifying 'Managers and senior officials', 'Professional occupations' and 'Associate professional and technical occupations' are used to define "professional or managerial occupations" as considered in this report. Further details of the Standard Occupation Classification 2000 system can be found on the HESA website at https://www.hesa.ac.uk/component/collns/?task=show_manuals&Itemid=233&r=08018&f=011.

Table 2: Response rates of full-time first degree qualifiers to the 2008-09 LDLHE survey 40 months after leaving HE

Response to LDLHE	Number of qualifiers	Proportion of total UK-domiciled full-time first degree qualifiers in 2008-09	Proportion of LDLHE base population
Employed in professional role (including in combination with further study)	19,700	12.3%	69.2%
Employed in other role (including in combination with further study)	5,305	2.7%	18.6%
Further study only	2,440	1.5%	8.6%
Subtotal: Employed or further study	**27,440**	**17.1%**	**96.4%**
Unemployed and looking for work	1,025	0.6%	3.6%
Subtotal: In employment, in further study or looking for work*	**28,470**	**17.7%**	**100.0%**
Other	555	0.3%	
Subtotal: Provided a valid response to LDLHE	**29,025**	**18.0%**	
Invalid response	5	0.0%	
Subtotal: Responded to LDLHE	**29,030**	**18.1%**	
Subtotal: Provided a valid response to DLHE	**160,340**		
No (valid) response to DLHE	39,555		
Total	**199,895**	**100.0%**	

Notes: The 'LDLHE base population' is indicated with an asterisk (*) and excludes qualifiers who failed to provide a valid response or who gave responses indicating that they were not in employment or further study but were not looking for work.

36. Table 2 shows that of the 28,470 qualifiers in the LDLHE base population 27,440 were either in employment or in further study, giving an employment rate of 96.4 per cent. Of these, 22,140 were either in professional employment or further study: indicating a professional employment rate of 77.8 per cent.

37. Tables 1 and 2 indicate that the overall employment rate increased by 6.9 percentage points: from the 89.5 per cent reported in the DLHE survey, to 96.4 per cent reported at the LDLHE survey. The tables also indicate that the professional employment rate increased by 15.3 percentage points between the DLHE survey (62.5 per cent) and the LDLHE survey (77.8 per cent).

Defining the linked population

38. Considering only the population who responded to both the DLHE and the LDLHE, we can gain a clearer indication of the change in the outcomes of individuals over time. Table 3 considers the individuals who responded to both the DLHE and subsequently the LDLHE in more detail. Hereafter, this report refers to this population as the 'linked population'.

39. Considering the DLHE responses of only those 29,030 qualifiers who subsequently responded to the LDLHE we find that 24,925 were in employment of further study six months after leaving HE. At 90.0 per cent, the employment rate for the linked population is 0.5 percentage points higher than the rate for the entirety of the DLHE cohort considered in Table 1. The professional employment rate is 64.1 per cent, which is 1.6 percentage points higher than in the entire cohort.

Table 3: Responses to the 2008-09 DLHE survey from qualifiers who also responded to LDLHE survey (the 'linked population')

Response to DLHE survey	Number of qualifiers	Proportion of total	Proportion of linked base population
Employed in a Professional Role	12,695	43.7%	46.1%
Employed in other roles	7,140	24.6%	25.9%
Further study only	4,950	17.1%	18.0%
Subtotal: Employed or further study	**23,785**	**85.4%**	**90.0%**
Assumed to be unemployed	2,740	9.4%	10.0%
Subtotal: Employed, further study or unemployed and looking for work*	**27,525**	**94.8%**	**100.0%**
Other (including invalid responses to the LDLHE)	1,505	5.2%	
Total	**29,030**	**100.0%**	

Notes: The 'linked base population' is indicated with an asterisk (*) and excludes qualifiers who failed to provide a valid response or who gave responses indicating that they were not in employment or further study but were not looking for work.

Defining the modelling approach and interpretation

40. We have employed regression techniques[7] to establish whether the patterns seen in the simple univariate summaries of employment and professional unemployment rates (such as

[7] A binary logistic regression was used to allow for further analysis of the employment and professional employment rates. Each characteristic that was to be accounted for in the model has

those shown in Tables 1 to 3) are robust to the effects of other measurable factors (see below) and unobserved institutional effects. This helps to determine whether other factors might be responsible for the patterns we have observed.

41. The following factors were included in the modelling:

- age (as at 31 August in the 2008-09 academic year of graduation)
- disability status
- ethnicity
- an area-based measure of disadvantage (POLAR3 quintile)
- sex
- subject of study
- region of domicile
- prior attainment (in terms of qualifications held on entry to HE)
- degree classification
- previous school type
- teaching arrangements (whether or not the student was taught by an HEI's partner institution under a franchising arrangement)
- sandwich year
- institution attended.

42. The regression techniques we have employed enable us to determine a **predicted** value for the employment and professional employment rates, which can then be compared with the actual value **observed** in the simple univariate summaries we have examined. This comparison can tell us to what extent other factors might be responsible for any difference we find between the predicted and the observed rates.

43. The predicted values are arrived at through the following process:

a. The results from the regression analysis of the employment rate or professional employment rate can be constructed as an equation. When the employment results are inserted into this equation, it will give the actual employment rate for each characteristic (gender, ethnicity and so forth). For example, when all the male qualifiers from the DLHE base population are put into the equation, it will calculate the employment rate of male respondents six months after leaving HE as 86.3 per cent.

b. If the underlying data is changed such that all the male qualifiers are now female, but their other characteristics are held to be the same, a new dataset is produced. When this revised dataset is put into the model it calculates the predicted employment rate for the modified group. Comparing the employment rates for the modified group and the original group isolates the effect associated with being male, having eliminated other factors that could have been responsible for any differences. The difference between the employment

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been converted into a binary format, with the largest group in a given characteristic typically acting as the reference group for comparison. Annex C provides further detail of the modelling technique used.

rates for the modified group and the original group (calculated as observed minus predicted) will be the size of the unexplained effect associated with being male.

c. The employment rate six months after leaving HE for the modified male data is 90.3 per cent: the predicted rate. Comparing this with the observed rate we find that there is a difference of minus 3.7 percentage points. The negative difference indicates that the effect of this characteristic is a negative one, with male qualifiers experiencing employment rates lower than predicted and being 3.7 percentage points less likely to be employed at this stage of their early career than their female counterparts.

Differences in employment outcomes: student characteristics

44. Paragraphs 47 to 132 of this report examine the employment outcomes observed with regard to a number of different student and course characteristics, to identify any differences in the outcomes achieved. The analysis we report here includes interpretation of the results of the statistical modelling (described above), and focuses specifically on the linked population who responded to both the DLHE and the LDLHE surveys.

45. The interactive graphs accompanying this document provide access to further, detailed data relating to the profiles and employment rates discussed. In particular, supporting data enables the closer examination of:

- profiles of the outcomes achieved for different characteristics at each of six and 40 months after leaving HE
- effects associated with different characteristics (derived from the regression techniques employed).

46. Response rates to the DLHE survey are provided at Annex B for the different characteristics examined. Interactive graphs considering some of the specific effects associated with graduates from individual subject areas are also available. They can be accessed on the HEFCE web-site at www.hefce.ac.uk/analysis/employment.

Age

47. The age of the student considered here relates to age as at 31 August 31 2009 (the beginning of the year that they were reported to gain their qualification) and is hereafter referred to as ‘age at the beginning of final year’. Qualifiers who were under 18 or of unknown age are not categorised within the results included in this section, but are included in the totals.

48. Table 4 shows the employment and the professional employment rates six months after graduation for the whole DLHE population, by age at the beginning of final year.

Table 4: Employment and professional employment rates six months after leaving HE, by age at the beginning of final year

Age at the beginning of final year	Base population	Employment rate	Professional employment rate
18 to 20 years	57,525	89.9%	56.7%
21 to 24 years	76,040	89.5%	64.4%
25 to 29 years	7,970	89.0%	71.6%
30 years and over	10,545	87.6%	73.3%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

49. Table 5 shows the employment rate six months after graduation once the population has been reduced to just those qualifiers who provided a valid response to the LDLHE, the 'linked population'. The employment rates are generally similar to those seen in the whole DLHE population. The professional employment rates observed among this linked population are around two percentage points higher with differences observed between the age groups remaining broadly similar.

50. Table 5 shows that the employment rate observed among leavers falling into the age groups of 18 to 20, 21 to 24 and 25 to 29 ranged from 90.4 per cent to 89.6 per cent six months after leaving HE. The differences in the observed employment rates across these three age ranges amount to 0.8 per cent. Qualifiers aged 30 and over had the lowest employment rate, of 87.6 per cent: 2.0 percentage points lower than the employment rate for those aged between 25 and 29, and 2.8 percentage points lower than that for those aged between 18 and 20.

51. In terms of those qualifiers gaining professional employment (or entering further study) six months after leaving HE, the professional employment rate spanned a wider range; of 17.8 percentage points. Here, qualifiers aged 30 and over were found to have the highest professional employment rates observed (76.1 per cent) while those aged between 18 and 20 had the lowest rates (58.3 per cent).

Table 5: Employment and professional employment rates six months after leaving HE, by age at the beginning of final year

Age at the beginning of final year	Base population	Employment rate	Professional employment rate
18 to 20 years	10,875	90.4%	58.3%
21 to 24 years	13,270	90.1%	65.9%
25 to 29 years	1,370	89.6%	74.6%
30 years and over	2,005	87.6%	76.1%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

52. As shown in Table 6, qualifiers aged between 18 and 20, and between 21 and 24 had employment rates 40 months after leaving HE of 97.1 per cent and 96.6 per cent respectively. Compared with those employment rates identified six months after graduation, this is an increase of 6.8 percentage points and 6.5 percentage points respectively. Smaller increases in observed employment rates were seen for those aged 25 to 29 and 30 and over, whose rates increased by 4.8 percentage points and 4.7 percentage points respectively between six and 40 months after leaving HE.

53. Relative to the increase in the overall rate of professional employment (13.6 percentage points, from 64.1 per cent to 77.8 per cent) qualifiers who were in the age groups 25 to 29 or 30 and over again showed a smaller increase of around 3.5 percentage points between six and 40 months after leaving HE. Similarly, qualifiers aged between 21 and 24 and between 18 and 20 again saw larger increases in their professional employment rate. For those aged between 18 and 20 the professional employment rate increased by 17.4 percentage points, from 58.3 per cent six months after leaving HE, to 75.9 per cent at 40 months.

Table 6: Employment and professional employment rates 40 months after leaving HE, by age at the beginning of final year

Age at the beginning of final year	Base population	Employment rate	Professional employment rate
18 to 20 years	11,320	97.1%	75.9%
21 to 24 years	13,765	96.6%	79.0%
25 to 29 years	1,380	94.4%	77.8%
30 years and over	2,000	92.3%	79.8%
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

54. Tables 7 and 8 consider the results of the modelling techniques used in this study with regards to the age of the qualifier at the beginning of final year. They show the differences between observed and predicted rates of employment (both overall and professional) six months and 40 months after graduation respectively. The reference group chosen for the purpose of modelling was the age group 21 to 24.

