Learning from Futuretrack: Deciding to undertake postgraduate study

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Acknowledgements

This report, written by Dr Charlie Ball and colleagues at the Higher Education Careers Service Unit (HECSU), builds upon the Futuretrack study undertaken by researchers at the Institute for Employment Research at the University of Warwick, led by Professor Kate Purcell.

Established in 1972, the HECSU is an independent research charity specialising in higher education and graduate employment. We seek to support careers advisory services as they guide students and graduates through university and into postgraduate education and the labour market.

We aim to:

- Improve the dissemination of information about higher education and graduate employment
- Contribute to knowledge of student and graduate career development and employment by conducting and commissioning research
- Work with careers advisers, academic staff and employers to support graduate employability

We are indebted to the Department for Business, Innovation and Skills for its continuing support of the Futuretrack study; in particular to Charles Ritchie and Jane Carr whose comments during the drafting of the report have been invaluable.

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Executive summary

This report was commissioned by the Department for Business, Innovation and Skills (BIS) following the publication of the fourth (and final) stage of the Futuretrack study in November 2012. Our aim has been to investigate the characteristics of those who progressed to postgraduate study and outcomes particularly for those who indicated they intended to study to postgraduate level during their undergraduate course.

Since this report was written, a decision to introduce a new postgraduate Master's loan was announced at Autumn Statement 2015, to remove the barrier faced by many wishing to study at this level.

Proportion of cohort embarking on postgraduate study

- Twenty two per cent of the Futuretrack (UK domiciled) cohort entered postgraduate study at some point after they had graduated. Just over three per cent had taken a PGCE.
- Of those who had taken non-PGCE postgraduate courses 71 per cent had undertaken a Masters or other taught postgraduate courses, and 23 per cent had undertaken doctorates. Six per cent had undertaken a masters and were embarking on a PhD.
- A higher proportion of overseas students undertook postgraduate study compared with UK students.

Intentions to undertake postgraduate study

A range of individual characteristics were associated with early intentions to undertake further study (when students were asked in year 2 of their study). The most significant (when controlling for all factors) were:

- Respondents who were female; started higher education at 19-20 years of age; were from Black ethnic groups; were at institutions with high entry requirements; or had higher levels of prior educational qualifications were more likely to *intend* further study than remaining respondents.
- In contrast, socio economic background was not strongly related to respondents' *intentions* to undertake further postgraduate study; although respondents with parents who had not been to university were more likely to intend to undertake further study than those who had two parents who had been to university.

Intentions and actual participation in postgraduate study

Intentions were not always realised and early intentions were less predictive than later ones:

- Most students who said they were going to undertake postgraduate study (when asked at the end of year 1 of study) did not do so. Just under a third of those expressing an intention actually progressed to postgraduate study. Twelve per cent

of those who did not express an intention to study in their first year had actually gone on to study by 2012.

- In contrast 40 per cent of those expressing an intention in year 3 had progressed to postgraduate study by 2012. Thirteen per cent of those not expressing an intention subsequently undertook further study.

Characteristics associated with progression to postgraduate study amongst those who intended

Whilst a number of characteristics were associated with intention to undertake postgraduate study, a more limited range of factors influenced whether respondents actually progressed to postgraduate study:

- Respondents with higher levels of prior educational attainment or who had two parents who had been to university, were studying at institutions in the highest or high tariff score categories or who got a 2:1 or, a First in their undergraduate qualification, were more likely to have undertaken further study than remaining respondents. These were the only factors that had a significant association with participation in postgraduate study. Some factors are predictable; graduates who achieved First-class degrees were more likely than those with lower seconds or below to enter postgraduate study, which may be a function of the conditions attaching to postgraduate funding.

- Some of the groups who were more likely to express an early intention were subsequently not more likely to go onto postgraduate study - females; black students; those whose parents did not have university experience.

Influence and limitations of debt

It is not so clear that the level of individual debt had a bearing on the decision to continue with study for a postgraduate qualification. The individual's *perception* of debt is highly subjective and may be a more significant factor. Findings from this (and previous Futuretrack analysis) have not shown evidence of a large effect of debt or worry about debt on postgraduate decisions. Between 9 and 15 per cent of prospective postgraduates seemed to be deterred from study by financial concerns, depending on when the intention to study a postgraduate qualification was expressed.

It should be noted that the Futuretrack cohort graduated under the previous higher education funding regime, it does not therefore necessarily follow that current students and graduates will have the same views of debt.

The proposed Master's loan means that, for the first time, the Government will provide direct financial support, in the form of a loan with income contingent repayments, to help students secure finance to progress to postgraduate study.

Reasons for undertaking postgraduate study amongst those who expressed an intention

Students chose postgraduate study mainly for reasons of personal or professional development, but by their final undergraduate year, some opted for a course for the more pragmatic reason that they wish to defer entry into the job market. Those who intended to take postgraduate qualifications for reasons of personal development seem more likely to carry through their plans than those who undertook them because they felt they were essential for their career or to access better opportunities.

Conclusions

The decision to take a postgraduate qualification after graduation does not take place at a single point and once made, it is not irrevocable. The decision to undertake postgraduate study in earnest seems to be made relatively late and often with a reasonably clear perspective. Apparent career certainties at the end of the first year of higher education study changed with time, and that includes the decision to continue to further study.

An underlying social mobility message emerges from these findings. Most of the UK population does not have experience of higher education but the sons and daughters of those who do are much more likely to progress from higher education to postgraduate study.

Support and guidance for postgraduates, including information about financial support may be helpful to individuals. It may be better targeted later in undergraduate study when many students have come to their plans. These findings suggest that whilst students may indicate earlier in their degrees, that they intend to undertake further, postgraduate study, they may be likely to change their minds.

The recent announcement that the Government will introduce a system of Master's loans should help those facing financial barriers to progress to postgraduate study.

Introduction

This report was commissioned by the Department for Business, Innovation and Skills (BIS) following the publication of the fourth (and final) stage of the Futuretrack study in November 2012. Our aim has been to investigate the characteristics of UK-domiciled students who progress to postgraduate study and; where appropriate some examination of EU and non-EU domiciled students is also included. The research questions that guided the work are:

What are the characteristics of UK-domiciled students who progress to postgraduate study (i.e. subject discipline, type of institution, level and mode of postgraduate course undertaken)?

Is the distribution of socio-economic characteristics amongst UK-domiciled postgraduate students similar to or different from that at undergraduate level?

What motivates UK-domiciled students to take up postgraduate study?

Is motivation to take up postgraduate study associated with subject discipline, type of institution, expectations of study and outcomes, fees, or funding support?

Does the intention to take up postgraduate study change during undergraduate study?

Does anticipated level of debt on completion of undergraduate study influence the decision to take up postgraduate study?

Is work, work experience or work placement whilst an undergraduate associated with the take up of postgraduate study?

Our approach has been to collate and amplify what is already reported and to provide further granularity of analyses. An important part of this project is to understand the underlying reasons behind decisions about progression to further study. The choice to enter further study is complex, is initiated and affected by a range of factors and becomes clearer at different times for different people. For many students, a tentative inclination towards postgraduate study is already present at the start of their university course, for others, the decision becomes more formed as they progress, and for some, their experiences whilst at university act to modify their initial decisions.

For much of this report, the decision has been taken to split the Futuretrack stage 4 population into two: those who had, by stage 4 had some experience of postgraduate study (whether still engaged in study or having completed a course) and those who had not. Many of those who had not studied by stage 4 had previously stated an intention to take postgraduate study and many may subsequently progress into further study. Findings must thus be interpreted with that in mind. An explanation of the timing of Futuretrack stages is found in Appendix One.

Futuretrack

The final report on Futuretrack (Purcell, *et al,* 2012), examined those respondents from the stage 4 survey who had progressed to postgraduate study. It found:

> *"In the year after graduation we note that 21 per cent of graduates from three year courses were engaged in some form of further study. The majority of this group had embarked upon a taught Masters' degree. About a quarter of those engaged in further study were taking a postgraduate qualification of diploma and a small proportion was undertaking a PhD or other research degree. Compared with the class of '99 we note a significant rise in postgraduate study. Only 15 per cent of this earlier cohort was recorded as undertaking further study following their undergraduate course."* (Purcell, *et al,* 2012, p 30)

Those who had undertaken longer undergraduate courses were marginally less likely to have embarked on postgraduate study, although research degrees were more common for this group – not surprising as many four year courses have a final year that is effectively preparation for a doctoral qualification or equivalent.

> *"We note that those who undertook four year courses were less likely to move on to postgraduate study. By October 2010 about 19 per cent had moved on to further study, comprised of taught Masters' degree courses (8 per cent), PhD or other research degree courses (5 per cent), postgraduate certificate courses (4 per cent) and other (not classified courses) (2 per cent)."* (ibid, p 30)

Indeed, a range of factors were assessed to examine their impact on the likelihood of an individual to progress to postgraduate study. Some personal and socioeconomic factors had an impact; for example, gender (male graduates were more likely to have entered postgraduate study by stage 4), ethnicity (Asian graduates showed a greater propensity to postgraduate study) and parental background (graduates with two parents educated to higher education level were more likely to take postgraduate qualifications; graduates with no parents with higher education qualifications were less likely).

> *"The results hold no surprises, except perhaps that in terms of the graduates' social and educational background, social class appears to have little influence, whereas whether or not both parents hold a degree does associate with further study on Masters' degree courses or a PhD by Futuretrack graduates*" (ibid, p 31)

Some factors are predictable; graduates who achieved First-class degrees were more likely than those with lower seconds or below to enter postgraduate study, which may be a function of the conditions attaching to postgraduate funding. Some degree subjects appear more likely to lead to some forms of postgraduate study which may be a factor influenced by the nature of the jobs market they lead towards. Futuretrack showed, that science graduates, along with less vocational arts courses with traditionally large postgraduate cohorts, such as languages, history and classics are more likely to continue in study. Table 3.3 from the Futuretrack stage 4 report (Purcell, ibid, p 31) is reproduced below.

Factors associated with probability that graduates embarked on further taught Master's or PhD courses

More likely to have embarked on further study in Taught Masters' / PhD	Less likely to have embarked on further study in Taught Masters' / PhD
Undergraduate course of three years	Undergraduate course of five years or more
Male graduates	Female graduates
Both parents hold degree	Neither parent hold degree
Asian	White
Highest and High tariff HEIs, Other HEI not classified by tariff points	Middle and Low tariff HEIs
Biology, Vet Science and Agriculture; Physical Sciences; Linguistics and Classics; Languages; History and Philosophical Studies	Medicine & Dentistry, Subjects allied to Medicine, Education, Creative Art and Design
First Class Honours	Lower second class of degree, other class of degree

Source: Purcell, *et al,* 2012

Methodology and presentation of findings

A key feature of Futuretrack is that it is a longitudinal study of a single cohort of applicants to higher education. Data was collected at four waves (or stages), the first, stage 1 being as prospective students made application to higher education in 2006, the second, stage 2 approximately eighteen months later, a third, stage 3 as most were approaching their final examinations and the fourth, stage 4 between eighteen and thirty months post-graduation, when in 2012, most had either entered the labour market or undertaken post-graduation further education or training. Futuretrack is thus unique in capturing the whole of the student journey, from application to outcome. This provides the opportunity to track students' progression into, through and beyond higher education, as no other survey has been able to do.

The analyses here were carried out in two phases; the first comprised collation and bivariate analyses of relevant variables across all four phases (the descriptive phase) and the second comprised a range of multivariate analyses aimed to address the research questions (the modelling phase) in more detail. No new empirical data has been collected.

Findings are reported in two main sections: (i) data and descriptive analyses which reports findings from all stages of Futuretrack and (ii) modelling and regression analyses and comprise similarities and differences between respondents who had embarked on postgraduate study by the time of the stage 4 survey, and those who had not, in an effort to examine the factors that influence people to change their decisions to study for postgraduate qualifications. The appendices include an overview of respondent characteristics.

Note that not all respondents to the Futuretrack surveys answered all questions at each stage. Sample sizes are given for each question in the tables, and they cover only those respondents who replied to the individual question being investigated. As a consequence, sample sizes show small variations within each stage.

NB for the purposes of this report, postgraduate study includes all postgraduate level programmes except Postgraduate Certificate in Education (PGCE).

Selection of respondents who undertook postgraduate study

At stage 4 of the Futuretrack study, respondents were asked to document their activity since graduation. Respondents were able to identify up to seven different activities, taking place consecutively or concurrently, that they had occupied since they left university, and were then asked questions about those activities. Each of those seven activities included the option to state that the activity was 'study', and if so, respondents were then asked what form that study took. If any of those responses were 'postgraduate study' then the respondent was counted as having undertaken postgraduate study.

A key differentiator in the take up of postgraduate study is home domicile. Table 1 summarises the full stage 4 sample by domicile and type of postgraduate study.

Table 1: Home domicile of Futuretrack stage 4 respondents by type of postgraduate study.

	UK dom.	UK dom. %	Other EU dom.	Other EU dom. %	Other overseas	Other overseas %	All stage 4	All stage 4 %
Postgraduate study								
Did not take PG	11700	78%	843	63%	489	66%	13032	76%
PhD	651	4%	89	7%	72	10%	812	5%
Masters	1563	10%	316	24%	125	17%	2004	12%
Masters and PhD	158	1%	34	3%	14	2%	206	1%
Other taught PG	452	3%	49	4%	34	5%	535	3%
PGCE	470	3%	8	1%	2	0%	480	3%
All stage 4 respondents	14994	100%	1339	100%	736	100%	17069	100%
All stage 4 respondents who took non-PGCE PG courses	2824	18%	488	38%	245	34%	3557	21%

88 per cent of the sample was from the UK, 7.8 per cent from the EU and 4.3 per cent from outside the EU.

