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Incorporating the UK GRAD Programme and UKHERD

What do researchers do?

First destinations of doctoral graduates by subject

Analysis of first employment destinations of doctoral graduates 2003–2007 from UK universities by discipline and subject

- First-ever analysis of doctoral destinations by subject areas
- Summary of first destinations of doctoral graduates between 2003–2007
- Illustration of the range of occupations undertaken by doctoral graduates

Vitae is supported by Research Councils UK (RCUK), managed by CRAC: The Career Development Organisation and delivered in partnership with regional Hub host universities

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Contents

	page
Glossary	1
Foreword / Background	2
Introduction	3 – 4
At a glance	5 – 7
Destinations of UK-domiciled doctoral graduates in all disciplines	8 – 10
Arts and humanities	11 – 17
Biological sciences	18 – 24
Biomedical sciences	25 – 31
Physical sciences and engineering	32 – 41
Social sciences	42 – 49
Methodology	50 – 52
Resources and publications	53

Glossary

AGCAS	Association of Graduate Careers Advisory Services
A&H	arts and humanities
BS	biological sciences
BMS	biomedical sciences
DBA	Doctor of Business Administration
DClinPsych	Doctorate in Clinical Psychology (professional)
DIUS	Department for Innovation, Universities and Science
DLHE	'Destinations of Leavers from Higher Education' survey by HESA
DMedEth	Doctor of Medical Ethics (professional)
DPA	Doctor of Public Administration
DPhil	Doctor of Philosophy
EdD	Doctor of Education
EngD	Doctor of Engineering (professional)
EU	European Union
EU-domiciled	normal residence is in the European Union
FE	further education
HE	higher education
HECSU	Higher Education Careers Services Unit
HEI	higher education institution
HESA	Higher Education Statistics Agency
JACS	Joint Academic Coding System
JSS	Joint Statement of the UK Research Councils' Training Requirements for Research Students (Joint Skills Statement)
NHS	National Health Service
PhD	Doctor of Philosophy
PS&E	physical sciences and engineering
QAA	Quality Assurance Agency for Higher Education
RC	research council(s)
RCUK	Research Councils UK
RDP	research degree programmes
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
SS	social sciences
UK-domiciled	normal residence is in the UK, including the Channel Islands and Isle of Man
WDPD? series	publications of the What Do PhDs Do? series, published by the UK GRAD Programme
WDPD?	What Do PhDs Do? (2004)
WDPDR	What Do PhDs Do? - A Regional Analysis (2006)
WDPDT	What Do PhDs Do? - Trends (2007)
WDRD? series	publications of the What do researchers do? series, published by Vitae
WDRDCS	What do researchers do? Career profiles of doctoral graduates (2009)
WDRDS	What do researchers do? First destinations of doctoral graduates by subject (2009, current publication)

Foreword

I am delighted to introduce Vitae's 'What do researchers do? First destinations of doctoral graduates by subject'. In addition to providing accessible, up-to-date information on employment destinations of all doctoral researchers, pioneered by the 'What Do PhDs do?' series (published by Vitae's predecessor, the UK GRAD Programme), this publication provides insights into first employment destinations by subject for the first time.

The 'What do researchers do?' series builds our knowledge and understanding of the landscape of researchers careers, the diversity of pathways and the contribution our most highly trained make to UK economy and society. Never has it been so important for the UK to have this supply of highly-skilled, talented individuals to contribute to our future economic prosperity.

Leading-edge research is essential in driving forward UK economic success and international competitiveness. But to continue to develop and attract global knowledge intensive businesses, we need more people with the skills to carry out basic research, for which the UK has acknowledged excellence. We also need innovative and creative doctoral graduates to develop innovative products, processes and services and increase our cultural and social capital.

It is critical that we support our doctoral graduates in making good career decisions. This publication is required reading for all careers professionals supporting researchers. I recommend it to anyone working with and developing researchers, to current and prospective doctoral researchers and to employers wanting to know more about recruiting these highly skilled individuals. It will be of real value to businesses, universities and research organisations.

Professor Ian Diamond
Chair, Research Councils UK Executive Group

What do researchers do?

First destination of doctoral graduates by subject

Background

'What do researchers do? First destination of doctoral graduates by subject' (WDRDS) provides an up-to-date and extended analysis of the first employment destinations of doctoral graduates from 2003-2007. For the first time it provides information on the size, demographics and destinations of doctoral graduates by subject. It explores employment rates, sectors and occupations.

It provides:

- First-ever analysis of doctoral destinations by subject areas
- Summary of first destinations of doctoral graduates between 2003-2007
- Illustration of the range of occupations undertaken by doctoral graduates

WDRDS is designed to help:

- doctoral researchers and prospective researchers make well-informed career choices
- careers advisors and supervisors be aware of the breadth of potential careers
- employers better appreciate what doctoral graduates can offer them.

Introduction

Doctoral graduates are typically high calibre individuals with specialist knowledge, well-developed transferable skills and an ability to work creatively and independently. 'What do researchers do? First destinations of doctoral graduates by subject' (WDRDS) demonstrates that doctoral graduates are highly employable right across the economy in a wide range of occupations. It shows that doctoral graduates are prized by the higher education sector where they go on to work in research, teaching and administration roles. However, it also demonstrates that a similar number of doctoral graduates go on to work outside of higher education in very diverse roles using either their specialist or high level generic skills, or both.

In WDRDS, for the first time, first destinations of doctoral graduates are presented by subject as well as by broad discipline. This more detailed analysis provides new insights into the employment destinations of researchers and will provide researchers with an analysis that is more relevant to them than ever before.

This publication is accompanied by 'What do researchers do? Career profiles of doctoral graduates' (WDRDCS). This companion publication supplements the first destinations described here with career stories that provide insights into the paths that doctoral graduates take beyond their first destination. Both publications provide information from a wide range of subjects and highlight the range of different occupations and employment sectors that researchers work in.

All stakeholders will benefit from having an enhanced understanding of the employment destinations of doctoral graduates. It should be inspiring and informative to doctoral researchers or recent doctoral graduates making career decisions and to those advising them. Understanding the employment destinations of doctoral graduates enables the higher education sector to ensure that the training provided is useful and appropriate. It is also informative for potential employers of doctoral graduates to see where such people have previously found employment. This analysis will be useful to government and other policy makers in understanding and evaluating the impact made by researchers to the economy.

Aims and scope of 'What do researchers do? First destinations of doctoral graduates by subject'

WDRDS is designed to help:

- doctoral researchers and prospective researchers make well-informed career choices
- careers advisors and supervisors to be aware of the breadth of potential careers
- employers to develop their understanding of the postgraduate labour market and what doctoral graduates can offer them.

WDRDS is based on the annual 'Destinations of Leavers from Higher Education' (DLHE) survey introduced in 2004[1]. It analyses the information that relates specifically to the employment destinations of UK-domiciled doctoral graduates. The publication builds on the 'What Do PhDs Do?' series[2] (2004–07) published by the UK GRAD Programme, now Vitae. In response to demand from the series' audiences, particularly researchers and careers advisers, WDRDS contains:

- analysis of the latest available first destination data of UK-domiciled doctorate-holders who graduated in 2007
- information on five-year trends 2003–2007, at the level of five broad discipline areas as well as 'all disciplines'
- new insights into first employment destinations of doctoral graduates in 36 different academic subjects and subject groups using the results of all five years of the DLHE survey[3].

What is a doctorate?

A doctorate is the highest qualification from UK universities. The degree is awarded for research, undertaken with a high level of independence, over three or four years (typically six to seven years if the doctorate is studied part-time). The research is required to make an original and significant contribution to knowledge, worthy of academic publication. The candidate also needs to demonstrate in-depth knowledge of the subject. Doctoral degree programmes now include structured transferable skills training as well as training in relevant research skills. Although most doctoral degrees are undertaken in well-structured programmes, doctoral study can take a variety of forms depending on the discipline and the mode of study, for example in a 'PhD by practice' creative work forms a significant part of the intellectual inquiry. The 'PhD by publication' allows for a candidate's thesis to consist entirely or largely of published work.

In WDRDS we use the generic term 'doctoral graduate' to cover those graduating with any of the following forms of doctorate:

- Doctor of Philosophy (PhD or DPhil), the most familiar doctoral research qualification
- Professional Doctorates (EdD, EngD, DClinPsych, DMedEth, DPA, DBA, etc), these differ from PhDs as the research project is normally related to the candidate's professional practice and includes a more formal taught component. The importance of professional doctorates is shown by the growth of doctoral graduates in clinical and pre-clinical medicine and psychology; now the first and third most common subject areas for UK-domiciled doctoral graduates.

Developments in research degree programmes

As the numbers of doctoral researchers has grown, this important cohort has received increasing attention. Changing expectations from government, funders, employers and researchers themselves has led to changes in the way doctoral education is delivered. This has been supported by the development of national quality assurance mechanisms and increased collaboration and practice-sharing between universities. An important development has been an increased focus on the development of researchers' personal and professional skills. Universities have developed their doctoral programmes to encourage and support researchers to develop both their research expertise and their transferable skills.

