Male and female participation and progression in higher education: further analysis[1]

Part 1: Employment outcomes

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Introduction

Scope, context and structure of this annex

1. The employment outcomes of graduates are described in the main HEPI report "Male and female participation and progression in Higher Education"[2]. This annex provides further information derived from the most recent data collections by the Higher Education Statistics Agency (HESA). Information is provided for those who graduated in 2007-08 about six months after graduation, and for those who graduated in 2004-05 about three and a half years after graduation.

2. The statistics provided are restricted to young home full-time first degree graduates. Combining results with the full range of qualifiers would be difficult to interpret, and presenting results for all types of qualifiers separately would require extensive analysis. It is hoped that these results, whilst limited, will be useful.

3. This annex has four sections:

- Overview (paragraphs 4 to 23): This section sets out a summary of the key statistics. All the information in this section is also contained in the detailed results section.
- Detailed results (paragraphs 24 to 96): This section provides more detailed breakdowns and explanations.
- Definitions (paragraphs 97 to 102): This section provides technical specification for the data extract and analysis and the sources of supplementary information.
- References

Recent changes to the graduate labour market

4. Between the final quarters of 2008 and 2009 the percentage of young graduates in the labour market who are unemployed has risen from

[1] This report is in two parts. The first provides analysis of the employment outcomes of male and female graduates, and the second addresses a number of issues that arose in comments and the debate on our 2009 report (http://www.hepi.ac.uk/466-1409/Male-and-female-participation-and-progression-in-Higher-Education.html).

[2] See the original report, paragraphs 39 to 46. This annex was referenced at footnote 22. The original intention was to publish this annex with the main report, but delays in obtaining the data has led to a later publication date.

11.1 to 14.0, a more than 25 per cent rise, and in 2009 17.2 per cent of young male graduates were unemployed compared to 11.2 per cent of young female graduates.[3]

5. These figures show how the recession has resulted in continuing changes to the graduate employment market through 2009, changes that will not have been reflected in the statistics used in the original report, which typically refer to the status of recent graduates on 12 January 2009 and the status on 24 November 2008 of those who graduated in 2004-05.

6. We may, therefore, expect to see changes in the various measure of employment outcomes in future surveys of graduates, but shortly after graduation and later. It is also possible that the impact of the recession and the proposed measures taken to reduce the government deficit will impact on men and women differently.

Overview

Activities of 2007-08 graduates shortly after qualifying

7. Data from the Destination of Leavers from Higher Education (DLHE) survey provides information about graduates about six months after graduation. The response rates are high for both men (78 per cent) and women (79 percent). However, this disguises important differences. Women are more responsive to the initial postal survey while the responses from men depend more on follow up telephone calls, resulting in more significant differences in responses to certain questions. It is therefore possible that part of the differences found between men and women are due to differences in response bias.

8. Table A1 shows the reported activities of the respondents to the DLHE survey. The main differences are the higher proportion of women in full time work, and the higher proportion of men who are unemployed. The only other material differences are the higher proportion of men who are self-employed or freelance, and the higher proportion of women in part-time work.

[3] Figures provided by the Office of National Statistics refer to graduates aged 20 to 24 for the final quarter (October to December) for 2008 and 2009.

Table A1: Activities (Young full-time home graduates, 2007-08 DLHE)

Activity	% of all activities		
	Men	**Women**	**Difference**
Full-time paid work	52%	56%	-3.9%
Part-time paid work	10%	12%	-1.8%
Self-employed	3%	2%	1.4%
Other employment	1%	2%	-0.4%
Further study only	16%	16%	0.1%
Unemployed	11%	7%	4.0%
Unavailable for work	5%	4%	0.3%
Other	1%	1%	0.3%
All activities	**100%**	**100%**	**0.0%**

9. Table A2 shows the median and mean salaries of those graduates in full-time work. The data for graduates in other types of employment is much less reliable.

Table A2: Salaries (Young full-time home graduates in full-time employment, 2007-08 DLHE)

	Men	**Women**	**Difference**	**% male premium**
Median	£20,000	£18,000	£2,000	11%
Mean	£20,503	£18,471	£2,032	11%

10. We can see that whether we take the median or the mean, men's average salaries are 11 per cent higher than women's. About half of this premium can be accounted for by the differing subject profiles.

11. The average job quality can be assessed with other measures. Table A3 shows the proportion of men and women in graduate jobs, in jobs where the graduate believes their degree was needed or was at least an advantage, and jobs that fitted their career plans. By all these measures, men in employment seem on average to be more successful than women in employment.

Table A3: Per cent graduates in 'good' jobs (Young full-time home employed graduates, 2007-08 DLHE)

Employment characteristic	Per cent in 'good' jobs		
	Men	**Women**	**Difference**
Graduate job	66%	60%	6.0%
Degree needed or expected	63%	62%	1.0%
Fits career plans	57%	52%	4.2%

12. The figures in Table A3 include some graduates in part-time jobs. For these graduates employment may not be their main activities. For more

detailed statistics broken down by employment type, see the detailed results at A17, A20 and A22.

13. Of the employment characteristics shown in Table A3, having a 'graduate job' is most objective. It does depend on the description of the job provided by the graduate, but it does not depend on the graduate's judgement or aspirations. Also, unlike salary, the data used to classify jobs as graduate and non-graduate is available for almost all DLHE respondents, so this six percentage point difference between men and women is likely to be real.[4]

14. These employment characteristic statistics need to be taken in the context of the lower participation, higher drop out, and higher unemployment rates for of men. These factors combine so that only 44 per cent of the graduate jobs held by this cohort are men, even though for these age groups the male population is larger.

Activities of 2004-05 graduates three and a half years after qualifying

15. The information about graduates three and a half years after graduation is based on a sample survey carried out by IFF Research, using contact details provided by HEIs and a sampling frame defined by HESA.

16. The sampling was complex, in part dependent on the contact information that was available. Overall, of the graduates who could potentially have been included, 9.4 per cent of the men, and 10.9 percent of the women responded to the survey. The difference in these response rates could introduce different relative response biases, and this uncertainty needs to be borne in mind in interpreting the results.

17. Table A4 shows the reported activities of the respondents to the DLHE Longitudinal survey. Unlike the snapshot taken shortly after graduation, the proportions of male and female graduates in employment are almost equal, and the unemployment rates are much closer.

[4] As with any measure, the graduate / non-graduate classification is not without its critics. They point out that the classification is driven largely by the number of graduates in a given SOC code in the Labour Force Survey. Thus if a job has a large number of graduates doing it, it becomes graduate irrespective of if graduate levels skills are needed. Also, the continuing changes to the labour market may mean that the current SOC classification may be out of date.

Table A4: Activities three and a half years after graduation (Young full-time home graduates, weighted 2004-05 DLHE Longitudinal data)

Activity	% of all activities		
	Men	**Women**	**Difference**
Full-time paid work	81%	81%	0.3%
Part-time paid work	3%	5%	-1.6%
Self-employed	5%	2%	2.1%
Other employment	1%	1%	-0.2%
Further study only	7%	8%	-0.8%
Unemployed	3%	2%	1.2%
Unavailable for work	1%	2%	-1.0%
Other	0%	0%	0.0%
All activities	**100%**	**100%**	**0.0%**

18. All graduates in the survey, whether in employment or not, were asked to indicate their level of satisfaction with their career so far. Table A5 shows the results.

Table A5: Satisfaction with career (Young full-time home graduates, weighted 2004-05 DLHE Longitudinal data)

Level of satisfaction	% of all indicating level of satisfaction		
	Men	**Women**	**Difference**
"Very"	34.3%	37.2%	-2.8%
"Very" or "Fairly"	84.6%	86.1%	-1.5%
"Very", "Fairly" or "Not very"	96.5%	96.5%	0.0%
All levels of satisfaction	**100.0%**	**100.0%**	**0.0%**

19. Larger proportions of women expressed high levels of satisfaction. Less than four per cent of men and of women were 'not at all' satisfied with their career.

20. Responses to this satisfaction question do not provide an objective measure. Some will be more satisfied with lower achievements than others. However, the question does give a measure success for graduates across all activities, using their criteria as to what is important.

21. For the 81 per cent of graduates in full-time employment, Table A6 shows that men report higher average salaries measured by the median or the mean. In addition to the concerns about differential response rates the wording of the salary question in the longitudinal survey creates further uncertainty, and it is different to the question used in the DLHE. Like the DLHE, the salary data for graduates in other types of employment is less reliable.

22. In broad terms it does seem that difference between men and women in median salaries is the same as found for 2007-08 graduates six months after graduation, while the difference in mean salaries is about twice as great. Further analysis of the distribution of salaries is needed to

see what lies behind these figures, but they are consistent with the existence of a highly paid mostly male group gaining higher increases in pay than the average.

