



Data analysis

August 2016/18

Differences in employment outcomes

Comparison of 2008-09 and 2010-11 first degree graduates

This report updates a previous HEFCE report by examining the employment outcomes of UK-domiciled students who qualified from a full-time first degree course at an English higher education institution in the academic year 2010-11. Both reports identify differences in employment outcomes for different equality groups qualifying from publicly funded English higher education institutions, and examine whether differences seen in a graduate's early career persist into the medium term.



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Differences in employment outcomes: Comparison of 2008-09 and 2010-11 first degree graduates

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
Reference	2016/18
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Executive summary

1. This report is an update to a previous HEFCE report, 'Differences in employment outcomes: Equality and diversity characteristics' (HEFCE 2015/23), which was published in September 2015. The first report examined the early career employment outcomes of UK-domiciled students who qualified from a full-time first degree course at an English higher education institution in the academic year 2008-09. It identified differences in employment outcomes for different equality groups qualifying from publicly funded English higher education institutions, and examined whether differences seen in a graduate's early career persist into the medium term.
2. This report updates HEFCE's earlier analysis, to examine the early career employment outcomes for the equivalent population of students graduating in the academic year 2010-11. It identifies where important findings are consistent across both the 2010-11 graduating cohort and their 2008-09 counterparts, and it provides an overview of some of the key differences arising between these cohorts.
3. Like the September 2015 report, this report looks at two employment outcomes: '**professional employment rate**' and '**employment rate**'. Graduates who are in professional employment, or further study only, are included in professional employment rates. Graduates who are in any form of employment, or further study only, are included in the employment rates.
4. Both the 2008-09 and the 2010-11 cohort will have been affected by the economic recession and the subsequent recovery. Comparable data to that presented here is not available for any previous cohort not affected by the recession. However, discussion of short-term outcomes and the effect of the recession can be found in the accompanying blog post, 'What happens if you graduate in a recession?' (<http://blog.hefce.ac.uk/2016/08/25/what-happens-if-you-graduate-in-a-recession/>).
5. Interactive graphs accompany this document and provide more detailed data relating to the profiles and employment rates of the 2010-11 qualifiers. They can be accessed on the HEFCE website at www.hefce.ac.uk/analysis/employment.

Key points

6. A higher proportion of 2010-11 graduates were **in employment six months after graduating** than 2008-09 graduates. The rates of both professional and non-professional employment increased.
7. There was a 3.4 percentage point decline between 2008-09 and 2010-11 graduates in the proportion of students **in further study six months after graduation**.
8. The proportion of **graduates in professional employment** between six and 40 months after graduation increased substantially for both the 2008-09 and 2010-11 cohorts.
9. In both cohorts, **male graduates** have higher professional employment rates six and 40 months after graduation. However, **female graduates** have higher overall employment rates.
10. The differences in overall employment rates between **white graduates and those from minority ethnicities** are smaller for graduates in 2010-11 than in 2008-09. However, differences in professional employment rates have not improved and graduates from minority ethnicities mostly have much lower professional employment rates, especially 40 months after graduation.
11. Graduates from **the most advantaged backgrounds** (based on the Participation of Local Areas 3 measure of young participation in higher education) have substantially higher professional employment rates than those from the least advantaged backgrounds, at both six and 40 months after qualifying, for both cohorts.

Action required

12. This report is for information only.

Comparison of 2008-09 and 2010-11 first degree graduates

Section 1: Overview of employment and professional employment rates

Six months after leaving higher education (HE)

13. The data analysed in this report comes from two surveys of graduates: the Destination of Leavers of Higher Education (DLHE) survey, which is collected six months after graduation, and the Longitudinal Destination of Leavers of Higher Education (LDLHE) survey, which is collected 40 months after graduation. The DLHE survey sampled approximately 83 per cent of the undergraduate qualifying population in both 2008-09 and 2010-11, but in this report the analysis is restricted to those who responded to both the DLHE and the LDLHE. This comprises 15 per cent (29,030) of the earlier defined population of graduates in 2008-09 and 17 per cent (36,865) in 2010-11¹. The analysis in 'Differences in employment outcomes: Equality and diversity characteristics' (HEFCE 2015/23, www.hefce.ac.uk/pubs/year/2015/201523/) showed that this restricted sample is representative of the total DLHE population.