Universities and Colleges Admissions Service (UCAS) applicant data for 2006, extracted using the data tool on the UCAS website[1] shows that of 2,215,434 undergraduate applicants to higher education through UCAS, 1,900,825, or 85.8%, were UK-domiciled, 126,215, or 5.7%, were Other EU and 188,394, or 8.5%, were non-EU (or Other international). But UK-domiciled applicants were more likely to be accepted than non-EU, and the proportions of those accepted to study were 88.3% UK, 4.7% EU and 7% from outside the EU. This sample therefore over represents EU students at the expense of those from outside the EU.

Overseas students, both from the EU and non-EU countries, were more likely to have undertaken postgraduate qualifications than UK students. 11 per cent of PhD students, 15.8 per cent of Masters students and 16.5 per cent of those who had embarked on both qualifications came from the EU, but only 7.8 per cent of the Futuretrack sample, including all those who did not take any postgraduate qualification, was EU-domiciled.

Similarly, although 4.3 per cent of the total sample was from outside the EU, 8.9 per cent of those who had taken PhDs were originally domiciled outside Europe. By contrast very few overseas students undertook PGCE qualifications.

[1] UCAS enquiry tool: http://search1.ucas.co.uk/fandf00/index.html

Of those UK-domiciled respondents who answered the career history question at stage 4 (14,994) 22 per cent (3,294) indicated that they had entered postgraduate study at some point after they had graduated. Just over three per cent (470) had taken or were taking PGCE *and had not taken any other postgraduate qualification*. Those who had taken PGCE only were filtered out to give a total number for those who had progressed onto a postgraduate course of 2,824 respondents, or 18.8 per cent of the UK-domiciled respondent cohort.

Of those who had taken non-PGCE postgraduate courses, 71.4 per cent or 2,015 respondents had undertaken or were studying Masters or other taught postgraduate courses, and 651, or 23.1 per cent, were undertaking doctorates; 158 respondents, or 5.6 per cent of UK-domiciled postgraduate respondents, had both completed a Masters and had embarked on a PhD. Of those who had undertaken postgraduate study at some point in their career history, 46 per cent (1,517) were, at the time of stage 4, still in postgraduate study.

Data and descriptive analyses

Characteristics and attributes of students who undertook postgraduate study

The characteristics and attributes of those who undertook further study show some differences to those who did not. The 'baseline' for Futuretrack is the number of respondents to the stage 1 survey. Stage 1 was a census not a sample, as all UCAS applicants to higher education during the academic year 2005/06 were invited to participate in Futuretrack. There was no other sampling strategy. Surveys at stages 1, 2, 3 and 4 attracted a reducing number over the duration of the study as shown at Appendix One.

Of the 2,818 UK-domiciled stage 4 respondents whose age was known in 2006 and who progressed to further study, 64.8 per cent (1,826) were 18 or younger and entered university straight from school, and a further 25.2 per cent (710) were 19 or 20. By comparison 56 per cent (6,550) of the 11,697 respondents at stage 4 who had not entered postgraduate study were 18 or under in 2006, and a further 25.4 per cent (2,969) were 19 or 20. In all, those who were younger on application to higher education were rather more likely to engage in further study on graduation.

Table 2: Age at stage 1 of UK-domiciled respondents who had engaged in postgraduate study by stage 4.

	Did no PG	Did PG	Proportion who did PG	Proportion within age group who did PG	N = (unweighted)
Age group (as at 30th Sept 2006)					
18 and under	6550	1826	64.8%	21.8%	8376
19-20	2969	710	25.2%	19.3%	3679
21-25	947	135	4.8%	12.5%	1082
26 and over	1213	147	5.2%	10.8%	1360

Base: all UK-domiciled stage 4 respondents whose age at 30th September 2006 was known and who did not proceed onto a PGCE only (14,497)

The ethnicity of the majority of all Futuretrack respondents is White and 87.7 per cent of all stage 4 respondents who entered postgraduate study describe themselves as White. There is some small variation in the tendency for member ethnic groups to have undertaken postgraduate study, as shown in Table 3.

Table 3: Ethnicity of stage 4 respondents who had engaged in postgraduate study

	Did no PG	Did PG	Proportion who did PG	Proportion of ethnic group who did PG	N = (unweighted)
Ethnicity					
Asian	731	166	5.9%	18.5%	897
Black	314	53	1.9%	14.4%	367
White	10163	2475	87.7%	19.6%	12638
Mixed	372	101	3.6%	21.4%	473
Other	110	26	0.9%	19.1%	136

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose ethnicity was known (14,511)

There were differences in postgraduate participation by socio-economic group, as indicated by parental occupation at the age of 14 years and parental experience of higher education.

38.5 per cent of all students who went on to take postgraduate study had parents in the highest socio-economic classification (higher managerial and professional occupations), and 23 per cent of students from the highest socio-economic classification progressed to study at postgraduate level. Students from this group were the most likely to go on to postgraduate study and formed much the largest group of postgraduates. Respondents became progressively less likely to enter postgraduate study the lower their socio-economic classification as measured by parental occupation and parental experience of HE, although there were fewer differences between the lowest four categories of 'small employers and own account workers', lower supervisory and technical occupations', 'semi-routine occupations' and 'routine occupations as Tables 4 and 5 indicate.

This is of concern for the notion that postgraduate study is an engine of social mobility. It suggests that entry to postgraduate study could become concentrated amongst those sections of the population who already dominate the group of postgraduate entrants. If students from less represented backgrounds do not become more likely to enter postgraduate study, then postgraduate courses will remain the preserve of those already more likely to enter further study. Further regression analyses later in the report suggest that the effects of social background are mediated through other factors, particularly through school achievement and through choice of institution. However, both of these variables can be closely connected to social factors, and the effect of social background on the intention to study for postgraduate qualifications bears further analysis.

Table 4: Parental occupation of stage 4 respondents who had engaged in postgraduate study

	Did no PG	Did PG	Proportion within who did PG	Proportion of parental occupational group of those who did PG	N = (unweighted)
Parental occupation					
Higher managerial and professional occupations	3436	1027	38.5%	23.0%	4463
Lower managerial and professional occupations	2977	776	29.1%	20.7%	3753
Intermediate occupations	1164	257	9.6%	18.1%	1421
Small employers and own account workers	946	183	6.9%	16.2%	1129
Lower supervisory and technical occupations	778	132	5.0%	14.5%	910
Semi-routine occupations	969	171	6.4%	15.0%	1140
Routine occupations	709	119	4.5%	14.4%	828

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose parental background was known (13,644)

Parental education appeared to be a factor in the likelihood of graduates undertaking further study. The difference in propensity to study between those who had degree-educated parents and those who did not, is very striking. In all, 26.2 per cent of UK-domiciled respondents with two parents educated to degree level undertook a postgraduate qualification, whilst only 15.5 per cent of UK-domiciled respondents with no degree-educated parents progressed to postgraduate study. Despite this disparity, postgraduates with no parents who had been to university were the largest group.

Table 5: Parental experience of higher education of stage 4 respondents

	Didn't do PG	Did PG	Proportion of those who did PG	Proportion of each group who took PG	N unweighted
Parental degree					
Both parents have a degree	2541	900	33.0%	26.2%	3441
One parent has a degree	2907	766	28.1%	20.9%	3673
Neither parent has a degree	5776	1060	38.9%	15.5%	6836

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose level of parental education was known (13,950)

Again, there are implications for social mobility. Most of the UK working age population does not have experience of higher education[2], and if the children of the minority who do are much more likely to progress to postgraduate study, as appears to be the case, then postgraduate study is in danger of becoming a more self-perpetuating, exclusive population as it becomes concentrated amongst a section of the population with significant relative advantage and may become more difficult for those outside that group to participate.

Students with higher UCAS entry tariff scores were much more likely to enter postgraduate study. Just over 32 per cent of those achieving the highest UCAS points continued to further study; this is far higher than the average of 19.3 per cent of all UK-domiciled stage 4 respondents who undertook postgraduate study and whose tariff score was known. This is not a very surprising finding, as students with higher UCAS tariffs are more likely to have attended more selective institutions with a significant number of postgraduate students, and thus are more likely to be exposed to a culture of postgraduate study, and to opportunities to pursue further study themselves. But the difference in progression to postgraduate rates between students with high and low entry tariff scores may not be entirely due to differences in ability. Factors of social background and ability to fund study may also have a role. If recent efforts to widen participation to higher education remain policy imperatives, then such factors warrant serious consideration.

[2] Annual Population Survey data analysed using NOMIS gives the proportion of the working age population with NVQ4+ as 35 per cent in 2013. HE participation rates have not yet routinely reached 50 per cent for any age cohort (and they may never routinely reach 50 per cent) and as a consequence we are unlikely to reach a situation in the foreseeable future where a majority of the UK working age population have experienced university.

Table 6: UCAS entry tariff points for UK-domiciled stage 4 respondents who did and did not progress to postgraduate study.

	Didn't do PG	Did PG	Proportion within section of those who did PG	Proportion who did PG	N unweighted
UCAS tariff points					
None, or not measured	1887	274	11.4%	12.7%	2161
1 to 79	189	22	0.9%	10.4%	211
80 to 119	136	21	0.9%	13.4%	157
120 to 179	304	31	1.3%	9.3%	335
180 to 239	648	81	3.4%	11.1%	729
240 to 299	1119	198	8.2%	15.0%	1317
300 to 359	1439	295	12.3%	17.0%	1734
360 to 419	1396	380	15.8%	21.4%	1776
420 to 479	1202	381	15.8%	24.1%	1583
480 to 539	850	325	13.5%	27.7%	1175
540 plus	841	399	16.6%	32.2%	1240

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose initial UCAS HE entry tariff was known (12,418)

There were differences in participation in postgraduate between students of different UK regions and countries of home domicile. 32 per cent of respondents living in the EU (other than the Republic of Ireland) and 26.9 per cent of respondents based outside the EU undertook postgraduate qualifications. Within the UK, students from the East of England were the most likely to take further study (22.8 per cent) and those from Wales or Merseyside the least (14.9 and 15.1 per cent respectively).

Table 7: Respondents' home domicile at application to higher education by whether undertook postgraduate study by stage 4.

	Did no PG	Did PG	Proportion of those who did PG	Proportion from each region who did PG	N = (unweighted)
Domicile at application to HE					
North East England	479	108	3.8%	18.4%	587
North West England	995	239	8.5%	19.4%	1234
Merseyside	185	33	1.2%	15.1%	218
Yorkshire & the Humber	788	183	6.5%	18.8%	971
East Midlands	692	200	7.1%	22.4%	892
West Midlands	926	231	8.2%	20.0%	1157
East of England	553	163	5.8%	22.8%	716
London	1364	315	11.2%	18.8%	1679
South East England	2150	558	19.8%	20.6%	2708
South West England	1242	281	10.0%	18.5%	1523
Wales	479	84	3.0%	14.9%	563
Scotland	1203	244	8.7%	16.9%	1447
Northern Ireland	362	74	2.6%	17.0%	436
Republic of Ireland	16	6	0.2%	27.3%	22
Other European country	115	54	1.9%	32.0%	169
Other overseas country	117	43	1.5%	26.9%	160

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose location at the time of application to HE was known (14,482)

Overall, 1.3% of the sample was resident in the EU, and 1.1 % was living outside the EU Respondents to stage 4 were also asked where they were living at the time of the survey. The pattern of propensity to take postgraduate study was quite similar to propensity by home domicile, although it was notable that graduates living *in Wales* were rather more likely than graduates *from Wales* to have progressed to postgraduate study, implying a degree of inward migration of postgraduates from elsewhere. But there remained differences between regions, and Merseyside had a particularly small proportion (albeit with a small population) of respondents with postgraduate qualifications, again giving rise to questions about the accessibility of postgraduate degrees and whether all parts of the UK are equally served by a pool of postgraduate skills.

Table 8: Domicile at stage 4, by whether undertook postgraduate study

	Did no PG	Did PG	Proportion of those who did PG	Proportion living in each region who did PG	N = unweighted
Where lived at stage 4					
North East England	408	95	3.4%	18.9%	503
North West England	860	218	7.7%	20.2%	1078
Merseyside	170	27	1.0%	13.7%	197
Yorkshire & the Humber	742	185	6.6%	20.0%	927
East Midlands	562	149	5.3%	21.0%	711
West Midlands	775	191	6.8%	19.8%	966
East of England	500	138	4.9%	21.6%	638
London	2304	574	20.4%	19.9%	2878
South East England	1772	405	14.4%	18.6%	2177
South West England	1086	221	7.8%	16.9%	1307
Wales	412	100	3.6%	19.5%	512
Scotland	1122	254	9.0%	18.5%	1376
Northern Ireland	250	58	2.1%	18.8%	308
Republic of Ireland	20	4	0.1%	16.7%	24
Other European country	228	93	3.3%	29.0%	321
Other overseas country	424	102	3.6%	19.4%	526

Base: all UK-domiciled stage 4 respondents who did not proceed onto a PGCE only and whose location at the time of stage 4 was known (14,449)

There are few surprises when the propensity of graduates to go on to postgraduate study was examined by subject. Medicine, dentistry and nursing degrees are highly vocational and early career transitions do not usually require postgraduate study. As a result, few graduates studied at postgraduate level by stage 4. In contrast careers associated with the sciences and law tend to require postgraduate qualifications and so a comparatively large proportion of graduates of these disciplines undertook a postgraduate qualification. Other subjects, such as history and philosophical studies, saw graduates entering a difficult labour market and opting for postgraduate study at this time, whilst in others, such as languages and linguistics, we observe a mixture of approaches.