Table A6: Salaries (Young full-time home graduates in full-time employment, weighted 2004-05 DLHE Longitudinal data)

	Men	Women	Difference	% male premium
Median	£25,000	£23,000	£2,000	9%
Mean	£28,071	£24,023	£4,048	17%

23. About a third of the male premium can be accounted for by the differing subject profiles, somewhat less than the half that was explained in this way for salaries of graduates shortly after graduation.

24. As with the DLHE survey, the average job quality can be assessed with other measures. Table A7 shows the proportion of men and women in graduate jobs, in jobs that the graduate believes a degree was required or was important, and jobs that fitted their career plans. In each of these three measures there are differences with similar statistics derived from the DLHE data, but these definitional and processing differences are unlikely to be the reason for the different pattern found after three and a half years.

Table A7: Per cent graduates in 'good' jobs (Young full-time home employed graduates, 2007-08 DLHE)

	Per cent in 'good' jobs		
Employment characteristic	**Men**	**Women**	**Difference**
Graduate job	77%	76%	0.7%
Degree requires or important	65%	70%	-5.1%
Fits career plans	74%	74%	-0.7%

25. The proportion of women in employment in graduate jobs is almost as high as the proportion for men, and for the other two measures of job quality, women appear to be doing better. The figures in Table A7 include some graduates in part-time jobs. For these graduates employment may not be their main activities. For more detailed statistics broken down by employment type, see the detailed results at A34, A36 and A38.

Conclusion

26. Shortly after graduation, men have higher levels of unemployment, but for those in employment, they appear on average to be in better quality jobs, as measured by salary and other measures.

27. Three and a half years after graduation, the unemployment rate for men is only a little higher than for women, and men's salary premium

persists. However, other measures of outcomes, of satisfaction with career, and of job quality, suggest that women achieve at least a similar level of success, and on most measures they appear to be more successful.

Detailed results

Activities of 2007-08 graduates shortly after qualifying

28. The Destination of Leavers from Higher Education (DLHE) survey is collected by UK HEIs and co-ordinated and administered by HESA. These results are derived from data collected through this survey which are linked to the HESA student records. It provides extensive information about HE qualifiers.

29. The survey takes place in two phases. Those leaving their HEI between 1 August 2007 and 31 December 2007 are asked to report on their activities on 14 April 2008. Those leaving between 1 January 2008 and 31 July 2008 are asked to report on their activities on 12 January 2009. Most respondents in the population considered here will fall into the second group, typically graduating in June and reporting about their activities about six months later.

Survey responses

30. Unlike other HESA data collections, the DLHE is not complete. With a very small number of exceptions, all qualifiers are surveyed, but not all respond. Table A8 shows the pattern of responses through the different phases of the collection.

Table A8: Responses by survey method (Young full-time home graduates, 2007-08 DLHE)

Survey method	Number		% of DLHE pop.		
	Men	**Women**	**Men**	**Women**	**Diff.**
Postal	12,595	23,715	14.5%	21.0%	-6.5%
Telephone	45,670	53,850	52.5%	47.6%	4.9%
Online	7,825	9,585	9.0%	8.5%	0.5%
Other	1,570	1,970	1.8%	1.7%	0.1%
Total response	**67,660**	**89,120**	**77.8%**	**78.8%**	**-0.9%**
Non-response	19,275	24,040	22.2%	21.2%	0.9%
Total	**86,935**	**113,160**	**100.0%**	**100.0%**	**0.0%**

Numbers rounded to nearest 5, percentages calculated from exact figures. Non-responders include those who refused to complete the survey and those who had died.

31. The typical approach taken by institutions is to first write to qualifiers with a questionnaire, sometimes followed by a second posting. Those who do not respond will then be contacted by telephone. Institutions are increasingly making use of email or web based methods. A small proportion of responses make use of other methods, like taking the

information from the institution's own records. However, the paper questionnaire and telephone interview still constitute the main survey methods.

32. While the overall difference in response rates for men and women is not large, the patterns of responses do differ significantly. We see that men are much less likely to respond to an initial questionnaire so that institutions make more use of phoning to contact men. This may be important, because some data items are not returned, or are only partially returned, through telephone interviews.

33. Are graduates who respond without a telephone call representative of graduates as a whole, and are the differences between men and women the same for the different survey methods? Table A9 shows the proportion of those employed who are in graduate jobs.

Table A9: Proportion of employed in graduate jobs by survey method (Young full-time home graduates in employment, 2007-08 DLHE)

Survey method	**Men**	**Women**	**Difference**
Postal	75.3%	66.8%	8.6%
Telephone	60.2%	54.5%	5.8%
Online	79.2%	67.2%	11.9%
Other	89.1%	90.2%	-1.0%

34. We can see that as measured by the proportion of those employed in graduate jobs, those who provide information through a telephone interview have been less successful than those who complete a questionnaire. This may be because of an association at the individual graduate level between success and propensity to respond. It may be that the method itself results in differences, though we might expect an interview to create greater conformity pressures to present information in a positive light. Finally, it may be that the differences reflect the fact that different HEIs adopt different strategies with some making more use of telephoning than others. The outcomes of the respondents in the other smaller categories 'online' and 'other' will certainly reflect institutional factors. Institutions have differing abilities to contact their alumni electronically. The 'other' category includes a disproportionate number of graduates in dentistry and medicine who had a return from the institution rather than the student.

35. If we take it that at least part of the explanation for the differences between postal and telephone responses is an association at the individual graduate level between success and propensity to respond, then it is reasonable to extrapolate and assume that non-responders will be more like those who need a telephone follow-up than those who make a written reply. This implies that statistics based on respondents will have a higher proportion of graduates in graduate jobs than the DLHE population as a

whole. Further, the men are likely to have a greater response bias than women because they have lower response rates. For statistics like the classification of jobs into 'graduate' and 'non-graduate' that are collected through almost all responses, such differences in response bias should be small, because the overall difference in response rates between men and women is small.

36. By contrast, for statistics that are not collected, or only partially collected, through telephone interviews, the response biases are likely to be greater. Table A10 shows the proportion of DLHE respondents in employment for whom information is available for the four statistics used in this report. For statistics with low proportions of responses with information, and low or zero information through telephone interviews, we can expect the values derived from the survey will be optimistic for both men and women, but more so for men.

Table A10: Responses providing information for 'job quality' statistics (Young full-time home graduates in employment, 2007-08 DLHE)

Statistic	**% of all DLHE responses providing information**			**% of information responses by telephone**	
	Men	**Women**	**Diff**	**Men**	**Women**
Salary (full-time)	49%	51%	-2.3%	50%	43%
Salary (part-time, freelance)	23%	23%	-0.2%	60%	48%
Graduate job	100%	100%	-0.1%	68%	61%
Qualification required for job	84%	85%	-1.1%	64%	57%
Reasons for taking current job	29%	35%	-6.8%	0%	0%

37. We have not attempted to quantify or correct response bias effects, but we caution that they may be material, particularly for those statistics like 'reasons for taking current job' where the non-response rate is low and where there is a big difference in the response rate for men and women.

What graduates are doing after graduation

38. Table A11 shows the reported activities of the respondents to the DLHE survey. The percentage of men for each activity includes an adjustment to allow for the different response rates of men and women. This adjustment probably gives an over-estimate of the proportion of men.

Table A11: Activities (Young full-time home graduates, 2007-08 DLHE)

Activity	Number		% Men	% of all activities		
	Men	Women		Men	Women	Diff.
Full-time paid work	35,465	50,200	42%	52%	56%	-3.9%
Part-time paid work	7,065	10,915	40%	10%	12%	-1.8%
Self-employed	2,020	1,440	59%	3%	2%	1.4%
Other employment	1,000	1,665	38%	1%	2%	-0.4%
Further study only	10,995	14,430	44%	16%	16%	0.1%
Unemployed	7,145	5,820	55%	11%	7%	4.0%
Unavailable for work	3,070	3,765	45%	5%	4%	0.3%
Other	900	885	51%	1%	1%	0.3%
All activities	**67,660**	**89,120**	**43%**	**100%**	**100%**	**0.0%**

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders.

39. We can see that, even with this adjustment, for the main activities, full-time employment and further study, women are in the majority. The only activities for which there is a majority of men are 'self employed', which includes freelance, 'unemployed' and 'other'. This is largely a reflection of the fact more women graduated despite being less numerous in the relevant age populations. This is a consequence of women's higher participation rates and lower non-completion rates as described in the original report.

40. When we look at the profiles of activities for men and women, we can see that they are similar. The main difference is that a higher proportion of women are in full time work, and a higher proportion of men are unemployed. The only other material differences are the higher proportion of men who are self-employed or freelance, and the higher proportion of women in part-time work.