55. Table 7 shows that the employment rate six months after graduation is similar to what would be predicted (given the other characteristics of the cohort with regard to the factors included in the statistical modelling) for the age groups 18 to 20 and 25 to 29. Qualifiers aged 30 and above were four percentage points (ppt) less likely to be in employment at this stage of their early careers than was predicted by taking account of their other background and course characteristics.

56. The professional employment rate six months after graduation was around nine percentage points higher than predicted for qualifiers in the age groups 25 to 29 and 30 and over, making them substantially more likely to have gained professional employment at this stage of their early careers than their counterparts aged between 21 and 24. Qualifiers aged between 18 and 20

were 4.7 percentage points less likely to have gained professional employment at this stage of their early careers.

Table 7: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by age at the beginning of final year

Age at the beginning of final year	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
18 to 20 years	90.4%	0.4 ppt	58.3%	-4.7 ppt
21 to 24 years	90.1%	Reference group	65.9%	Reference group
25 to 29 years	89.6%	-0.8 ppt	74.6%	8.7 ppt
30 years and over	87.6%	-4.0 ppt	76.1%	9.4 ppt

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

57. Table 8 shows the equivalent information 40 months after graduation. It shows that qualifiers in age groups 25 to 29 and 30 and over remained less likely to be in employment or further study 40 months after leaving HE, by 2.0 and 4.5 percentage points respectively. However, the professional employment rate of these qualifiers was similar to that of the reference group, with the observed rate being within one percentage point of the predicted rate for each of the age groups. In other words, the unaccounted-for difference between qualifiers aged 30 and over in professional employment six months after graduating is temporary, and is no longer apparent 40 months after graduating.

58. Conversely, qualifiers in the 18 to 20 age group had an employment rate similar to that of the reference group, meaning that their proportion in employment or further study 40 months after leaving HE was close to the predicted employment rate, given other factors that were taken into account by the model. However, Table 8 shows that these qualifiers were 2.1 percentage points less likely to be employed in a professional or managerial role or in further study than predicted 40 months after leaving HE.

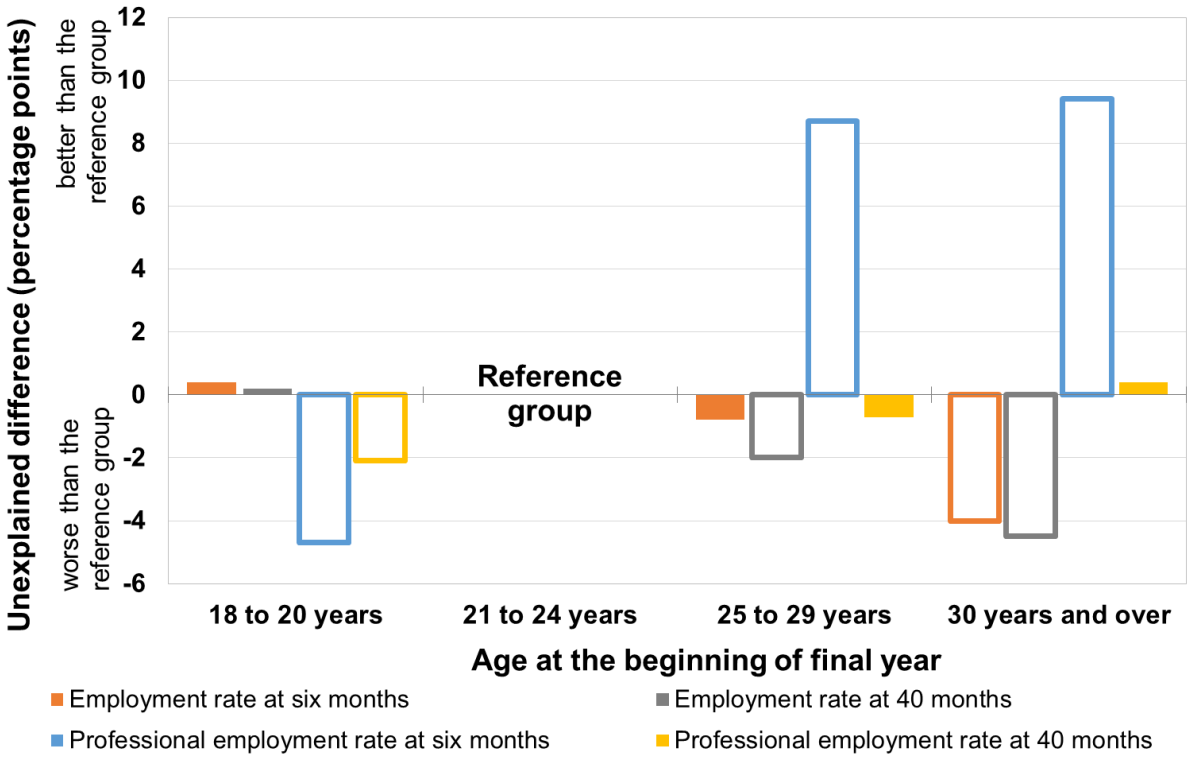
Table 8: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by age at the beginning of final year

Age at the beginning of final year	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
18 to 20 years	97.1%	0.2 ppt	75.9%	-2.1 ppt
21 to 24 years	96.6%	Reference group	79.0%	Reference group
25 to 29 years	94.4%	-2.0 ppt	77.8%	-0.7 ppt
30 years and over	92.3%	-4.5 ppt	79.8%	0.4 ppt

Population: 2008-09 LDLHE respondents.

59. Comparing Table 7 with Table 8 suggests that the differences identified between the observed and predicted professional employment rates of qualifiers in different age groups diminish over the course of the graduates' early careers. This is shown in Figure 1. While those in the 30 and over age group were 9.4 percentage points more likely to be in professional employment at six months, by 40 months this difference had reduced to 0.4 percentage points. However, for the overall employment rates, the differences generally increase over time.

Figure 1: Unexplained percentage point difference in employment rates, by employment rate measure and age upon graduation



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Disability status

60. Table 9 shows the employment rate and the professional employment six months after graduation for the whole DLHE population based on the qualifier's disability status, including whether or not they received Disabled Students Allowance (DSA).

Table 9: Employment and professional employment rates six months after leaving HE, by disability status

Disability status	Base population	Employment rate	Professional employment rate
Received DSA	8,350	86.6%	60.9%
Declared a disability but did not receive DSA	6,515	87.6%	61.4%
No known disability	137,220	89.7%	62.6%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

61. Table 10 shows the employment rate six months after graduation once the population has been reduced to the linked population. The rate is shown to be similar to the whole DLHE population amongst each group of qualifiers. The professional employment rates among the linked population appear to be higher than for the overall DLHE population with qualifiers, with no disability having the highest increase when this population is reduced.

62. Table 10 shows that qualifiers with no known disability had an employment rate six months after leaving HE that was around three percentage points higher than qualifiers who declared a disability but did not receive DSA: 90.4 per cent, as compared to 87.4 per cent. Qualifiers who received DSA had an employment rate 1.1 percentage points lower than those who declared a disability but did not receive DSA.

63. Qualifiers who had no known disability also had the highest professional employment rate six months after leaving HE, of 64.4 per cent. Qualifiers who declared a disability had similar professional employment rates whether or not they received DSA, around 2.5 percentage points lower than that of their counterparts with no known disability.

Table 10: Employment and professional employment rates six months after leaving HE, by disability status

Disability status	Base population	Employment rate	Professional employment rate
Received DSA	1,470	86.3%	61.8%
Declared a disability but did not receive DSA	1,235	87.4%	61.7%
No known disability	24,820	90.4%	64.4%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

64. As shown in Table 11, both qualifiers who received DSA, and those who declared a disability but did not receive DSA, saw an increase in their employment rates, between six and 40 months after leaving HE, of 7.4 percentage points. The employment rate of qualifiers who received DSA increased from 86.3 per cent six months after leaving HE, to 93.7 per cent at 40 months. Employment rates of qualifiers who declared a disability but did not receive DSA were similar, and increased from 87.4 per cent to 94.8 per cent.

65. The increases described at paragraph 64 were higher than those among qualifiers with no known disability, whose employment rate rose by 6.2 percentage points between six months and 40 months after leaving HE, from 90.4 per cent to 96.6 per cent. In the same period, the professional employment rate of qualifiers with no known disability increased by 13.8 percentage points, from 64.4 per cent to 78.2 per cent. This was a slightly larger increase than observed among each group of qualifiers who declared a disability.

Table 11: Employment and professional employment rates 40 months after leaving HE, by disability status

Disability status	Base population	Employment rate	Professional employment rate
Received DSA	1,505	93.7%	73.1%
Declared a disability but did not receive DSA	1,260	94.8%	73.8%
No known disability	25,700	96.6%	78.2%
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

66. Tables 12 and 13 show the difference between the observed and predicted employment rates, six months and 40 months after graduation respectively, considering the disability status of the qualifier. The reference group chosen for the modelling was that of qualifiers who had no known disability.

67. Table 12 shows that six months after graduation qualifiers who had a disability – whether or not they received DSA – were less likely to be in employment or further study than would be predicted (given the other characteristics of the cohort with regard to the factors included in the statistical modelling). Qualifiers who declared a disability and received DSA were 3.0 percentage points less likely to be in employment than predicted by reference to their counterparts with no known disability, while for those who did not receive DSA the difference was 2.6 percentage points.

68. The observed professional employment rate of qualifiers who declared a disability but did not receive DSA was 1.3 percentage points lower than predicted. Despite the observed professional employment rate for qualifiers who received DSA being around 2.5 percentage points lower, six months after leaving HE, than that of their counterparts with no known disability, when this is modelled statistically most of the difference can be attributed to other known factors, and they are only 0.4 percentage points less likely to be in professional employment or further study than predicted.

Table 12: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by disability status

Disability status	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Received DSA	86.3%	-3.0 ppt	61.8%	-0.4 ppt
Declared a disability but did not receive DSA	87.4%	-2.6 ppt	61.7%	-1.3 ppt
No known disability	90.4%	Reference group	64.4%	Reference group

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

69. Table 13 shows that the differences observed in the employment outcomes of qualifiers who declared a disability appear to persist across the graduates' early careers and remain present 40 months after graduation. However, for qualifiers who received DSA and those who declared a disability but did not receive DSA, this difference has reduced by around one percentage point: from 3.0 per cent to 2.2 per cent, and from 2.6 per cent to 1.5 per cent, respectively.