14. Table 1 shows that a slightly higher proportion of 2010-11 graduates were in professional employment six months after qualifying than 2008-09 graduates. There was also a greater proportion of graduates from 2010-11 employed in other roles. However, it also shows a 3.4 percentage point (ppt) decline in the proportion of graduates in further study. Overall, this led to a minor decline (0.5 percentage points) in the total proportion of graduates either employed or in further study between 2008-09 and 2010-11, and hence a small increase in the proportion unemployed.

Table 1: Response rates of full-time first degree qualifiers in 2008-09 and 2010-11 to the DLHE survey six months after leaving HE for those who also responded to the LDLHE

Response to DLHE survey	Number of qualifiers		Proportion	
Academic year of qualifying	2008-09	2010-11	2008-09	2010-11
Employed in professional role (including in combination with further study)	12,695	16,735	46.1%	47.0%
Employed in other role (including in combination with further study)	7,140	9,910	25.9%	27.9%
Further study only	4,950	5,180	18.0%	14.6%
Subtotal: Employed or further study	24,785	31,830	90.0%	89.5%
Unemployed and looking for work	2,740	3,755	10.0%	10.5%
Subtotal: Employed, further study or unemployed and looking for work	27,525	35,580	100.0%	100.0%
Other (including invalid responses to the LDLHE)	1,505	1,285		
Total	29,030	36,865		

¹ This population is referred to as the 'link' population in HEFCE 2015/23.

40 months after leaving HE

15. Table 2 shows the employment outcomes for the two cohorts 40 months after graduation. In both the 2008-09 and 2010-11 cohorts, the proportion of graduates employed or in further study increased substantially between six and 40 months after graduation. This was the result of large increases in the proportion of those employed in professional roles, which was about 70 per cent after 40 months for both the 2008-09 and 2010-11 cohorts.

16. For both cohorts the proportion of graduates either unemployed or in non-professional employment decreased between six and 40 months. Comparing across the two cohorts, there were relatively fewer 2010-11 graduates unemployed after 40 months, but more in non-professional employment. Graduates in 2008-09 were more likely to be engaged only in further study 40 months after graduation, which was also the case six months after graduation.

Table 2: Response rates of full-time first degree qualifiers in 2008-09 and 2010-11 to the LDLHE survey 40 months after leaving HE

Response to LDLHE	Number of qualifiers		Proportion	
	2008-09	2010-11	2008-09	2010-11
Academic year of qualifying				
Employed in professional role (including in combination with further study)	19,700	24,845	69.2%	68.9%
Employed in other role (including in combination with further study)	5,305	7,475	18.6%	20.7%
Further study only	2,440	2,685	8.6%	7.4%
Subtotal: Employed or further study	27,440	35,005	96.4%	97.1%
Unemployed and looking for work	1,025	1,060	3.6%	2.9%
Subtotal: Employed, further study or unemployed and looking for work	28,470	36,065	100.0%	100.0%
Other (including invalid responses)	560	800		
Total	29,030	36,865		

Section 2: Findings for equality and diversity characteristics

17. The remainder of this report considers how employment outcomes differ among graduates by sex, ethnicity and Participation of Local Areas 3 (POLAR3) quintile. The last is HEFCE's area-based measure of educational disadvantage that classifies individuals according to the rate at which young people in their domicile ward participate in higher education. The findings for other equality and diversity characteristics are consistent across the 2008-09 and 2010-11 cohorts and are not presented here, but they can be explored in the interactive graphs which accompany this document at www.hefce.ac.uk/analysis/employment.