Employment outcomes six months after graduation

41. The survey question used to capture salary was as follows:

> What was your annual pay to the nearest thousand (£), before tax? If you were employed for less than a year or were part-time, please estimate your pay to the full-time annual equivalent.
>
> £..... I do not wish to give this

42. This question will be more difficult to answer for those who are not in full-time employment and the response rates are low (see Table A10). The main salary analysis has therefore been restricted to those in full-time employment.

43. Table A12 shows the mean and median salaries for DLHE respondents in full-time employment.

Table A12: Salaries (Young full-time home graduates in full-time employment, 2007-08 DLHE)

	Men	**Women**	**Difference**	**Per cent male premium**
Median	£20,000	£18,000	£2,000	11%
Mean	£20,503	£18,471	£2,032	11%
Mean (male subject profile)	**£20,503**	**£19,319**	**£1,184**	6%
Mean(female subject profile)	£19,400	£18,471	£929	5%

44. To see the effect of excluding outliers, figures were also calculated excluding salaries of less than £1000 and more than £100,000. Very few respondents were excluded and the truncated statistics were almost the same as those including all the respondents. All the results presented here are based on all the data.

45. Only about half the respondents in full-time employment provided salary information, with men two percentage points lower than women (see Table A10). This introduces some uncertainty into both the absolute salaries, and the differences between men and women. However, it is safe to assume that there is a material difference in the salaries, with men earning about £2000 p.a. more.

46. Table A12 also shows the importance of subjects. When men's salaries are reweighted to the subject profile of women, the salary advantage of men is about halved. Changing the salary profile of women to that of men has a similar result. As noted in the main report, the importance of subject profile in understanding the salary premium of male graduates has been noted by others, in particular Machin and Chavalier (see references in the original report). The mean salaries by subject are shown in Tables A13 and A14.

Table A13: Mean salaries by subject area (Young full-time home graduates in full-time employment, 2007-08 DLHE)

Subject group	Men	Women	Difference
Subjects allied to Medicine*	**£18,795**	**£19,618**	**-£823**
Education*	**£19,429**	**£19,605**	**-£176**
Creative Arts and Design	£16,818	£15,547	£1,271
Biological Sciences	£17,287	£16,432	£855
Social studies*	**£21,227**	**£18,446**	**£2,781**
Linguistics, Classics, related subjects	£17,255	£16,668	£587
Law	£18,150	£16,917	£1,233
Combined	£16,930	£16,435	£495
European Languages, Literature	£20,174	£18,368	£1,806
Veterinary Sciences, related subjects*	**£19,856**	**£19,832**	**£24**
Business and Administrative studies	£20,270	£18,596	£1,674
Historical and Philosophical studies	£18,055	£16,961	£1,094
Medicine and Dentistry	£29,721	£28,741	£980
Mass Comms and Documentation	£16,707	£16,172	£535
Eastern, Asiatic, etc,	£18,875	£17,311	£1,564
Technologies	£19,203	£17,539	£1,664
Physical Sciences	£20,328	£18,100	£2,228
Architecture, Building and Planning	£20,670	£18,463	£2,207
Mathematical and Computer Science	£21,809	£20,557	£1,252
Engineering	£23,567	£23,246	£321
All subjects	**£20,503**	**£18,471**	**£2,032**

47. Table A13 is ranked in the same order as the table showing participation by subject in the original report, which was ranked by the difference in participation between men and women in 2007-08. (See Table 2 of the original report.) Table A13 refers to different cohorts and the results of course completion and getting a job as well as initial entry, but the pattern is broadly the same, with only Technologies; Physical Sciences; Architecture; Building and Planning; Mathematical and Computer Science and Engineering having more male than female DLHE respondents in full-time employment.

48. There are four subject groups (shown in bold with an asterisk) with a large heterogeneity of salaries or of the sex profiles between sub-subjects, and further details for these subjects is shown in Table A14. The weighting used to calculate the adjusted average salaries in Table A12 made use of these further breakdowns.[5]

[5] Using even finer subject breakdowns for the weightings did not result in any material further reduction in the difference in mean salaries between men and women as shown in table A12.

Table A14: Breakdown of mean salaries for selected by subject areas (Young full-time home graduates in full-time employment, 2007-08 DLHE)

Subject	Men	Women	Difference
Subjects allied to Medicine			
Nursing	£20,671	£20,490	£181
Other	£18,686	£19,205	-£519
All	**£18,795**	**£19,618**	**-£823**
Education			
Teacher training	£20,368	£20,717	-£349
Other	£16,037	£15,324	£713
All	**£19,429**	**£19,605**	**-£176**
Social studies			
Economics	£24,516	£22,405	£2,111
Social Work	£19,828	£20,265	-£437
Other	£18,909	£17,240	£1,669
All	**£21,227**	**£18,446**	**£2,781**
Veterinary Sciences, related subjects			
Veterinary medicine	£23,722	£25,089	-£1,367
Other	£18,332	£16,315	£2,017
All	**£19,856**	**£19,832**	£24

49. We can see that for most subjects the differences between the salaries of men and women are smaller than for the overall average, with some subjects showing higher average salaries for women. The exceptions are the Physical Sciences, Architecture, Building and Planning and Economics, where the difference in salaries is greater than the £2,032 overall average.

Salary for those in different types of employment

50. The low response rates and probable difficulty in answering the salary question means that we should treat the figures for those not in full-time employment in Table A15 with extra caution.

Table A15: Mean salaries by type of employment (Young full-time home graduates in employment, 2007-08 DLHE)

Employment	Men	Women	Difference	Per-cent male premium
Full-time paid work	£20,503	£18,471	£2,032	11%
Part-time paid work	£13,421	£13,151	£270	2%
Self-employed	£20,852	£17,308	£3,544	20%
Other employment	*	*	*	*
All employment	**£19,912**	**£17,987**	**£1,924**	**11%**

Those returning zero salaries excluded. Numbers returning salaries in 'other' categories too small to calculate mean values.

51. If we take the figures in Table A15 at face value, it appears that, compared to those in full-time employment, women do better, relative to men, in part-time employment. We find that this is a pattern which is repeated for other measures of job quality. The position of women relative to men for those who are self employed, shown to be worse with respect to salary, is not consistent across the other measures of job quality.

Classification of job as 'graduate' or 'non-graduate'

52. Using information from two questions:

> "what was your job title"
>
> "briefly describe your duties, e.g. maintaining and updating company intranet"

the institution will derive the Standard Occupational Classification (SOC) of the employment. This information can then be used to classify a job as 'graduate' or 'non-graduate' employment (Elias and Purcell, 2004). As shown in Table A10 almost all respondents in employment are classified in this way. Table A16 shows this classification of employment for all respondents in work.

Table A16: Graduate / non-graduate jobs (Young full-time home employed graduates 2007-08 DLHE)

	Number		**%**	**% of known**		
	Men	**Women**	**Men**	**Men**	**Women**	**Diff.**
Graduate job	29,815	38,220	44%	66%	60%	6.0%
Non-graduate job	15,625	25,885	38%	34%	40%	-6.0%
Total known	**45,440**	**64,110**		**100%**	**100%**	**0.0%**
Unknown	110	115				
Total	**45,550**	**64,220**				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent with graduate jobs is the same for these survey non-responders and those whose job could not be classified.

53. Most respondents are in graduate jobs, with a higher proportion of men (66 per cent) than women (60 per cent). Despite this, because of the greater number of women graduates, the proportion of men in graduate jobs is estimated at 44 per cent.[6]

[6] This figure is calculated by taking the percentages of men and of women in graduate jobs and multiplying by the DLHE Census populations. A calculation simply based on the respondents gives a lower figure which still rounds to 44 per cent.

54. Table A17 shows the percentages of respondents in graduate jobs by type of employment. This shows that the largest gap is in full-time employment. Women are also disadvantaged by their higher concentration in part-time employment and lower numbers who are self-employed or freelance.

Table A17: Graduate / non-graduate jobs by type of employment (Young full-time home employed graduates 2007-08 DLHE)

	Per cent in graduate jobs		
Employment	**Men**	**Women**	**Difference**
Full-time paid work	72%	66%	6.4%
Part-time paid work	37%	37%	-0.2%
Self-employed	86%	85%	0.0%
Other employment	73%	70%	2.8%
All employment	66%	60%	6.0%

55. About half the salary premium for men compared to women in full-time employment could be explained by their subject profiles. (See Table A12.) Table A18 shows the percentage of respondents in full-time employment with graduate jobs, weighted to male and female subject profiles as was done for salaries. The figures show that the differing subject profiles do explain part of the difference in the proportion of graduate jobs, but not to the same extent to which salary differences were explained.