Table 9: Broad subject group of undergraduate degree by whether postgraduate study was undertaken by UK-domiciled respondents by stage 4.

	Did no PG	Did PG	Proportion of those who did PG	Proportion of each subject who did PG	N = (unweighted)
Broad subject group of undergraduate degree					
Medicine & Dentistry	234	7	0.2%	2.9%	241
Subjects allied to Medicine	998	105	3.7%	9.5%	1103
Biology, Vet Sci, Agr & related	988	424	15.0%	30.0%	1412
Physical Sciences	548	364	12.9%	39.9%	912
Mathematical & Comp Sci	656	143	5.1%	17.9%	799
Engineering, Technologies	557	103	3.6%	15.6%	660
Architecture, Build & Plan	151	57	2.0%	27.4%	208
Social Studies	782	196	6.9%	20.0%	978
Law	301	204	7.2%	40.4%	505
Business & Admin studies	742	78	2.8%	9.5%	820
Mass communication and Documentation	205	17	0.6%	7.7%	222
Linguistics and Classics	384	165	5.8%	30.1%	549
Languages	255	111	3.9%	30.3%	366
Hist & Philosophical studies	464	249	8.8%	34.9%	713
Creative Arts & Design	1009	150	5.3%	12.9%	1159
Education	441	25	0.9%	5.4%	466
Interdisciplinary subjects	1273	373	13.2%	22.7%	1646
Other	1712	53	1.9%	3.0%	1765

Base: UK-domiciled stage 4 respondents whose subject of study was known and who did not proceed onto a PGCE only (14,524)

Subjects whose undergraduate jobs markets held up relatively well in recession, such as business studies and social sciences, did not see the same level of postgraduate entry.

Graduates from universities with the highest entry tariffs were far more likely to undertake postgraduate study than those with lower entry requirements. Highest tariff institutions are

also where a lot of postgraduate research takes place. Higher entry tariff institutions are strongly associated with postgraduate entry and their students are more likely to come to enter postgraduate study. It is, nevertheless, noteworthy that over half of all UK-domiciled Futuretrack respondents who had entered a non-PGCE postgraduate course by stage 4 had attended one of the small group of institutions requesting the highest entry tariffs.

Table 10: Entry tariff of institution attended by UK-domiciled stage 4 respondents and whether undertaken PG study.

	Did no PG	Did PG	Proportion of those who did PG	Proportion of those attending institution type who did PG	N = (unweighted)
HEI access classification					
Highest tariff university	3302	1412	51.3%	30.0%	4714
High tariff university	2623	788	28.6%	23.1%	3411
Medium tariff university	2637	397	14.4%	13.1%	3034
Lower tariff university	935	113	4.1%	10.8%	1048
General HE college	114	7	0.3%	5.8%	121
Specialist HE college	345	36	1.3%	9.4%	381

Base: UK-domiciled stage 4 respondents whose institution was known and who did not proceed onto a PGCE only (12,709)

Graduates with good degree grades were also much more likely to take a postgraduate qualification – this is unsurprising given there are grade requirements for eligibility for many sources of funding, or for entry to courses. 88 per cent of those who undertook postgraduate qualifications had 2:1 or above. 31.7 per cent of those who got a First, and 22.2 per cent of those who got a 2:1, went on to postgraduate study.

Table 11: Class of undergraduate degree obtained by stage 4 respondents

	Did no PG	Did PG	Proportion of those who did PG	Proportion of those obtaining degree class who did PG	N = (unweighted)
Class of undergraduate degree					
First Class Honours	2069	959	34.6%	31.7%	3028
Upper Second Class Honours	5157	1474	53.2%	22.2%	6631
Unclassified Second Class Honours	227	26	0.9%	10.3%	253
Lower Second Class Honours	1693	266	9.6%	13.6%	1959
Third Class Honours	257	12	0.4%	4.5%	269
Ordinary Degree (unclassified)	329	18	0.6%	5.2%	347
Other	280	17	0.6%	5.7%	297

Base: UK-domiciled stage 4 respondents whose degree class was known and who did not proceed onto a PGCE only (12,784)

Motivating factors for postgraduate study

Students were asked whether they planned to go on to postgraduate study at stage 3 of Futuretrack, and if so, why. They were not asked why they had chosen to go on to postgraduate study at stage 4, and consequently this section examines intention to undertake further study before the actual decision was taken. Stage 4 data was collected between 18 and 30 months after graduation, and we can assume that an unknown number of the cohort will subsequently go on to take postgraduate study at a later date. We lack enough information to estimate the proportion or make any inferences about this group.

Individuals did not make the choice whether or not to study and then stick to it. Change of intention was common, and 35.8 per cent of those who felt they were likely to study at postgraduate level and replied to questions about their motivations, had not entered postgraduate study by stage 4.

In all, 1,452 UK-domiciled respondents at stage 4 who progressed to non-PGCE postgraduate study had answered questions about their reasons and motivators to study in stage 3; therefore, in this section we discuss those people who had a firm intention to study at stage 3 and did not subsequently change their mind. Table 12 summarises the motivational factors that (then) prospective postgraduate students gave as reasons to consider study. NB: Respondents were able to choose more than one of the text options offered to them.

Table 12: Reasons given at stage 3 for considering postgraduate study.

	Chose this reason at stage 3	Had undertaken PG by stage 4	Proportion of stage 3 respondents who chose option	Proportion giving this reason who subsequently undertook a PG course
Reason for student considering PG				
Course essential for future career	838	458	57.7%	54.7%
Access to better career opportunities	852	525	58.7%	61.6%
To develop more specialist knowledge and expertise	918	598	63.2%	65.1%
To develop broader range of knowledge and expertise	515	331	35.5%	64.3%
To change direction	117	57	8.1%	48.7%
To continue studying subject(s) to a higher level	742	519	51.1%	69.9%
Interested in the course(s)	869	561	59.8%	64.6%
To defer getting a job	232	158	16.0%	68.1%

Base: UK-domiciled stage 4 respondents who intended to go on to postgraduate study at stage 3 and who did not subsequently proceed on to a PGCE (1,452). Respondents could choose multiple options.

The most common motivation for postgraduate study was ‘to develop more specialist knowledge and expertise’, cited by 63.2 per cent of stage 3 respondents as the reason they intended to continue to study. Subsequently, 65.1 per cent of those with this motivation had progressed to non-PGCE postgraduate study by stage 4. In total, more than half of respondents intended to take a postgraduate course because they felt it was ‘essential for…future career’, because it gave ‘access to better career opportunities’, enabled them ‘to continue studying subject(s) to a higher level’ and because they were ‘interested in the course’. A majority of all who reported any specific motivation to study did go on to postgraduate study. Those who at stage 3 wanted to ‘continue studying subject(s) to a higher level’ were most likely to have taken postgraduate qualifications at stage 4 (69.9 cent of this group went into postgraduate study), whilst those who wished to change direction, the smallest group at stage 3, were the most likely to have changed their minds and not, after all, gone on to undertake a postgraduate course.

16 per cent of the cohort gave ‘to defer getting a job’ as a motivation for pursuing study. This choice is not necessarily a negative one – this cohort graduated at a time when the labour market for graduates had deteriorated rapidly as a consequence of economic turmoil and it is unsurprising that some of this cohort would be anxious about their employment prospects. An extra year in education can also be a good – albeit costly – way of improving employability by gaining extra skills and experience; but this group may need support as the decision to take one course of career action in order to avoid another may need to be carefully thought through.

Other personal factors associated with motivation to study

As shown by Table 13, these data can be quite complex and are best analysed by examining intention to study and actual outcome, for a range of factors. We begin with undergraduate subject of study.

Table 13: Intention to undertake postgraduate study at stage 3 and whether actually undertaken by stage 4, by broad subject of study

	Intended to take PG study at stage 3	Proportion intending to take PG study at stage 3	Proportion intending to do PG study who did	Proportion who did not intend to do PG study but did
Subject of study				
Medicine & dentistry	5	3.1%	20.0%	2.5%
Subjects allied to medicine	52	8.3%	51.9%	5.0%
Biological and agricultural sciences	217	28.6%	57.6%	20.3%
Physical sciences	170	31.3%	80.6%	26.2%
Maths and computing	78	17.0%	61.5%	11.3%
Engineering and technologies	32	8.9%	62.5%	12.9%
Architecture, build & plan	11	12.0%	63.6%	28.4%
Social studies	95	19.5%	50.5%	13.3%
Law	106	43.6%	71.7%	29.2%
Business & admin studies	31	8.4%	38.7%	7.4%
Mass communication and documentation	11	11.2%	54.5%	5.7%
Linguistics and classics	71	26.9%	59.2%	21.2%
Languages	44	20.5%	79.5%	21.6%
Hist & philosophical studies	126	34.3%	65.9%	21.2%
Creative arts & design	88	16.0%	50.0%	8.0%
Education	34	12.4%	23.5%	3.7%
Interdisciplinary subjects	165	20.0%	55.8%	15.9%

Base: UK-domiciled stage 4 respondents who replied at stage 3 about their intention to study for a postgraduate qualification, whose subject of study was known, and who did not proceed onto a PGCE (6,696)

Medical students were the least likely to express an intention to undertake postgraduate study – only 3.1 per cent intended to continue beyond graduation. Just over 8 per cent of nurses expected to continue to study, and other subject groups with under 10 per cent of the stage 3 cohort expecting to progress to non-PGCE further study included business and administrative studies and engineering (this last group having largely undertaken 4 year undergraduate Masters often leading to professional accreditation). Around 44 per cent of law students intended postgraduate study, and history and philosophical studies students (34.3 per cent), physical science students (31.3 per cent) and biological science students (28.6 per cent) were also likely to intend further study.

Of those who intended further study at stage 3, medicine and dentistry students were the most likely not to actually do so Over 75 per cent who had intended further study had not actually done so by stage 4. More than half of business and administration students, and half of creative arts and design students, had also not taken further study by stage 4, having said they planned to at stage 3. At the other end of the scale, 80.6 per cent of

physical scientists who intended to enter postgraduate study at stage 3 had done so by stage 4.

Twenty nine per cent of law students who did not intend postgraduate study at stage 3 actually had entered further study by stage 4, as had 28.4 per cent of architecture students and 26.2 per cent of physical science students. Architecture students were amongst the least likely to plan postgraduate study, but the recession began whilst the Futuretrack cohort were still at university, and architecture and building sectors were amongst the worst affected; these data probably reflect the effects of a sudden sharp deterioration in the jobs market for graduates of these subjects.

Apart from medicine or nursing students, who did not generally enter postgraduate study at all, it was students of mass communication and documentation subjects who were most likely to stick to their decision not to take postgraduate study at stage 3 – only 5.7 per cent changed their minds.

Intention to study at stage 3 was most common amongst students at institutions with the highest entry tariffs – 23.5 per cent intended to take a postgraduate degree. Intention decreased with lower entry tariffs, as shown in Table 14.

Table 14: Intention to undertake postgraduate study at stage 3 and whether actually undertaken by stage 4 by type of higher education institution

	Intended to take PG study at stage 3	Did not intend to take postgraduate study at stage 3	Proportion intending to take PG study at stage 3	Proportion intending to do PG study who did	Proportion who did not intend to take PG study but did
Type of institution					
Highest tariff university	627	2039	23.5%	69.7%	19.9%
High tariff university	375	1380	21.4%	59.5%	14.4%
Medium tariff university	214	1279	14.3%	49.5%	7.7%
Lower tariff university	83	412	16.8%	33.7%	6.3%
Specialist HE college	27	160	14.4%	44.4%	8.8%
Other	11	88	11.1%	45.5%	8.0%

Base: UK-domiciled stage 4 respondents who replied to stage 3 about their postgraduate choices, either positively or negatively, whose institution was known, or who did not proceed onto a PGCE only (6,695)

Students at the highest tariff universities were both most likely to continue to postgraduate study having said they would at stage 3 (69.7 per cent of those saying they would take postgraduate study did so) and the most likely to change their mind and study having said they were not going to at stage 3 (19.9 per cent of those who said they were not going to study actually did so). This is perhaps unsurprising given that these students are already at institutions offering postgraduate opportunities and hence are already more familiar with

a culture of research, and have opportunities to see the benefits of postgraduate research more directly. They also tend to get better grades and so may have more funding opportunities available. More than half of those students who attended a medium or lower entry tariff university, and said they intended to study at postgraduate level, did not actually do so, and fewer than 10 per cent of those who did not intend to study at stage 3 did so at stage 4. This may not necessarily be a change of mind but may indicate more difficulty accessing opportunities; further empirical research is required here.

Socioeconomic status is another factor that appears to be associated with access to postgraduate study; Table 14 examines propensity to study by graduates' background, as measured by parental occupation when (prospective) students were 14 years old.

Table 15: Intention to undertake postgraduate study at stage 3 and whether actually undertaken by stage 4 by parental occupation.