A key catalyst for change in doctoral education was 'SET for Success'[4] (2002). This review was commissioned by the Treasury to investigate the supply of people with science, technology, engineering and mathematics skills and recommended a number of developments in doctoral education. These included the introduction of formal skills training, principally in transferable skills, to supplement and enhance the research skills underpinning a successful doctorate. The higher education sector enthusiastically

1. www.hesa.ac.uk/index.php/component/option,com_collns/task,show_collns/targetYear,any/Itemid,231/targetStream,3/
2. 'What Do PhDs Do?' (2004) www.vitae.ac.uk/CMS/files/1.UKGRAD-WDPD-full-report-Sep-2004.pdf
'What Do PhDs Do? – A Regional Analysis' (2006) www.vitae.ac.uk/cms/files/UKGRAD-WDPD-regional-analysis-Sep-2006.pdf
'What Do PhDs Do? – Trends' (2007) www.vitae.ac.uk/cms/files/UKGRAD-WDPD-Trends-Sep-2007.pdf
3. The methodology chapter outlines the methodology used in WDRDS to facilitate comparison of institutional data against the national data.
4. 'SET for Success: the supply of people with science, technology, engineering and mathematics skills' (2002) Sir Gareth Roberts' Review, HM Treasury www.hm-treasury.gov.uk/ent_res_roberts.htm

embraced the recommendations of 'SET for Success' and has created a wide range of innovative practice designed to support researchers in the development of their skills[5].

Researchers graduating from doctorates typically have had the opportunity to develop their skills through skills training, experiential learning opportunities, targeted careers events and advice. The skills areas that are being developed are set out in the 'Joint Statement of the UK Research Councils' Training Requirements for Research Students' (2001)[6]. This details seven areas that researchers are expected to develop through a research degree: research skills and techniques, research environment, research management, personal effectiveness, communication skills, networking and teamworking, and career management. This holistic approach to developing the skills and competencies of doctoral researchers is embedded in Section 1 of the Quality Assurance Agency for Higher Education (QAA) 'Code of Practice for the assurance of academic quality and standards in higher education' (2004)[7].

The focus on developing researchers' skills has been recognised by government as critical to the future of the UK's competitiveness and sustaining a knowledge-based economy. Lord Leitch's 'Review of Skills'[8] recognises that *'One of the most powerful levers for improving productivity will be higher level skills. Postgraduate, or Level 5 skills, such as MBAs and PhDs...'.*

Key messages

Overall patterns of doctoral employment were consistent over the period 2003–2007. These patterns were set against a slight upward trend in the numbers of UK-domiciled doctoral graduates, which represented a slight decline in percentage of the total cohort. The employment rate[9] for UK-domiciled doctoral graduates working in the UK was stable at 80–81% and they continued to be employed in a wide range of occupations in all sectors of the UK economy. On average, 35% went into research roles across all sectors. Higher education is a main destination, where 23% of all respondents were employed as research staff and 14% as lecturers.

The proportion of doctoral graduates working or studying overseas declined slightly. However, unemployment among UK-domiciled doctoral graduates remained considerably lower than among first-degree graduates and masters graduates across all disciplines.

The 'At a glance' chapter compares by subject some of the key statistics on cohort size, employment status, employment in the education sector, employment in research-related roles and as research staff and in teaching and lecturing roles in higher education.

The discipline chapters look in more detail at discipline and subject level key findings over the period 2003–2007.

Arts and humanities

Doctoral graduates from the arts and humanities (A&H) made up between 13–14% of all UK-domiciled doctoral graduates. 76% were employed or employed and working in the UK, with the education sector being the largest employment area for A&H respondents. One fifth worked in research-related roles across all sectors (14% in higher education), while 27% were employed as lecturers in higher education. The proportion employed abroad was consistently below the rate across all disciplines.

Subject specific information is provided for history; English; modern languages; theology; linguistics and classical and ancient languages. Other subjects in arts and humanities are grouped together.

Biological sciences

Doctoral graduates from the biological sciences made up 14% of all UK-domiciled doctoral graduates. 80% were employed in the UK in 2007, half within the education sector with manufacturing being the second most popular sector. The proportion employed abroad was consistently above the average rate across all disciplines. The percentage working in research-related roles across all sectors was 64%, while the proportion of respondents working as research staff in higher education was 36%.

Subject specific information is provided for biology; biochemistry, molecular biology and biophysics; microbiology; and agriculture. Other subjects in biological sciences are grouped together.

Biomedical sciences

Doctoral graduates from the biomedical sciences made up 25-27% of all UK-domiciled doctoral graduates. 85% were employed in the UK, with the health and social work sector consistently being the largest employment area and the education sector second. 31% worked in research-related roles across all sectors, with 22% working as research staff in higher education. 10% were employed as lecturers in higher education.

Subject specific information is provided for clinical and pre-clinical medicine; psychology; pharmacology, toxicology and pharmacy; anatomy, physiology and pathology; and nursing. Other subjects in biomedical sciences are grouped together.

Physical sciences and engineering

Doctoral graduates in physical sciences and engineering (PS&E) made up the largest discipline, at 32% of the UK-domiciled cohort. 78% were employed in the UK, with the education sector being the largest employment area at 42%. Significant proportions of PS&E respondents were employed in manufacturing (25%) and business, finance and IT (20%). 43% were employed in research roles across all sectors, with 28% as research staff in higher education. Around 7% were employed as lecturers in higher education.

Subject specific information is provided for chemistry; physics; computer science; mathematics; physical and terrestrial geographical and environmental sciences; geology; electrical and electronic engineering; mechanical engineering; and civil engineering. Other PS&E subjects are grouped together in 'other physical sciences' or in 'other engineering'.

Social sciences

Doctoral graduates from the social sciences (SS) made up the smallest discipline at 10% of all UK-domiciled doctoral graduates. 84% were employed in the UK, with 71% of these employed in the education sector in 2007. 24% were employed in research roles across all sectors, with 18% working as research staff in higher education. A third of SS respondents were employed as lecturers in higher education, the highest proportion of any discipline.

Subject specific information is provided for business and management; sociology; politics; human and social geography; law; economics; and academic studies in education. Other SS subjects are grouped together.

A resources and publications page at the end of the publication provides links to other destination studies reports on researchers' careers and relevant policy reports.

5. An online database for sharing practice in researcher development can be found at www.vitae.ac.uk/dop
6. www.vitae.ac.uk/policy-practice/1690/Joint-Skills-Statement.html
7. Section 1 of the 'Code of Practice for the assurance of academic quality and standards in higher education' www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section1/default.asp
8. www.vitae.ac.uk/policy-practice/375-2865/-Leitch-Review-of-Skills.html
9. The combined totals of respondents who 'entered work in the UK' and 'working and studying'.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

At a glance

This section enables easy comparisons of a number of key indicators by subject. All data is amalgamated over the years 2003–2007. Only subjects with 250 doctoral graduates or over are given separately: smaller subjects are consolidated into subject groupings. More detailed information can be found in the 'all disciplines' and discipline chapters.

UK-domiciled doctoral graduate population by subject 2003–2007

The numbers of UK-domiciled doctoral graduates by subject varies from single figures up to an average of 737 per year in medicine.

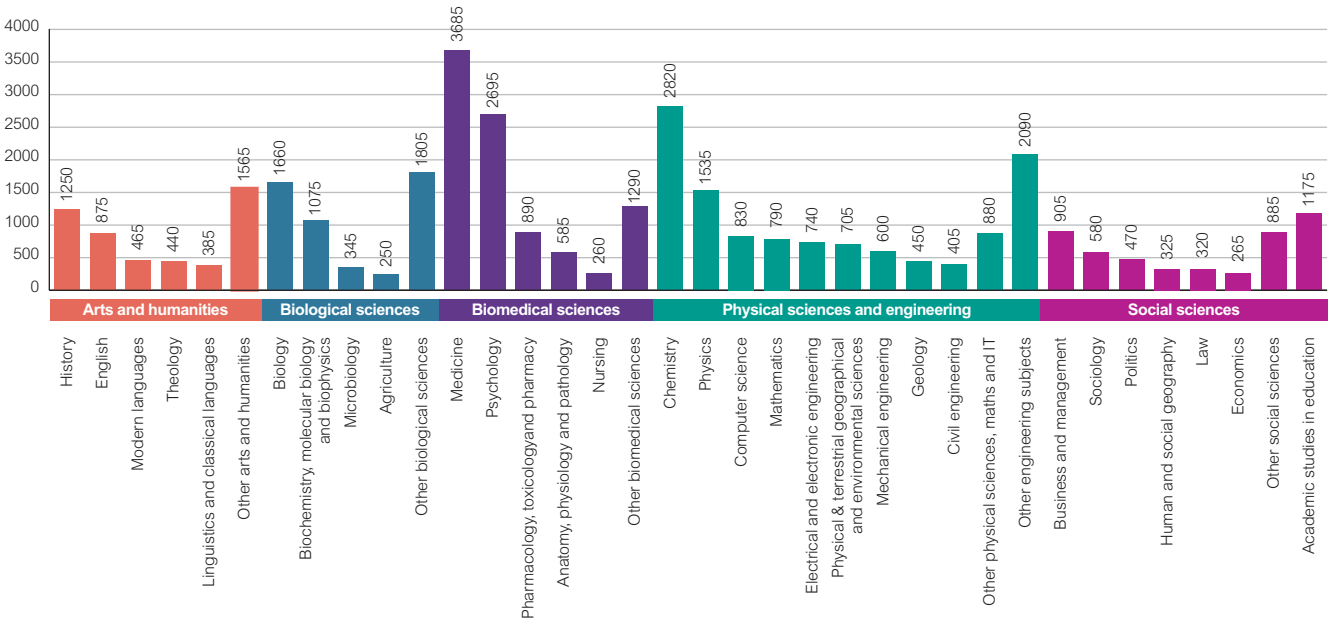

Figure 1: UK-domiciled doctoral graduate population 2003–2007

Employment status of UK-domiciled doctoral graduate respondents by subject 2003–2007

The percentage of respondents to the DLHE survey that enter work or combine work and study in the UK varies by subject, from 70% in modern languages to 90% in nursing. It has to be borne in mind that categories such as working overseas will vary by subject too and are not reported on here. More details and analysis are given in each of the discipline chapters.