70. While qualifiers who received DSA were shown to achieve similar outcomes to those with no known disability in terms of their professional employment rate six months after leaving HE, Table 13 suggests that differential outcomes occur for these qualifiers 40 months after leaving HE. Qualifiers who received DSA were 3.1 percentage points less likely to have entered professional employment or further study at this stage of their early career than predicted, once other background and course characteristics were accounted for.

71. Similarly, the difference identified in the outcomes at six months of qualifiers who declared a disability but who did not receive DSA also increased, with such qualifiers being 3.5 percentage

points less likely to be in professional employment or further study than those with no known disability.

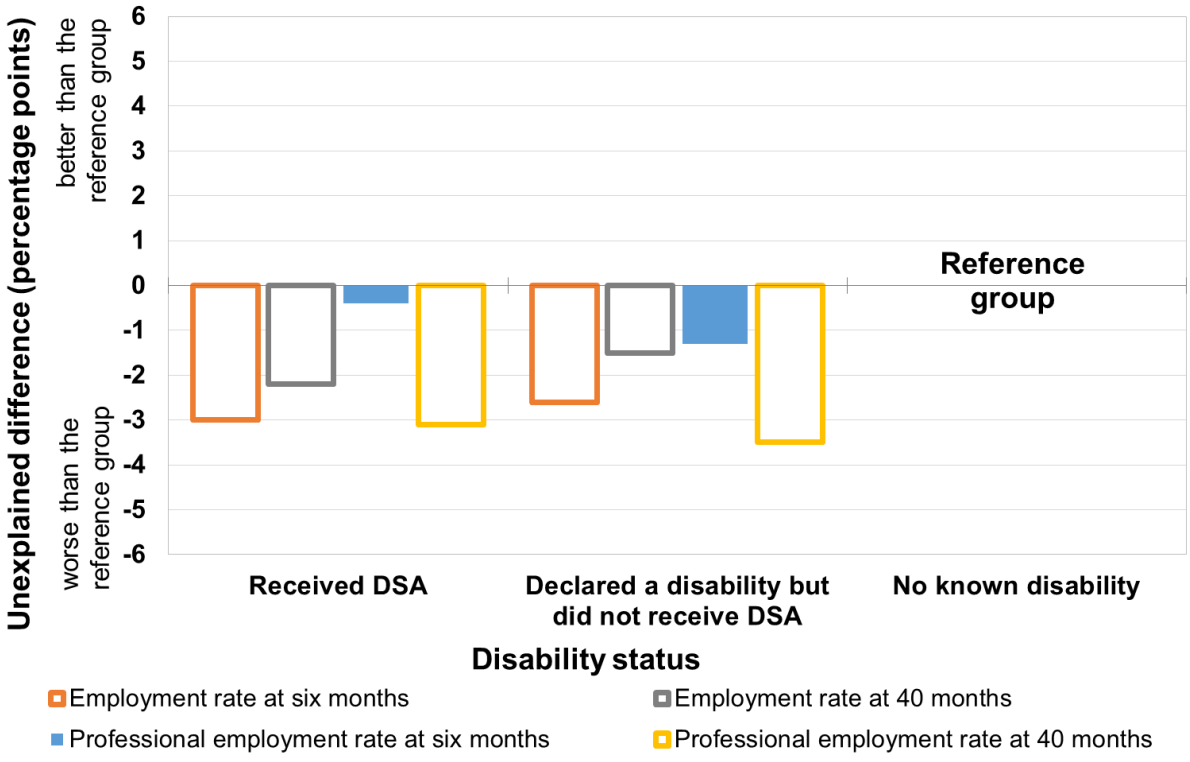
Table 13: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by disability status

Disability status	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Received DSA	93.7%	-2.2 ppt	73.1%	-3.1 ppt
Declared a disability but did not receive DSA	94.8%	-1.5 ppt	73.8%	-3.5 ppt
No known disability	96.6%	Reference group	78.2%	Reference group

Population: 2008-09 LDLHE respondents.

72. Comparing Table 12 with Table 13, Figure 2 suggests that the differences among qualifiers who declared a disability decrease slightly over the graduates' early careers with respect to the overall employment rate. However it also appears that the differences in terms of professional employment rates increase over the same period.

Figure 2: Unexplained percentage point difference in employment rates, by employment rate measure and disability status



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Ethnicity

73. Table 14 shows the employment and professional employment rates six months after graduation for the whole DLHE population based on the ethnicity of the qualifier.

Table 14: Employment and professional employment rates six months after leaving HE, by ethnicity

Ethnicity	Base population	Employment rate	Professional employment rate
Asian – Bangladeshi	1,560	82.2%	53.2%
Asian – Indian	7,635	85.6%	62.6%
Asian – Pakistani	3,710	82.6%	59.6%
Black – African	4,245	80.5%	55.8%
Black – Caribbean	1,805	84.8%	50.4%
Chinese	1,720	82.5%	64.3%
Other (including mixed)	5,585	86.4%	60.6%
Other Asian background	2,010	84.1%	61.2%
Other Black background	415	82.3%	53.3%
White	120,475	90.8%	63.1%
Unknown	2,925	86.8%	64.6%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

74. Table 15 shows the employment rate six months after graduation once the population has been reduced to the linked population. There were a few differences in employment rate between the linked population and the whole DLHE population. The biggest difference seen is among Chinese qualifiers, where reducing the population shows a change of 4.1 percentage points (82.5 per cent to 78.4 per cent). Similarly there are differences in the professional employment rates when the population is reduced. Among Asian Bangladeshi qualifiers, for example, the rate increases from 53.2 per cent to 59.3 per cent when the population is reduced.

75. Table 15 shows that employment rates six months after leaving HE range from 78.4 per cent (among Chinese qualifiers) to 91.2 per cent (among White qualifiers). Employment rates lower than 85 per cent were also observed among Black African, Bangladeshi and Pakistani qualifiers, as well as those from other Black backgrounds. Those reporting their ethnic background as 'Other (including mixed)' were the black and minority ethnic (BME) group with the highest employment rates.

76. Black-Caribbean qualifiers had the lowest rate of professional employment six months after graduation, of 55.4 per cent. After White qualifiers (at 64.7 per cent), Indian qualifiers were the group with the highest rates of professional employment at 63.7 per cent.

Table 15: Employment and professional employment rates six months after leaving HE, by ethnicity

Ethnicity	Base population	Employment rate	Professional employment rate
Asian – Bangladeshi	260	82.4%	59.3%
Asian – Indian	1,265	86.3%	63.9%
Asian – Pakistani	620	82.5%	59.8%
Black – African	670	81.2%	56.4%
Black – Caribbean	315	87.1%	55.4%
Chinese	265	78.4%	59.8%
Other (including mixed)	700	87.9%	63.2%
Other Asian background	290	85.9%	63.2%
Other Black background	65	81.9%	57.7%
White	22,430	91.2%	64.7%
Unknown	650	89.4%	66.9%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

77. From Table 16 it can be seen that Black African qualifiers had the lowest employment rate 40 months after graduation. At 88.1 per cent, this was 9.1 percentage points lower than the employment rate among White qualifiers, who were again found to have the highest rate. Chinese qualifiers show a large increase in employment rate relative to qualifiers of other ethnicities, having increased by 18.1 percentage points when compared with their rate six months after leaving HE. These qualifiers are found to have the highest employment rate among BME qualifiers at this stage of their early careers. More generally, differences in employment rates between qualifiers from different ethnic backgrounds appear to reduce slightly between six and 40 months after leaving HE.

78. The professional employment rates of Black African qualifiers (65.9 per cent) and Black Caribbean qualifiers (66.8 per cent) were over 12 percentage points lower than that observed among Indian qualifiers (79.1 per cent). Qualifiers from an Indian background had the highest rate of professional employment 40 months after leaving HE, 0.4 percentage points higher than the rate observed among White qualifiers. While differences in employment rates seem to diminish between six and 40 months after leaving HE, differences in professional employment rates appear to increase slightly.

Table 16: Employment and professional employment rates 40 months after leaving HE, by ethnicity

Ethnicity	Base population	Employment rate	Professional employment rate
Asian – Bangladeshi	260	92.5%	69.6%
Asian – India	1,305	95.2%	79.1%
Asian – Pakistani	625	89.7%	67.9%
Black – African	685	88.1%	65.9%
Black – Caribbean	325	92.2%	66.8%
Chinese	270	96.5%	74.6%
Other (including mixed)	725	93.8%	74.6%
Other Asian background	300	93.0%	74.9%
Other Black background	70	92.4%	70.9%
White	23,225	97.2%	78.7%
Unknown	675	94.6%	79.3%
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

79. Tables 17 and 18 show the differences between the observed and predicted employment and professional employment rates of qualifiers from different ethnic backgrounds, six months and 40 months after leaving HE respectively. The reference group chosen for the modelling was that of qualifiers in the White ethnic group.

80. Table 17 shows that the same ethnic groups as indicated in paragraph 75 (Black African, Bangladeshi, Pakistani and Chinese) had employment rates lower than predicted six months after leaving HE. Chinese qualifiers in particular observed an employment rate 12.4 percentage points lower than predicted when other factors are taken into account, making them notably less likely to be in employment six months after leaving HE than their White counterparts.

81. There appears to be less difference across the ethnic groups when professional employment is considered. Chinese qualifiers had a professional employment rate 6.7 percentage points below that predicted, while Pakistani and Black African qualifiers were both around 5 percentage points less likely to be in professional employment (or further study) six months after graduation than their White counterparts.

Table 17: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by ethnicity

Ethnicity	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Asian – Bangladeshi	82.4%	-6.8 ppt	59.3%	-0.2 ppt
Asian – Indian	86.3%	-5.1 ppt	63.9%	-2.6 ppt
Asian – Pakistani	82.5%	-8.4 ppt	59.8%	-4.8 ppt
Black – African	81.2%	-6.1 ppt	56.4%	-5.0 ppt
Black – Caribbean	87.1%	-1.1 ppt	55.4%	-1.2 ppt
Chinese	78.4%	-12.4 ppt	59.8%	-6.7 ppt
Other (including mixed)	87.9%	-2.5 ppt	63.2%	-0.5 ppt
Other Asian background	85.9%	-3.8 ppt	63.2%	-1.7 ppt
Other Black background	81.9%	-6.3 ppt	57.7%	-0.4 ppt
White	91.2%	Reference group	64.7%	Reference group
Unknown	89.4%	-1.2 ppt	66.9%	-0.4 ppt

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

82. Table 18 shows that 40 months after graduation the differences identified between the observed and predicted employment rates of different ethnic groups six months after leaving HE had reduced. This is particularly evident among Chinese qualifiers, whose modelled difference decreased by 11.4 percentage points such that their employment rate at this stage of their early careers was just one percentage point lower than predicted given the other characteristics of the cohort. However, there were some exceptions: both Black African and Black Caribbean qualifiers saw the difference between the observed and predicted employment rates increase. Black African and Black Caribbean qualifiers were 7.3 and 3.6 percentage points less likely to be in employment respectively.