	Intended to take PG study at stage 3	Did not intend to take postgraduate study at stage 3	Proportion intending to take PG study at stage 3	Proportion intending to do PG study who did	Proportion who did not intend to do PG study but did
Socio-economic classification					
Higher managerial and professional occupations	508	2001	20.2%	62.8%	14.6%
Lower managerial and professional occupations	342	1666	17.0%	65.2%	13.6%
Intermediate occupations	163	645	20.2%	53.4%	11.0%
Small employers and own account workers	95	473	16.7%	52.6%	11.4%
Lower supervisory and technical occupations	72	390	15.6%	54.2%	9.2%
Semi-routine occupations	87	514	14.5%	49.4%	10.7%
Routine occupations	64	356	15.2%	54.7%	7.3%

Base: UK-domiciled stage 4 respondents who replied to stage 3 about their postgraduate choices, either positively or negatively, whose parental background was known, or who did not proceed onto a PGCE only (7,376)

Students from more affluent backgrounds were more likely to intend postgraduate study, more likely to actually go on to postgraduate, and more likely to change their mind and take postgraduate study having not originally expressed that intention, compared to those from lower socio-economic classifications

Fewer than half the Futuretrack respondents from semi-routine occupational backgrounds, who intended to take postgraduate study, actually did so by stage 4.

Stage 3 respondents who intended to study a postgraduate qualification were also asked how they might fund their study. They were allowed to choose more than one funding option. The planned sources of funding postgraduate study are summarised in Table 16.

Fifty five per cent of those who expected to study in stage 3 and whose outcomes we know from stage 4 expected to fund their study through a postgraduate award or bursary. 63.7% of this group subsequently took a postgraduate qualification.

Postgraduate awards or bursaries were the only source of funding being considered by a majority of stage 3 respondents. They were no more likely to continue to postgraduate study than the group expecting to use private funds – at 46.9 per cent of the cohort of those intending to study, the next most common anticipated method of funding. 64.4 per cent of those intending to use private funds did proceed to become postgraduates.

Forty four per cent expected to do paid work as a method of funding their study, but only just over half (53.8 per cent) of those who planned this actually progressed to further study. This may be the result of a rapid change in the economy and consequent difficulty in finding paid work.

Table 16: Plans to fund postgraduate study at stage 3, and whether progressed to PG study by stage 4.

	Intended to take PG study at stage 3	Proportion of those intending to take PG study at stage 3	Proportion intending to do PG study who did
How did the respondent intend to fund their study?			
Postgraduate award or bursary	747	54.9%	63.7%
Private funds	638	46.9%	64.4%
Student Loan Company	345	25.3%	36.2%
Career Development Loan	143	10.5%	60.1%
Other commercial lender	56	4.1%	55.4%
Doing paid work	599	44.0%	53.8%
Other	112	8.2%	58.9%

Base: UK-domiciled stage 4 respondents who replied to stage 3 about their postgraduate choices and who intended to proceed to a non-PGCE postgraduate course only (1,361). Respondents could choose more than one option.

Differences in attitudes between those who studied for postgraduate qualifications and those who did not can be observed at stage 4. Answers to questions in which respondents were asked to agree/disagree with a range of statements are summarized in Table 17.

Table 17: Attitudes to higher education amongst those who had progressed to postgraduate by stage 4.

Those who studied as postgraduates were more likely to agree that:	Those who studied as postgraduates were less likely to agree that:
My undergraduate course was good value for money	High financial reward is important to me
The university I attended for my undergraduate course has been an advantage in looking for employment	I am good at team working
I have a clear idea about the occupation I hope to have in 5 years' time and the qualifications required to do so	Job security is important to me
Gaining international work experience is important to me	Satisfied with opportunity to use own initiative in current job
I have the skills employers are likely to be looking for when recruiting for the kind of jobs I want	Satisfied with job security in current job
I have good written communication skills	Current job appropriate for your skills and qualifications
I am optimistic about my long-term career prospects	They were satisfied with their current job
They were satisfied with life overall	

Base: UK-domiciled stage 4 respondents who did not proceed onto a PGCE only (12,656)

Those who studied for a postgraduate qualification seemed to have a more positive view in general about their skills (with certain exceptions), their course, their career prospects and their life in general, and were less interested in financial gain and in job security – although despite being less interested in job security, postgraduates were also less satisfied with their current job security. Those who had completed postgraduate courses and who were working were no more satisfied with the jobs they were actually doing at the time stage 4 was undertaken[3] than those who had not taken a postgraduate course. One interesting finding was that those who studied at postgraduate level rated their team working skills rather less favourably than those who did not take a postgraduate qualification. The ability to work in teams is important to graduates at all levels, and this suggests a possible development need for postgraduates.

[3] The group happiest with their jobs were not those who had not studied a postgraduate qualification, but those who had studied for PGCE – and who were, consequently, mostly working as teachers.

Changes in the intention to undertake postgraduate study at stage 2

As can be seen from previous sections, many respondents changed their mind about postgraduate study between stages 3 and 4. There appear to be many factors involved, and funding, subject and attitudinal issues are all explored. For many the decision to undertake postgraduate study is related to career goals or ambitions.

At stages 2 and 3 respondents were asked if their career intentions had changed during the course of their study; their responses were then examined depending on whether the respondent progressed to postgraduate study.

Most of those intending postgraduate study at stage 2, towards the end of their first year of undergraduate study, had not undertaken study by stage 4. In total, 30.6 per cent of those expecting to undertake postgraduate study in their first year actually did so and 12.2 per cent of those who did not intend to study in their first year actually did so by stage 4, (most studying for a Masters degree). Table 18 summarises the data for respondents to the question on intention to take a postgraduate course at stage 2 and who had a recorded outcome at stage 4, a group of 3,831 UK domiciled graduates who responded to appropriate questions in both surveys. This group includes both those who said they intended to study at stage 2, and those who said they did not intend to study at stage 2.

Table 18: Postgraduate study intentions at stage 2 by postgraduate study outcomes at stage 4.

	Intended to take PG at stage 2	Did not intend to take PG at stage 2	Proportion of those intending to undertake PG at stage 2 who did so by stage 4	Proportion of those *not* intending to undertake PG at stage 2 who did so by stage 4
Postgraduate course undertaken				
PhD	327	129	8.5%	2.5%
Masters then PhD	591	354	15.4%	6.9%
Masters only	73	25	1.9%	0.5%
Other taught PG	180	124	4.7%	2.4%
Did not take PG	2660	4535	69.4%	87.8%

Base: UK-domiciled stage 4 respondents who had replied at stage 2 about their postgraduate choices and who did not proceed to a PGCE by stage 4 (3,831)

Although intention at stage 2 does not appear to be a particularly accurate guide to stage 4 outcomes early in a graduate's career, we can nevertheless explore these findings further. 7,309 stage 4 respondents had answered questions at stage 2 about their career plans. The results from this group on changes in career intention are summarised in Table 19.

Table 19: Respondents to stage 2, and how their career ideas had changed since they had started their course, and whether they had undertaken a postgraduate course by stage 4.

	Did not take postgraduate study	Took postgraduate study	Total	Proportion of stage 2 respondents expressing stated view	Proportion of stage 2 respondents who expressed stated view and subsequently progressed to postgraduate study
Have your ideas about your career changed since you started your course?					
Yes, much clearer idea	1020	280	1300	18.0%	21.5%
Yes, my ideas have changed completely	283	63	346	4.1%	18.2%
Yes, my ideas about career direction are less clear than before	616	192	808	12.4%	23.8%
My experience of higher education has reinforced my original career plans	1595	313	1908	20.2%	16.4%
My ideas are neither clearer nor less clear than before	2242	705	2947	45.4%	23.9%

Base: UK-domiciled stage 4 respondents who also replied to stage 2 questions about whether their ideas about their career had changed, and who did not proceed to a PGCE (7,309)

These results are interesting. At stage 2, the most common responses was for students to say that their ideas about career were neither clearer nor less clear than before they began their course, or that they were less clear. Those who felt this were slightly more likely than average to go to further study. The least likely to enter postgraduate study were those whose experiences had reinforced their original plans. Those who felt that they had a much clearer idea about their career were slightly less likely to go onto further study than those who felt that their ideas were less clear than they had previously been.

A number of factors can influence these emergent decisions, but we focus on two in particular – social class, and attitude to debt.

At Stage 2 some students were already considering future debt, and there may have been a modest effect on intentions. Respondents to stage 2 were asked to rate their agreement with the following statement: "*I am worried about the prospect of having to repay loans and debts when I have completed my course"* and to rate how strongly they agreed on a scale of 1 to 7, with 1 indicating strong agreement, and hence concern about debt, and 7 indicating strong disagreement with the statement. Of those who expressed an intention, at stage 2, to embark on postgraduate study when they graduated, those concerned about the prospect of debt were slightly less likely to subsequently take a postgraduate qualification than those who were not.

Table 20: Agreement with 'I am worried about the prospect of having to repay loans and debts when I have completed my course' at stage 2 and whether undertook postgraduate study by stage 4.

	Did not take postgraduate study	Proportions of those who did not take postgraduate study	Took postgraduate study	Proportions of those who took postgraduate study	Total stage 4 respondents	Proportion of stage 2 respondents expressing stated view who subsequently progressed to postgraduate study
"I am worried about the prospect of having to repay loans and debts when I have completed my course"						
Agreed	1618	61.0%	698	59.8%	2316	30.1%
Neither agreed not disagreed	247	9.3%	85	7.3%	332	25.6%
Disagreed	789	29.7%	385	33.0%	1174	32.8%

Base: UK-domiciled stage 4 respondents who intended to undertake postgraduate study when asked at stage 2 and who did not proceed to a PGCE (3,822)

The smaller group of those who neither agreed nor disagreed that they were worried about repaying debt were the least likely to progress onto further study.

A pattern was evident when the socio-economic background of those intending to take a postgraduate qualification at stage 2 was analysed. Students from more affluent backgrounds – those with parents in managerial and professional occupations - made up the majority of those aspiring to postgraduate study, and they were also the group most likely to actually fulfil those aspirations. Relatively few prospective postgraduates were from the lowest socio-economic classifications, and nearly a third – 32.9% - were from the highest socio-economic group.

Table 21: Participation in postgraduate study at stage 4 amongst those who intended to undertake postgraduate study at stage 2, by parental occupation.

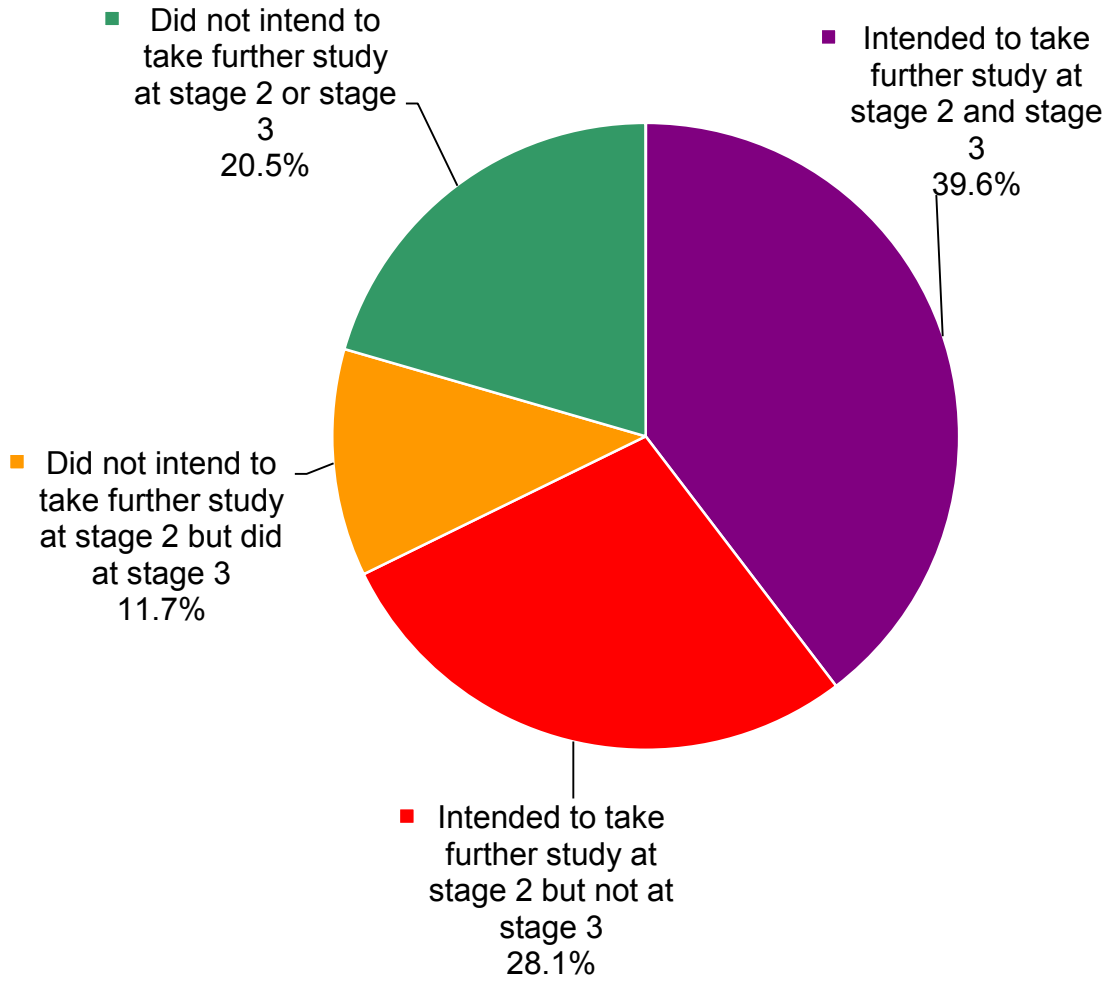
	Intended to take postgraduate qualification	Subsequently took a postgraduate qualification	Proportion of those intending to take a postgraduate qualification	Proportion of those intending to take a postgraduate qualification who subsequently did
Occupational classification				
Higher managerial and professional occupations	1237	423	32.9%	34.2%
Lower managerial and professional occupations	1013	341	26.9%	33.7%
Intermediate occupations	425	119	11.3%	28.0%
Small employers and own account workers	284	77	7.5%	27.1%
Lower supervisory and technical occupations	269	71	7.1%	26.4%
Semi-routine occupations	300	79	8.0%	26.3%
Routine occupations	236	45	6.3%	19.1%

Base: UK-domiciled stage 4 respondents who stated at stage 2 that they intended to study for a postgraduate qualification and who did not proceed to a PGCE (3,764)

This suggests that there is both an aspiration gap – with students from less affluent background less likely to aspire to take a postgraduate qualification and a potential barrier in addition, as students from less affluent backgrounds who did aspire to progress to postgraduate qualifications were less likely to do so.