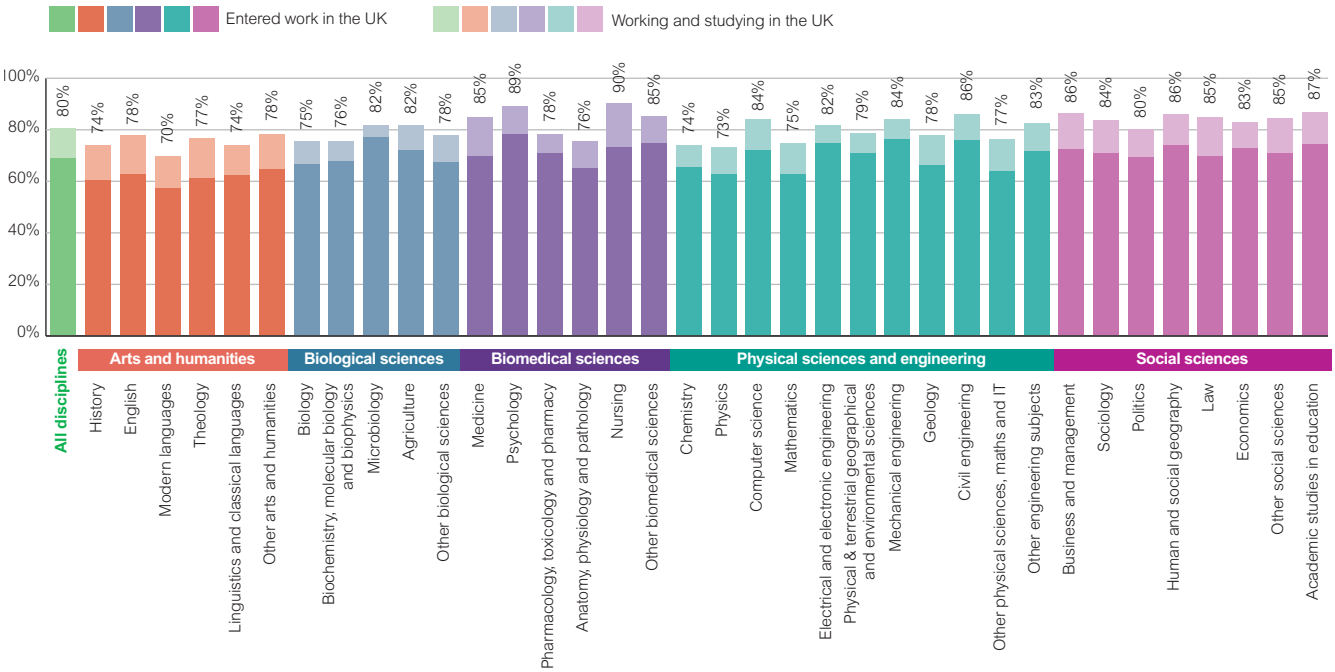

Figure 2: Percentage of UK-domiciled doctoral graduate respondents either working or working and studying in the UK 2003–2007

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Proportion of UK-domiciled doctoral graduate respondents employed in the UK in research occupations by subject 2003–2007

The percentage of doctoral graduate respondents in each subject employed in research occupations across all employment sectors varies from 7% for theology to 71% for microbiology and biochemistry, molecular biology and biophysics.

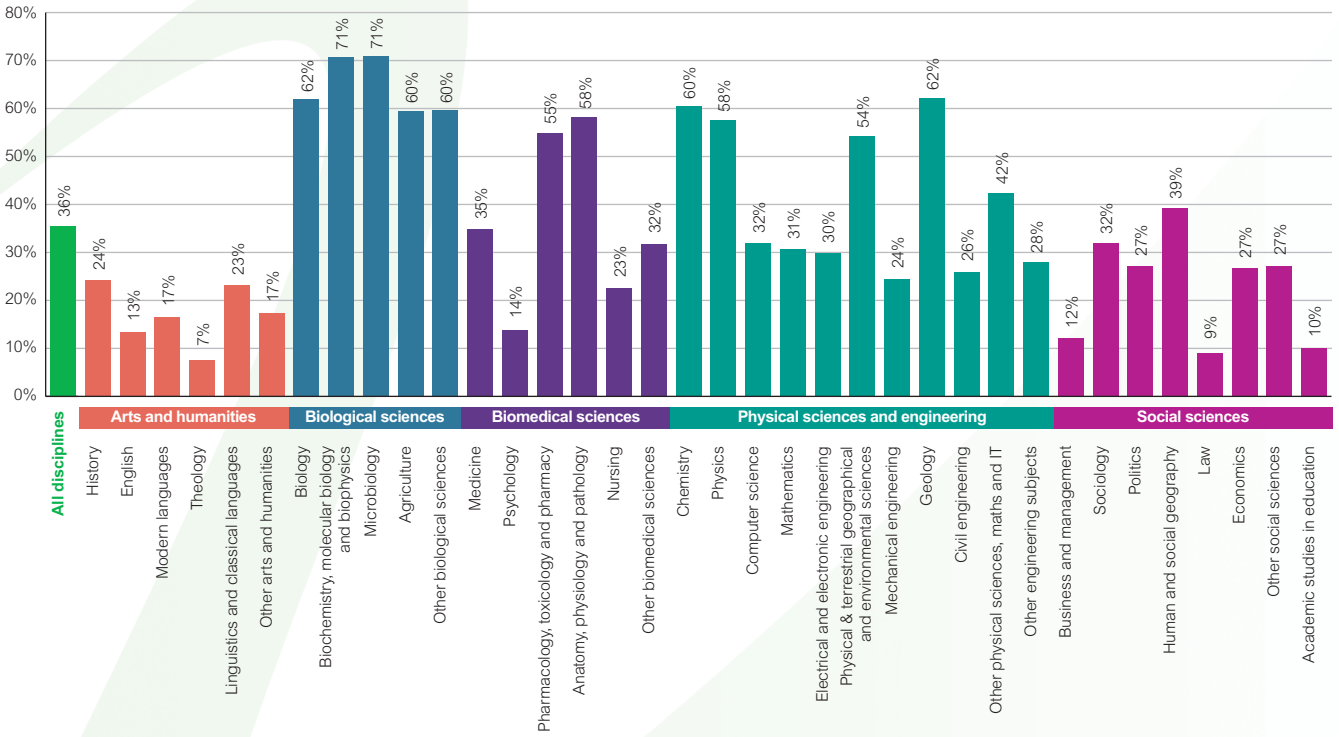

Figure 3: Percentage of UK-domiciled doctoral graduate respondents employed in the UK in research occupations 2003–2007

Proportion of UK-domiciled doctoral graduate respondents employed in the UK in the education sector by subject 2003–2007

The education sector absorbs nearly half of respondents over all subjects employed in the UK. However, this varies by subject from 28% for psychology doctoral graduates to 79% of those in modern languages.

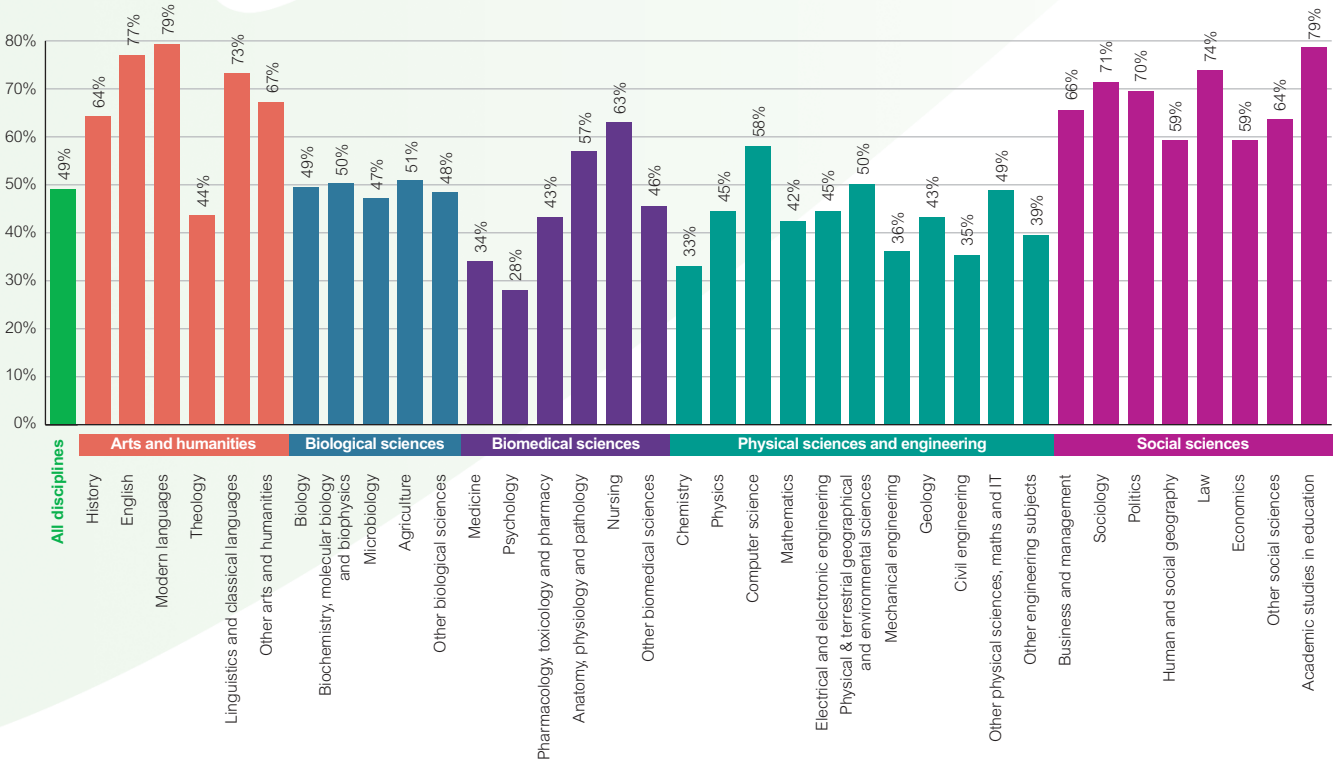

Figure 4: Percentage of UK-domiciled doctoral graduate respondents employed in the education sector 2003–2007

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Proportion of UK-domiciled doctoral graduate respondents employed as research staff in higher education by subject 2003–2007

The percentage of doctoral graduate respondents employed as research staff in HE institutions varies from 6% for theology to 43% for biochemistry, molecular biology and biophysics.