83. Overall, it appears as though 40 months after graduation the differences between the observed and predicted professional employment rates for ethnic groups six months after graduation had increased. Bangladeshi and Pakistani qualifiers in particular had professional employment rates 5.4 and 10.2 percentage points lower than predicted once other factors were taken into account: these figures are both more than five percentage points lower than their equivalents in Table 17. Black African qualifiers had a difference of 8.4 percentage points between observed and predicted professional employment rates.

Table 18: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by ethnicity

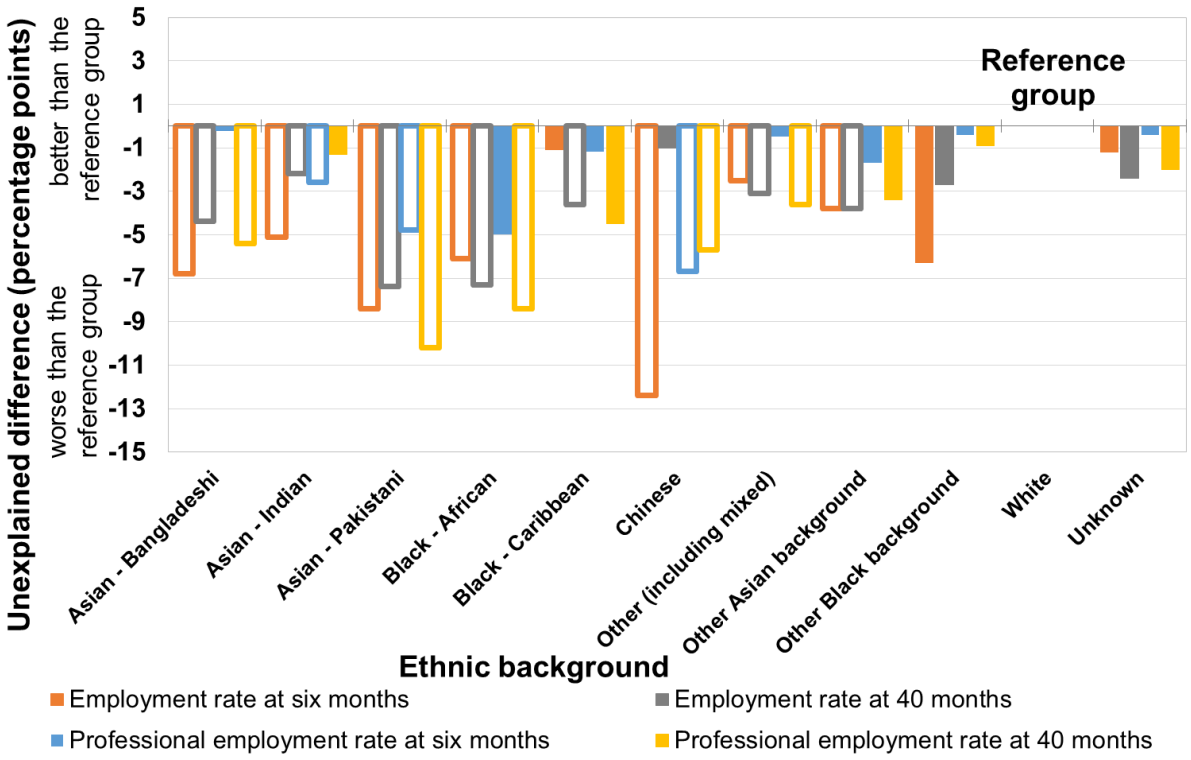
Ethnicity	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Asian – Bangladeshi	92.5%	-4.4 ppt	69.6%	-5.4 ppt
Asian – Indian	95.2%	-2.2 ppt	79.1%	-1.3 ppt
Asian – Pakistani	89.7%	-7.4 ppt	67.9%	-10.2 ppt
Black – African	88.1%	-7.3 ppt	65.9%	-8.4 ppt
Black – Caribbean	92.2%	-3.6 ppt	66.8%	-4.5 ppt
Chinese	96.5%	-1.0 ppt	74.6%	-5.7 ppt
Other (including mixed)	93.8%	-3.1 ppt	74.6%	-3.6 ppt
Other Asian background	93.0%	-3.8 ppt	74.9%	-3.4 ppt
Other Black background	92.4%	-2.7 ppt	70.9%	-0.9 ppt
White	97.2%	Reference group	78.7%	Reference group
Unknown	94.6%	-2.4 ppt	79.3%	-2.0 ppt

Population: 2008-09 LDLHE respondents.

84. Comparing Table 17 with Table 18 suggests that the differences identified between the observed and predicted employment rates reduce between six and 40 months after leaving HE for a number of the ethnic groups considered. Meanwhile, Figure 3 shows that the differences in the professional employment rates generally seem to increase.

85. Black African, Black Caribbean and Pakistani are three ethnic groups who prove exceptions to these generalisations: differences either increase or remain broadly stable between the six-month and 40-month stages of their early careers. Chinese qualifiers prove to be a further exception by way of the 10 percentage point change in their likelihood of being in employment or further study relative to their White counterparts.

Figure 3: Unexplained percentage point difference in employment rates, by employment rate measure and ethnic background



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

An area-based measure of disadvantage

86. Paragraphs 87 to 99 observe the differences between outcomes of qualifiers from areas which have been classified as having high and low rates of young participation in HE. This classification of areas is known as Participation of Local Areas (POLAR3).

87. POLAR3 is a classification of small areas within the UK, showing the chances of people aged 18 to 20 entering HE based on where they live. It is seen as one way of measuring 'disadvantage' for young students. The classification consists of five quintiles, which each account for 20 per cent of the cohort of young people in the UK. Those from quintile 1 wards have the lowest participation rates, while those from quintile 5 wards have the highest.

88. Table 19 shows the employment and professional employment rates six months after graduation for the whole DLHE population based on the POLAR3 quintile of the qualifier.

Table 19: Employment and professional employment rates six months after leaving HE, by POLAR3 quintile

POLAR3 quintile	Base population	Employment rate	Professional employment rate
Quintile 1- most disadvantaged	14,020	88.9%	58.8%
Quintile 2	21,565	89.0%	59.8%
Quintile 3	29,120	88.8%	60.8%
Quintile 4	36,390	89.6%	62.7%
Quintile 5- least disadvantaged	49,720	90.1%	65.4%
Unknown	1,270	87.5%	65.5%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

89. Table 20 shows the employment rate six months after graduation once the population has been reduced to the linked population. There is not much difference in the employment rates when comparing the linked population with the overall DLHE population. The professional employment rate of the linked population is generally higher than for the whole population among each of the POLAR3 quintiles with the differences between the quintiles remaining similar.

Table 20: Employment and professional employment rates six months after leaving HE, by POLAR3 quintile

POLAR3 quintile	Base population	Employment rate	Professional employment rate
Quintile 1 – most disadvantaged	2,570	89.4%	59.7%
Quintile 2	3,925	89.5%	60.6%
Quintile 3	5,185	89.3%	62.9%
Quintile 4	6,650	90.1%	64.2%
Quintile 5 – least disadvantaged	8,985	90.9%	67.4%
Unknown	215	87.4%	69.6%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

90. Table 20 shows that there was a difference of 1.6 percentage points in employment rates across the POLAR3 quintiles, with the rates ranging from 89.3 per cent (among quintile 3 qualifiers) to 90.9 per cent (among those from quintile 5).

91. The professional employment rate six months after graduation among qualifiers from quintile 1 was 59.7 per cent. This was 7.7 percentage points lower than it was for qualifiers from quintile 5, who had the highest professional employment rate, of 67.4 per cent.

92. Table 21 shows that there was variation of only 1.3 percentage points in employment rates among the POLAR3 quintiles 40 months after graduation; similar to the variation observed at the six-month stage of their early career. The employment rate ranges from 95.5 per cent, among qualifiers from quintiles 1 and 2, to 96.8 per cent among quintile 4 qualifiers.

93. The difference in the proportion of qualifiers in either professional employment or further study between the different POLAR3 quintiles 40 months after graduation is fairly similar to that seen at six months. All quintiles show a similar percentage point increase in their professional employment rates. Quintile 1 qualifiers had a professional employment rate of 73.1 per cent, while quintile 5 qualifiers had a professional employment rate of 80.5 per cent: a difference of 7.4 percentage points.

Table 21: Employment and professional employment rates 40 months after leaving HE, by POLAR3 quintile

POLAR3 quintile	Base population	Employment rate	Professional employment rate
Quintile 1 – most disadvantaged	2,610	95.5%	73.1%
Quintile 2	4,025	95.5%	74.7%
Quintile 3	5,330	96.2%	75.7%
Quintile 4	6,895	96.8%	78.9%
Quintile 5 – least disadvantaged	9,390	96.7%	80.5%
Unknown	220	97.7%	84.7%
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

94. Tables 22 and 23 show the difference between the observed and predicted employment rates six and 40 months after graduation respectively, considering the POLAR3 quintile of the qualifier. The reference group chosen for the modelling was that of qualifiers in POLAR3 quintile 5. Table 22 shows that qualifiers across all the quintile groups had observed employment rates that were within one percentage point of the predicted employment rate.

95. The observed proportion of qualifiers in professional employment or further study was 4.5 percentage points lower than predicted among quintile 1 qualifiers, and 3.5 percentage points lower for quintile 2 qualifiers. Both quintile 3 and quintile 4 qualifiers had an observed

professional employment rate around 1.5 percentage points less than predicted, given other factors taken into account in the model.

Table 22: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by POLAR3 quintile

POLAR3 quintile	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Quintile 1 – most disadvantaged	89.4%	-0.9 ppt	60.6%	-4.5 ppt
Quintile 2	89.5%	-0.9 ppt	62.9%	-3.4 ppt
Quintile 3	89.3%	-0.9 ppt	64.2%	-1.6 ppt
Quintile 4	90.1%	-0.5 ppt	67.4%	-1.4 ppt
Quintile 5 – least disadvantaged	90.9%	Reference group	69.6%	Reference group
Unknown	87.4%	1.7 ppt	59.7%	-2.2 ppt

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

96. Table 23 shows that 40 months after graduation the observed employment rate was again within one percentage point of the predicted employment rates for all quintiles. A positive, but very marginal, change is seen in the relativity of the observed employment rates to those predicted by the statistical modelling. This indicates that variation in employment rates across POLAR3 quintiles is largely explained by other background and course characteristics accounted for in the modelling.

97. The differences between the observed and predicted values 40 months after graduation in professional employment have decreased by about one percentage point for POLAR3 quintile 1 and 2 qualifiers, compared with those seen six months after graduation. Qualifiers from POLAR3 quintile 4 saw a reduction of around 1.5 percentage points in this difference. However, the relativity of the observed and predicted professional employment rates among Quintile 3 qualifiers remained unchanged.