18. Throughout this section, observed data for both the 2008-09 and 2010-11 cohorts is presented alongside the differences between observed and predicted rates. The predicted rates have been estimated using regression analysis and controlling for factors including entry qualifications, subjects studied and degree outcomes. Further details of this approach can be found in Annex A. Differences highlighted in grey are statistically significant at the 95 per cent level.

19. Two rates of employment are analysed throughout. The first is the **employment rate**, which is the rate at which graduates are employed in professional roles, are otherwise employed or are only in further study. The second is the **professional employment rate**, which includes professional employment and further study only.

Sex

Employment rates

20. Table 3 shows the overall employment rates of male and female graduates six and 40 months after graduation. It shows that six months after graduation, female graduates in both the 2008-09 and 2010-11 cohorts had a higher rate of employment than their male counterparts, despite female employment rates falling slightly in 2010-11. The difference between men and women is smaller once other factors are accounted for, with the regression analysis indicating that the employment rate observed for male graduates in 2010-11 is still 3.7 percentage points below that predicted.

Table 3: Employment rates six and 40 months after graduation by sex

Sex	Six months after qualifying				40 months after qualifying			
	Observed employment rate		Difference: observed relative to predicted employment rates		Observed employment rate		Difference: observed relative to predicted employment rates	
	2008-09	2010-11	2008-09	2010-11	2008-09	2010-11	2008-09	2010-11
Male	87.0%	87.0%	-3.6 ppt	-3.7 ppt	95.4%	96.5%	-1.4 ppt	-0.8 ppt
Female	92.1%	91.2%	Reference group		97.1%	97.5%	Reference group	

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

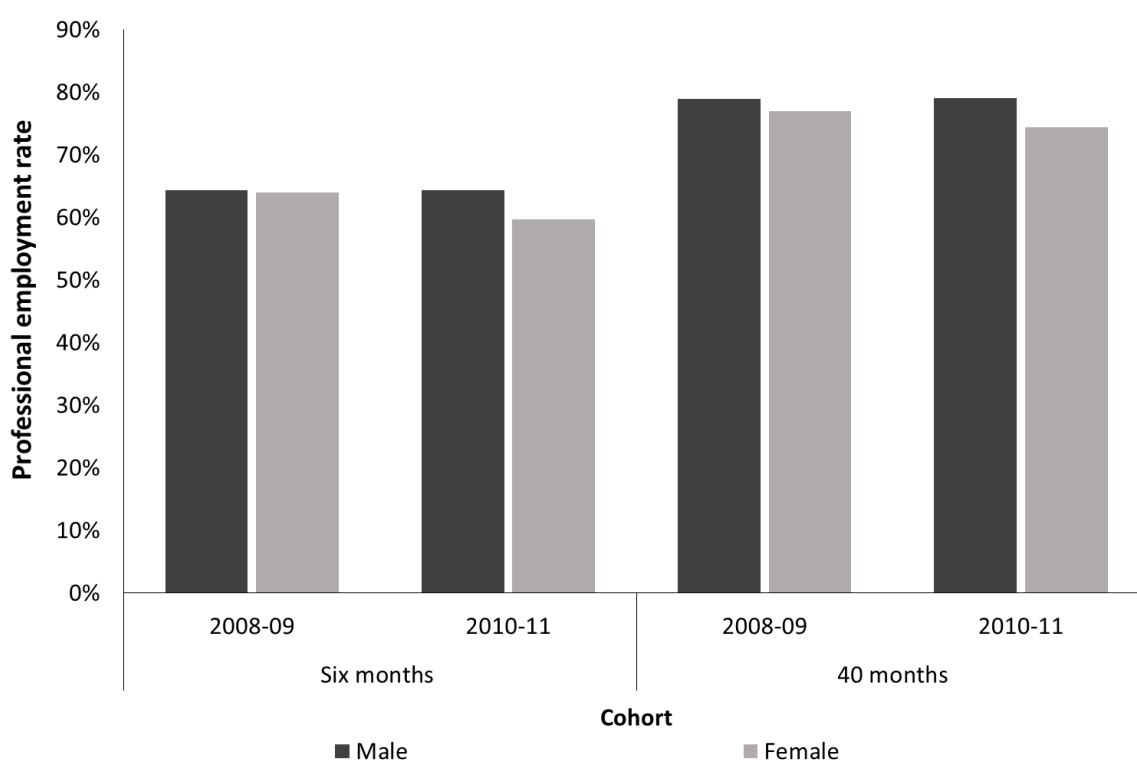
Differences highlighted in grey are statistically significant at the 95 per cent level.