Table A18: Per cent graduate jobs weighted by subject profiles (Young full-time home graduates in full-time employment, 2007-08 DLHE)

	Men	**Women**	**Difference**
Actual values	72.0%	65.6%	6.4%
Male subject profiles	72.0%	67.1%	4.9%
Female subject profiles	69.6%	65.6%	4.0%

Getting a job without a degree

56. The DLHE questionnaire asks respondents whether they would have been able to get their job without their actual qualification, not their subject of study. There are four possible answers:

- No: the qualification was a formal requirement/expected
- Possibly: but the qualification did give me an advantage
- Yes
- Don't know

57. We classify those who answered 'no', or 'possibly' as being in the 'higher quality' jobs compared to those who answered 'yes' or 'don't know'.

58. This question was included on the telephone script, and although the proportion of employed responses with the information is lower than for 'graduate jobs', it is higher than for information on salary (see Table A10). Table A19 shows the numbers of graduates who did and did not gain an advantage in securing their job with their degree.

59. Most respondents gained an advantage by having a degree, with a slightly higher proportion of men (63 per cent) than women (62 per cent). Despite this, because of the greater number of women graduates, the proportion of men among graduates in jobs where a degree was an advantage is estimated at 42 per cent.[7]

Table A19: Getting a job without a degree (Young full-time home employed graduates, 2007-08 DLHE)

Value of degree	Number		% Men	% of all known		
	Men	Women		Men	Women	Diff.
Needed, expected or an advantage	24,280	34,140	42%	63%	62%	1.0%
No advantage or don't know	14,070	20,610	41%	37%	38%	-1.0%
Total Known	38,355	54,750		100%	100%	0.0%
Unknown	7,195	9,470				
Total	45,550	64,220				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent whose job fit their career plans is the same for these survey non-responders and for completing the survey but not answering this question.

60. Table A20 shows the percentages of graduates gained an advantage in having a degree by type of employment. The pattern differs from that shown by other measures. As with other measures, the lowest success is found for those in part-time employment, but unlike other measures, those in full-time employment do better than those who are self-employed. We see that the higher overall proportion of men gaining an advantage by having a degree compared to women is confined to men in full-time employment.

[7] This figure is calculated by taking the percentages of men and of women in jobs that have met their career plans and multiplying by the DLHR Census populations. A calculation simply based on the respondents also gives a rounded figure of 42 per cent.

Table A20: Getting a job without a degree by type of employment (Young full-time home employed graduates, 2007-08 DLHE)

	Per cent gaining advantage		
Employment	**Men**	**Women**	**Difference**
Full-time paid work	71%	69%	2.0%
Part-time paid work	32%	42%	-9.7%
Self-employed	58%	67%	-8.9%
Other employment	51%	56%	-4.6%
All employment	63%	62%	1.0%

Reasons for taking job

61. The DLHE questionnaire asks respondents why they decided to take their job. They can tick any number of answers out of eight options. As a measure of job quality, we identify those respondents who include the answer, "it fitted into my career plan / it was exactly the type of work I wanted". Those who selected other answers, but not this one, were judged to have 'lower quality' jobs.

62. This, clearly, is not an absolute measure. The less ambitious will be more likely to have achieved their career plans with any given employment. Also, this question was not included on the telephone script, with the result that that the response rates are low, especially for men (see Table A10). Nevertheless, this question gets closer to a measure of success used by the graduates themselves, without making assumptions about the utility of any particular job attribute. Table A21 shows the numbers of graduates who did, and did not, find a job that met their career plans.

63. Most respondents have met their career plans, with a higher proportion of men (57 per cent) than women (52 per cent). Despite this, because of the greater number of women graduates, the proportion of men among graduates that have met their career plans is estimated at 43 per cent[8].

[8] This figure is calculated by taking the percentages of men and of women in jobs that have met their career plans and multiplying by the DLHR Census populations. A calculation simply based on the respondents gives a figure of 38 per cent.

Table A21: Reasons for taking job: jobs that fit career plans (Young full-time home employed graduates, 2007-08 DLHE)

Activity	Number		% Men	% of all known		
	Men	Women		Men	Wo-men	Diff.
Fits career plans	7,415	11,955	43%	57%	52%	4.2%
Other	5,665	10,830	39%	43%	48%	-4.2%
Total Known	13,080	22,785		100%	100%	0.0%
Unknown	32,470	41,435				
Total	45,550	64,220				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent whose job fit their career plans is the same for these survey non-responders and for completing the survey but not answering this question.

64. Table A22 shows the percentages of graduates who have met their career plans by type of employment. The pattern shown by other measures, of the highest success for the self employed and the lowest for those in part-time work is demonstrated again. It is interesting that though the proportion for women in part-time employment who met their career plans is low, it is higher than for men, suggesting that part-time work may be a positive option for more women than for men.

Table A22: Per cent in jobs that fit career plans by type of employment (Young full-time home employed graduates, 2007-08 DLHE)

Employment	Per cent fitting career plans		
	Men	Women	Difference
Full-time paid work	61%	57%	4.0%
Part-time paid work	23%	27%	-3.9%
Self-employed	68%	65%	2.8%
Other employment	46%	45%	0.6%
All employment	57%	52%	4.2%

Activities of 2004-05 graduates three and a half years after qualifying

65. There have been two follow up surveys to the annual DLHE surveys, the 'DLHE Longitudinal' surveys. The results presented here refer to the second one which relates to those who qualified in the academic year 2004-05. UK HEIs provided the contact details, IFF Research carried out the survey, with HESA providing the sampling frame and the overall co-ordination and administration (IFF Research, 2009). The results from this survey are linked to the 2004-05 DLHE survey and the HESA student records.

66. The survey asks what the respondents were doing on the 24 November 2008. For the typical graduate who qualified in June 2005, this is about three and a half years after graduation.

Survey responses

67. As with the DLHE data, and unlike other HESA data collections, the DLHE Longitudinal data is not complete. The survey methodology was somewhat complex. A first sample, sample A, was identified, which was broadly representative of the 2004-05 DLHE respondents. About 5 per cent of most 2004-05 DLHE respondents were included, with oversampling of some groups to facilitate more detailed analysis. For example, 100 per cent of DLHE respondents from Black, Black Mixed and Other ethnic groups were included. Sample A graduates were contacted first by email, then by post and then by phone. Sample B consisted of all the remaining 2004-05 DLHE respondents who were only contacted by email. There are four main sources of missing data:

- Qualifiers who did not respond to the 2004-05 DLHE. The DLHE Longitudinal only included those who responded to the earlier survey;
- Respondents to the 2004-05 DLHE for whom no email, post or telephone contact details were provided;
- Qualifiers in sample B for whom no email address was provided;
- Qualifiers who did not respond to the DLHE Longitudinal survey.

68. Unfortunately, we are not able to identify the four sources of missing data for our population, young home full-time first degree graduates. Here we present information on this population where it is available, and the survey as a whole where it is not. Tables A23 and A24 provide summaries of the data available.

Table A23: Responses (unweighted) by survey method (Young full-time home graduates, 2004-05 DLHE Longitudinal)

Survey method	**Unweighted Number**		**% of target pop.**		
	Men	**Women**	**Men**	**Women**	**Diff.**
A: Postal	785	1,800	6.8%	11.2%	-4.4%
A: Telephone	2,470	3,210	21.3%	19.9%	1.4%
A: Online	905	1,210	7.8%	7.5%	0.3%
A: total response	**4,160**	**6,220**	**35.9%**	**38.6%**	**-2.7%**
A: Non response	7,425	9,905	64.1%	61.4%	2.7%
Total target A	**11,585**	**16,130**	**100.0%**	**100.0%**	**0.0%**
B: Postal	0	0	0.0%	0.0%	0.0%
B: Telephone	0	0	0.0%	0.0%	0.0%
B: Online	3,400	4,965	6.4%	7.2%	-0.8%
B: Total response	**3,400**	**4,965**	**6.4%**	**7.2%**	**-0.8%**
B: Non-response	49,720	63,575	93.6%	92.8%	0.8%
Total target B	**53,120**	**68,540**	**100.0%**	**100.0%**	**0.0%**

Table A24: Responses (unweighted) as percentage of DLHE population (Young full-time home graduates, 2004-05 DLHE Longitudinal)

	Unweighted Number		% of DLHE pop.		
	Men	**Women**	**Men**	**Women**	**Diff.**
LDLHE response	**7,560**	**11,185**	**9.4%**	**10.9%**	**-1.5%**
LDLHE non-response	57,145	73,480			
DLHE Non- response	15,415	18,010			
All non-response	**72,565**	**91,490**	**90.6%**	**89.1%**	**1.5%**
Total	**80,120**	**102,675**	**100.0%**	**100.0%**	**0.0%**

69. The 'non-response' totals include both those graduates who failed to respond, and those who were not contacted. For the survey as a whole, 94 per cent of sample A had at least one contact detail, e-mail, postal or phone, while only 36 per cent of sample B had e-mail addresses (IFF Research, 2009).