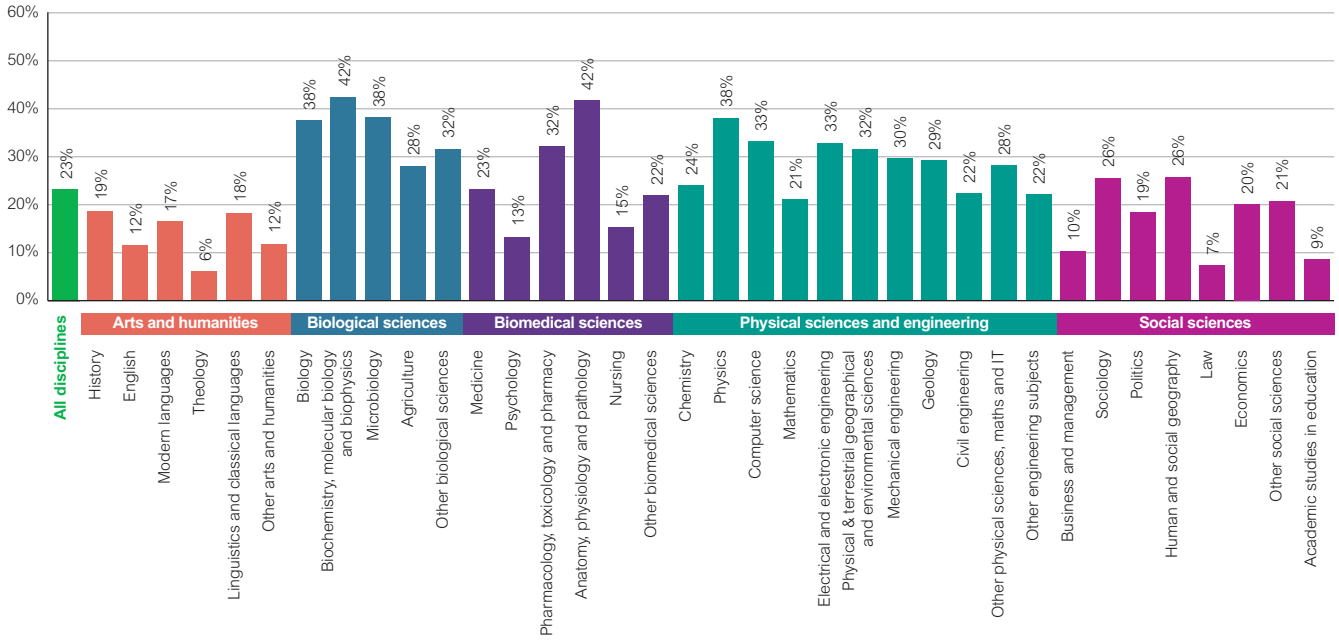

Figure 5: Percentage of UK-domiciled doctoral graduate respondents employed as research staff in HE 2003–2007

Proportion of UK-domiciled doctoral graduate respondents employed in teaching and lecturing in higher education by subject 2003–2007

The proportion of doctoral graduate respondents employed in teaching and lecturing in HE as a first destination varies from less than 1% in physics, chemistry and microbiology to 56% in law.

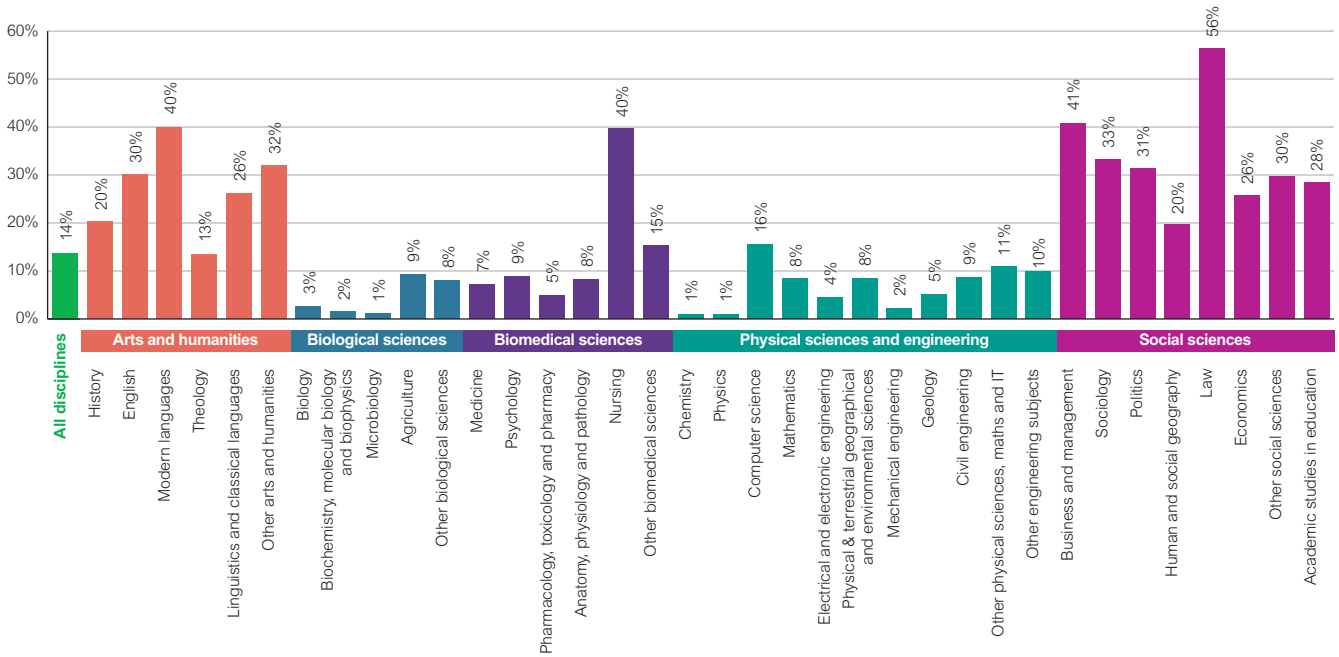

Figure 6: Percentage of UK-domiciled respondents employed in teaching and lecturing in HE 2003-2007

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Destinations of UK-domiciled doctoral graduates in all disciplines

Overall patterns of doctoral employment showed much consistency over the period 2003–2007. These patterns were set against an upward trend in the numbers of UK-domiciled doctoral graduates, which increased by 12% to 7875[1] in 2007 from a low of 7035 in 2004. UK-domiciled doctoral graduates as a percentage of the total cohort declined slightly, from 58% in 2003 to a low of 53% in 2006. The employment rate[2] for UK-domiciled doctoral graduates working in the UK was stable at 80–81%. The proportion working or studying overseas declined slightly. Unemployment among UK-domiciled doctoral graduates remained considerably lower than among first-degree graduates, and also consistently lower than that of masters graduates. Doctoral graduates continued to be employed in a wide range of occupations in all sectors of the UK economy: the concentrations of doctoral graduates in different occupations remained largely similar between 2003 and 2007. However, minor fluctuations at the 'all disciplines' level can mask larger variations at discipline group and subject level, as shown in later chapters.

Key statistics: the doctoral population

- Over 600 more UK-domiciled doctoral researchers graduated in 2007 (7875) than in 2003 (7270)
- UK-domiciled graduates formed 54% of 2007 doctoral graduates from UK universities compared with 58% in 2003
- The percentage of UK-domiciled female doctoral graduates increased steadily from 46% in 2003 to 48% in 2007
- Those graduating from part-time doctoral study ranged between 26% and 28% over the period 2003–2007

Key statistics: DLHE survey respondents

- Response rates rose from 65% (4695 respondents graduating in 2003) to 70% (5495 respondents graduating in 2007)
- 81% of 2007 UK-domiciled doctoral graduates entered employment or work with study in the UK
- 6% of 2007 UK-domiciled doctoral graduates chose to further their careers abroad, compared with 8% in 2003
- Unemployment rates at 3.1% for 2007 UK-domiciled doctoral graduates consistently remain lower compared with first-degree graduates (5.5%, 2007) and masters graduates (3.7%, 2007)

Looking in more detail at the UK-domiciled doctoral graduates 2003–2007 working in the UK[3]

- Half were employed[4] in the education sector: the balance in manufacturing, finance, business and IT, health, public administration and a wide range of other sectors
- Over one-third worked in research roles across all employment sectors
- 23% worked as research staff in higher education institutions (HEIs)
- 22% worked as education and teaching professionals across all sectors
- 14% were employed as lecturers in higher education

Doctoral graduate population from UK HEIs 2003–2007

Doctoral graduates from UK HEIs	2003	2004	2005	2006	2007	Total
Total doctoral graduates	12520	12170	12645	13195	14505	65440
UK-domiciled doctoral graduates	7270	7035	7080	7430	7875	36695
% UK-domiciled doctoral graduates	58%	58%	56%	53%	54%	56%
% Other EU-domiciled doctoral graduates	11%	11%	12%	12%	12%	12%
% Non EU-domiciled doctoral graduates	30%	31%	32%	35%	34%	32%

Table 1: Breakdown by domicile of all doctoral graduates from UK universities 2003–2007

Despite an increase in numbers there was a slight fall in the percentage of UK-domiciled doctoral graduates from 58% in 2003 to 54% in 2007. This was mainly due to the increase in numbers of non-EU domiciled doctoral graduates from 30% in 2003 to 34% in 2007. The proportion of other EU-domiciled doctoral graduates saw a small increase from 11 to 12% over the five-year period.