21. A similar pattern is observed after 40 months, with female graduates having higher employment rates. However, the difference between men and women at this point in their early careers is less than that observed after six months, especially for 2010-11 graduates.

Professional employment rates

22. Figure 1 shows professional employment rates of male and female qualifiers six and 40 months after qualifying. In contrast to the overall employment rates, men have higher professional employment rates than women. This is the case after both six months and 40 months, and the difference is greater in the 2010-11 cohort. It was previously observed in the analysis of the 2008-09 cohort that the gap between the sexes grew between six and 40 months. This is not the case for 2010-11 graduates, where the gap remains fairly constant at about 4.6 percentage points. Overall, it indicates that a far greater proportion of female graduates are in non-professional employment compared with their male counterparts.

Figure 1: Professional employment rates six and 40 months after graduation by sex



Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Ethnicity

Employment rates

23. Employment rates at six months for each ethnic group are presented in Table 4. It shows that 2008-09 and 2010-11 graduates from almost all minority ethnicities had lower employment rates than white graduates. However, there is some indication that outcomes for black and minority ethnic graduates have improved for the more recent cohort. Half of the ethnic minority groups have seen an increase in observed employment rates in 2010-11, and show a smaller difference between their observed and predicted outcomes.

24. Among 2010-11 graduates, Black African graduates have both the lowest observed employment rate and the largest negative difference between observed and predicted outcomes once other factors are taken into account. Comparing across cohort years, the biggest improvement in 2010-11 was for Chinese graduates, while the biggest fall was among Black Caribbean graduates.

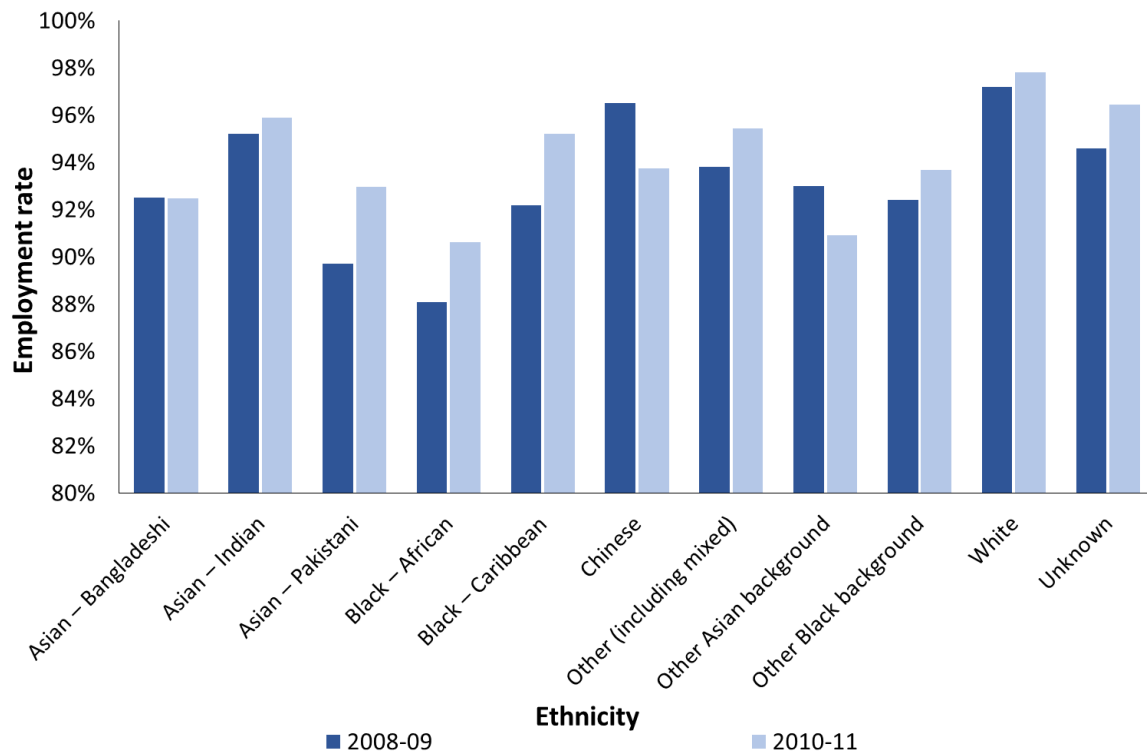
Table 4: Employment rates six months after graduation by ethnicity