This further reinforces the notion that students' career ideas change over time (as described above), and Stage 2 respondents were no exception –only a minority of those intending to progress to postgraduate study at stage 2 actually did so.

Changes in the intention to undertake postgraduate study between stages 2 and 3



Base: UK-domiciled respondents to stages 2, 3 and 4 who proceeded on to non-PGCE further study at stage 4

Figure 1: Intentions of respondents at stages 2 and 3 as a proportion of those who subsequently undertook postgraduate study

Figure 1 summarises the intentions of respondents at stages 2 and 3. 39.6 per cent of those who progressed to postgraduate study expressed a constant intention to study at both stages 2 and 3, whilst 20.5 per cent of future postgraduates had not previously expressed intention to study.

5,488 stage 4 respondents answered questions at stage 3 about how their career plans had changed since Futuretrack stage 2, at the end of their first year in higher education.

Table 22: Respondents to stage 3, and how their career ideas had changed since stage 2, and whether they had undertaken postgraduate study by stage 4.

	Did not take postgraduate study	Took postgraduate study	Total	Proportion of all stage 3 respondents expressing stated view	Proportion of stage 3 respondents who expressed stated view and subsequently progressed to postgraduate study
Have your ideas about your career changed since the end of your first year in HE?					
Yes, much clearer idea	1164	421	1585	28.9%	26.6%
Yes, my ideas about career have changed completely	611	221	832	15.2%	26.6%
Yes, my ideas about career are less clear than before I started my course	602	192	794	14.5%	24.2%
My experience of higher education has reinforced my original career plans	794	235	1029	18.8%	22.8%
My ideas are neither clearer nor less clear than before	979	269	1248	22.7%	21.6%

Base: UK-domiciled stage 4 respondents who replied to stage 3 about their postgraduate choices and who did not proceed to a PGCE (5,488)

Table 19 shows data for the same questions at stage 2, when students tended to be no clearer than they had been, or less clear.

By stage 3 there was little more certainty. Many students had changed their career plans. This may reflect the significant change in economic outlook that had, by this point, taken place and also a growing awareness of the potential options available.

Students whose ideas had changed completely or who had a much clearer idea about their career, were more likely to go onto postgraduate study than those whose plans had not changed – and more likely than those who were less clear about their plans. Such change might be a feature of students' active engagement in their own career development, an awareness of the prevailing economic circumstances or a developing sense of their academic ability; or all of these.

These data imply that the decision to undertake postgraduate study in earnest was made relatively late in the undergraduate course and often with a reasonably clear career perspective. As can be seen in Table 22, 14.5 per cent of students were less sure about their careers, and this group were less likely to take postgraduate study than those with a clearer idea. This suggests that apparent certainties at the end of the first year changed

over time, and that includes the decision to study. Support and guidance for postgraduates, including information about financial support, may be better targeted later in undergraduate careers when many students have come to their plans. These data suggest that whilst students may indicate earlier in their degrees, that they intend to undertake postgraduate study, they may be likely to change their minds.

Ultimately by stage 3, as Table 23 indicates, intentions were firmer, and 40.3 per cent intending to study at stage 3 actually did so by stage 4. 12.5 per cent of those who did not intend to take a postgraduate qualification at stage 3 had changed their mind and taken a postgraduate qualification by stage 4.

Table 23: Postgraduate study intentions at stage 3 by postgraduate study outcomes at stage 4.

	Intended to take PG at stage 3	Proportion of those intending to undertake PG at stage 3	Did not intend to take PG at stage 3	Proportion of those *not* intending to take PG at stage 3
What postgraduate course did the respondent ultimately take?				
Did not take PG	550	40.3%	5429	87.5%
Undertook PhD	237	17.4%	196	3.2%
Undertook Masters then PhD	67	4.9%	427	0.4%
Undertook Masters only	385	28.2%	26	6.9%
Undertook other taught PG	126	9.2%	129	2.1%

Base: UK-domiciled stage 4 respondents whose intentions were known at stage 3 and who did not proceed to a PGCE (7,572)

Stage 3 intentions appear to be a better guide to actual propensity to postgraduate study and once again we investigate attitudes to debt to examine patterns emerging. The social backgrounds of stage 3 respondents as derived from parental occupation are discussed in Table 15, and students from professional backgrounds are more likely to aspire to postgraduate study, more likely to go on to postgraduate study, and more likely to carry out an intention to study than respondents from less affluent backgrounds.

The grades obtained by those expecting to study were examined. Most of those considering postgraduate study achieved a 2:1 or above. It appears that most of those who, having considered postgraduate study at stage 3, and subsequently did not do so, did not change their minds because they failed to get good grades – over half of those who changed their minds and opted against further study achieved a 2:1 and 22.5% achieved a First.

Table 24: Degree classification obtained by those intending postgraduate study at stage 3 and whether progressed to postgraduate study by stage 4.

	Did no PG	Did PG	Proportion of those who did PG	Proportion of those attaining degree class who did PG	Proportion of those who did *not* undertake PG having originally considered it	N = (unweighted)
Class of undergraduate degree						
First Class Honours	119	332	40.9%	73.6%	22.5%	451
Upper Second Class Honours	282	411	50.7%	59.3%	53.4%	693
Unclassified Second Class Honours	**	**	**	**	**	**
Lower Second Class Honours	93	60	7.4%	39.2%	17.6%	153
Third Class Honours	**	**	**	**	**	**
Ordinary Degree (unclassified)	**	**	**	**	**	**
Other	**	**	**	**	**	**

Base: UK-domiciled stage 4 respondents who intended to study at stage 3, who gave their degree class and who did not proceed to a PGCE (1,339) ** indicates a sample size too small to produce a meaningful figure

Respondents to stage 3 were also asked to rate their agreement with the following statement: "*I am worried about the prospect of having to repay loans and debts when I have completed my course"* and to rate how strongly they agreed on a scale of 1 to 7, with 1 indicating strong agreement, and hence concern about debt, and 7 indicating strong disagreement with the statement. The majority of respondents were concerned about their debt on graduation, but it did not have an obvious effect on their decision to study. Those who were concerned about debt were as likely to continue to study as those who were not. Table 25 summarises these data.

Table 25: Agreement with the statement 'I am worried about the prospects of having to repay loans and debts when I have completed my course' at stage 3 and whether continued to postgraduate study by stage 4

	Did not take postgraduate study	Proportions of those who did not take postgraduate study	Undertook postgraduate study	Proportions of those who undertook postgraduate study	Total stage 4 respondents	Proportion of stage 3 respondents expressing stated view who subsequently progressed to postgraduate study
"I am worried about the prospect of having to repay loans and debts when I have completed my course"						
Agreed	329	59.8%	489	60.0%	818	59.8%
Neither agreed nor disagreed	53	9.6%	76	9.3%	129	58.9%
Disagreed	168	30.5%	250	30.7%	418	59.8%

Base: UK-domiciled stage 4 respondents who intended to take further study at stage 3 and who did not proceed to a PGCE (1,365)

As a follow-up to this question, respondents were asked if they agreed or disagreed with a series of statements about the potential effect of debt on their career plans. The statements were:

- I would like to do a postgraduate course, but don't want to add to debts
- I will need to take a job that would not be my first choice so can pay off debts
- Locations where I can seek employment will be limited
- My options will not be limited by debts

When asked about the potential effects of debt on their career plans, 56.2 per cent of Stage 3 respondents replied that they felt that their options would *not* be limited by debts. Of the 43.8 per cent of respondents who felt that their options would be limited by debts. 23.3 per cent went on to take a non-PGCE postgraduate qualification by Stage 4 – a slightly lower percentage than those who felt their options would not be affected.

Table 26: Agreement with statements about anticipated debt at stage 3 and whether progressed to postgraduate by stage 4.

		Did not take a postgraduate qualification	Took a non-PGCE postgraduate qualification	Proportion of respondents who agreed or did not agree	Proportion of agreeing or not agreeing who progressed to postgraduate study
Attitude towards debt at stage 3					
Would like to do postgraduate course, but don't want to add to debts	Agreed	2067	709	29.8%	27.8%
	Did not agree	1658	503	70.2%	23.2%
Will need to take a job that would not be my first choice so can pay off debts	Agreed	772	125	18.2%	13.9%
	Did not agree	2953	1087	81.8%	26.9%
Locations where can seek employment will be limited	Agreed	428	94	10.6%	18.0%
	Did not agree	3297	1118	89.4%	25.3%
My options will **not** be limited by debts	Agreed	2067	709	56.2%	25.5%
	Did not agree	1658	503	43.8%	23.3%

Base: UK-domiciled stage 4 respondents who responded to attitude questions at stage 3 and who did not proceed to a PGCE (4,937)

At stage 3 respondents were also asked if they agreed with the statement that they ‘would like to take postgraduate study but did not want to add to their debt’; 29.8 per cent of respondents agreed. Of those 27.8 per cent subsequently went on to take a postgraduate qualification. That does not necessarily mean that they undertook the qualification they originally intended. But most stage 3 respondents were not actively considering postgraduate study, and so Table 27 examines the responses only of those who were.

Table 27: Agreement with statements about anticipated debt at stage 3 amongst those who intended to undertake postgraduate study and whether progressed to postgraduate by stage 4

		Did not take a postgraduate qualification	Undertook a non-PGCE postgraduate qualification	Proportion of respondents who agreed or did not agree	Proportion of agreeing or not agreeing who progressed to postgraduate study
Attitude towards debt at stage 3 Would like to do postgraduate course, but don't want to add to debts	Agreed	181	221	32.8%	55.0%
	Did not agree	308	516	67.2%	62.6%
Will need to take a job that would not be my first choice so can pay off debts	Agreed	57	51	8.8%	47.2%
	Did not agree	432	686	91.2%	61.4%
Locations where can seek employment will be limited	Agreed	41	52	7.1%	55.9%
	Did not agree	489	737	92.4%	60.1%
My options will **not** be limited by debts	Agreed	278	473	61.3%	63.0%
	Did not agree	211	264	38.7%	55.6%

Base: UK-domiciled stage 4 respondents who were intending to study for a postgraduate qualification, who responded to attitude questions at stage 3 and who did not proceed to a PGCE (1,226)

Most of those who were considering postgraduate study did not feel that their options were limited by debt, but those who did were less likely to go on to postgraduate study than those who felt debt would not limit them. Those who were considering postgraduate study but who agreed with the statement that they would “like to study for a postgraduate course, but that they did not want to add to their debts”, were also less likely to continue to postgraduate study than those who disagreed; nonetheless a majority (55 per cent) of those concerned about adding to their debts did go on to postgraduate study. In total, of those considering postgraduate study, 181 agreed that they had wanted to take a postgraduate course but were deterred by debt, and then did not take a postgraduate course – 15% of the group.

Table 28: Agreement with 'my options after graduating were limited by my debts' by whether progressed to postgraduate study by stage 4.

	Did not take a postgraduate qualification	Undertook a non-PGCE postgraduate qualification	All respondents	Proportion taking a non-PGCE postgraduate qualification	Proportion of those giving response who undertook a postgraduate qualification
Agreement with					
My options after graduating were *not* limited by my debts	7045	2075	9120	85.3%	22.8%
My options after graduating were limited by my debts	1827	357	2184	14.7%	16.3%

Base: UK-domiciled stage 4 respondents who did not proceed to a PGCE (11,304)

By stage 4, most respondents felt that their options on graduating had not been limited by debt, but those who felt they had been were less likely to have taken a postgraduate course than those who did not.

Those who replied that they felt that their options had been limited by debt were further asked about the effects of debt on their decision to study for a postgraduate qualification.

Table 29: Agreement with 'I wanted to do a postgraduate course but did not want to add to my debts' by whether progressed to postgraduate study by stage 4 amongst those agreeing 'my options after graduating are limited by my debts'.

	Did not take a PG qualification	Undertook a non-PGCE PG qualification	Total	Proportion taking a non-PGCE PG qualification	Proportion not taking a PG qualification	Proportion of those agreeing who undertook a PG qualification
Wanted to do postgraduate course, but did not want to add to my debts						
Did not agree	756	282	1038	79.2%	41.5%	27.2%
Agreed	1066	74	1140	20.8%	58.5%	6.5%

Base: UK-domiciled stage 4 respondents who felt that debt would limit their options after graduation, and who did not proceed to a PGCE (2,178)

A majority (52.3%) replied that they had wanted to take a postgraduate course, but did not want to add to their debts. Despite this, 6.5 per cent of those who made this reply had nevertheless undertaken a postgraduate qualification.