Characteristics of UK-domiciled doctoral graduates from UK HEIs

UK-domiciled doctoral graduates	2003	2004	2005	2006	2007	Total
Female	45%	46%	47%	49%	48%	46%
Male	55%	54%	53%	52%	52%	54 %
Full-time	73%	73%	72%	74%	74%	73%
Part-time	27%	27%	28%	26%	26%	27%

Table 2: Breakdown of all UK-domiciled doctoral graduates from UK universities 2003–2007 by gender and mode of study

Overall there has been an upward trend in the percentage of female doctoral graduates from 45% in 2003 to 48% in 2007. The percentage gaining their doctorate through part-time study has remained pretty stable at between 26–28%.

Response rate to the surveys

Table 3 presents the response rates and gender balance of UK-domiciled doctoral graduates graduating from UK universities in 2003–2007. It is encouraging to note the rising response rate between the first (65%) and last (70%) surveys. Response rates were representative in terms of mode of study, discipline and gender[5]. More information on response rates by discipline and subject is given in the discipline chapters.

1. For data protection, all figures have been rounded to the nearest five. Number and percentages may not total due to rounding.
2. The combined totals of respondents who 'entered work in the UK' and 'working and studying' (see Figure 1).
3. UK-domiciled respondents in the 'entered work in the UK' and 'working and studying' categories.
4. This includes both 'entered work in the UK' and 'working and studying in the UK'.
5. There was a 3% or less difference in response rates by type of study (full-time/part-time) and by gender. Response rates by discipline group varied between 62% and 66% (2003), increasing to between 68% and 70% (2007).

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Overall survey response for UK-domiciled doctoral graduates

UK doctoral graduates	2003	2004	2005	2006	2007	Total
Total respondents	4695	4675	4880	5035	5495	24780
Total UK doctoral graduates	7270	7035	7080	7430	7875	36695
% response	65%	67%	69%	68%	70%	68%
Female respondents (response rate)	2150 (66%)	2195 (68%)	2330 (70%)	2440 (67%)	2635 (70%)	11750 (69%)
Male respondents (response rate)	2545 (64%)	2485 (65%)	2550 (68%)	2595 (68%)	2860 (70%)	13030 (66%)

Table 3: Survey response for UK-domiciled doctoral graduates from UK universities 2003–2007

Employment rates

Overall, employment circumstances of UK-domiciled doctoral graduates showed much stability. It was noticeable that an increasing proportion of respondents in UK employment combined work with further study; 13% in 2007 compared with 8% in 2003. Annual unemployment rates varied less than a percentage point. Those working or studying overseas declined from 8% in 2003 to 6% in 2007.

Employment Circumstances	2003	2004	2005	2006	2007	Total
Entered work in the UK	72.7%	68.3%	69.1%	67.3%	67.9%	69.0%
Working & studying in the UK	8.0%	11.4%	11.4%	12.8%	13.3%	11.5%
Entered study or training in the UK	2.7%	2.7%	2.9%	2.8%	2.9%	2.8%
Working or studying overseas	8.1%	7.5%	7.0%	6.3%	5.9%	6.9%
Not available for work or study	3.2%	3.7%	3.4%	3.3%	3.2%	3.4%
Believed unemployed	3.2%	3.9%	3.6%	3.2%	3.1%	3.4%

Table 4: Employment circumstances of UK-domiciled doctoral graduates 2003–2007: respondents in all disciplines

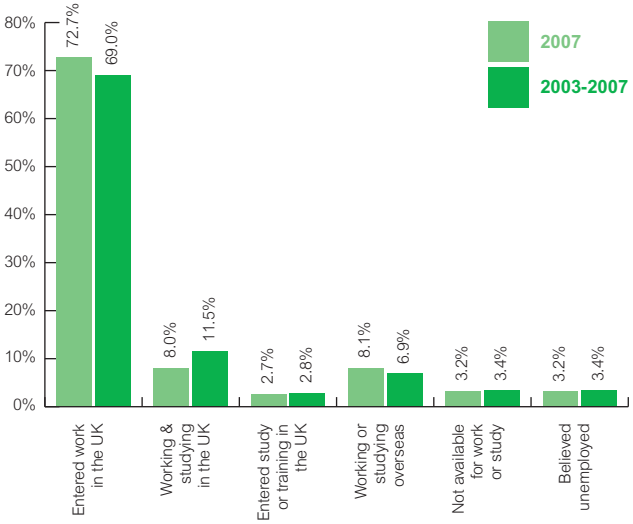

Figure 1: Employment circumstances of UK-domiciled doctoral graduates 2003–2007 and 2007: respondents in all disciplines

The doctoral graduate unemployment rate compared favourably with those of other graduates (Figure 2). 3.1% of UK-domiciled 2007 doctoral graduates were unemployed compared with 5.5% of first-degree graduates. This represents a small narrowing of the unemployment rates since 2003 (3.2% with doctorates and 6.6% with first degrees). Masters graduate unemployment was consistently between the doctorate and first degree rates.

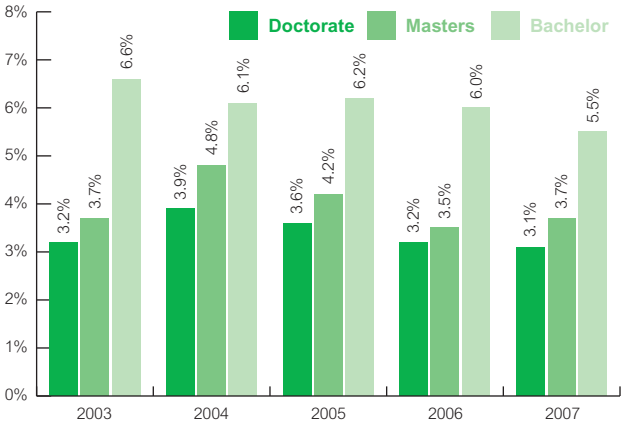

Figure 2: Comparisons of UK-domiciled graduates 'believed unemployed' from 2003–2005 at bachelor, master and doctorate levels

'Believed unemployed'	2003	2004	2005	2006	2007
Doctorate	3.2%	3.9%	3.6%	3.2%	3.1%
Masters	3.7%	4.8%	4.2%	3.5%	3.7%
Bachelor	6.6%	6.1%	6.2%	6.0%	5.5%

Table 5: UK-domiciled graduate respondents 'believed unemployed' from 2003–2005 at bachelor, master and doctorate levels

Employment sectors

As shown in Figure 3, UK-domiciled doctoral graduates divided almost equally into those who remain in the education sector (mainly in HE) and those who work in other sectors. The distribution across the different employment sectors was highly consistent year-on-year. The 2007 figures shown in Figure 3 correspond within one percentage point to five-year totals 2003–2007. The largest percentage decline in UK-domiciled doctoral graduates was in those employed in the manufacturing sector, a fall from 16.5% to 14% between 2003 and 2005. Overall, this represented only 65 fewer doctoral graduates, spread across the science subjects, but especially physical sciences and engineering.

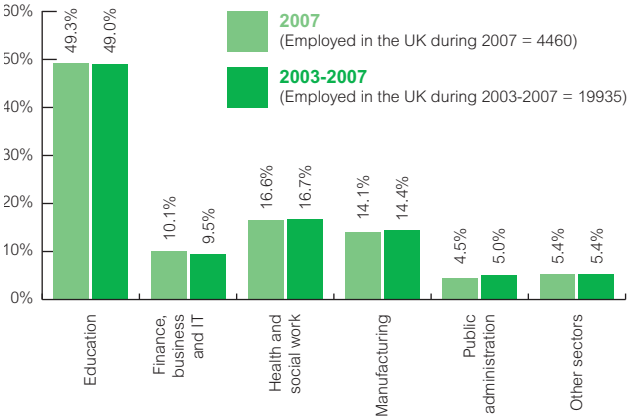

Figure 3: Employment sectors entered by UK-domiciled doctoral graduates 2003–2007 and 2007, based on Standard Industrial Classifications: respondents in all disciplines

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Career occupations

The occupations of doctoral graduates at the 'all disciplines' level showed little variation over the five-year period (see Table 4). Occupations of doctoral graduates at first destination, as aggregated into these broad categories, varied by less than 2%, except in the category 'scientific research, analysis and development professionals', which saw a fall from 18% (2003) to 15% (2007). However, the numbers of respondents entering these occupations remained stable at 675 in 2007 compared with 680 in 2003.

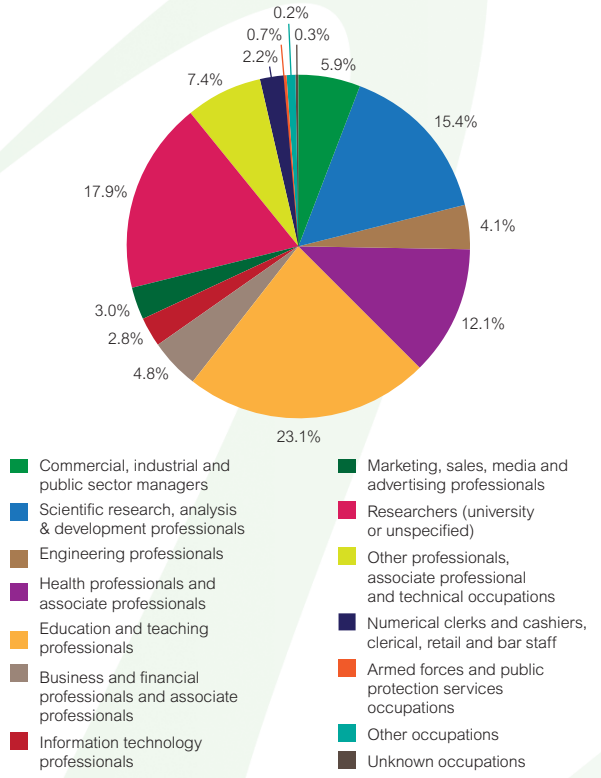

Figure 4: Types of work comparison: UK-domiciled doctoral graduates 2007[6]

Research roles

Research roles across all sectors accounted for the highest proportion of UK-domiciled doctoral graduates working in the UK. Analysis of SOCs shows that research occupations, which occur across the occupation classifications in Table 6, accounted for 35% of respondents 2003–2007 employed in the UK. Further analysis shows 23% of respondents entered research roles in higher education 2003–2007[8]. UK-domiciled doctoral graduates employed in research roles outside higher education were principally employed in manufacturing (many in the pharmaceutical and chemical industries), the NHS, and other parts of the public sector, such as government departments.