Ethnicity	Observed employment rate		Difference: observed relative to predicted employment rates	
	2008-09	2010-11	2008-09	2010-11
Asian – Bangladeshi	82.4%	84.9%	-6.8 ppt	-3.4ppt
Asian – Indian	86.3%	87.9%	-5.1 ppt	-2.3 ppt
Asian – Pakistani	82.5%	82.9%	-8.4 ppt	-6.2 ppt
Black – African	81.2%	80.3%	-6.1 ppt	-7.2 ppt
Black – Caribbean	87.1%	84.0%	-1.1 ppt	-3.9 ppt
Chinese	78.4%	82.6%	-12.4 ppt	-7.4 ppt
Other (including mixed)	87.9%	86.3%	-2.5 ppt	-3.2 ppt
Other Asian background	85.9%	85.4%	-3.8 ppt	-3.9 ppt
Other Black background	81.9%	90.9%	-6.3 ppt	4.3 ppt
White	91.2%	90.6%	Reference group	Reference group
Unknown	89.4%	81.9%	-1.2 ppt	-7.0 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.
Differences highlighted in grey are statistically significant at the 95 per cent level.

25. At 40 months, Figure 2 shows that the biggest difference between the two graduating cohorts was for Pakistani students, who saw an increase in employment rate of 3.3 percentage points. The biggest decrease in the employment rate was for graduates of Chinese ethnicity, whose rate declined by 2.8 percentage points for the later cohort.

Figure 2: Employment rates 40 months after graduation by ethnicity



Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Note: Y-axis does not start at 0.

Professional employment rates

26. For almost all ethnicities there was a decrease between 2008-09 and 2010-11 in the six-month professional employment rates, as shown in Table 5. This is not surprising since the overall professional employment rate saw a decline between the two cohorts, but there were changes in the relative outcomes across groups. The relative outcomes of graduates of Indian, Pakistani and Chinese ethnicity improved for those graduating in 2010-11, and were no longer significantly different from those of white graduates. Conversely, the professional employment rates for Black African, Black Caribbean and Bangladeshi students all declined for graduates in 2010-11 by comparison with their relative outcomes in 2008-09.

Table 5: Professional employment rates six months after graduation by ethnicity

Ethnicity	Observed professional employment rate		Difference: observed relative to predicted professional employment rates	
	2008-09	2010-11	2008-09	2010-11
Asian – Bangladeshi	59.3%	48.7%	-0.2 ppt	-6.5 ppt
Asian – Indian	63.9%	62.9%	-2.6 ppt	-0.5 ppt
Asian – Pakistani	59.8%	57.4%	-4.8 ppt	-2.4 ppt
Black – African	56.4%	51.9%	-5.0 ppt	-6.6 ppt
Black – Caribbean	55.4%	49.6%	-1.2 ppt	-4.9 ppt
Chinese	59.8%	63.4%	-6.7 ppt	-2.4 ppt
Other (including mixed)	63.2%	59.2%	-0.5 ppt	-1.9 ppt
Other Asian background	63.2%	58.6%	-1.7 ppt	-5.6 ppt
Other Black background	57.7%	62.3%	-0.4 ppt	9.5 ppt
White	64.7%	62.5%	Reference group	Reference group
Unknown	66.9%	64.4%	-0.4 ppt	-2.8 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Differences highlighted in grey are statistically significant at the 95 per cent level.