58.5 per cent of those who felt that debt had limited their options and who did not take a postgraduate qualification agreed that they had originally wanted to take a postgraduate course but did not want to add to their debts, suggesting that there was a group who were deterred from further study by debt. In total, this group who felt that debt had limited their option, who agreed that they had originally wanted to take a postgraduate course but did not want to add to their debts, and who did not subsequently take a postgraduate qualification were 9 per cent of the UK-domiciled stage 4 respondents who did not take a PGCE – down from the 15% of the stage 3 respondents who were considering postgraduate study, said that they were deterred by debt, and who did not subsequently study. This may be because as graduates become more experienced, they change their ambitions and so fewer felt that they aspired to postgraduate study.

The attitude to debt is complex and the results show that it is not sufficient to say that students as a whole were or were not deterred from postgraduate study. It could be inferred that debt played a part in the decision of some of those who were considering postgraduate study not to do so, and the analysis suggests that this may be somewhere between 9 and 15 per cent of the cohort. Equally, it appears that even though many students were concerned about debt, and even concerned about the effect of debt on postgraduate study, it did not deter many of them from taking study outright.

If we are to try to identify which prospective postgraduates are at risk of turning away from postgraduate study, then we can see that those concerned about the effects of debt on their career plans are less likely to continue to postgraduate study than those who are not, but that concern about debt in itself is not enough to identify someone who may be deterred from further study. At stage 2, those who were considering postgraduate study but were concerned about debt were less likely to actually take a postgraduate degree than those who were less concerned. By stage 3, those who were considering postgraduate study but were concerned about debt were as likely to actually undertake a postgraduate degree as those who were less concerned. This suggests that at least some of those deterred from postgraduate study by concerns about debt may make a decision not to embark on study before their final year.

It must be borne in mind that the Futuretrack cohort graduated under the previous higher education funding regime. It does not therefore necessarily follow that current students and graduates will have the same views of debt under the current funding arrangements.

The effect of work experience on the likelihood of postgraduate study

Most respondents to stage 4 had some kind of work experience. Just 19 per cent did not. It is not immediately clear if there is a direct relationship between work experience and propensity to undertake postgraduate study. Some forms of work experience were undertaken by groups who were rather more or less likely to take a postgraduate qualification.

8.8 per cent of those who had undertaken one or more structured work placements integrated into courses undertook postgraduate study. This form of placement is

associated with a wide range of undergraduate courses from which graduates are not particularly likely to proceed to postgraduate qualifications (e.g. subjects allied to medicine) as described in BIS (2013). For respondents whose work experience took the form of assessed project work in external organisations and those who undertook sandwich years, just 13.1% and 17.1% respectively progressed to postgraduate study (as summarized in Table 30).

Table 30: Types of work experiences and participation in postgraduate study by stage 4

	Did not take a postgraduate qualification	Took a non-PGCE postgraduate qualification	Total	Proportion taking form of work experience	Proportion of this form of work experience who took PG
Which of the following forms of work experience did you take whilst at university?					
A sandwich year undergraduate placement	1045	215	1260	7.8%	17.1%
One or more shorter structured work placement/s integral to course	1897	183	2080	6.6%	8.8%
Assessed project work in external organisation as part of course	734	111	845	4.0%	13.1%
A vacation internship with an employer	946	429	1375	15.5%	31.2%
Paid work undertaken to gain useful career-related experience	2087	622	2709	22.5%	23.0%
Paid work undertaken only for the money	4344	1429	5773	51.7%	24.8%
Unpaid work undertaken to gain useful career-related experience	2539	794	3333	28.7%	23.8%
Other work-related activity	428	116	544	4.2%	21.3%
None of the above	1875	524	2399	19.0%	21.8%
All respondents	9998	2762	12760		21.6%

Base: UK-domiciled stage 4 respondents who did not proceed to a PGCE (12,760) NB multiple responses were permitted.

At the other end of the scale, 31.2 per cent of those who took vacation internships undertook study for a postgraduate qualification. As BIS, (2013, ibid) on work experience shows, this form of work experience is much more common amongst students from higher entry tariff institutions and who are more likely to take a postgraduate degree.

Effect of engagement with careers advice and guidance on propensity to study

Futuretrack respondents at stages 2 and 3 were asked about their engagement with careers services and this was matched to whether or not they had subsequently gone on to take a postgraduate qualification. Although there was little overall relationship between the type of careers engagement of students at stage 2 and final propensity to study, there appears to be a pattern when the frequency of careers service visits is examined, as shown in Table 31.

Table 31: Number of times visited careers service at stage 2 by whether progressed to postgraduate study.

	Not taken PG	Did PG	Total	Proportion visiting service	Proportion who undertook postgraduate study
How many times have you visited your careers service (stage 2)					
1-2 times	1135	341	1476	22.0%	23.1%
3-4 times	437	135	572	8.7%	23.6%
5 or more times	243	94	337	6.1%	27.9%
I was aware of the service but did not visit it	2917	809	3726	52.2%	21.7%
I was unaware of this service	992	171	1163	11.0%	14.7%

Base: All UK domiciled stage 2 respondents who did not proceed on to a PGCE (7,274)

Students who did not visit their service, or who were unaware of it, were much less likely to have undertaken postgraduate study than those who did, and yet a larger proportion of students who visited their service frequently progressed to further study. There are likely to be a combination of factors at play, as career intentions were not necessarily firmed up for many students by stage 2, it does suggest a positive role for careers services in the final decision to study. It would be interesting to explore whether the high users of career services share any characteristics, such as home domicile or subject discipline.

At stage 3, respondents were asked if they had engaged in a range of career-related activities, and how useful services or sources of advice had been to them. The most frequently used activity reported by more than half of respondents, was visiting Careers Services' or other websites.

Attendees at many organised careers events progressed to postgraduate study in greater proportions than the average. University-wide events, course- and employer-oriented events, and careers sessions with advisors were all associated with greater participation in postgraduate study. But many events based around employability seem to be undertaken by fewer students who went on to study for postgraduate courses, particularly training in interview techniques or compulsory modules to develop skills associated with employment. Table 32 summarises this information.

Table 32: Engagement in career-related activities at stage 3 by whether undertaken postgraduate by stage 4.

	Did not take a postgraduate qualification	Took a non-PGCE postgraduate qualification	Total	Proportion of respondents who engaged in activity	Proportion of those who engaged in activity who undertook a postgraduate qualification
Form of careers engagement					
University-wide careers event for final year students	1400	580	1980	42.0%	29.3%
Careers event for students doing same type of course	1367	552	1919	40.7%	28.8%
Careers event for particular occupation or industry	991	412	1403	29.8%	29.4%
Other Careers Service event	607	246	853	18.1%	28.8%
One-to-one Careers Service advice session	920	351	1271	27.0%	27.6%
Talked to Careers Service advisor about course or career	733	291	1024	21.7%	28.4%
Careers Service information or advice by email or telephone	458	142	600	12.7%	23.7%
Visited Careers Service website	2006	735	2741	58.1%	26.8%
Visited other careers websites, e.g. Prospects	1973	663	2636	55.9%	25.2%
Careers Service sessions to develop employment-related skills	288	93	381	8.1%	24.4%
Compulsory module to develop employment-related skills	633	149	782	16.6%	19.1%
Optional module to develop employment-related skills	226	56	282	6.0%	19.9%
Careers information from employer or work organisation rep	675	225	900	19.1%	25.0%
Advice on CV writing	1712	527	2239	47.5%	23.5%
Advice on completing application forms	916	278	1194	25.3%	23.3%
Interview technique training	577	142	719	15.3%	19.7%

Base: All UK domiciled stage 3 respondents who did not proceed on to a PGCE (4,714)

It could be argued that students already intending to take postgraduate study may be less likely to attend careers sessions directly involved in activity for finding jobs (although many still do). A different argument is that by equipping themselves with employment-related skills, some students who might have opted for postgraduate study because of a perceived lack of options are, instead, able to find work. It is not clear which, if either, of these two explanations is closer to the truth, but it appears that not all careers interventions (no

matter how positive they may be in the broader sense) are differentially associated with a greater propensity to take postgraduate study. This area may benefit from further investigation to examine how careers services interact most effectively with of prospective postgraduates, to consider how institutions and policy can support prospective postgraduates.

Stage 3 respondents were also asked whether they had used different sources of careers advice and whether they found them helpful. This was examined against the proportion of respondents for each reply who had gone on to further study. The most commonly-used source of advice was 'family and friends'. However those who found 'family and friends' the *least* useful were those who progressed to further study in the largest numbers. Those who did not use family and friends at all had a much lower proportion of postgraduate students than the average. Careers services were more popular, and use of careers services at all seems to be associated with increased participation with postgraduate study. Although those who did not use their careers service at all were much less likely than the average to go onto postgraduate study, perhaps paradoxically, those who described their service as 'not very helpful' were the most likely to take a postgraduate course. This is an interesting finding which raises questions about why students use careers services in these contexts and what they expect from the services when they get there. There is a legitimate question to be raised about whether some services are as effective with enquiries about further study options as they for enquiries about employment, and this may suggest that a greater number of specialist advisers on postgraduate questions may be valuable. It is also possible that although this group seek a range of sources of advice, they find others – particularly academic staff – more useful than careers services.

The use of private careers advice/employment agencies, and professional bodies, both showed a similar pattern. A rather smaller proportion of those who were positive about these sources of careers information progressed to further study, compared to those who were negative, or who did not use them at all. It may be that these sources of advice do not always cater as effectively for prospective postgraduates as they do to those looking for employment. Advice for prospective postgraduates is a specialist service used by a minority of the potential client group and so may be harder to effectively resource. Finally, those who used course tutors and academics as a source of careers advice and found them to be helpful were much more likely to take a postgraduate qualification than those who did not, or who did and found them unhelpful and there are noticeable differences between the groups.

The interaction between various forms of careers intervention and prospective postgraduates is complex. Decisions can be made towards the end of the undergraduate course and apparently firm ideas can change with more experience. These findings suggest that some forms of careers intervention; final year careers modules; course- or industry-oriented events; regular meetings with careers advisors; discussions with academic staff, may help to increase the likelihood of a student undertaking postgraduate study, whilst others; employability-related training; advice from private providers or employment agencies; advice from professional bodies; interview training, may be taken by, or lead, to students choosing a different option. Not using sources of advice at all seems, to lead to a lower rate of participation in further study.

Modelling and regression analyses

The decision to undertake postgraduate study is likely to be the outcome of a process that took place over a significant period of time. The statistical analysis therefore characterised the decision to undertake postgraduate study as taking place in a two-stage sequence. The first stage of statistical analysis examined the respondent's intention to undertake postgraduate study at stage 2 of Futuretrack. The second stage of statistical analysis examined actual participation in postgraduate study at stage 4 of Futuretrack among those respondents who stated that they intended to do so at stage 2. The analysis examines the respondent characteristics that are associated with the decision making at each stage. The first stage analysis included the following respondent characteristics as explanatory variables: the respondent's age, gender, ethnicity, family background characteristics, prior level of educational achievement and institution type. The second stage analysis added the accumulated level of debt, the degree class achieved and the student's perception of debt to the explanatory variables.

The results of the first analyses allow us to see how far the intention to undertake postgraduate study was associated with the respondent's background characteristics prior to starting HE. The results of the second analyses show which factors were associated with participation in postgraduate study among those respondents who expressed an intention to undertake further study at stage 2 and, in particular, whether the decision to undertake postgraduate study was influenced by the level of debt accumulated by the respondent or by the student's perception of their debt during their undergraduate study. A more detailed examination of the methodology of this analysis can be found in Appendices Three and Four.

Regression results: intention to undertake post-graduation further study

The results for the model for intention to undertake further study are shown in Table 33. The table gives the regression coefficients (β's) and corresponding t-statistics. The results from the first model show that men had a lower odds of intending to undertake further study in comparison to women while respondents who started higher education at 19-21 years of age had a higher odds of intending to undertake further study, in comparison to respondents who started higher education when they were aged 18 years or under. The respondent's level of prior qualifications was also significantly associated with the likelihood of intending to undertake further study. In comparison to respondents with low tariff scores the odds of intending further study were 50 per cent higher for respondents in the high tariff score category[4].

The results from the second model show that parental occupation had no significant association with the intention to undertake further study after controlling for the other model factors. Respondents who did not have a parent with a degree had slightly higher

[4] In logistic regression, the exponentiated coefficients give the change in the odds of the outcome for the associated category of the explanatory variable compared to the omitted or reference category. See Appendix B for more details.

odds of intending to undertake further study, however, in comparison to those respondents who had two parents with degrees. The adjustment for family background factors resulted in little change in the magnitude or statistical significance of the coefficients from the previous model. In the final model, the results show a positive gradient in the odds of intending to undertake further study with increasing institution tariff score. Respondents at institutions in the lowest tariff score category had an odds of further study which were around 75 per cent (or exp(-0.26)) of those at institutions in the highest category. In comparison to the coefficients from the previous model, the addition of the type of institution to the model significantly attenuated the magnitude of the coefficients for the respondents tariff score. The higher odds of intending to undertake further study for respondents with high prior qualifications remained strongly significant.

Table 33 Regression coefficients and t-statistics for the intention to undertake further study at stage 2.