Education and teaching professionals

Teaching roles accounted for the second highest proportion of UK-domiciled doctoral graduates working in the UK (2003–2007), absorbing a stable 22% (23% in 2007). Higher education lecturer roles dominated this category at an average of 14% of UK-employed respondents over 2003–2007.

Other occupations

Overall, health professional roles saw a small increase from 11% in 2003 to 12% in 2007, chiefly among doctoral graduates in the biomedical sciences, where the proportion employed in these careers grew from 38% in 2003 to 42% in 2007. This reflects the growing number of clinical psychologists and health professionals (such as medical doctors and nurses) undertaking professional doctorates.

This section only presents a gross overview of trends in doctoral graduate first destinations: employment sectors, occupations and employment status vary considerably by discipline and by subject. The following chapters look in more detail at what we can conclude from the survey returns for UK-domiciled doctoral graduates in five broadly discipline-based groups: arts and humanities, biological sciences, biomedical sciences, physical sciences and engineering, and social sciences. Each discipline chapter also contains destination information for larger subjects (and groups of related subjects) within those discipline groups.

	2003	2004	2005	2006	2007	Total
Commercial, industrial and public sector managers	6.6%	7.0%	7.1%	6.8%	5.9%	6.7%
Scientific research, analysis & development professionals	18.1%	17.4%	17.0%	16.2%	15.4%	16.8%
Engineering professionals	5.3%	4.3%	4.5%	3.6%	4.1%	4.3%
Health professionals and associate professionals	11.3%	11.5%	13.2%	13.2%	12.1%	12.3%
Education and teaching professionals	22.2%	22.5%	22.0%	21.8%	23.1%	22.4%
Business and financial professionals and associate professionals	3.3%	3.8%	3.6%	4.4%	4.8%	4.0%
Information technology professionals	2.9%	2.4%	2.2%	2.7%	2.8%	2.6%
Marketing, sales, media and advertising professionals	3.2%	2.6%	2.8%	3.1%	3.0%	2.9%
Researchers (university or unspecified)	15.9%	16.0%	17.6%	17.3%	17.9%	17.0%
Other professionals, associate professional and technical occupations	7.8%	8.6%	6.8%	7.5%	7.4%	7.6%
Numerical clerks and cashiers, clerical, retail and bar staff	1.9%	2.1%	1.8%	2.1%	2.2%	2.1%
Armed forces and public protection services occupations	0.4%	0.2%	0.2%	0.2%	0.3%	0.3%
Other occupations	1.0%	1.2%	1.0%	1.0%	0.7%	1.0%
Unknown occupations	0.1%	0.4%	0.2%	0.1%	0.2%	0.2%

Table 6: Types of work entered by UK-domiciled doctoral graduates (2003–2007) based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[7]

6. Types of work being undertaken on January 15 2008 by UK-domiciled doctoral graduates from UK universities 2007.

7. Types of work being undertaken in the UK on January 15 2004, 2005, 2006, 2007 and 2008 by UK-domiciled doctoral graduates from UK universities in 2003, 2004, 2005, 2006 and 2007.

8. The methods for calculating doctoral graduates employed in research related roles and as research staff in higher education are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Arts and humanities

Arts and humanities doctoral graduates at a glance

Doctoral graduates from the arts and humanities (A&H) made up between 13-14% of all UK-domiciled doctoral graduates over the period 2003–2007, 14% in 2007.

- The number of A&H UK-domiciled doctoral graduates varied between 885 in 2004 and 1135 in 2007[1]
- The most popular subjects were history and English
- The average A&H response rate to the DLHE survey over the five year period was 67% and highest for those graduating in 2007 (70%)
- Of UK-domiciled doctoral graduates from 2003–2007, 50% of A&H graduates were female; 36% achieved their doctorate through part-time study[2]

Of UK-domiciled A&H doctoral graduates who responded to the DLHE survey

- The percentage working, or working and studying, in the UK averaged 76% over the period 2003–2007
- The proportion who chose to further their careers abroad was 4.0% (2003–2007), and was consistently below the rate across all disciplines (7% over 2003–2007)
- The unemployment rate (3.4% in 2007 and 4% 2003–2007 average) was consistently lower than for A&H first-degree respondents (6.8% in 2007) and masters graduate respondents (4.4% in 2007)

Looking in more detail at those A&H respondents working or working and studying in the UK[3]

- The education sector (both higher and other education, across occupations) was consistently the largest employment area for A&H respondents. It absorbed 69% in 2007 and averaged 67% over 2003–2007
- A&H respondents 2003–2007 were more than twice as likely to enter 'education and teaching' occupations (48%) than respondents across all disciplines (22%)
- A subset of these, 27% of all respondents in UK employment, entered HE lecturing roles, almost double the rate across all disciplines (14%)
- The percentage working in all research roles was 18%, well below the all disciplines average (35%)
- The proportion working as research staff in higher education was 14% (2003–2007), well below the all disciplines average (23%)

Overall survey response for arts and humanities subjects

A&H UK doctoral graduates	2003	2004	2005	2006	2007	Total
Total doctoral graduates in A&H	1000	885	905	1055	1135	4985
Total respondents	640	590	625	700	795	3350
% response	64%	67%	69%	66%	70%	67%
Female respondents	285	305	300	355	425	1670
Male respondents	360	285	325	345	370	1680

Table 1: Survey response for UK-domiciled doctoral graduates 2003–2007 in arts and humanities

The UK-domiciled A&H doctoral graduate population rose to 1135 in 2007, a five-year high (2004 saw the lowest number at 885). It constituted over 14% of all UK-domiciled doctoral graduates in 2006 and 2007, and between 13% and 14% over 2003–2005.

This chapter …

contains analysis of the arts and humanities doctoral graduate cohort, their response rate to the DHLE survey, first destination employment rates, employment sectors and occupations. The subjects discussed are: history; English; modern languages; theology; and linguistics and classical and ancient languages. Other subjects in arts and humanities are grouped together.

[1] For data protection, all figures have been rounded to the nearest five. Numbers and percentages may not total due to rounding.

[2] Compared to the total UK-domiciled doctoral graduate population where 46% were female; 27% gained their doctorate through part-time study.

[3] All data on destinations, whether in terms of occupations or employment sectors, is from those respondents who entered work or work and study in the UK.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment rates for arts and humanities

The employment circumstances of A&H respondents were stable over 2003–2007. The total A&H respondents entering employment in the UK or combining work and study was 76% compared with 81% of all respondents. The proportion of those working or studying overseas (4%) was also below that for all respondents (7%). Unemployment was 4.0% (3.4% in 2007) compared with 3.4% across all disciplines (3.1% in 2007). A&H respondents included a higher proportion than average of those not available for work or study[4] (6% compared with 3% across the entire 2003–2007 doctoral population) and more entered further study or training (5% compared with 3% of all respondents). However, the employment picture at broad discipline level masks variations between different subjects.

History was the most popular subject and accounted for 25% of all UK-domiciled A&H doctoral graduates, followed by English at 18%: all other subjects had fewer than 10% of the A&H doctoral graduates. Amalgamating data from 2003–2007 creates sufficient numbers to identify employment rates, employment sectors and occupations doctoral graduates entered in the following subjects: history; English; modern languages; theology; and linguistics and classical and ancient languages. All other A&H subjects are discussed as 'other arts and humanities'[5].