70. Overall we can see that the combined effect of differential responses by men and women to the DLHE and DLHE Longitudinal is to give a 1.5 percentage point difference in overall response rates. This is sizable given the overall response rates of around 10 per cent, and means that differential response biases could affect the results. For sample A we also see the same pattern as found for the DLHE, with a marked difference in the numbers of postal returns, a difference which is partially reduced through the telephone interviews.

71. As with the DLHE we have evidence for response bias by looking at the percentage of employed graduates in graduate jobs by survey method. We find that graduates who have not responded to online or postal surveys are less likely to be in graduate jobs.

Table A25: Proportion of employed in graduate jobs by survey method (Young full-time home graduates, 2004-05 DLHE Longitudinal, unweighted data)

Survey method	**Men**	**Women**	**Difference**
Postal	80.7%	76.5%	4.1%
Telephone	73.8%	71.4%	2.4%
Online (A)	80.3%	78.5%	1.8%
Online (B)	81.2%	79.9%	1.4%

72. As with the DLHE survey, there is a further loss of information with respect to individual data items, but pattern of this further attrition is quite different. The proportion of responses with information is higher than for the DLHE, with the exception of the categorisation of jobs as graduate or non-graduate. Nearly all DLHE respondents in employment could be so categorised while it was only possible for about 90 per cent of DLHE Longitudinal. This difference could be due to differences in the

descriptions in job titles between the surveys, but it is more likely to be due to differences in proportion of titles that institutions coded, compared to IFF Research.

Table A26: Respondents providing information (Young full-time home graduates, 2004-05 DLHE Longitudinal, unweighted data)

Information	Men	Women	Difference
Satisfaction (all respondents)	99%	99%	0.0%
Salary (full-time employed)	86%	88%	-1.8%
Salary (part-time employed, freelance)	75%	79%	-3.9%
Graduate job (all employed)	89%	91%	-2.4%
Importance of degree (all employed)	99%	99%	0.2%
Reasons for taking job (all employed)	99%	99%	0.1%

Weighting of responses

73. For each response a weight was calculated (IFF Research, 2009) to allow for the oversampling of certain groups of graduates and for the differential response rates. These weights have been used in the calculation of the activities profile (Table A27) and for various measures of each graduate's success. Table A27 provides a summary comparison of weighted and unweighted totals.

Table A27: Weighted and unweighted totals (Young full-time home graduates, 2004-05 DLHE Longitudinal)

	Number		% men	(% men) / (% men in DLHE pop)
	Men	Women		
Unweighted responses	7,560	11,185	40.3%	0.92
Weighted responses	8,625	11,535	42.8%	0.98
DLHE population	80,120	102,675	43.8%	1.00

74. It can be seen that the weighting brings the proportion of men closer to that of the underlying population, but that men are still underrepresented. This is in part because the researchers used the DLHE responders, rather than the DLHE population, as their reference in the calculation of the weights[9].

75. Though the use of weights greatly reduces the under-representation of men, it should not be assumed that the use of the weights will reduce the response biases, or differences in response biases, that have been discussed above. Indeed, given that sex was included in the model used

[9] The technical report (IFF Research, 2009) refers to the 'DLHE population' but from the numbers quoted, and the methods used, it is apparent that they used the DLHE respondents.

to create the weights, we would not expect to see a reduction in the differences in response bias on using the weights[10].

What graduates are doing three and a half years after graduation

76. Table A28 shows the reported activities of the respondents.

Table A28: Activities three and a half years after graduation (Young full-time home graduates, 2004-05 DLHE Longitudinal)

Activity	Weighted Number		% Men	% of all activities		
	Men	Women		Men	Wo-men	Diff.
Full-time paid work	6,970	9,290	44%	81%	81%	0.3%
Part-time paid work	250	520	34%	3%	5%	-1.6%
Self-employed	390	285	59%	5%	2%	2.1%
Other employment	45	85	36%	1%	1%	-0.2%
Further study only	610	905	41%	7%	8%	-0.8%
Unemployed	295	250	55%	3%	2%	1.2%
Unavailable for work	55	195	23%	1%	2%	-1.0%
Other	10	10	50%	0%	0%	0.0%
All activities	8,625	11,535	44%	100%	100%	0.0%

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men assumes the activities profile for non-responders is the same as for responders.

77. The percentage of men for each activity includes an adjustment to allow for the different response rates of men and women. This adjustment probably gives an over-estimate of the proportion of men.

78. Compared to the pattern seen for graduates about six months after graduation, the differences in the profile of activities between men and women are small. Men still have a higher unemployment rate, but the unemployment rates for men and women are much lower. One difference found in both profiles is that a higher proportion of women are in part-time work, and a higher proportion of men are self employed or freelance.

Satisfaction with career so far

79. All respondents, not just those in employment, were asked how satisfied or dissatisfied they were with their career to date. They were asked to tick one of the following options:-

- Very satisfied
- Fairly satisfied
- Not very satisfied
- Not at all satisfied
- Unwilling to answer
- Don't Know

[10] IFF Research have confirmed that sex was included in the weighting model.

80. Table A29 shows the overall levels of satisfaction cumulatively and Table A30 provides a breakdown of the percentage who are 'very satisfied' by type of activity. The numbers in some of the rows of this breakdown table are rather small (see Table A28), and even some of the apparent differences between men and women are not significant, they are likely to occur by chance. As a guide those activities with very small numbers are in italics, and differences which are not significant are indicated by 'n/s' in the difference column.

81. We can see that overall women are more likely to be 'very' and to be 'very' or 'fairly' satisfied with their career than men. The proportions who are not at all satisfied are low and equal between men and women. When we break down the proportions who are 'very satisfied' by activity, we run into problems with small numbers, but the general pattern is credible with those who are self employed or freelance with the highest levels of satisfaction, and those who are unemployed with the lowest.

Table A29: Satisfaction with career (Young full-time home graduates, 2004-05 DLHE Longitudinal)

Level of satisfaction	**Weighted Number**		**% of all indicating level of satisfaction**		
	Men	**Women**	**Men**	**Women**	**Diff.**
'Very'	2,925	4,235	34.3%	37.2%	-2.8%
'Very' or 'Fairly'	7,205	9,815	84.6%	86.1%	-1.5%
'Very', 'Fairly' or 'Not very'	8,220	11,000	96.5%	96.5%	0.0%
All levels of satisfaction	8,515	11,400	100.0%	100.0%	0.0%
Don't know	25	50			
Unwilling or not answered	80	85			
Total	**8,625**	**11,535**			

Numbers rounded to nearest 5, percentages calculated from exact figures.

Table A30: Per cent 'very satisfied' with career by activity (Young full-time home graduates, 2004-05 DLHE Longitudinal)

Activity	**Men**	**Women**	**Difference**
Full-time paid work	35%	39%	-4%
Part-time paid work	21%	27%	-5%
Self-employed	47%	42%	n/s
Other employment	*33%*	*31%*	*n/s*
Further study only	35%	35%	0%
Unemployed	12%	10%	n/s
Unavailable for work / other	*15%*	*28%*	*-13%*
All activities	34%	37%	-3%

82. The satisfaction question is not an absolute measure. Some will be more satisfied with lower achievements than others. This question does measure success across all activities, using the graduates criteria as to what is important.

Employment outcomes three and a half years after graduation

83. The survey question used to capture salary was as follows:

> What was your approximate annual gross pay, before tax? You can either give this as an annual salary, or give a monthly, weekly or hourly rate.
>
> Please provide your answer in pounds sterling (£). If you are paid in another currency, please provide an approximate figure in pounds sterling.
>
> If you were self-employed please indicate the amount of money that you paid yourself out of the business.
>
> Please just state basic pay; do not include any bonuses or benefits in kind.

84. This question does not follow the definition used for the DLHE survey, so the two are not comparable. The annual salary data provided by IFF Research for this analysis was calculated by using standard multiples for each time period used.[11] In general, unlike for the DLHE question, respondents will not provide a full-time equivalent salary, unless they provide a daily or hourly rate. This means that part-time salaries are not well defined. Further, even though the responses to the salary question by those in part-time and freelance employment are higher than for the DLHE survey, there are large differences in the response rates for men and women. Given this, and the weak definition of part-time salary, we have restricted the main salary analysis to those in full-time employment.

85. Table A31 shows the mean and median salaries for DLHE Longitudinal respondents in full-time employment. As with the DLHE analysis figures were also calculated excluding salaries of less than £1,000 and more than £100,000. Very few respondents were excluded and the truncated statistics were almost the same as those including all the respondents. All the results presented here are based on all the data.

[11] IFF Research used 12, 26, 52, 253 and 1820 multiples to convert the monthly, fortnightly, weekly, daily and hourly rates returned by the respondents to annual figures.

