

# **Male and female participation and progression in higher education: further analysis<sup>1</sup>**

## **Part 1: Employment outcomes**

**John Thompson**

### **Introduction**

1. The HEPI report "Male and female participation and progression in higher education" provided some analysis of the employment outcomes of graduates. This report 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. This report concerns gender differences in graduate employment, based on the most comprehensive data available. However, these predate the recent sharp rise in graduate unemployment following the economic downturn. To provide some recent context for the analysis in this report, information from the Labour Force Survey was obtained from the Office for National Statistics. This shows that between the final quarters of 2008 and 2009 the percentage of young graduates in the labour market who are unemployed has increased from 11.1 to 14.0 – a rise of more than 25 per cent – and that in 2009 17.2 per cent of young male graduates were unemployed compared to 11.2 per cent of young female graduates.

3. 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 2009 HEPI 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.

### **Activities of 2007-08 graduates shortly after qualifying**

4. The recent increase in graduate unemployment provides the context for this present report, but the data about that are limited, and the question is not pursued further. The statistics in this report are from the 2007-08 Destination of Leavers from Higher Education (DLHE) survey conducted six months after graduation, and from a longitudinal survey

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<sup>1</sup> 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. These are published in full as separate annexes to the 2009 report at [www.hepi.ac.uk](http://www.hepi.ac.uk), where full sources and references are provided.

based on the DLHE, conducted three years after graduation. The analysis is restricted to young home full-time first degree graduates.<sup>2</sup> Data from the DLHE has high response rates for both men and women. 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 response bias differences may partly explain the differences between men and women.

5. 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 unemployed men. The only other material differences are the higher proportion of self-employed or freelance men, and the higher proportion of women in part-time work.

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%
<b>All activities</b>	<b>100%</b>	<b>100%</b>	<b>0.0%</b>

6. 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%

7. 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 – that is to say if men had the same profile of subjects studied as women, their average salaries would still, for reasons that are not explicable from the data, be more than 5 per cent higher than women's.

<sup>2</sup> 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. But it is hoped these results, whilst limited, will be of interest.

8. Table A3 below shows that average job quality can be assessed with other measures besides pay.

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

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

9. Using as measures of job quality the proportion in graduate jobs, in jobs where the graduate believes their degree was needed or was at least an advantage, and in jobs that fitted their career plans, men seem to be more successful than women in their initial employment.

10. Of the employment characteristics shown in Table A3, having a 'graduate job' is most objective. While it does depend on the graduate's description of the job, it does not depend on their 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.

11. 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. Combined, these factors mean that only 44 per cent of the graduate jobs are held by men, even though the male population is larger. To the extent that men are disadvantaged, their disadvantage appears to arise from their lower participation in higher education, and in their subsequent performance once there. Women appear to have the advantage over men when it comes to participation in higher education and their subsequent HE performance, but to be disadvantaged in key respects in the transition to work.

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

12. 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.

13. 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 per cent 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.

14. 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.

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%
<b>All activities</b>	<b>100%</b>	<b>100%</b>	<b>0.0%</b>

15. All graduates, whether in employment or not, were asked 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%
<b>All levels of satisfaction</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>

16. Larger proportions of women expressed high levels of satisfaction with their career. Less than 4 per cent of all respondents were 'not at all' satisfied. 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 of success for graduates across all activities, using their criteria as to what is important.

17. 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. Like the DLHE, the salary data for graduates in other types of employment is less reliable.

18. Broadly, differences between men and women in median salaries six months after graduation appears similar to those of the 2007-08 cohort, 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)

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

19. 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. The rest cannot be explained by the available data, and further work is needed to understand whether they are as a result of biases in the job market, or as a result of choices and behavioural differences between men and women.

20. 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 definitional and processing differences from similar statistics derived from the DLHE data, but these 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)

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

21. 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.

## **Conclusion**

22. 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.

23. 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.

# **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. This report supplements the research published by HEPI in June 2009 on 'Male and female participation and progression in higher education', and reports on some further work done following comments and responses to the original report.
2. 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".<sup>3</sup> 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.
3. 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."  
  
4. 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 that concluded that:

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<sup>3</sup> Quoted by Melanie Newman in the article, "Male students are now the weaker sex, says Hepi study", Times Higher Education, 11 June 2009.

“[a] reason for concern about the reversal of inequalities has to do with the current ignorance of its possible social consequences”

and that:

“Societies have accommodated themselves to inequalities to the detriment of women for centuries. They could no doubt just as easily accommodate themselves to inequalities to the detriment of men. Nevertheless, the ideal of equality remains preferable.”

### **Possible bias in admissions**

5. 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.

6. 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”).

7. 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”).

8. 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.

9. 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*

10. 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 a now-acknowledged weakness in their modelling. 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.

11. 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. 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.

12. 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.

*Study by the Institute of Employment Research (IER)*

13. Purcell has reported some findings which suggest that similarly qualified female applicants have lower offer rates. 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*

14. A 2009 study of admissions to the University of Oxford concluded that "female applicants are disadvantaged despite their superior academic qualifications". This was reported in the Guardian under the headline, "Oxford University admissions favour men, study finds". 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. 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.

15. In the recent paper courses were divided into two groups, 'arts' and 'sciences'. In an earlier thesis the same author divided courses 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. Oxford is a selecting (rather than recruiting) university for all its courses. However competitiveness is almost certainly not equal for all courses, and it is not safe to model the application process with the levels of course aggregation used.

16. 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.

### *Summary*

17. 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**

18. 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.

19. 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 rates was investigated in the HEFCE report ‘Young participation in higher education’. 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.”

20. 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.” (Leathwood et al, 2008, page 50)

21. 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

<b>Mode</b>	<b>Men</b>	<b>Women</b>
Nursing	0.3%	3.4%
Teaching	0.3%	1.5%
Social work	0.2%	1.5%
All other subjects	36.9%	42.8%
<b>All subjects</b>	<b>37.8%</b>	<b>49.2%</b>

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

22. 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**

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

24. 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.

25. 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.

### **Have the differences in participation persisted?**

26. The 2009 report focussed on young participation based on the HEIPR statistic up to 2007-08. Since then, HEFCE have updated this analysis and have estimated the current 18 and 19 year old participation rate.

27. Between the 1994-1995 and 2004-2005 cohorts the young participation rate for women increased from 30 per cent to 35 per cent while the participation rate for men ended this period at 29 per cent, the same as at the beginning. The overall growth in young participation over this period was due to the increased participation by women.

28. However between the 2004-2005 and 2009-2010 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 they are 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.

29. We can conclude that since 2004-2005 the gap in young participation between men and women has, at worst, increased only slightly.