27. The 40-month professional employment rates are presented in Table 6. Overall, graduates from most minority groups have significantly negative outcomes relative to white graduates (and none have significantly positive differences). The gap between white graduates and others has, if anything, widened in the 2010-11 cohort.

28. Comparing across cohorts, the professional employment rates were lower for graduates in 2010-11 for all ethnicities apart from Chinese. Chinese graduates in 2010-11 had the highest observed professional employment rate, although this was not significantly different from white graduates once other factors had been taken into account.

29. The biggest decrease in professional employment rates was for qualifiers of Black Caribbean ethnicity (a decrease of 5.9 percentage points between the 2008-09 and 2010-11 cohorts). They were also the ethnic group with the largest negative difference between the observed and predicted professional employment rates among 2010-11 graduates, although this difference is also particularly large for Pakistani and Black African graduates.

Table 6: Professional employment rates 40 months after graduation by ethnicity

Ethnicity	Observed professional employment rate		Difference: observed relative to predicted professional employment rates	
	2008-09	2010-11	2008-09	2010-11
Asian – Bangladeshi	69.6%	67.2%	-5.4 ppt	-6.6 ppt
Asian – Indian	79.1%	75.0%	-1.3 ppt	-3.5 ppt
Asian – Pakistani	67.9%	66.8%	-10.2 ppt	-8.5 ppt
Black – African	65.9%	64.1%	-8.4 ppt	-8.3 ppt
Black – Caribbean	66.8%	60.9%	-4.5 ppt	-8.8 ppt
Chinese	74.6%	78.2%	-5.7 ppt	-2.1 ppt
Other (including mixed)	74.6%	74.0%	-3.6 ppt	-2.5 ppt
Other Asian background	74.9%	74.5%	-3.4 ppt	-4.5 ppt
Other Black background	70.9%	69.4%	-0.9 ppt	1.6 ppt
White	78.7%	77.7%	Reference group	Reference group
Unknown	79.3%	79.3%	-2.0 ppt	-1.1 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Differences highlighted in grey are statistically significant at the 95 per cent level.

POLAR3 quintile

Employment rates

30. Table 7 shows employment rates by POLAR3 quintile six months after graduation, where quintile 1 graduates come from the 20 per cent of local areas with the lowest levels of participation in higher education among young people². It can be seen that employment rates decreased between 2008-09 and 2010-11 qualifiers for all quintiles, but this difference is largest for students in quintile 1. Employment rates continued to be higher for the higher participation areas in 2010-11, with the exception of quintile 3 which has a lower employment rate than quintile 2. However, none of the employment rates at six months are significantly different from the predicted employment rates for either cohort.

² For further information, see www.hefce.ac.uk/analysis/yp/POLAR/.