Table A31: Salary (Young full-time home graduates in full-time employment, 2004-05 DLHE Longitudinal, weighted data)

	Men	Women	Difference	Per-cent male premium
Median	£25,000	£23,000	£2,000	9%
Mean	£28,071	£24,023	£4,048	17%
Mean (male subject profile)	£28,071	£25,294	£2,777	11%
Mean (female subject profile)	£26,770	£24,044	£2,726	11%

Subject profiles exclude Nursing and Social Work as the numbers of men graduating in these subjects are too few. This is the reason for the difference between the overall mean for women (£24,023) and the mean for women with the female subject profile (£24,044).

86. The difference between men and women in median salaries is the same as found for 2007-08 graduates six months after graduation, while the difference in mean salaries is almost twice as great. Further analysis of the distribution of salaries is needed to see what lies behind these figures, but they are consistent with the existence of a group of highly paid mostly male group gaining higher increases in pay than the average.

87. Part of the difference in mean salaries is explained by different subject profiles, but to a lesser extent than found for the 2007-08 graduates six months after graduation.

Salary for those in different types of employment

88. The salaries are not well defined for those not in full-time employment. Some of the salaries will be full-time equivalents, some will be the actual salaries for less than full-time hours. We should therefore treat the figures for mean salaries for those not in full-time employment in Table A32 below with extra caution.

Table A32: Mean salaries by type of employment (Young full-time home employed graduates, 2004-05 DLHE Longitudinal, weighted data)

Employment	Men	Women	Difference	Per-cent male premium
Full-time paid work	28,071	24,023	4,048	17%
Part-time paid work	14,813	14,978	-164	-1%
Self-employed	30,801	27,238	3,563	13%
Other employment	*	*	*	*
All employment	27,716	23,645	4,071	17%

Those returning zero salaries excluded. Numbers returning salaries in 'other' categories too small to calculate mean values.

Classification of job as 'graduate' or 'non-graduate'

89. Using information from the question:

> What was your job title?
>
> Please provide as much detail as possible, outlining your main duties or responsibilities as appropriate. For example, rather than "supervisor", WRITE IN "customer service supervisor in a bank".

IFF Research derived the Standard Occupational Classification (SOC) of the employment. This information was then be used to classify a job as 'graduate' or 'non-graduate' employment (Elias and Purcell, 2004). As shown in Table A26 about 90 per cent of all respondents in employment are classified in this way. Table A33 shows this classification of employment for all respondents in work.

Table A33 Graduate / non-graduate jobs (Young full-time home employed graduates, 2004-05 DLHE Longitudinal)

	Weighted number		**%**	**% of known**		
	Men	**Women**	**Men**	**Men**	**Women**	**Diff.**
Graduate job	5,250	7,080	44%	77%	76%	0.7%
Non-graduate job	1,580	2,215	43%	23%	24%	-0.7%
Total Known	6,830	9,295		100%	100%	0.0%
Unknown	830	885				
Total	7,660	10,180				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent with graduate jobs is the same for these survey non-responders and those whose job could not be classified.

90. Most respondents are in graduate jobs. The difference in the proportion of men (77 per cent) and women is not statistically significant. The proportion of men in graduate jobs is estimated at 44 per cent.[12]

91. Table A34 provides a breakdown of the percentage who are in graduate jobs by type of activity. The numbers in some of the rows of this breakdown table are rather small (see Table A28), and even some of the large apparent differences between men and women are not significant, they are likely to occur by chance. As a guide those activities with very small numbers are in italics, and the fact that all the differences are not significant is indicated by 'n/s' in the difference column.

92. The table does show the pattern seen with other measures of success, with a higher proportion of the self employed and a lower proportion of those in part time achieving 'higher quality' employment.

[12] This figure is calculated by taking the percentages of men and of women in graduate jobs and multiplying by the DLHR Census populations. This probably slightly over-estimates the proportion of men. A calculation simply based on the respondents gives a value of 43 per cent.

This is to the disadvantage of women, who are more likely to be in part-time employment, and less likely to be self employed.

Table A34: Graduate / non-graduate jobs by type of employment (Young full-time home employed graduates, 2004-05 DLHE Longitudinal, weighted data)

	Per cent in graduate jobs		
Employment	**Men**	**Women**	**Difference**
Full-time paid work	78%	78%	n/s
Part-time paid work	38%	44%	n/s
Self-employed/ freelance	90%	86%	n/s
Other employment	*75%*	*54%*	*n/s*
All employment	77%	76%	n/s

Importance of a degree in gaining employment

The DLHE Longitudinal questionnaire asks respondents whether the qualification they gained in 2004-05, that is a first degree, was important when they gained their current employment. The options were:

- Formal requirement
- Important
- Not very important but helped
- Not important
- Don't know

93. This is similar to the 'would you have been able to get the job without a degree' question on the DLHE, though the difference in wording is such as to make an exact comparison difficult.

94. We have classified those who answered 'formal requirement' or 'important' as being in the 'higher quality' jobs compared to the other responses. Table A35 provides a summary which shows that a greater proportion of women compared to men indicated that their degree was either a formal requirement or important in getting their job.

Table A35: Importance of a degree in gaining employment (Young full-time home employed graduates, 2004-05 DLHE Longitudinal)

Value of degree	Weighted number		% Men	% of all known		
	Men	Women		Men	Women	Diff.
Requirement or important	4,960	7,090	42%	65%	70%	-5.1%
Not (very) important or don't know	2,635	2,975	48%	35%	30%	5.1%
Total known	**7,595**	**10,065**		**100%**	**100%**	**0.0%**
Unknown	30	50				
Not answered	35	65				
Total	**7,660**	**10,180**				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent whose job fit their career plans is the same for these survey non-responders and for completing the survey but not answering this question.

95. Table A36 gives a breakdown of the percentage gaining an advantage from their degree by the type of employment. This differs from other measures, in that the self-employed / freelance have a lower percentage of the 'quality' attribute than those in full-time employment. This is to be expected. Interpreting the question would not be straightforward for some of these graduates.

Table A36: Per cent gaining advantage from degree in securing employment by type of employment (Young full-time home employed graduates, 2007-08 DLHE)

Employment	Per cent gaining advantage		
	Men	Women	Difference
Full-time paid work	68%	72%	4%
Part-time paid work	30%	45%	14%
Self-employed	43%	64%	21%
Other employment	71%	61%	n/s
All employment	65%	70%	5%

Reasons for taking job

96. The DLHE Longitudinal questionnaire asked respondents why they decided to take their job. The question was similar to that included on the DLHE questionnaire, with slightly different wording. As a measure of job quality, we identify those respondents who include the answers, "it fitted into my career plan" or "it was exactly the type of work I wanted". Those who selected others answers, but not these, were judged to have a 'lower quality' jobs.

97. Table A37 shows the numbers of graduates who did, and did not, find a job that met their career plans, and Table A38 provides a breakdown by type of employment.

98. Overall the same proportion of men and of women are in a job that fits their career plans. As found from the DLHE survey of 2007-08 graduates though, the proportion for women in part-time employment who met their career plans is low. It is higher than for men, again suggesting that part-time work may be a positive option for more women than for men.

Table A37: Reasons for taking job: jobs that fit career plans (Young full-time home employed graduates, 2004-05 DLHE Longitudinal)

Activity	Weighted Number		% Men	% of all known		
	Men	Women		Men	Wo-men	Diff.
Fits career plans	5,615	7,515	44%	74%	74%	-0.7%
Other	2,015	2,605	45%	26%	26%	0.7%
Total Known	7,630	10,125		100%	100%	0.0%
Unknown	30	55				
Total	7,660	10,180				

Numbers rounded to nearest 5, percentages calculated from exact figures. Per cent men calculated assuming the activities profile for non-responders is the same as for responders, and that the per cent whose job fit their career plans is the same for these survey non-responders and for completing the survey but not answering this question.

Table A38: Per cent in jobs that fit career plans by type of employment (Young full-time home employed graduates, 2004-05 DLHE Longitudinal, weighted data)

Employment	Per cent fitting career plans		
	Men	Women	Difference
Full-time paid work	74%	75%	n/s
Part-time paid work	43%	55%	-12%
Self-employed / freelance	79%	74%	n/s
Other employment *	64%	83%	n/s
All employment	**74%**	**74%**	**n/s**

Definitions

HESA reference volume definitions

99. See HESA reference volumes for definitions of DLHE and DLHE Longitudinal coverage. Fields in Table A39 follow those used in HESA reference volumes.

Table A39: Fields using standard HESA definitions

Field	**Values defining population in this annex**
Level of qualification obtained	First degrees
Domicile	UK domiciled
Mode of study	Full-time
Age	Under 21 on their programme commencement date

100. Subjects are defined as in the HESA reference volumes. The DLHE Longitudinal graduates (2004-05) were classified using the original Joint Academic Coding System (JACS) introduced from 2002-03. The DLHE (2007-08) were classified using a revised JACS, JACS2. The full details are available on the HESA web site.