98. Comparing Table 22 with Table 23, Figure 4 suggests that the differences between the observed and predicted employment rate across qualifiers of differing POLAR3 quintiles six months after graduation remain broadly consistent during the graduates' early careers.

99. The differences between the observed and predicted professional employment rates appears to decrease by around one percentage point.

Table 23: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by POLAR3 quintile

POLAR3 quintile	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Quintile 1 – most disadvantaged	95.5%	-0.4 ppt	74.7%	-3.6 ppt
Quintile 2	96.2%	-0.6 ppt	75.7%	-2.5 ppt
Quintile 3	96.8%	0.2 ppt	78.9%	-1.7 ppt
Quintile 4	96.7%	0.3 ppt	80.5%	0.1 ppt
Quintile 5 – least disadvantaged	97.7%	Reference group	84.7%	Reference group
Unknown	95.5%	2.7 ppt	73.1%	5.9 ppt

Population: 2008-09 LDLHE respondents.

Figure 4: Unexplained percentage point difference in employment rates, by employment rate measure and POLAR3 quintile

* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Region of student's domicile

100. Table 24 shows the employment and professional employment rates six months after graduation for the whole DLHE population based on the region of the student's pre-course domicile.

Table 24: Employment and professional employment rates six months after leaving HE, by region of student's domicile

Region of student's domicile	Base population	Employment rate	Professional employment rate
East Midlands	12,075	89.9%	62.4%
East of England	15,770	89.9%	62.5%
London	25,935	86.1%	59.8%
North East	6,485	90.1%	62.4%
North West	19,545	89.5%	61.1%
South East	25,225	90.7%	63.6%
South West	13,455	91.4%	64.2%
West Midlands	14,210	89.7%	63.3%
Yorkshire and the Humber	12,835	89.7%	63.5%
England, region unknown	845	88.8%	67.7%
Northern Ireland	1,430	91.2%	64.8%
Scotland	950	91.0%	71.6%
Wales	3,195	90.6%	63.7%
UK, region unknown	130	79.1%	55.0%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

101. Table 25 shows the employment rate six months after graduation once the population has been reduced to the linked population. It shows relatively few differences in the employment rate depending on the region of the student's domicile. Qualifiers who had been domiciled in London saw the lowest employment rate, of 86.9 per cent: this was 5.4 percentage points lower than the highest employment rate, of 92.3 per cent, among qualifiers from the South West.

102. Many of the professional employment rates are higher in the linked population than in the whole DLHE population, with qualifiers domiciled in the South West, West Midlands and North West showing little difference between the two breakdowns in terms of the professional employment rate. More generally, Table 25 shows that the professional employment rate ranged from 61.1 per cent (among qualifiers who had been domiciled in Wales) to 68.5 per cent (among Scottish-domiciled qualifiers). Among English-domiciled qualifiers, the professional employment rate ranged from 61.6 per cent for those from the North West, to 66.5 per cent for those from the North East.

Table 25: Employment and professional employment rates six months after leaving HE, by region of student's domicile

Region of student's domicile	Base population	Employment rate	Professional employment rate
East Midlands	2,330	90.7%	65.3%
East of England	3,105	91.1%	64.4%
London	4,240	86.9%	62.7%
North East	1,190	90.4%	66.5%
North West	3,470	90.0%	61.6%
South East	4,640	91.0%	65.2%
South West	2,425	92.3%	65.1%
West Midlands	2,635	90.4%	63.9%
Yorkshire and the Humber	2,415	89.6%	64.7%
England, region unknown	145	88.0%	72.3%
Northern Ireland	220	87.7%	62.6%
Scotland	185	89.2%	68.5%
Wales	505	89.8%	61.1%
UK, region unknown	15	*	*
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey. Note: Percentages based on fewer than 20 respondents are suppressed and represented as *.

103. As shown in Table 26, the proportion of qualifiers in employment or further study 40 months after graduation is highest among those who had been domiciled in the East of England, at 97.8 per cent. This was only 4.5 percentage points higher than the lowest employment rate observed at this point in the graduates' early careers, of 93.3 per cent among those domiciled in Northern Ireland.

104. Qualifiers who had been domiciled in the North West had the lowest proportion of qualifiers in professional employment or further study 40 months after leaving HE, at 73.9 per cent. Those domiciled in Scotland had the highest proportion at 82.6 per cent.

Table 26: Employment and professional employment rates 40 months after leaving HE, by region of student's domicile

Region of student's domicile	Base population	Employment rate	Professional employment rate
East Midlands	2,440	96.2%	76.8%
East of England	3,235	97.8%	80.3%
London	4,390	94.5%	75.8%
North East	1,215	96.2%	77.4%
North West	3,555	96.0%	73.9%
South East	4,820	97.1%	80.0%
South West	2,505	96.7%	80.0%
West Midlands	2,690	96.6%	77.8%
Yorkshire and the Humber	2,510	96.6%	77.4%
England, region unknown	150	98.8%	86.3%
Northern Ireland	220	93.3%	75.0%
Scotland	190	97.4%	82.6%
Wales	530	97.4%	78.2%
UK, region unknown	20	*	*
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents. Note: Percentages based on fewer than 20 respondents are suppressed and represented as *.

105. Tables 27 and 28 show the difference between the observed and the predicted employment rates and professional employment rates six and 40 months after graduation respectively, considering the qualifier's pre-course region of domicile. The reference group chosen for the modelling was that of qualifiers who had been domiciled in the South East.

106. Among those qualifiers whose region of domicile was known, Table 27 shows that those from Northern Ireland had an observed employment rate 3.5 percentage points lower than predicted six months after graduation. These qualifiers also exhibited a difference in professional employment rate, with the observed rate being 4.6 percentage points lower than predicted. Similarly, qualifiers who had been domiciled in London saw both employment and professional employment rates 2.2 percentage points lower than predicted.

107. While many other English regions saw a small difference in the observed employment rates relative to those predicted given the other student and course characteristics, some larger differences were found in terms of the professional employment rate. Qualifiers who had been domiciled in the North West or in Yorkshire and the Humber were 4.3 and 3.2 percentage points respectively less likely to be in professional employment or further study six months after leaving HE than the statistical modelling predicted.

Table 27: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by region of student's domicile

Region of student's domicile	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
East Midlands	90.7%	0.1 ppt	65.3%	0.1 ppt
East of England	91.1%	0.4 ppt	64.4%	0.3 ppt
London	86.9%	-2.2 ppt	62.7%	-2.2 ppt
North East	90.4%	-0.5 ppt	66.5%	-0.9 ppt
North West	90.0%	-0.5 ppt	61.6%	-4.3 ppt
South East	91.0%	Reference group	65.2%	Reference group
South West	92.3%	1.1 ppt	65.1%	-1.3 ppt
West Midlands	90.4%	-0.1 ppt	63.9%	-1.7 ppt
Yorkshire and the Humber	89.6%	-1.0 ppt	64.7%	-3.2 ppt
England, region unknown	88.0%	-5.3 ppt	72.3%	-1.3 ppt
Northern Ireland	87.7%	-3.5 ppt	62.6%	-4.6 ppt
Scotland	89.2%	-3.0 ppt	68.5%	-4.3 ppt
Wales	89.8%	-1.3 ppt	61.1%	-4.1 ppt
UK, region unknown	*	*	*	*

Population: 2008-09 DLHE respondents who also responded to LDLHE survey. Note: Percentages based on fewer than 20 respondents are suppressed and represented as *.

108. Table 28 shows that across the English regions the observed employment rate 40 months after graduation differed from the employment rate predicted by the statistical modelling by only as much as one percentage point. The observed employment rates for those qualifiers who had been domiciled in the East of England, Wales and the West Midlands were, respectively, 0.7, 0.2 and 0.1 percentage points higher than predicted. All other employment rates were lower than predicted.

109. Differences between the observed and predicted professional employment rates 40 months after graduation were larger. Qualifiers who had been domiciled in the North West had an observed professional employment rate 4.0 percentage points lower than predicted given the other course and student characteristics accounted for in the statistical modelling. For qualifiers from the East of England there was a 1.7 percentage point difference in the positive direction.

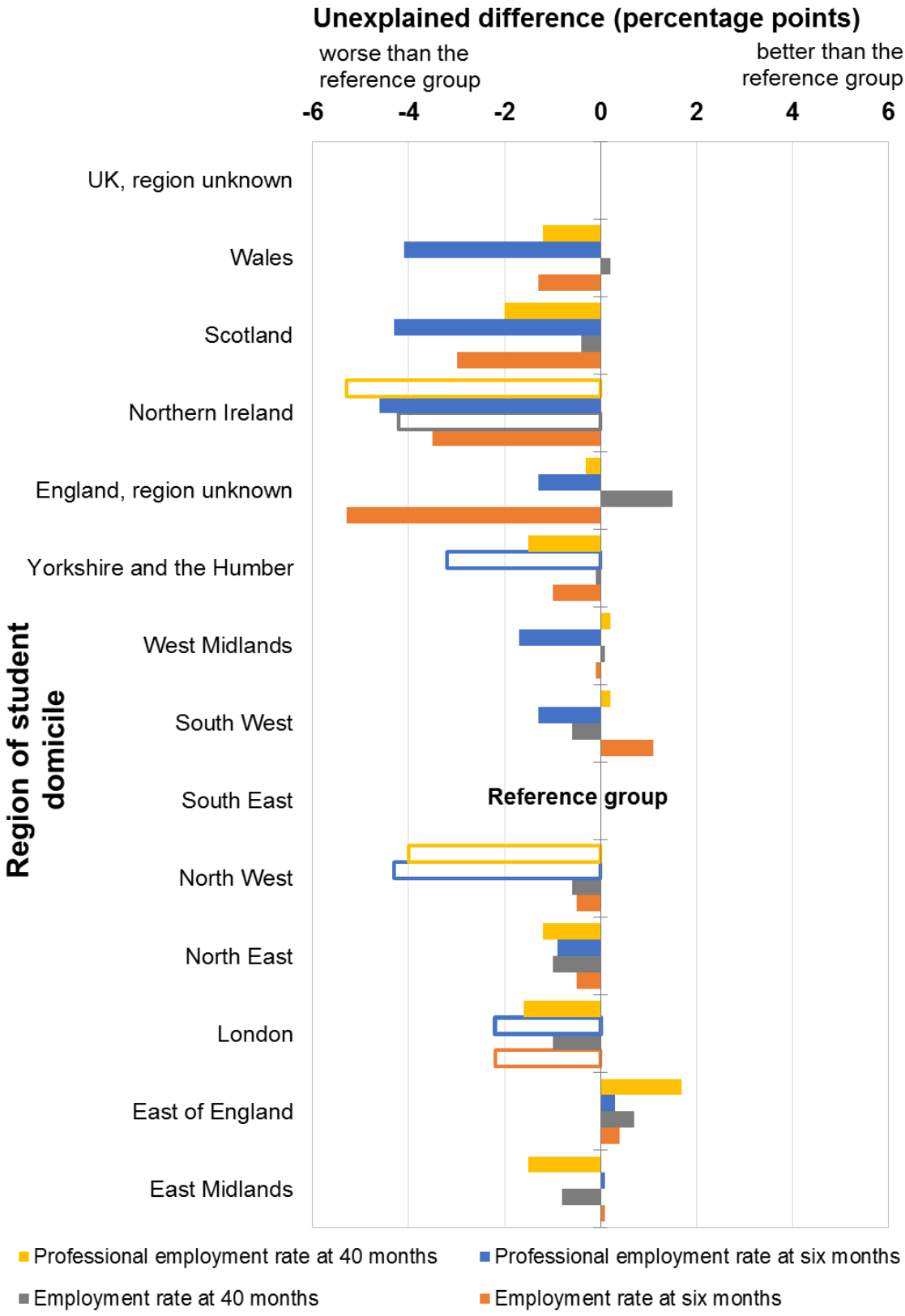
Table 28: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by region of student's domicile