	Model I		Model II		Model III	
	Coef.	t-statistic	Coef.	t-statistic	Coef.	t-statistic
Gender						
Male	-0.135**	-2.66	-0.143**	-2.79	-0.129*	-2.52
Female	–	–	–	–	–	–
Age Group						
18 and under	–	–	–	–	–	–
19-20	0.184**	2.82	0.186**	2.84	0.204**	3.1
21-25	-0.05	-0.4	-0.053	-0.42	-0.068	-0.54
26 and over	0.034	0.28	0	0	-0.014	-0.11
Ethnicity						
Asian	0.215	1.92	0.179	1.59	0.166	1.47
Black	0.531**	2.83	0.524**	2.79	0.538**	2.85
White	–	–	–	–	–	–
Mixed	0.105	0.69	0.118	0.78	0.126	0.83
Other	0.109	0.4	0.125	0.46	0.114	0.42
UCAS Tariff Score						
Non-standard	0.011	0.09	0.029	0.25	0.006	0.05
Low	–	–	–	–	–	–
Medium	0.274**	2.73	0.289**	2.87	0.223*	2.18
High	0.417***	4.47	0.473***	4.99	0.337***	3.32
Parental Occupation						
Professional/managerial			–	–	–	–
Intermediate			0.099	1.42	0.108	1.54
Routine/manual			0.086	1.25	0.097	1.39
Parental Education			0.099	1.42	0.108	1.54
Both parents			–	–	–	–
One parent			0.08	1.13	0.085	1.2
Neither parent			0.164*	2.36	0.185**	2.63
Institution Type						
Highest					–	–
High					0.031	0.48
Medium					-0.207**	-2.8
Lowest					-0.268**	-2.61
Specialist					-0.271	-1.77
Constant	-0.417***	-4.38	-0.582***	-5.38	-0.448***	-3.83

* for p<.05, ** for p<.01, and *** for p<.001

Regression results: participation in Post-graduation further study

The results from the models for having undertaken postgraduate study at stage 4 as the dependent variable are shown in Tables 34A and 34B. The results show that a limited range of factors were significantly associated with participation in postgraduate study. In the first model, the respondent's tariff score was the only factor that had a significant association with participation in postgraduate study. Respondents who had higher tariff scores were more likely to have undertaken further study in comparison to respondents who had low levels of prior educational achievement category. The magnitude of the association can be judged relatively large. For example the odds of a respondent in the highest tariff score category having undertaken further study were around 2.5 times those of respondents with tariff scores in the lowest tariff score category. In the results from the second model, respondents who did not have a parent with a degree were less likely than those with two university educated parents to have gone on to further study. Parental occupation showed no significant association with having undertaken postgraduate study after controlling for the other model factors, however. In comparison to the previous model, adjusting for family background factors resulted in some slight attenuation in the magnitude of the coefficients for the respondent's prior level of qualifications which, however, remained statistically significant.

The results from the model also adjusting for institution type show that type of institution has a significant association with participation in further study. In particular, respondents at institutions in the medium, lowest and specialist tariff score categories were less likely to have undertaken further study in comparison to those at institutions in the highest category. In comparison to the previous model, controlling for type of institution significantly attenuated the coefficients of the respondent's tariff score and explained the difference in the likelihood of undertaking postgraduate study between respondents with medium and those with the lowest levels of prior educational attainment. Respondents with high levels of prior educational attainment/tariff score category remained more likely to have undertaken further study, however. In the results from the final model, the level of debt accumulated by the respondent had no association with participation in further study. The coefficients from the previous model also remained substantially unchanged.

Adjusting for degree class shows that the class of qualification attained also has a significant association with participation in further study. Respondents with a First were about 1.5 times as likely as those with a 2:1 to take a postgraduate course, whilst those with a 2:2 or below were about half as likely to proceed to postgraduate study than those who attained a 2:1.

In summary, the results show that a range of individual characteristics were associated with intentions to undertake further study. Respondents who were male, started higher education at 19-20 years of age, were from Black backgrounds or had higher levels of prior educational qualifications were more likely to intend to undertake further study than remaining respondents. Institution factors were also related to respondent's intentions with respondents at institutions in the higher and high tariff score categories more likely to intend to undertake further study. In contrast, family background was not strongly related to respondent's intentions to undertake further study although respondents with parents who had not been to university were more likely to *intend* to undertake further study than those who had two parents who had been to university – but not to carry out that intention. The study found that in comparison to the range of factors which influenced the intention to

undertake further study a more limited range of factors influenced whether respondents actually did undertake further study. The respondents tariff score, the type of institution, the educational qualifications of the respondent's parent and the final grade achieved were the only factors that had a significant association with participation in postgraduate study. Respondents with higher levels of prior educational attainment or who had two parents who had been to university or were studying at institutions in the highest or high tariff score categories or who had gained a First were more likely to have undertaken further study than remaining respondents.

Table 34A: Regression coefficients and t-statistics for having undertaken further study at stage 4 for respondents who intended to undertake further study at stage 2.

	Model I Coef.	t-stat	Model II Coef.	t-stat	Model III Coef.	t-stat
Gender						
Male	0.082	1.05	0.089	1.13	0.128	1.61
Female						
Age Group						
18 and under						
19-20	-0.051	-0.52	-0.06	-0.61	-0.018	-0.18
21-25	-0.233	-1	-0.233	-1	-0.21	-0.9
26 and over	0.181	0.84	0.247	1.15	0.27	1.24
Ethnicity						
Asian	-0.09	-0.54	-0.038	-0.23	-0.09	-0.54
Black	-0.047	-0.17	-0.053	-0.19	-0.03	-0.11
White						
Mixed	0.173	0.76	0.162	0.71	0.19	0.82
Other	-0.751	-1.48	-0.8	-1.58	-0.879	-1.73
UCAS Tariff Score						
Non-standard	0.11	0.51	0.079	0.37	-0.006	-0.03
Low						
Medium	0.472**	2.67	0.454*	2.56	0.29	1.6
High	0.956***	5.75	0.866***	5.16	0.515**	2.86
Parental Occupation						
Professional/managerial						
Intermediate			-0.132	-1.23	-0.107	-0.99
Routine/manual			-0.073	-0.67	-0.054	-0.49
Parental Education						
Both parents						
One parent			-0.207	-1.94	-0.183	-1.7
Neither parent			-0.369***	-3.49	-0.322**	-2.98
Institution Tariff Class						
Highest						
High					-0.106	-1.11
Medium					-0.569***	-4.7
Lowest					-0.748***	-4.04
Specialist					-1.266***	-4.03
Level of Debt						
<£5000						
£5000-£14999						
£15000-£24999						
£25000+						
Degree class						
First						
2:1						
2:2 or below						
Concern about debt on graduation at stage 2						
Not concerned						
Neither concerned nor unconcerned						
Concerned about debt						
Constant	-1.241***	-7.26	-0.914***	-4.86	-0.522**	-2.59

Table 34B: Further regression coefficients and t-statistics for having undertaken further study at stage 4 for respondents who intended to undertake further study at stage 2.

	Model IV Coef.		t-stat	Model V Coef.	t-stat	Model VI Coef.	t-stat
Gender							
Male		0.127	1.59	0.152	1.883	0.158	1.927
Female							
Age Group							
18 and under							
19-20		-0.019	-0.19	-0.028	0.101	-0.02	-0.196
21-25		-0.209	-0.89	-0.305	-1.282	-0.297	-1.248
26 and over		0.3	1.38	0.179	0.806	0.185	0.833
Ethnicity							
Asian		-0.071	-0.42	0.072	0.256	0.082	0.292
Black		-0.034	-0.12	-0.006	-0.032	-0.021	-0.122
White							
Mixed		0.193	0.84	0.175	0.752	0.182	0.781
Other		-0.865	-1.7	-0.839	-1.64	-0.821	-1.604
UCAS Tariff Score							
Non-standard		-0.006	-0.03	-0.129	-0.592	-0.131	-0.598
Low							
Medium		0.29	1.59	0.206	1.109	0.201	1.081
High	0.517**		2.87	0.308	1.668	0.311	1.681
Parental Occupation							
Professional/managerial							
Intermediate		-0.112	-1.03	-0.1	-0.915	-0.096	-0.873
Routine/manual		-0.058	-0.53	-0.033	-0.302	-0.021	-0.191
Parental Education							
Both parents							
One parent		-0.187	-1.73	-0.16	-1.463	-0.162	-1.473
Neither parent	-0.332**		-3.07	-0.273*	-2.491	-0.272*	-2.473
Institution Tariff Class							
Highest							
High		-0.114	-1.18	-0.12	-1.237	-0.117	-1.206
Medium	-0.586***		-4.8	-0.563***	-4.577	-0.554***	-4.468
Lowest	-0.749***		-4.04	-0.728***	-3.893	-0.72***	-3.83
Specialist	-1.259***		-4	-1.241***	-3.915	-1.234***	-3.893
Level of Debt							
<£5000							
£5000-£14999		0.16	1.1	0.15	1.064	0.177	1.188
£15000-£24999		0.206	1.69	0.218	1.772	0.235	1.836
£25000+		0.158	1.14	0.162	1.102	0.166	1.145
Degree class							
First				0.462***	5.133	0.459***	5.1
2:1							
2:2 or below				-0.541***	-4.788	-0.555***	-4.868
Concern about debt on graduation at stage 2							
Not concerned						0.035	0.385
Neither concerned nor unconcerned						-0.077	-0.531
Concerned about debt							
Constant	-0.676**		-3	-0.615**	-2.628	-0.646**	-2.648

Conclusion

Students chose postgraduate study mainly for reasons of personal or professional development, but by their final undergraduate year, some opted for a course for the more pragmatic reason that they wish to defer entry into the job market. Those who intended to take postgraduate qualifications for reasons of personal development seem more likely to carry through their plans than those who undertook them because they felt they were essential for their career or to access better opportunities.

The decision to take a postgraduate qualification after graduation does not take place at a single point and once made, it is not irrevocable. The decision to undertake postgraduate study in earnest seems to be made relatively late and often with a reasonably clear perspective. Apparent career certainties at the end of the first year of higher education study changed with time, and that includes the decision to continue to further study. Support and guidance for postgraduates, including information about financial support, may be better targeted later in undergraduate study when many students have come to their plans – students who use careers services are more likely to take a postgraduate qualification than those who do not. These findings suggest that whilst students may indicate earlier in their degrees that they intend to undertake further, postgraduate study, they may be likely to change their minds.

A range of individual characteristics were associated with intentions to undertake further study. Respondents who were female, started higher education at 19-20 years of age, were from Black ethnic groups, were at institutions with high entry requirements, or had higher levels of prior educational qualifications were more likely to *intend* to undertake further study than remaining respondents. In contrast, family background was not strongly related to respondent's *intentions* to undertake further postgraduate study; although respondents with parents who had not been to university were more likely to intend to undertake further study than those who had two parents who had been to university but not to carry out that intention.

A more limited range of factors influenced whether respondents actually did undertake postgraduate study. The respondents' entry tariff score, the type of undergraduate institution attended, the educational qualifications of the respondent's parents and the grade of degree achieved, were the only factors that had a significant association with participation in postgraduate study. Respondents with higher levels of prior educational attainment or who had two parents who had been to university, were studying at institutions in the highest or high tariff score categories or who got a 2:1 or, a First in their undergraduate qualification, were more likely to have undertaken further study than remaining respondents.

This means that women, students from Black ethnic groups and those with less family history of higher education are more likely than other groups not to carry out an initial aspiration to study postgraduate education. These are three groups that are not well represented at postgraduate level and more investigation is required to understand why these groups seem inclined not to carry out an initial intention to study,

It is not so clear that the level of individual debt has a bearing on the decision to continue with study for a postgraduate qualification. The individual's *perception* of debt is highly

subjective and may be a more significant factor. One student may be comfortable with a relatively high level of debt and will not let their debt affect their decision-making, whilst another might be deterred from postgraduate study by relatively low levels of undergraduate debt. Care must then be taken in examining absolute levels of debt as a factor in the decision to continue to postgraduate study. Neither absolute debt, nor perception of debt appeared to be a strongly significant factor in the decision to continue to postgraduate study, but between 9 and 15 per cent of prospective postgraduates seem to be deterred from study by financial concerns, depending on when the intention to study a postgraduate qualification is expressed. It should be noted that the Futuretrack cohort graduated under the previous higher education funding regime, it does not therefore necessarily follow that current students and graduates will have the same views of debt.

Students who used university careers services were more likely to enter postgraduate study than those who did not. The study suggests that some forms of careers intervention; final year careers modules, course- or industry-oriented events, regular meetings with careers advisors, and discussions with academic staff, may help to increase the likelihood of a student undertaking postgraduate study, whilst others; employability-related training, advice from private providers or employment agencies, advice from professional bodies, and interview training, may be taken by, or lead, to students choosing a different option. Not using sources of advice at all seems, to lead to a lower rate of participation in further study.

An underlying social mobility message emerges from these findings. Most of the UK population does not have experience of higher education, and if the sons and daughters of the minority who do are much more likely to progress from higher education to postgraduate study, as appears here to be the case, then postgraduate study is in danger of becoming more exclusive.

This is of concern for the notion that postgraduate study is an engine of social mobility. It suggests that entry to postgraduate study could become concentrated amongst those sections of the population who already dominate the group of postgraduate entrants. If students from less represented backgrounds do not become more likely to enter postgraduate study, then postgraduate courses will remain the preserve of those already more likely to enter further study. Further regression analyses later in the report suggest that the effects of social background are mediated through other factors, particularly through school achievement and through choice of institution. However, both of these variables can be closely connected to social factors, and the effect of social background on the intention to study for postgraduate qualifications bears further analysis.