101. For graduates who studied more than one subject the headcount is split using the algorithm described for HESA reference volumes since 2002-03.

Activities

102. The categories of activity after graduation used in this analysis are shown in Table A40. They differ from the categories used in HESA standard reference volumes.

Table A40: Activities and activity codes

Activity	**Activity code**
Full-time paid work	*1*
Part-time paid work	*2*
Self-employed/Freelance work	*3*
Voluntary/unpaid work only	*4*
Further study only	*5*
Assumed to be unemployed	*6*
Not available for employment	*7*
Other	*8*
Explicit refusal	*X*

103. Those who explicitly refused to provide activity information were treated as non-responders.

104. The activity category of graduates was defined by what respondents returned under employment circumstances and study circumstances. The

relationships between employment and study circumstances and activities are shown in Tables A41 and A42.

Table A41: Activity codes defined by employment and study circumstances (DLHE) (Activity codes in ***bold italics***)

Employment circumstances	Study circumstances		
	Full-time study (1)	Part-time study (2)	Not studying (3)
Employed full-time in paid work (01)	***1***	***1***	***1***
Employed part-time in paid work (02)	***2***	***2***	***2***
Self-employed/freelance (03)	***3***	***3***	***3***
Voluntary work/other unpaid work (15)	***4***	***4***	***4***
Permanently unable to work/retired (16)	***7***	***7***	***7***
Temporarily sick or unable to work/looking after the home or family (17)	***5***	***5***	***7***
Taking time out in order to travel (10)	***7***	***7***	***7***
Due to start a job within the next month (11)	***5***	***6***	***6***
Unemployed and looking for employment, further study or training (12)	***5***	***6***	***6***
Not employed but NOT looking for employment, further study or training (13)	***5***	***5***	***8***
Something else (14)	***5***	***5***	***8***
Question not answered (XX)	***X***	***X***	***X***

Table A42: Activity codes defined by employment and study circumstances (DLHE Longitudinal) (Activity codes in ***bold italics***)

Employment circumstances	Study circumstances			
	Full-time study	Part-time study	Study mode unknown	Not in study
Employed full-time in paid work	***1***	***1***	***1***	***1***
Employed part-time in paid work	***2***	***2***	***2***	***2***
Self-employed/freelance	***3***	***3***	***3***	***3***
Voluntary work/other unpaid work	***4***	***4***	***4***	***4***
Employed mode unknown	***4***	***4***	***4***	***4***
Permanently unable to work/retired	***7***	***7***	***7***	***7***
Temporarily sick or unable to work/looking after the home or family	***5***	***5***	***5***	***7***
Taking time out in order to travel	***7***	***7***	***7***	***7***
Unemployed and looking for employment, further study or training	***5***	***6***	***6***	***6***
Not employed but NOT looking for employment, further study or training	***5***	***5***	***5***	***8***
Something else	***5***	***5***	***5***	***8***

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Male and female participation and progression in higher education: further analysis
Part 2: Responses to comments

John Thompson and Bahram Bekhradnia

Do the inequalities in HE participation matter?

1. There are some valid comments about the admissions process and about changes in subject mix which we address below, but the key facts about the growing inequality of participation are not disputed. The main point of disagreement is whether the inequalities matter. Through a textual analysis Professor Louise Morley detects a "castration anxiety".[1] This may or may not be the case. The basis of our underlying motives is often hidden from us, but the authors' motives are not important. What is important is whether the phenomena observed and reported matter to society as a whole. For some the current inequalities do not matter, and, indeed, anyone suggesting that there is a cause for concern is displaying 'moral panic'. Given that the inequalities in participation are greater than the inequalities to the advantage of men more than thirty years ago, we think that such a position requires more explanation than has been given.

2. In our view, of even greater concern is the possibility that current trends take us to a situation where higher education and the related professions are overwhelmingly female, and where almost the only men to progress to higher education are those from the most advantaged socio-economic groups. For some, there is no problem with such a scenario. As one of the contributors to the Times Higher Education discussion put it,

> "if the boys don't want to get educated, why not let them play football while the more intelligent sex gets on with running the world"

If this is also the view of those professors of education and policy makers who think there is no cause for concern, then they should argue this, and perhaps try to anticipate the changes that would result. For our part we concur with the recent OECD report (Vincent-Lancrin, 2008) that,

> "reason for concern about the reversal of inequalities has to do with the current ignorance of its possible social consequences",
>
> "Societies have accommodated themselves to inequalities to the detriment of women for centuries. They could no doubt just as easily

[1] Quoted by Melanie Newman in the article, "Male students are now the weaker sex, says Hepi study", Times Higher Education, 11 June 2009.

accommodate themselves to inequalities to the detriment of men. Nevertheless, the ideal of equality remains preferable."

Possible bias in admissions

3. Though most have accepted that women do not have lower participation than men at more prestigious institutions, some have suggested that women's participation in these institutions relative to others may indicate that women are disadvantaged, that admissions tutors in these more prestigious institutions may be deliberately balancing the intake to prevent women forming a large majority.

4. The proportions of men and women (or indeed any other groups of students defined by some attribute) at different groups of institutions depends on a number of decisions:

- the numbers of students applying to such institutions ("the applicant's first decision");
- the proportion of applicants gaining offers ("the institution's main decision");
- the decision of applicants to accept an offer ("the applicant's second decision").

5. The final outcome also depends on whether the applicant meets the requirements of the offer and (if not) whether the institution accepts the applicant even if they do not meet the offer, say when they just miss the required grades ("the institution's secondary decision").

6. The process is further complicated by the fact that applicants can, and usually do, make more than one application, that they can accept an offer as an 'insurance' place. And then there is clearing, the process whereby applicants who do not have confirmed offers find places at the end of the application cycle.

7. It is suggested that institutions, and particularly prestigious institutions, may be biased against women in making their decisions. By 'bias' we mean that there is a systematic preference for men compared to women applying for the same course with the same demonstrable strengths. The main component of these 'demonstrable strengths' would be the grades and subjects of their pre-HE qualifications, but other factors may also be included, like performance in the institution's own tests, interviews, etc.

Challenges in modelling the admissions process

8. It is very difficult to assess whether there is any bias against one group of students compared to another. Quite apart from the fact that data on some of the components of the 'demonstrable strengths' are not available, the technical problems are non-trivial. This is most clearly demonstrated by the work of Shiner and Modood (Shiner, et al, 2002). Their analysis was the most sophisticated that had been undertaken for applications across institutions and subjects at that time. Most of the published work had simply compared aggregate totals of applications and acceptances. However, they wrongly concluded that applicants from ethnic minorities face a penalty when applying to pre-92 universities. This conclusion was the result of an acknowledged weakness in their modelling (HEFCE, 2005a, Gittoes et al, 2007). Both the strength and suitability of applicants' qualifications in relation to the course of study they applied for, and the competitiveness or difficulty of gaining a place on an individual course have to be characterised in some detail. If this is not done, in the statistical modelling, student attributes can 'pick up' the unspecified applicant or course characteristics, as happened in the Shiner and Modood analysis. For example, if, on average, women were more likely to apply for more competitive courses than men, and the competitiveness was not fully characterised in the modelling, it would appear that there was a specific disadvantage, or bias, against women.

9. When the analysis has been carried out rigorously there seems to be a slight advantage for women both for subjects in general (HEFCE 2005a) and for medicine (McManus 1998a and 1998b). This may have been due to bias, or, more likely, some unmeasured component of the applicant's 'demonstrable strengths'. Those carrying out the analysis, unlike the admissions tutors, only had grades of qualifications and, particularly for a subject like medicine, other strengths will be important.

10. Both of these studies are now rather out of date, looking at cohorts before the gap in participation between men and women had reached the current levels, and it is possible that the situation has changed and that institutions could now be exercising a bias against women in order to achieve a better gender balance. There is a need for the analysis to be repeated for more recent cohorts, not least because there are still some unresolved issues about possible ethnic bias for certain subjects, Law in particular, as well as to see if there is indeed any apparent bias against women, or, indeed, a continuing possible bias against men. HEFCE have said they will carry out or commission further research (HEFCE 2005a).

Study by the Institute of Employment Research (IER)

11. Purcell has reported some findings which suggest that similarly qualified female applicants have lower offer rates (Purcell et al 2008). The

model used appears not to control for either applicant or course characteristics to the extent that was found to be necessary when analysing Shiner and Modood's data. We would reinforce the view of Purcell and colleagues that their findings warrant "further detailed investigation", but in the meantime it appears that there is no convincing evidence of bias for or against women in the HE application process.