Region of student's domicile	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
East Midlands	96.2%	-0.8 ppt	76.8%	-1.5 ppt
East of England	97.8%	0.7 ppt	80.3%	1.7 ppt
London	94.5%	-1.0 ppt	75.8%	-1.6 ppt
North East	96.2%	-1.0 ppt	77.4%	-1.2 ppt
North West	96.0%	-0.6 ppt	73.9%	-4.0 ppt
South East	97.1%	Reference group	80.0%	Reference group
South West	96.7%	-0.6 ppt	80.0%	0.2 ppt
West Midlands	96.6%	0.1 ppt	77.8%	0.2 ppt
Yorkshire and the Humber	96.6%	-0.1 ppt	77.4%	-1.5 ppt
England region unknown	98.8%	1.5 ppt	86.3%	-0.3 ppt
Northern Ireland	93.3%	-4.2 ppt	75.0%	-5.3 ppt
Scotland	97.4%	-0.4 ppt	82.6%	-2.0 ppt
Wales	97.4%	0.2 ppt	78.2%	-1.2 ppt
UK region unknown	*	*	*	*

Population: 2008-09 LDLHE respondents. Percentages based on fewer than 20 respondents are suppressed and represented as *.

110. Comparing Table 27 with Table 28, Figure 5 suggests that the differences between the observed and predicted professional employment rates across the different regions generally decrease across graduates' early careers.

Figure 5: Unexplained percentage point difference in employment rates, by employment rate measure and region of student's domicile



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Sex

111. Table 29 shows the employment and professional employment rates six months after graduation for the whole DLHE population, based on the sex of the qualifiers.

Table 29: Employment and professional employment rates six months after leaving HE, by sex

Sex	Base population	Employment rate	Professional employment rate
Male	65,545	86.6%	62.6%
Female	86,535	91.6%	62.4%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

112. Table 30 shows the employment rate six months after graduation once the population has been reduced to the linked population. The employment rate remains similar for both male and female qualifiers when the population is reduced. The professional employment rate was around 2 percentage points higher for both in the linked population.

113. Table 30 shows that six months after graduation 92.1 per cent of female qualifiers were in employment or further study, compared with 87.0 per cent of male qualifiers. However, while the difference was marginal, male qualifiers had a higher proportion in professional employment or further study than their female counterparts: 64.3 per cent compared with 64.0 per cent.

Table 30: Employment and professional employment rates six months after leaving HE, by sex

Sex	Base population	Employment rate	Professional employment rate
Male	11,105	87.0%	64.3%
Female	16,420	92.1%	64.0%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

114. As shown by Table 31, the employment rate of female qualifiers (97.1 per cent) remained higher than the equivalent rate for male qualifiers (95.4 per cent) 40 months after leaving HE. However, the difference had reduced to 1.7 percentage points from the 5.1 percentage points at six months.

115. The professional employment rate of male qualifiers also increased relative to female qualifiers. While male qualifiers had a professional employment rate 0.3 percentage points higher than female qualifiers six months after graduation, the difference increased to 1.9 percentage points 40 months after graduation.

Table 31: Employment and professional employment rates 40 months after leaving HE, by sex

Sex	Base population	Employment rate	Professional employment rate
Male	11,640	95.4%	78.9%
Female	16,825	97.1%	77.0%
Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

116. Tables 32 and 33 show the difference between observed and predicted employment and professional employment rates, six and 40 months after graduation respectively, considering the sex of the qualifier. The reference group chosen for the modelling was that of female qualifiers.

117. Table 32 shows that male qualifiers had an observed employment rate 3.6 percentage points lower than predicted six months after graduation. Male qualifiers also exhibited a difference in professional employment rates, with the observed rate 3.2 percentage points higher than predicted, despite the fact that there was only a 0.3 percentage point difference in the observed professional employment rate between male and female qualifiers.

Table 32: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by sex

Sex	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Male	87.0%	-3.6 ppt	64.3%	3.2 ppt
Female	92.1%	Reference group	64.0%	Reference group

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

118. Table 33 shows that the observed employment rate among male qualifiers 40 months after graduation was over 2 percentage points closer to that predicted than it was six months after graduation.

119. The observed professional employment rate 40 months after graduation had changed very little relative to the predicted professional employment rate, the difference being 3.4 percentage points.

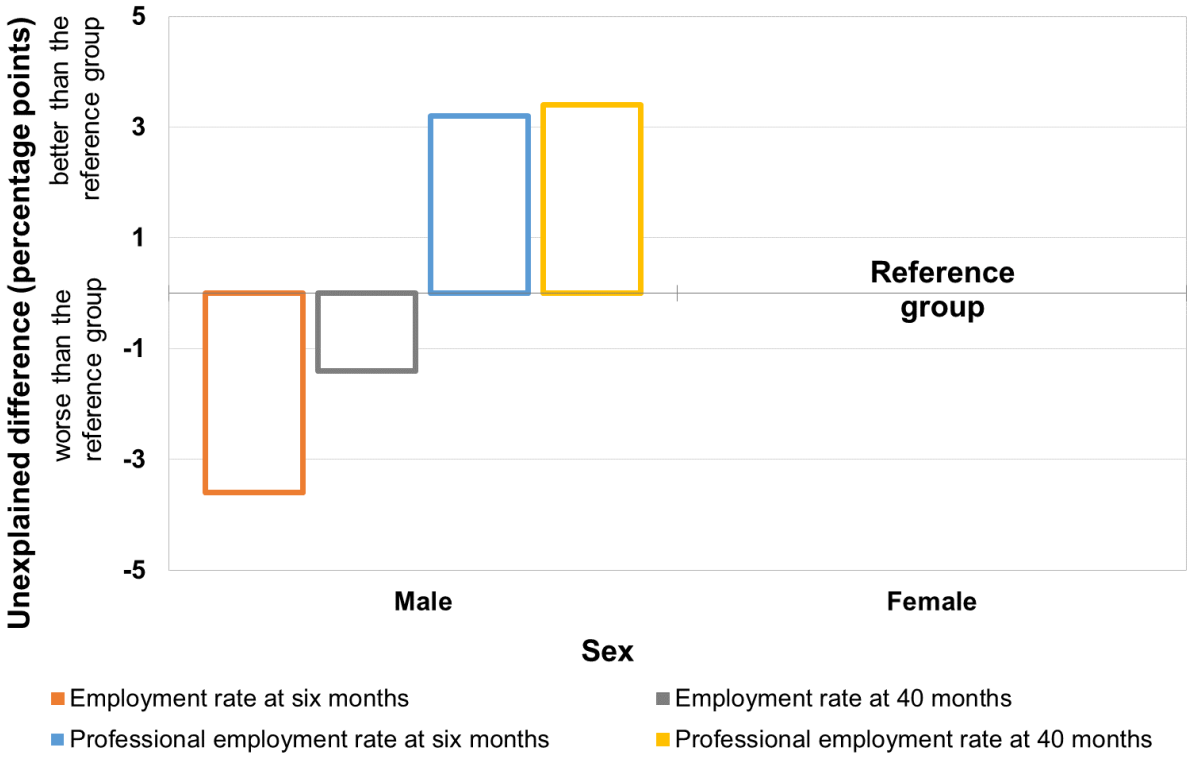
Table 33: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by sex

Sex	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Male	95.4%	-1.4 ppt	78.9%	3.4 ppt
Female	97.1%	Reference group	77.0%	Reference group

Population: 2008-09 LDLHE respondents.

120. Comparing Table 32 with Table 33 suggests that the differences between the observed and predicted employment rates of male and female qualifiers decrease across the graduates' early careers. However, Figure 6 shows that there was almost no change in the differences between the observed and predicted professional employment rates.

Figure 6: Unexplained percentage point difference in employment rates, by employment rate measure and sex



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Subject area

121. Table 34 shows the employment and professional employment rates six months after graduation for the whole DLHE population based on the subject area of study.

Table 34: Employment and professional employment rates six months after leaving HE, by subject area of study

Subject area of study	Base population	Employment rate	Professional employment rate
Agriculture and related subjects	1,140	89.1%	50.7%
Architecture, building and planning	3,310	85.3%	66.9%
Biological sciences	16,025	90.6%	57.2%
Business and administrative studies	16,645	87.5%	55.0%
Computer science	6,010	81.1%	61.1%
Creative arts and design	18,925	86.6%	50.3%
Education	7,540	95.1%	74.5%
Engineering and technology	7,475	85.2%	67.4%
Historical and philosophical studies	8,460	89.6%	56.0%
Languages	10,965	90.3%	57.6%
Law	6,785	92.9%	66.2%
Mass communications and documentation	5,085	84.7%	43.9%
Mathematical sciences	3,060	88.3%	68.9%
Medicine and dentistry	5,335	99.8%	99.7%
Physical sciences	7,400	88.6%	64.3%
Social studies	15,040	89.6%	60.8%
Subjects allied to medicine	11,935	94.9%	85.9%
Veterinary sciences	465	93.3%	90.1%
Combined subjects	480	90.3%	53.2%
Total	**152,085**	**89.5%**	**62.5%**

Population: All 2008-09 DLHE respondents.

122. Table 35 shows the employment rate six months after graduation once the population has been reduced to the linked population. The employment rates for the linked population are similar to those for the overall DLHE population. The professional employment rates seen in many of the subject areas are higher in the linked population than the overall DLHE. Architecture, building and planning were an exception to this generalisation, and had a professional employment rate 5.3 percentage points lower in the linked population.

123. Table 35 shows that qualifiers from the subject areas of medicine and dentistry (99.6 per cent), education (95.7 per cent) and subjects allied to medicine (94.9 per cent) were the three with the highest employment rates six months after graduation. Computer science qualifiers had the lowest employment rates, of 82.1 per cent.