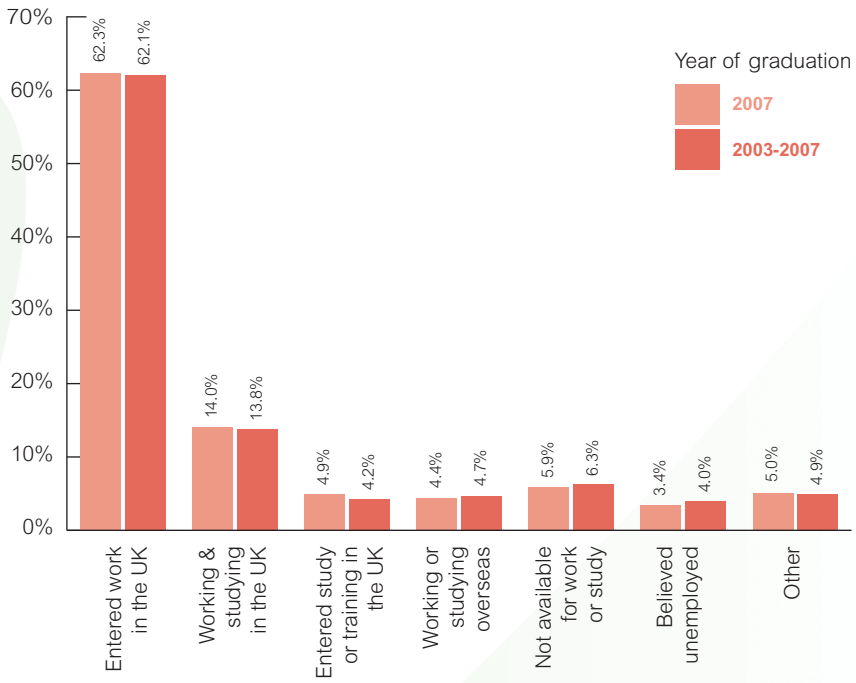

Figure 1: Employment circumstances of UK-domiciled A&H doctoral graduate respondents: 2007 and 2003–2007 comparison

Summary of employment outcomes by subject 2003–2007

A&H UK-domiciled respondents	History	English	Modern languages	Theology	Linguistics and classical and ancient languages	Other subjects in arts and humanities
Entered work in the UK	60.5%	62.6%	57.4%	61.3%	62.3%	64.7%
Working and studying in the UK	13.6%	15.2%	12.2%	15.3%	11.8%	13.6%
Entered study or training in the UK	4.6%	3.6%	7.8%	5.0%	4.6%	2.9%
Working or studying overseas	3.1%	4.2%	7.8%	5.0%	6.0%	5.0%
Not available for work or study	8.9%	5.0%	4.6%	6.6%	6.0%	5.5%
Believed unemployed	3.1%	5.5%	4.7%	2.2%	4.2%	4.2%
Other	6.3 %	3.9%	5.6%	4.7%	5.0%	4.2%

Table 2: Employment circumstances of UK-domiciled A&H doctoral graduates 2003–2007: respondents in different subjects in arts and humanities

[4] An unknown proportion of these are mature students undertaking doctorates for personal interest.

[5] Other A&H subjects include American studies, archaeology, art and design, cinematics, communication studies, comparative literature, design studies, drama, fine art, journalism, media studies, music, philosophy.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment sectors for arts and humanities doctoral graduates

Employment in the education sector (both higher and other education) accounted for over two thirds of UK-employed A&H respondents in 2007 (69%), slightly above the 2003–2007 average of 67%. A&H respondents were the most likely of all the discipline groups to enter the education sector, just ahead of social sciences at 66% and well above the doctoral graduate population 2003–2007 as a whole (49%).

'Other sectors' was the second most popular destination for A&H UK-employed respondents at between 13% and 16% for the period 2003–2007. These include the cultural and recreation sectors. A&H respondents are considerably more likely than other disciplines to enter these sectors: the all-disciplines rate was 5% over 2003–2007.

7% entered the public administration sector in 2007 (6% over 2003–2007). The remaining sectors shown in Figure 2 employed fewer than 5% both in 2007 and over the five-year period.

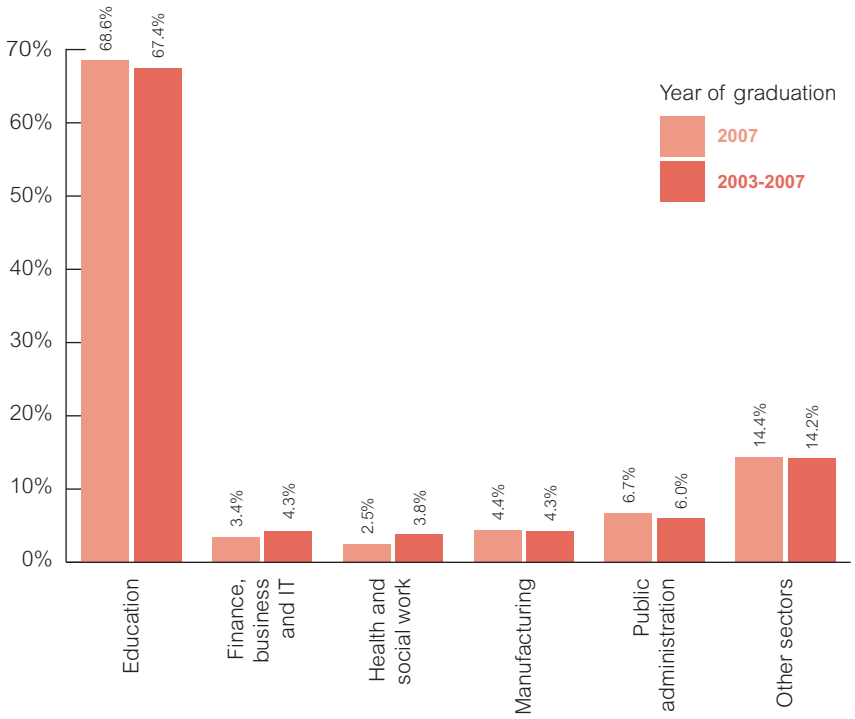

Figure 2: Employment sectors entered by UK-domiciled A&H respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

Summary of employment sectors by subject 2003–2007

A&H UK-domiciled respondents	History	English	Modern languages	Theology	Linguistics and classical and ancient languages	Other subjects in arts and humanities
Education	64.3%	77.0%	79.3%	43.7%	73.3%	67.2%
Finance, business and IT	5.0%	4.2%	4.0%	7.0%	1.0%	3.8%
Health and social work	3.0%	2.8%	1.5%	12.6%	2.9%	3.1%
Manufacturing	5.8%	3.2%	3.8%	2.1%	4.5%	4.5%
Public Administration	7.2%	4.4%	8.5%	5.0%	7.3%	5.3%
Other sectors	14.7%	8.3%	3.0%	29.6%	11.0%	16.0%

Table 3: Employment sectors entered by UK-domiciled A&H respondents working in the UK and graduating in 2003–2007 from different arts and humanities subjects, based on Standard Industrial Classifications (SIC) returned in the DLHE surveys

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Occupations of arts and humanities doctoral graduates

48% of UK-domiciled A&H respondents working in the UK (1200) were employed as 'education and teaching professionals' across all sectors of education 2003–2007. This proportion is higher than any other discipline group and more than double that for all disciplines (22%). 680 of these (27%) gained HE lectureship positions (compared with 14% across all disciplines). Other popular education and teaching roles were FE teaching professionals, university tutorial and teaching assistants and secondary level teachers.

Research roles occur across the different types of occupation classes shown in Table 4. Analysis of SOCs shows research occupations account for a total of 18% of A&H respondents employed in the UK[7]. Further analysis showed 14% of A&H respondents entered research staff roles in higher education[7]. The proportions of respondents employed in research roles across all employment sectors and as HE research staff are the lowest of any discipline group: the averages for the doctoral population as a whole were 35% and 23% respectively.

Both in 2007 and over 2003–2007, 7% of UK-employed respondents were 'commercial, industrial and public sector managers', similar to the average rate across the entire doctoral population. The 7% employed in 'marketing, sales, media or advertising professional' roles was above the 2003–2007 all disciplines average of 3%.

Overall, 2003–2007 was a relatively stable period for A&H doctoral graduate employment. UK employment rates were below that for all disciplines, but higher proportions entered further study or were unavailable for work or study. Education sector employment dominated, characterised by a high proportion in teaching roles. Conversely, research destinations were below the average for the doctoral population as a whole. We now look in more detail at the employment rates, sectors and occupations of A&H doctoral graduates by subject.

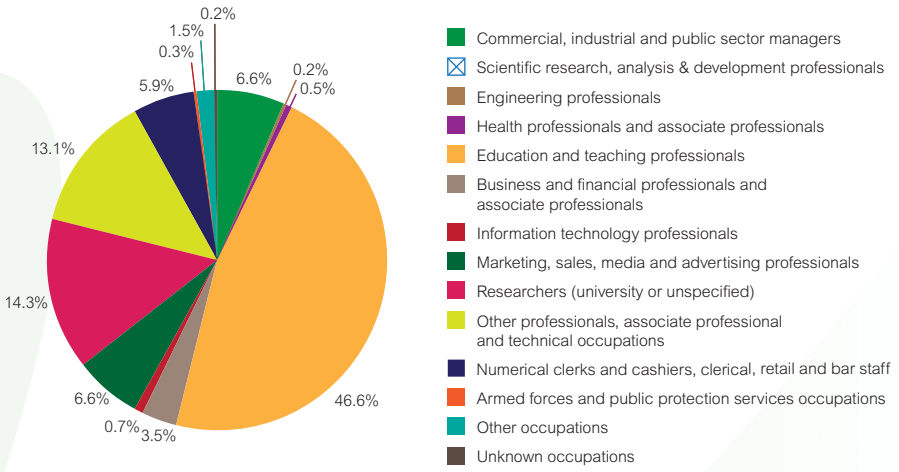

Figure 3: Types of work entered by UK-domiciled A&H doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[6]

A&H UK-domiciled respondents	2003	2004	2005	2006	2007	2003-2007
Commercial, industrial and public sector managers	5.7%	6.8%	9.4%	7.1%	6.6%	7.1%
Scientific research, analysis & development professionals	3.0%	0.6%	1.1%	0.0%	0.0%	0.9%
Engineering professionals	0.6%	0.0%	0.2%	0.5%	0.2%	0.3%
Health professionals and associate professionals	0.6%	0.9%	0.4%	0.8%	0.5%	0.6%
Education and teaching professionals	45.2%	50.7%	48.2%	47.9%	46.6%	47.7%
Business and financial professionals and associate professionals	1.0%	1.9%	1.1%	2.7%	3.5%	2.1%
Information technology professionals	0.8%	0.6%	0.9%	0.8%	0.7%	0.8%
Marketing, sales, media and advertising professionals	8.2%	6.0%	6.2%	6.9%	6.6%	6.8%
Researchers (university or unspecified)	13.2%	7.3%	10.6%	10.5%	14.3%	11.3%
Other professionals, associate professional and technical occupations	15.4%	19.3%	14.2%	14.5%	13.1%	15.2%
Numerical clerks and cashiers, clerical, retail and bar staff	3.7%	3.9%	5.1%	5.7%	5.9%	4.9%
Armed forces and public protection services occupations	0.4%	0.2%	0.4%	0.0%	0.3%	0.3%
Other occupations	2.1%	1.5%	1.9%	2.8%	1.5%	1.9%
Unknown occupations	0.0%	0.2%	0.2%	0.0%	0.2%	0.1%

Table 4: Types of work entered by UK-domiciled A&H doctoral graduates (2003–2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[8]

[6] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2008 after graduating from UK universities in 2007.