Admissions to the University of Oxford

12. A study of admissions to the University Oxford concluded that "female applicants are disadvantaged despite their superior academic qualifications" (Zimdars et al, 2009). This was reported in the Guardian under the headline, "Oxford University admissions favour men, study finds".[2] In fact the study was based on those applicants who had been shortlisted for an interview; there is no analysis of the first stage of selection. The study also concluded that shortlisted applicants from South Asian background were disadvantaged. The analysis was based on a survey, which, while much richer than administrative data, does have potential problems with response bias and representativity. Women were more likely to agree to be part of the study than men, and this difference was greatest for those not getting an offer. This resulted in an offer rate for men 18 per cent higher than for women for the participants in the study, compared to an offer rate for men 10 per cent higher than for women in the target population of selected colleges. Across the university as a whole, shortlisted male applicants had an offer rate 4 per cent higher than for shortlisted female applicants.[3] Also, in our view, neither the competitiveness of the courses, nor the academic strength of the shortlisted applicants, were sufficiently characterised for us to be confident that the reported disadvantages were real.

13. In the recent paper courses were divided into two groups, 'arts' and 'sciences', (Zimdars et al, 2009). In an earlier thesis (Zimdars 2007) courses are divided into three subject groups (Humanities, Social Sciences and Other) and two specific subjects (Medicine and Mathematics). The only model which shows a significant sex effect was for 'other' subjects, where the course competitiveness heterogeneity is likely to be greatest.[4] Oxford is a selecting (rather than recruiting) university for all its courses. However competitiveness is almost certainly not equal for all courses, and

[2] http://www.guardian.co.uk/education/2009/aug/19/oxford-university-men-places-women

[3] Offer rates for the different populations are shown at table 2.5 of the research thesis (Zimbars 2007

[4] Models for applicant to mathematics and medicine which excluded A-level and AS-level results and predictions and institution tests specific to these subjects also showed a significantly lower offer rate for women. However, when theses test results were included there were no significant differences in the offer rates between men and women.

it is not safe to model the application process with the levels of course aggregation used.

14. The subjects of both A-levels and GCSEs, which we know to be important, were not characterised. Even if they had been, these prior academic qualifications cannot fully capture the prior academic strength of the shortlisted applicants to Oxford. This is because almost all have or are expected to get A grades at A-level and have a large number of GCSE grades A and A*. Results of subject specific tests, which Oxford has introduced for most subjects, were not included, apart from subjects where tests were centrally administered, that is for medicine and mathematics. Models which included these test results showed no significant differences in the offer rates for men and women. The other more judgemental factors used in the selection process, like interview scores, could reflect bias resulting from white male interviewers recruiting 'in their own image', but equally these scores could be accurate measures of the shortlisted applicants' ability and motivation. We do not have any evidence to decide which is the case[5].

Summary

15. Though there are several studies that appear to show that women are disadvantaged in the application process, none is conclusive. The unanswered questions about possible bias by sex, ethnicity and other student attributes can and should be investigated, and we would urge HEFCE to ensure that this is done in the near future.

Integration of nursing and other programmes into higher education

16. Several correspondents have pointed out that the integration of nursing courses into higher education will have increased the HE participation rates for women more than for men. This is a valid point, and is something that should have been dealt with in the report. It is also the case that much of the growth in foundation degree programmes with courses aimed at teaching assistants and those working in social care occupations will reflect the high proportions of women in those professions.

17. Though these points are valid, they account for only part of the growing inequality in HE participation between men and women. The impact of the integration of nursing education into HE on participation

[5] This appears to be accepted by the lead author who writes that the proposed mechanism of homo-social reproduction in the admissions process "is not directly observed in the thesis and constitutes just one possible explanation of the findings that could be falsified by further research. Detailed empirical research would be needed to investigate this hypothesis further." See page 392 of Zimdars, 2007.

rates was investigated in the HEFCE report "Young participation in higher education" (HEFCE 2005b). It was found that "if nursing students are removed from the statistic then, as expected, the sexual inequality reduces, but remains substantial... and the trend of increasing inequality is not altered."

18. This HEFCE analysis only related to young participation, and it did not include other subject areas which have been thought to explain the increase in participation by women.

> "A major factor in the increase in numbers of women in universities in recent years has been the designation of nursing, teaching and social work professions as graduate-only entry and hence requiring university study" (Leatherwood et al, 2008, page 50)

19. The list of subject areas and professions is somewhat selective. All are subjects with an especially high proportion of women, but they are not the only professions which, unlike in earlier decades, now have a largely graduate entry. Entry to accountancy, for example, unlike in earlier decades, is now through higher education. Also, the changes to teaching and social work and their relation to participation statistics, are not as recent or straightforward as for nursing. But even if we accept this selection without question, does it explain the higher participation rate of women? Table B1 below shows the participation rates of men and women in these subjects, and for all other subjects.

Table B1: HEIPR (2007-08) components for men and women by selected subjects

Mode	**Men**	**Women**
Nursing	0.3%	3.4%
Teaching	0.3%	1.5%
Social Work	0.2%	1.5%
All other subjects	**36.9%**	**42.8%**
All subjects	**37.8%**	**49.2%**

Source: HEFCE unpublished analysis. Relation to Table 2 of original report: 'Nursing' was included in the 'Subjects allied to Medicine' group, 'Teaching' under 'Education' and 'Social Work' under 'Social studies.

20. Table B1 shows that if we exclude the selected subjects, slightly more than half of the participation gap is removed, but this still leaves a difference in participation of nearly six percentage points. And even then, it is difficult to know what to do with this point, unless it is to suggest that teaching, nursing and social work do not somehow 'count' as subjects for HE study. It is true that if they are removed the disadvantage of males reduces (though remains substantial and growing). But there seems no more reason to disregard these subjects than any others.

Prestige of institutions

21. Finally we looked at the assertion that female participation was concentrated in 'low prestige' institutions, reflected in the Daily Telegraph Good University Guide 2008.

22. Our analysis had shown clearly that women's participation was greater than men's in all types of institution, ranging from FE colleges to Russell Group universities. Only in Oxford and Cambridge was the participation of men equal to that of women. Even when we looked at the Daily Telegraph rankings – which we did, not because we wished to lend credibility to the league table nor to endorse the notion of some universities being 'top' and some being 'bottom' in the crude way that the league table is constructed, but to enable us to understand the assertion – it transpired that women's participation is greater both in the 'top' and in the 'bottom' universities.

23. On closer examination there were a number of basic errors in the analysis underlying the claim – for example the calculation had been done based on crude numbers rather than participation rates, ignoring the larger number of males in the population; and the percentages of males and females in the 'top' and 'bottom' universities had been calculated averaging the sum of the percentage of males and females in each university, making no allowance for the different sizes of the different institutions in each group.

24. Even putting these errors to one side, it transpires that the claim that women are disadvantaged in respect of the type of institution attended rests entirely on the fact that although they are more numerous than men in the 'top' universities, the difference in numbers is even greater the 'bottom' universities. So although men are disadvantaged in respect of attendance at top universities, the fact that they are disadvantaged by more in respect of attendance at 'bottom' universities is taken to show that it is in fact women who are disadvantaged! We have not investigated this point further.

Recent trends in participation

25. The original report focussed on young (17-20) participation based on the HEIPR statistic up to 2007-08. We also referred to the HEFCE study (HEFCE 2005b) which used measures based on age rather than entry cohorts for entry at 18 and 19. This showed similar trends to the HEIPR, but only up to 2000-01 and 2001-02, that is for 18 year old entry in 2000-01 and 19 year old entry in 2001-02. Since the publication of the HEPI report, HEFCE have updated this analysis and by using application data have estimated participation rates for 18 year olds up to 2009-10

which with an extrapolation of the 19 year old entry for 2010-11 gave an estimate of the 18 and 19 year old participation rate (HEFCE 2010).

26. These new data show a recent change in trends. Between the 1994 and 2004 cohorts[6] the young participation rate for women increased from 30 per cent to 35 per cent while the participation rate for men ended this period with a 29 per cent rate, the same as at the beginning. The overall growth in young participation over this period was due to the increased participation by women.

27. However, between the 2004 and 2009 cohorts, the young participation rate for men increased from 29 per cent to 32 per cent. This was not as much as for women, whose participation rate increased from 35 per cent to 40 per cent, but it represents a change in the trend over the previous decade. Whether these figures represent a stabilisation of the gap or not depends on how it is expressed. Over this period the difference in participation rates between men and women increased by 0.6 per cent, and the inequality index, as used in the HEPI report, also increased slightly from 0.31 to 0.32, but, as pointed out by HEFCE, the proportional increase in participation rates was 12 per cent for both men and women.

28. We can conclude that since 2004 the gap in young participation between men and women has, at worst, only slightly increased.

[6] '1994 cohort' refers to those who were 18 year in 1994-95 and entered HE in 1994-95 or 1995-96. Analogous abbreviations are used for other years.

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