Table 35: Employment and professional employment rates six months after leaving HE, by subject area of study

Subject area of study	Base population	Employment rate	Professional employment rate
Agriculture and related subjects	210	90.1%	58.2%
Architecture, building and planning	585	83.8%	61.6%
Biological sciences	3,060	91.1%	61.0%
Business and administrative studies	2,840	89.0%	56.2%
Computer science	1,140	82.1%	61.6%
Creative arts and design	3,230	87.4%	51.6%
Education	1,420	95.7%	78.1%
Engineering and technology	1,410	85.4%	69.7%
Historical and philosophical studies	1,640	88.5%	54.2%
Languages	2,130	91.5%	60.3%
Law	1,210	93.6%	67.5%
Mass communications and documentation	870	87.6%	47.1%
Mathematical sciences	550	87.7%	69.5%
Medicine and dentistry	875	99.6%	99.1%
Physical sciences	1,170	88.1%	63.3%
Social studies	2,725	90.2%	63.2%
Subjects allied to medicine	2,305	94.9%	87.2%
Veterinary sciences	75	92.9%	92.6%
Combined subjects	70	91.3%	60.4%
Total	**27,525**	**90.0%**	**64.1%**

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

124. The distribution of professional employment rates was similar to that of the employment rates at the highest end: medicine and dentistry (99.1 per cent), veterinary science (92.6 per

cent), education (78.1 per cent) and subjects allied to medicine (87.2 per cent) all demonstrated high proportions of qualifiers who were in professional employment or further study. While mass communications and documentation (47.1 per cent) and creative arts and design (51.6 per cent) saw the lowest professional employment rates, computer science qualifiers demonstrated a rate 2.5 percentage points lower than the overall professional employment rate across all qualifiers.

Table 36: Employment and professional employment rates 40 months after leaving HE, by subject area of study

Subject area of study	Base population	Employment rate	Professional employment rate
Agriculture and related subjects	235	95.9%	62.7%
Architecture, building and planning	605	94.8%	81.2%
Biological sciences	3,195	97.3%	78.9%
Business and administrative studies	2,985	96.0%	70.4%
Computer science	1,170	94.2%	78.7%
Creative arts and design	3,320	94.8%	69.0%
Education	1,410	97.7%	82.1%
Engineering and technology	1,490	95.9%	83.1%
Historical and philosophical studies	1,715	95.6%	70.1%
Languages	2,215	96.2%	74.8%
Law	1,240	96.6%	80.6%
Mass communications and documentation	925	95.3%	67.5%
Mathematical sciences	585	97.2%	84.2%
Medicine and dentistry	855	99.4%	98.7%
Physical sciences	1,235	96.8%	79.4%
Social studies	2,830	96.7%	76.5%
Subjects allied to medicine	2,320	98.4%	94.2%
Veterinary sciences	75	93.7%	90.2%
Combined subjects	70	94.7%	81.9%
Grand Total	**28,470**	**96.4%**	**77.8%**

Population: 2008-09 LDLHE respondents.

125. Table 36 shows an overall reduction in the range of employment rates across all subject areas 40 months after qualifiers left HE. Medicine and dentistry qualifiers had the highest employment rate (99.4 per cent), which was 3 percentage points higher than the overall employment rate for the population (96.4 per cent). Veterinary science qualifiers showed the lowest rate of employment 40 months after graduation at 93.7 per cent. Computer science qualifiers showed the greatest increase in their employment rate between six and 40 months after graduation.

126. As shown in Table 36, the differences between subject areas identified six months after graduation appear to have reduced 40 months after graduation. For example, qualifiers from education had a rate of professional employment six months after graduation 14 percentage points higher than for the overall population, while 40 months after graduation this difference was reduced to 4.3 percentage points. However, some subject areas saw the difference in professional employment rate increase. Agriculture and related subjects had a professional employment rate 40 months after graduation 15.1 percentage points lower than the overall population, a difference that was only 5.9 percentage points six months after graduation.

127. Tables 37 and 38 show the difference between the observed and predicted employment rate and professional employment rates, six and 40 months after graduation respectively, considering the subject area studied by the qualifier. The reference group chosen for the modelling was that of qualifiers who took biological sciences.

128. Table 37 shows that, six months after graduation, qualifiers graduating from medicine and dentistry, subjects allied to medicine and education had observed employment rates 8.1, 5.0 and 5.2 percentage points higher than the predicted employment rates respectively. Meanwhile computer science and architecture, building and planning qualifiers had employment rates 6.4 and 5.7 percentage points lower than predicted having taken account of other background and course characteristics.

129. Medicine and dentistry, subjects allied to medicine, veterinary science and education all had professional employment rates 20 percentage points or more higher than predicted, given other factors taken into account in the model. Historical and philosophical studies and mass communication and documentation both had professional employment rates over 10 percentage points lower than the predicted professional employment rates. Business and administrative studies, creative arts and design, languages and agriculture and related subjects all also had professional employment rates significantly lower than predicted by the statistical modelling.

130. Table 38 shows that 40 months after graduation the differences between the observed and predicted employment rates across many subjects at six months had reduced or disappeared. Medicine and dentistry qualifiers had the biggest positive difference: their observed employment rate was 3.9 percentage points above the predicted rate given other factors considered in the statistical model. Veterinary science qualifiers had the biggest negative difference, of 3.6 percentage points.

Table 37: Comparison of observed and predicted employment and professional employment rates six months after leaving HE, by subject area of study

Subject area of study	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Agriculture and related subjects	90.1%	-1.6 ppt	58.2%	-6.4 ppt
Architecture, building and planning	83.8%	-5.7 ppt	61.6%	-1.0 ppt
Biological sciences	91.1%	Reference group	61.0%	Reference group
Business and administrative studies	89.0%	-0.1 ppt	56.2%	-4.0 ppt
Computer science	82.1%	-6.4 ppt	61.6%	-1.6 ppt
Creative arts and design	87.4%	-3.2 ppt	51.6%	-7.4 ppt
Education	95.7%	5.2 ppt	78.1%	21.6 ppt
Engineering and technology	85.4%	-4.1 ppt	69.7%	1.9 ppt
Historical and philosophical studies	88.5%	-3.1 ppt	54.2%	-10.4 ppt
Languages	91.5%	-0.7 ppt	60.3%	-5.1 ppt
Law	93.6%	3.9 ppt	67.5%	8.1 ppt
Mass communications and documentation	87.6%	-2.9 ppt	47.1%	-10.1 ppt
Mathematical sciences	87.7%	-3.1 ppt	69.5%	2.9 ppt
Medicine and dentistry	99.6%	8.1 ppt	99.1%	28.2 ppt
Physical sciences	88.1%	-3.1 ppt	63.3%	-2.0 ppt
Social studies	90.2%	0.2 ppt	63.2%	0.8 ppt
Subjects allied to medicine	94.9%	5.0 ppt	87.2%	25.3 ppt
Veterinary sciences	92.9%	-1.0 ppt	92.6%	22.2 ppt
Combined subjects	91.3%	-0.1 ppt	60.4%	-4.5 ppt

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Table 38: Comparison of observed and predicted employment and professional employment rates 40 months after leaving HE, by subject area of study

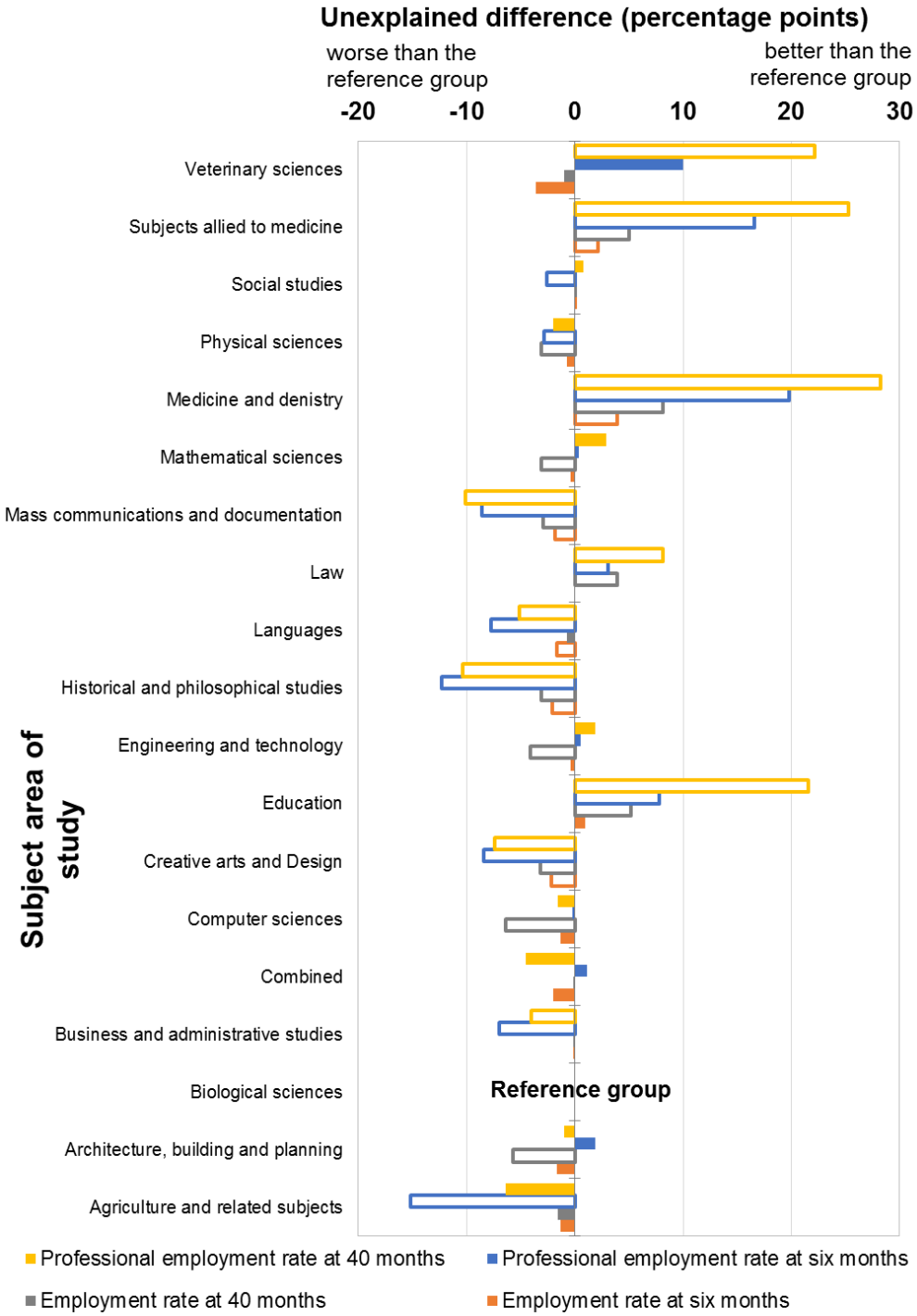
Subject area of study	Observed employment rate	Difference: observed relative to predicted employment rates	Observed professional employment rate	Difference: observed relative to predicted professional employment rates
Agriculture and related subjects	95.9%	-1.3 ppt	62.7%	-15.2 ppt
Architecture, building and planning	94.8%	-1.7 ppt	81.2%	1.9 ppt
Biological sciences	97.3%	Reference group	78.9%	Reference group
Business and administrative studies	96.0%	-0.1 ppt	70.4%	-7.0 ppt
Computer science	94.2%	-1.3 ppt	78.7%	-0.2 ppt
Creative arts and design	94.8%	-2.2 ppt	69.0%	-8.4 ppt
Education	97.7%	1.0 ppt	82.1%	7.8 ppt
Engineering and technology	95.9%	-0.4 ppt	83.1%	0.5 ppt
Historical and philosophical studies	95.6%	-2.1 ppt	70.1%	-12.3 ppt
Languages	96.2%	-1.7 ppt	74.8%	-7.7 ppt
Law	96.6%	0.0 ppt	80.6%	3.1 ppt
Mass communications and documentation	95.3%	-1.8 ppt	67.5%	-8.6 ppt
Mathematical sciences	97.2%	-0.4 ppt	84.2%	0.4 ppt
Medicine and dentistry	99.4%	3.9 ppt	98.7%	19.8 ppt
Physical sciences	96.8%	-0.7 ppt	79.4%	-2.8 ppt
Social studies	96.7%	0.2 ppt	76.5%	-2.6 ppt
Subjects allied to medicine	98.4%	2.1 ppt	94.2%	16.6 ppt
Veterinary sciences	93.7%	-3.6 ppt	90.2%	10.0 ppt
Combined subjects	94.7%	-2.0 ppt	81.9%	1.1 ppt