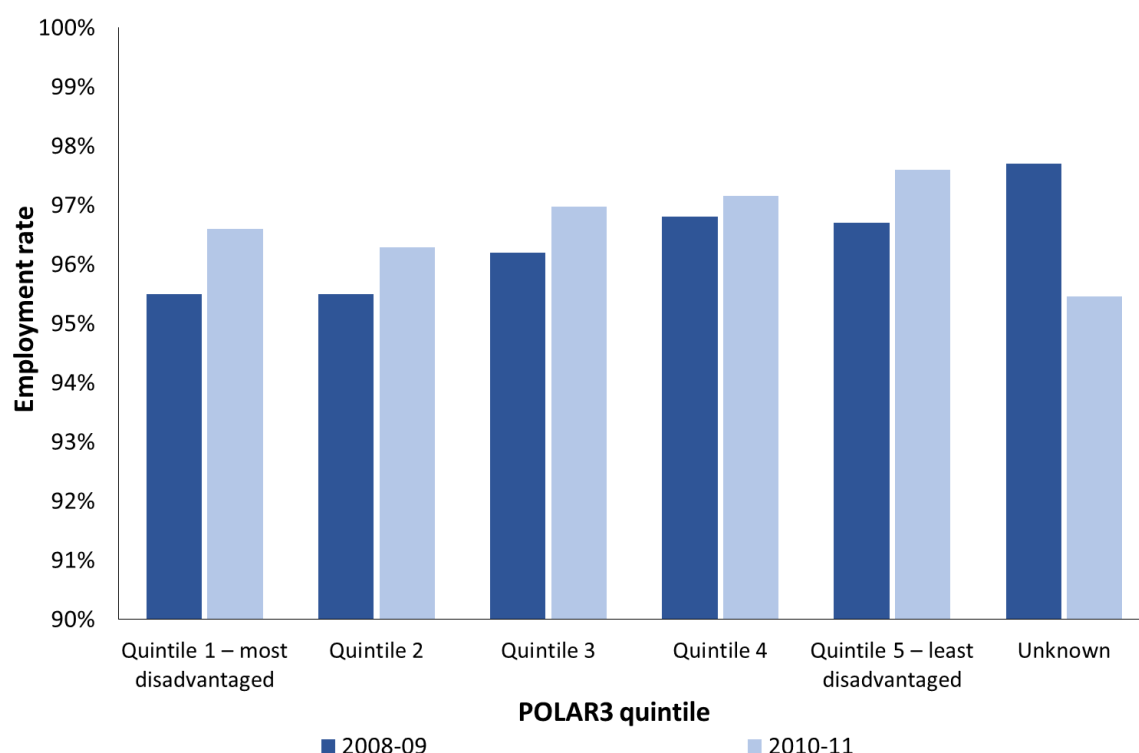
Table 7: Employment rates six months after graduation by POLAR3 quintile

POLAR3 quintile	Observed employment rate		Difference: observed relative to predicted employment rates	
	2008-09	2010-11	2008-09	2010-11
Quintile 1 (most disadvantaged)	89.4%	87.9%	-0.9 ppt	-0.7 ppt
Quintile 2	89.5%	89.2%	-0.9 ppt	0.3 ppt
Quintile 3	89.3%	88.7%	-0.9 ppt	-0.2 ppt
Quintile 4	90.1%	90.1%	-0.5 ppt	0.5 ppt
Quintile 5 (least disadvantaged)	90.9%	90.1%	Reference group	Reference group
Unknown	87.4%	91.3%	1.7 ppt	4.4 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.
Differences highlighted in grey are statistically significant at the 95 per cent level.

31. Figure 3 shows that there is little difference between employment rates at 40 months between the two cohorts, with the largest difference being for quintile 1 students, who had an increase in their employment rate of 1.1 percentage points.

Figure 3: Employment rates 40 months after graduation by POLAR3 quintile



Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Note: Y-axis does not start at 0.

Professional employment rates

32. Graduates from the highest participation areas (quintile 5) have much higher rates of professional employment than those from the lowest participation areas. Table 8 shows that graduates from all quintiles had lower professional employment rates in 2010-11 than in 2008-09. In fact, once other factors have been controlled for, the difference between quintile 5 graduates and all other quintiles is smaller for 2010-11 graduates than in 2008-09, although the most disadvantaged are still 4.3 percentage points below their predicted professional employment rate.