Since this report was written, a decision to introduce a new postgraduate Master's loan was announced at Autumn Statement 2015, to remove the barrier faced by many wishing to study at this level.

References

BIS, (2013) 'Learning from Futuretrack: the impact of work experiences on HE student outcomes', *BIS Research Paper number 143*. Accessible at www.gov.uk/government/uploads/system/uploads/attachment_data/file/251027/bis-13-1249-learning-from-futuretrack-impact-of-work-experiences-on-higher-education-student-outcomes.pdf

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Appendices

Appendix One: Timing of Futuretrack stages

Stage 1: On application to HE in 2006

Stage 2: Undertaken during Summer/Autumn 2007 - at the end of the first year of study for Futuretrack entrants who entered HE

Stage 3: Spring/Summer 2009, repeated in 2010, focussed on plans for the transition from undergraduate to graduate education and entry into the labour market. Students in the final term of a three or four year degree programme

Stage 4: Conducted in Autumn/Winter 2011 and 2012 to capture respondents between eighteen and thirty months post-graduation

Appendix Two: Overview of characteristics of UK-domiciled Futuretrack respondents who undertook non-PGCE postgraduate study

	Didn't do PG	Did PG	Proportion within section of those who did PG	Proportion who did PG	N unweighted
Gender					
Male	4403	1179	41.7%	21.1%	5582
Female	7297	1645	58.3%	18.4%	8942
Age group (as at 30th Sept 2006)					
18 and under	6550	1826	64.8%	21.8%	8376
19-20	2969	710	25.2%	19.3%	3679
21-25	947	135	4.8%	12.5%	1082
26 and over	1213	147	5.2%	10.8%	1360
Ethnicity					
Asian	731	166	5.9%	18.5%	897
Black	314	53	1.9%	14.4%	367
White	10163	2475	87.7%	19.6%	12638
Mixed	372	101	3.6%	21.4%	473
Other	110	26	0.9%	19.1%	136
Socio-economic classification					
Higher managerial and professional occupations	3436	1027	38.5%	23.0%	4463
Lower managerial and professional occupations	2977	776	29.1%	20.7%	3753
Intermediate occupations	1164	257	9.6%	18.1%	1421
Small employers and own account workers	946	183	6.9%	16.2%	1129
Lower supervisory and technical occupations	778	132	5.0%	14.5%	910
Semi-routine occupations	969	171	6.4%	15.0%	1140
Routine occupations	709	119	4.5%	14.4%	828
Parental degree					
Both parents have a degree	2541	900	33.0%	26.2%	3441
One parent has a degree	2907	766	28.1%	20.9%	3673
Neither parent has a degree	5776	1060	38.9%	15.5%	6836
UCAS tariff points					
None, or not measured	1887	274	11.4%	12.7%	2161
1 to 79	189	22	0.9%	10.4%	211
80 to 119	136	21	0.9%	13.4%	157
120 to 179	304	31	1.3%	9.3%	335
180 to 239	648	81	3.4%	11.1%	729
240 to 299	1119	198	8.2%	15.0%	1317
300 to 359	1439	295	12.3%	17.0%	1734
360 to 419	1396	380	15.8%	21.4%	1776
420 to 479	1202	381	15.8%	24.1%	1583
480 to 539	850	325	13.5%	27.7%	1175
540 plus	841	399	16.6%	32.2%	1240

	Didn't do PG	Did PG	Proportion within section of those who did PG	Proportion who did PG	N unweighted
Where lived when applied to HE					
North East England	479	108	3.8%	18.4%	587
North West England	995	239	8.5%	19.4%	1234
Merseyside	185	33	1.2%	15.1%	218
Yorkshire & the Humber	788	183	6.5%	18.8%	971
East Midlands	692	200	7.1%	22.4%	892
West Midlands	926	231	8.2%	20.0%	1157
East of England	553	163	5.8%	22.8%	716
London	1364	315	11.2%	18.8%	1679
South East England	2150	558	19.8%	20.6%	2708
South West England	1242	281	10.0%	18.5%	1523
Wales	479	84	3.0%	14.9%	563
Scotland	1203	244	8.7%	16.9%	1447
Northern Ireland	362	74	2.6%	17.0%	436
Republic of Ireland	16	6	0.2%	27.3%	22
Other European country	115	54	1.9%	32.0%	169
Other overseas country	117	43	1.5%	26.9%	160
Broad subject group of undergraduate degree					
Medicine & Dentistry	234	7	0.3%	2.9%	241
Subjects allied to Medicine	998	105	3.8%	9.5%	1103
Biology, Vet Sci, Agr & related	988	424	15.3%	30.0%	1412
Physical Sciences	548	364	13.1%	39.9%	912
Mathematical & Comp Sci	656	143	5.2%	17.9%	799
Engineering, Technologies	557	103	3.7%	15.6%	660
Architecture, Build & Plan	151	57	2.1%	27.4%	208
Social Studies	782	196	7.1%	20.0%	978
Law	301	204	7.4%	40.4%	505
Business & Admin studies	742	78	2.8%	9.5%	820
Mass communication and Documentation	205	17	0.6%	7.7%	222
Linguistics and Classics	384	165	6.0%	30.1%	549
Languages	255	111	4.0%	30.3%	366
Hist & Philosophical studies	464	249	9.0%	34.9%	713
Creative Arts & Design	1009	150	5.4%	12.9%	1159
Education	441	25	0.9%	5.4%	466
Interdisciplinary subjects	1273	373	13.5%	22.7%	1646
HEI access classification					
Highest tariff university	3302	1412	51.3%	30.0%	4699
High tariff university	2623	788	28.6%	23.1%	3398
Medium tariff university	2637	397	14.4%	13.1%	3017
Lower tariff university	935	113	4.1%	10.8%	1042
General HE college	114	7	0.3%	5.8%	121
Specialist HE college	345	36	1.3%	9.4%	379

	Didn't do PG	Did PG	Proportion within section of those who did PG	Proportion who did PG	N unweighted
Where lived at stage 4					
North East England	408	95	3.4%	18.9%	503
North West England	860	218	7.7%	20.2%	1078
Merseyside	170	27	1.0%	13.7%	197
Yorkshire & the Humber	742	185	6.6%	20.0%	927
East Midlands	562	149	5.3%	21.0%	711
West Midlands	775	191	6.8%	19.8%	966
East of England	500	138	4.9%	21.6%	638
London	2304	574	20.4%	19.9%	2878
South East England	1772	405	14.4%	18.6%	2177
South West England	1086	221	7.8%	16.9%	1307
Wales	412	100	3.6%	19.5%	512
Scotland	1122	254	9.0%	18.5%	1376
Northern Ireland	250	58	2.1%	18.8%	308
Republic of Ireland	20	4	0.1%	16.7%	24
Other European country	228	93	3.3%	29.0%	321
Other overseas country	424	102	3.6%	19.4%	526
Class of undergraduate degree					
First Class Honours	2069	959	34.6%	31.7%	3028
Upper Second Class Honours	5157	1474	53.2%	22.2%	6631
Unclassified Second Class Honours	227	26	0.9%	10.3%	253
Lower Second Class Honours	1693	266	9.6%	13.6%	1959
Third Class Honours	257	12	0.4%	4.5%	269
Ordinary Degree (unclassified)	329	18	0.6%	5.2%	347
Other	280	17	0.6%	5.7%	297

Base: UK-domiciled respondents to stage 4 who did not take a PGCE (14,494)

Appendix Three: Description of linear regression model

Regression models are used to describe how one variable varies as a function of another set of variables. In the linear model Y is related to X in a linear fashion. The usual name for Y is the dependent variable; X is variously called the predictor, covariate, independent or explanatory variable. More formally, the mean (or the expectation) of the response variable Y_i for individual i, is modelled as a linear function of the explanatory variables:

$$E(Y_i|X_i) = X_i\beta + \varepsilon_i \qquad (1)$$

where β are a vector of regression coefficients associated with X_i and ε_i is the unexplained part of the dependent variable Y_i, also termed the residual. The notation E(Y|X) shows that the mean is that of Y for a particular value of X or a conditional mean. The ε_i are assumed to have a $N(0,\sigma^2)$ normal distribution.

To illustrate the interpretation of the regression coefficients consider a model with the wage as the dependent variable and a single explanatory variable (e.g. age group with 4 categories: 18 years and under, 19-20 years, 21-25 years and 26 years and over). The linear model can then be expressed as:

$$E(Y_i|X_i) = \beta_0 + Age_{19-20\,years}\beta_2 + Age_{21-25\,years}\beta_3 + Age_{26\,yearsandover}\beta_4$$

where the effect of age is measured relative to that of the omitted age group (18 years and under). In this model the intercept term, β_0, gives the expected wage for respondents in the omitted age group (18 years and under) while the β_j coefficients where j = 2,3,4 indicate the change in the average wage compared to the reference group for respondents in the respective age groups.

One of the advantages of using a statistical model is that it provides measures of the uncertainty associated with the model coefficients. For example, a t-test can be used to test the null hypothesis that the true regression coefficients are zero where the test statistic is:

$$t = \frac{\beta}{SE(\beta)}$$

and SE(β) is the standard error of the estimated regression coefficient which quantifies the sampling variability of the estimate. The p-value associated with the test statistic gives the probability of observing a statistic as extreme as the value found assuming that the null hypothesis is true. In this report we follow the convention of using either one, two or three asterisks * to highlight the level of statistical significance of the coefficient estimates (one asterisk represents $p < 0.05$, two is $p < 0.01$ and three is $p < 0.001$). In this report we also follow the usual convention of using $p < 0.05$ as a threshold at which the null hypothesis that the coefficient is equal to zero is rejected.

Description of logistic regression model

The logistic regression model is used to analyse outcomes where the response is either `No' or `Yes' (coded as 0 and 1, respectively). In the logistic model the probability of a `Yes' response for individual i, p_i, can written as:

$$P(Y_i = 1) = p_i = \frac{\exp(X_i\beta)}{1+\exp(X_i\beta)} \qquad (2)$$

or equivalently the logit of p_i can be expressed as:

$$\log it(p_i) = \log(\frac{p_i}{1-p_i}) = X_i\beta \qquad (3)$$

where X_i and β are as above. The logit transformation is used to ensure that p_i lies between 0 and 1. To illustrate the interpretation of the regression coefficients we again consider a model with unemployment as the dependent variable and - a single explanatory variable (e.g. age group with 4 categories: 18 years and under, 19-20 years, 21-25 years and 26 years and over). The logistic model can then be expressed as:

$$\log it(p_i) = \log(\frac{p_i}{1-p_i}) = \log(\frac{Y_i=1}{Y_i=0}) = \beta_0 + Age_{19-20\,years}\beta_2 + Age_{21-25\,years}\beta_3 + Age_{26\,yearsandover}\beta_4$$

where the effect of age is measured relative to that of the omitted age group (18 years and under).

The interpretation of the model usually uses the exponential transformation of the model coefficients which can be interpreted as the ratio of the odds of a positive response for the relevant category of the explanatory variable to the odds of a positive response for the omitted category of the explanatory variable. For example, in the above model the odds of a positive response for a respondent in the youngest age group (18 years and under) is given by:

$$\frac{p_1}{1-p_{1i}} = \exp(\beta_0)$$

while that for a respondent in the j^{th} age group is given by:

$$\frac{p_i}{1-p_i} = \exp(\beta_0 + \beta_j) \qquad j = 2,3,4$$

The ratio of the odds of a positive outcome for a respondent in the j^{th} age group relative to a respondent in the youngest age group is therefore given by:

$$\psi_{j1} = \frac{p_j/(1-p_j)}{p_1/(1-p_1)} = \exp(\beta_j)$$

Appendix Four: Statistical analysis - methodology

In order to have a sufficient number of respondents with different characteristics for the explanatory variables a number of the explanatory variables were recoded. The occupation of the respondent's parents was recoded into the following occupational groups: professional and managerial, intermediate (intermediate and small employers and own account occupations) and routine and manual (lower supervisory and technical, semi-routine and routine occupations). Parental education was measured by whether the respondent's parents had been to university. The education levels considered were whether both parents, one parent or no parent had been to university. The categories of the UCAS tariff score distinguished in the analysis were non-standard qualifications, <240 points, 240 to 359 points and 360 or more points. The number of respondents at general HE colleges was not sufficient to permit separate analysis of this group and respondents at general HE colleges were grouped with those at the lowest tariff institutions. The level of accumulated debt was grouped into the following categories: <£5000, £5000-£14999, £15000-£24999 and £25000 or more. Concern about debt at stages 2 and 3 were grouped into the following categories: Concerned, neither concerned nor unconcerned, not concerned about debt.

Logistic regression was used to examine the association between the characteristics of the respondent and the respondent's outcomes at each stage. Appendix Three gives details of the logistic regression model and its interpretation. The analyses examined a series of models. The first model included the individual characteristics of the respondent as explanatory variables. The second model added the respondent's family background characteristics as additional explanatory variable while the third model also included characteristics of the respondent's institution. The analysis at stage 4 also examined 2 final models which included the level of debt, or the perception of debt as explanatory variables. The Futuretrack database contains weights, which account for the effect of attrition on the longitudinal analyses. The analyses here were conducted with and without the weights. There was no significant difference in results and we present the unweighted results.

The analyses are restricted to respondents who had no missing data at stages 1, 2 and 4 for the characteristics included in the analysis. Respondents who did not provide information at stage 3 are, however, included in the analysis. Respondents who were not domiciled in the UK were also omitted from the analysis.