Population: 2008-09 LDLHE respondents.

131. Overall it appears that the differences between the observed and predicted values for qualifiers in professional employment six months after graduation had reduced by the 40-month survey. The same subjects mentioned in paragraph 129 still had higher rates of professional employment than were predicted given the other factors considered, but the difference had decreased substantially for each of them. Qualifiers from some of the subject areas with lower than predicted professional employment rates had a larger difference at 40 months than six months after graduation. This can be seen most clearly in qualifiers from agriculture and related subjects, whose observed professional employment rate 40 months after graduation was 15.2 percentage points lower than predicted, up from a difference of 6.4 percentage points six months after graduation.

132. Comparing Table 37 with Table 38, Figure 7 suggests that the differences between the observed and predicted employment rates across the different subject areas decrease across graduates' early careers. In general, these results also indicate that the differences identified between the observed and predicted professional employment rates decrease across a graduate's early career. However there are exceptions to this: most notably, historical and philosophical studies, and agriculture and related subjects.

Figure 7: Unexplained percentage point difference in employment rates, by employment rate measure and subject area of study



* Where the bar is filled, this indicates that the difference from the reference group is not statistically significant.

Population: 2008-09 DLHE respondents who also responded to LDLHE survey.

Annex A: Abbreviations and glossary

BME	Black and minority ethnic
DLHE	Destination of Leavers from Higher Education survey
DSA	Disabled Students' Allowance
HE	Higher education
HEI	Higher education institution
HESA	Higher Education Statistics Agency
LDLHE	Longitudinal Destination of Leavers from Higher Education survey
POLAR	Participation of Local Areas
ppt	Percentage point

Annex B: Response rates

Table B1: Response rate for 2008-09 Destination of Leavers from Higher Education survey

Characteristic	Group	Eligible population	Response rate
Age at the beginning of final year	18 to 20 years	74,135	84.2%
	21 to 24 years	100,475	82.4%
	25 to 29 years	11,260	77.8%
	30 and over	14,015	83.1%
Disability Status	Received Disabled Students' Allowance	10,940	84.2%
	Declared a disability but did not receive Disabled Students' Allowance	180,280	82.8%
	No known disability	8,670	82.9%
Ethnicity	Bangladeshi	2,065	82.3%
	Indian	9,820	84.3%
	Pakistani	5,140	79.2%
	African	6,430	73.6%
	Caribbean	2,625	76.1%
	Chinese	2,480	77.4%
	Not known	4,265	76.9%
	Other (including mixed)	7,890	78.4%
	Other Asian background	2,795	79.5%
	Other Black background	605	75.1%
	White	155,775	84.0%
Participation of Local Areas (POLAR3)	Quintile 1 – most disadvantaged	18,730	80.9%
	Quintile 2	28,470	81.9%
	Quintile 3	38,330	82.5%
	Quintile 4	47,620	83.4%
	Quintile 5 – least disadvantaged	64,765	84.0%
	Unknown	1,975	70.7%
Region of student's	East Midlands	15,535	84.1%
	East of England	20,405	84.1%

Characteristic	Group	Eligible population	Response rate
domicile	London	35,400	81.3%
	North East	8,460	82.2%
	North West	25,365	83.2%
	South East	32,845	83.9%
	South West	17,405	83.6%
	West Midlands	18,470	81.8%
	Yorkshire and the Humber	16,895	82.8%
	England, unknown region	1,325	69.6%
	Northern Ireland	1,885	81.2%
	Scotland	1,295	80.0%
	Wales	4,125	84.2%
	UK, unknown region	215	69.0%
Sex	Male	86,855	82.5%
	Female	113,035	83.1%
Subject area of study	Agriculture and related subjects	1,460	85.8%
	Architecture, building and planning	4,360	83.5%
	Biological sciences	20,835	83.5%
	Business and administrative studies	22,805	80.5%
	Combined subjects	630	81.9%
	Computer sciences	7,995	81.8%
	Creative arts and design	25,870	81.0%
	Education	9,415	85.1%
	Engineering and technology	9,680	84.9%
	Historical and philosophical studies	11,205	82.9%
	Languages	14,650	81.7%
	Law	9,020	82.1%
	Mass communications and documentation	6,970	80.2%
	Mathematical sciences	3,930	85.3%
	Medicine and dentistry	6,015	91.0%
	Physical sciences	9,315	86.7%

Characteristic	Group	Eligible population	Response rate
	Social studies	20,390	80.8%
	Subjects allied to medicine	14,800	85.1%
	Veterinary sciences	545	88.1%
All	**Total**	**199,895**	**82.9%**

Annex C: Details of modelling technique

1. This annex details the modelling technique used in this report: a logistic regression model on the probability of gaining employment or professional employment at each of six and 40 months after leaving higher education. The model takes into account a variety of factors, and its setup is shown in equation C1 below.

Equation C1: Model format

2. The model accounts for the institution attended while modelling the probability of gaining employment or being in further study 40 months after leaving higher education. The binary response becomes y_{ij} for the i^{th} individual from the j^{th} institution, where $y_{ij} = 1$ if they gain employment or enter further study, and the probability of progression into these outcomes is π_{ij}. This assumption is equivalent to fitting parallel regression lines, one for each institution, and the model allows the institutional mean to vary from the overall mean.

3. The equation for this model takes the form:

$$\text{Employment (40 months)} \sim \text{Binomial}\,(\beta_{0j},\ \pi_{ij})$$

$$\text{logit}\left(\pi_{ij}(\mathbf{x})\right) = \beta_{0j} + \beta_1 x_{1ij} + \ldots + \beta_k x_{kij}$$

$$\beta_{0j} = \beta_0 + u_{0j}$$

where:

- $\pi_{ij}(\mathbf{x})$ is the probability of gaining employment for individual i at institution j with values $\mathbf{x} = (x_{1,\ldots,}x_k)$ for k explanatory variables;
- β_k is the coefficient for the kth explanatory variable x_{kij} which is a vector of i individuals at institution j; and
- β_{0j} is the random intercept which consists of two terms: a fixed component β_0 and an institution-specific group mean u_{0j}. The random effects u_{0j} are assumed to follow a Normal distribution with mean zero and variance σ^2_{u0}.

Note: The 'Employment (40 months)' predictor can be interchanged with each of 'Employment (six months)', 'Professional employment (40 months)' and 'Professional employment (six months)'.

4. The variables used in the model are defined in Table C1. Annexes C1 to C4 (included as an accompanying Microsoft Excel file) provide the parameter estimates from the modelling.

Table C1: Variables used in the model

Effect group	Effect description
Intercept	Random effect term
Institution	Random effect term
Ethnicity	African
	Asian
	Bangladeshi
	Black
	Caribbean
	Chinese
	Indian
	Other
	Pakistani
	Unknown
	White (ref)
Sex	Female (ref)
	Male
Age at the beginning of final year	18 to 20 years
	21 to 24 years (ref)
	25 to 29 years
	30 and over
Disability status	No known disability (ref)
	Received Disabled Students' Allowance
	Declared a disability but did not receive Disabled Students' Allowance
Participation of Local Areas (POLAR3)	Unknown POLAR3
	POLAR3 quintile 1
	POLAR3 quintile 2
	POLAR3 quintile 3
	POLAR3 quintile 4
	POLAR3 quintile 5 (ref)
Previous school type	Unknown previous school type
	Not a state school

Effect group	Effect description
	State school (ref)
Degree classification	First (ref)
	Upper second (2:1)
	Lower second (2:2)
	Third
	Unclassified degree
Region of student's domicile	East Midlands
	East of England
	London
	North East
	North West
	South East (ref)
	South West
	West Midlands
	Yorkshire and the Humber
	England, region unknown
	Scotland
	Northern Ireland
	Wales
	UK, region unknown
Franchised provision marker	Partially franchised provision
	Fully franchised provision
	Not franchised provision (ref)
Qualifications held on entry	Higher education qualification
	A-levels / AS-levels / Advanced Highers / Highers with more than 300 tariff points (ref)
	A-levels / AS-levels / Advanced Highers / Highers with 001-300 tariff points
	A-levels / AS-levels / Advanced Highers / Highers with unknown or not applicable tariff points
	Access or foundation course
	BTECs

Effect group	Effect description
	International Baccalaureate Diplomas and Certificates
	Other qualifications not elsewhere specified
	No previous qualification, and unknown qualifications on entry
Sandwich course marker	Not a sandwich course (ref)
	Sandwich course
Subject area of study	Medicine and dentistry
	Subjects allied to medicine
	Biological sciences (ref)
	Veterinary sciences
	Agriculture and related subjects
	Physical sciences
	Law
	Business and administrative studies
	Mass communications and documentation
	Mathematical sciences
	Computer sciences
	Engineering and technology
	Architecture, building and planning
	Social studies
	Languages
	Historical and philosophical studies
	Combined subjects
	Creative arts and design
	Education

Note: Those categories marked with '(ref)' are the reference group for each categorical or dummy variable and are not formally included in the model structure.