Table 8: Professional employment rates six months after graduation by POLAR3 quintile

POLAR3 quintile	Observed professional employment rate		Difference: observed relative to predicted professional employment rates	
	2008-09	2010-11	2008-09	2010-11
Quintile 1 (most disadvantaged)	59.7%	55.0%	-4.5 ppt	-4.3 ppt
Quintile 2	60.6%	57.6%	-3.4 ppt	-2.5 ppt
Quintile 3	62.9%	60.4%	-1.6 ppt	-1.3 ppt
Quintile 4	64.2%	62.8%	-1.4 ppt	-0.5 ppt
Quintile 5 (least disadvantaged)	67.4%	65.5%	Reference group	Reference group
Unknown	69.6%	68.7%	-2.2 ppt	-7.1 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Differences highlighted in grey are statistically significant at the 95 per cent level.

33. Table 9 shows that professional employment rates at 40 months were lower for graduates in 2010-11 than 2008-09 for all quintiles except quintile 5. The fall was highest for students from quintile 1 (3.2 percentage points) and lowest for students from quintile 3 (1.1 percentage points). However, unlike the professional employment rates after six months, once other factors are controlled for, rates for graduates outside quintile 1 are worse in the 2010-11 cohort. The observed rates for these graduates are all significantly below the predicted rates, and the gap between quintile 1 students and students in other quintiles has increased between six and 40 months.

Table 9: Professional employment rates 40 months after graduation by POLAR3 quintile

POLAR3 quintile	Observed professional employment rate		Difference: observed relative to predicted professional employment rates	
	2008-09	2010-11	2008-09	2010-11
Quintile 1 (most disadvantaged)	73.1%	69.9%	-3.6 ppt	-5.3 ppt
Quintile 2	74.7%	72.7%	-2.5 ppt	-3.1 ppt
Quintile 3	75.7%	74.6%	-1.7 ppt	-2.2 ppt
Quintile 4	78.9%	76.9%	0.1 ppt	-1.9 ppt
Quintile 5 (least disadvantaged)	80.5%	80.7%	Reference group	Reference group
Unknown	84.7%	81.2%	5.9 ppt	30.2 ppt

Population: 2008-09 and 2010-11 DLHE respondents who also responded to LDLHE survey.

Differences highlighted in grey are statistically significant at the 95 per cent level.

Annex A: Defining the modelling approach and interpretation

1. Regression techniques have been employed to establish whether the patterns seen in the simple univariate summaries of employment and professional unemployment rates are robust against the effects of other measurable factors (see paragraph 2) and unobserved institutional effects. This helps to determine whether other factors might be responsible for the observed patterns. 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 been converted into a binary format, with the largest group in a given characteristic typically acting as the reference group for comparison.
2. The following factors were included in the modelling:
 - age (as at 31 August in the academic year of graduation)
 - disability status
 - ethnicity
 - an area-based measure of disadvantage (Participation of Local Areas 3 quintile)
 - sex
 - subject of study
 - region of domicile
 - prior attainment (in terms of qualifications held on entry to higher education)
 - degree classification
 - previous school type
 - teaching arrangements (whether or not the student was taught by a higher education institution's partner institution under a franchising arrangement)
 - sandwich year
 - institution attended.
3. The regression techniques determines a **predicted** value for the employment and professional employment rates. Throughout this report the **observed** rates are shown with the difference between the predicted and observed rates, so that it can be seen whether a particular group is performing better or worse than predicted.
4. All data given for 2008-09 graduates is the same in this report as in HEFCE 2015/23. The technique used for modelling of the employment rates of 2010-11 graduates is mostly the same as that used to model employment rates for 2008-09 graduates. The only amendment is that students from an unknown English region and those from an unknown UK region have been grouped together. To assess the impact of this, the new model was applied to the 2008-09 cohort. The change in the model affected a relatively small number of graduates and had a negligible impact on the predicted rates, apart from in the case of students with an unknown POLAR3 quintile, where the predicted employment rate at six months fell by 0.4 per cent for 2008-09 qualifiers compared with the original model. This was enough evidence to apply the model changes confidently without being concerned that the model results for the two cohorts would not be comparable.
5. Further details of the statistical model can be found in Annex C of 'Differences in employment outcomes: Equality and diversity characteristics' (HEFCE 2015/23, www.hefce.ac.uk/pubs/year/2015/201523/).