[7] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[8] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2004, 2005, 2006, 2007 and 2008 after graduating from UK universities in 2003, 2004, 2005, 2006 and 2007.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

History

1250 UK-domiciled doctoral graduates (25% of A&H cohort), 850 respondents (68%) of which 620 entered employment in the UK (2003–2007)

History is the largest A&H subject, making up a quarter of UK-domiciled A&H doctoral graduates. 46% of UK-domiciled history doctoral graduates were female and 32% had studied part-time. 64% of history respondents working in the UK remained in HE or entered other education sectors over 2003–2007, a little below the A&H average of 67% (Table 3). The unemployment rate (3.1%) was below the A&H average (4.0%). Respondents with doctorates in history were most likely of all A&H subjects to be 'unavailable for work or study' at 9% (Table 2), perhaps reflecting the proportion of mature students undertaking doctorates in history for personal interest.

Over 2003–2007 the most popular occupations for history doctoral respondents were 'education and teaching' roles. At 38% (240 respondents) this proportion was below the average across A&H subjects (48%) but above that for respondents across all disciplines (22%). HE lectureships accounted for 20% (125 respondents), below the A&H average of 27%. Other significant education and teaching roles were university tutorial and teaching assistants, secondary level teachers and FE teaching professionals.

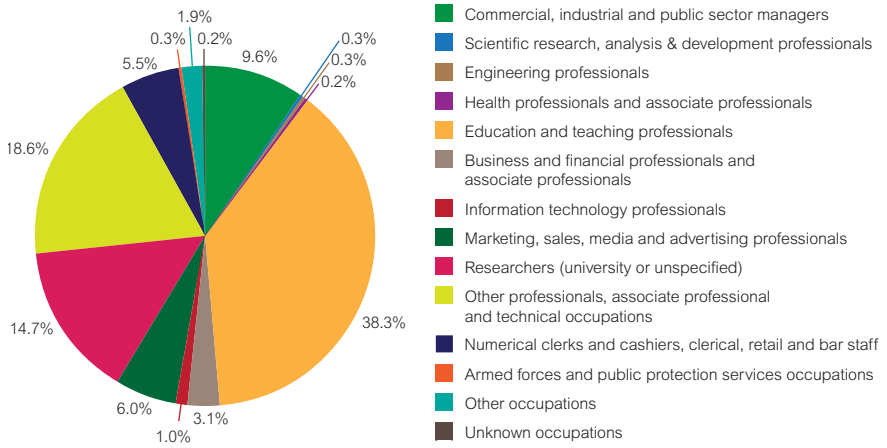

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in history, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The second largest category of respondents in history was 'other professionals, associate professional and technical occupations' (19%), including researchers, above the A&H average of 15%.

Research roles occur across the different types of occupations shown in Figure 4. Analysis of SOCs shows research occupations account for a total of 24% of history respondents employed in the UK. Further analysis showed 19% of UK-employed respondents entered research staff roles in higher education[9]. Both are well above the discipline average of 18% and 14% respectively, but below those for the doctoral population as a whole (35% and 23%).

Other significant destinations were 'commercial, industrial and public sector managers', which at 10% absorbed above the average for A&H and all disciplines (both 7%).

English

875 UK-domiciled doctoral graduates (18% of A&H cohort), 585 respondents (67%) of which 445 entered employment in the UK (2003–2007)

UK-domiciled doctoral graduates in English were 55% female and 28% had studied part-time. Respondents in English were slightly more likely to enter employment in the UK or work and study (78%) than the average across A&H subjects (76%) (Table 2). At 5.5%, the unemployment rate was the highest of any subject outside physical sciences (A&H average 4.0%). Employment in the education sector dominated at 77%, above the A&H average of 67% (Table 3).

Over 2003–2007, by far the most popular occupations for English doctoral respondents were 'education and teaching' roles. At 60% (270 respondents) this proportion was the highest of all A&H subjects (48%). HE lectureships accounted for 30% (135 respondents), above the A&H average of 27%. Other significant education and teaching roles were university tutorial and teaching assistants, secondary level teachers and FE teaching professionals.

The second largest category of UK-employed English respondents were 'researchers (university or unspecified)' (11%). However, research roles occur across the different types of occupation classes shown in Figure 5. Analysis of SOCs shows research occupations account for a total of 13% of English respondents employed in the UK. Further analysis showed 12% of UK-employed respondents entered research staff roles in higher education[9]. Both are below the discipline average of 18% and 14% respectively, and those for the doctoral population as a whole (35% and 23%).

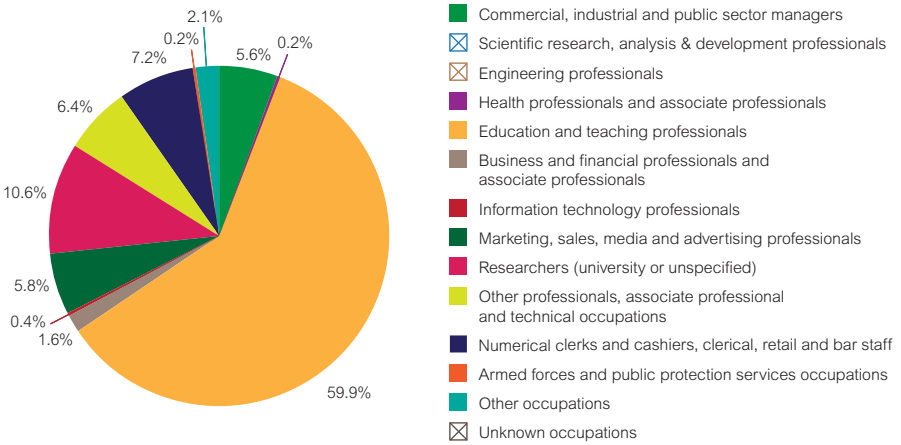

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in English, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

All other occupational areas employed small numbers – less than 30 respondents over the five-year period.

[9] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Modern languages

465 UK-domiciled doctoral graduates (9% of A&H cohort), 295 respondents (64%) of which 200 entered employment in the UK (2003–2007)

Over 2003–2007, modern languages had the highest proportion of female doctoral graduates (61%) and the lowest proportion of part-time study (24%) of all A&H subjects (34%). The subject area saw higher than average proportions go on to further study and training in the UK (8% compared with 4% across A&H) and to work or study overseas (8% compared with 5%). Conversely, employment in the UK and combining work and study were lower than the A&H average (Table 2). The education sector absorbed 79% of modern languages respondents, the highest proportion of all A&H subjects (Table 3), indeed of all subjects analysed.

57% (115 respondents) entered education and teaching roles, considerably above the 48% across all A&H subjects and the 22% across the doctoral graduate population as a whole. HE lectureships accounted for 40% (125 respondents); this was the highest proportion of any A&H subject group.

The second largest category was 'researchers (university or unspecified)' (15%). However, research roles occur across the different types of employment shown in Figure 6. Analysis of SOCs shows research occupations account for a total of 17% of modern languages respondents employed in the UK. Further analysis showed 17% of UK-employed respondents entered research staff roles in higher education[10]. This compares with the discipline average of 18% and 14% respectively and those for the doctoral population as a whole (35% and 23%).

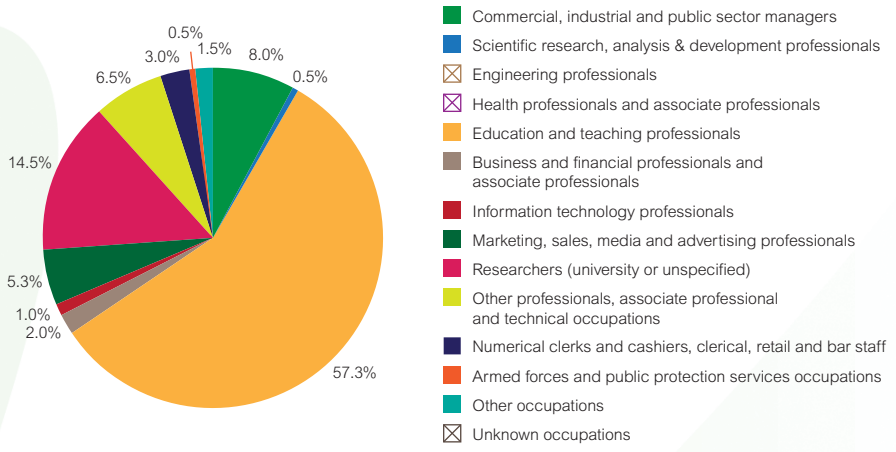

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in modern languages, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Theology

440 UK-domiciled doctoral graduates (9% of A&H cohort) 320 respondents (73%) of which 240 entered employment in the UK (2003–2007)

Over 2003–2007, theology had the lowest proportion of female graduates (33%) and the highest proportion of part-time study (52%) of all A&H subjects. It had the highest proportion of respondents combining work and study (15%) and the lowest unemployment rate (2.2%) of the A&H subjects (Table 2). The education sector absorbed 44% of theology respondents, followed by the 'other sectors' category (30%), which includes religious organisations. A significant proportion of theology doctoral graduates also worked in the health and social work sector as clergy (13%) (Table 3).

40% of UK-employed theology respondents entered 'other professionals, associate professional and technical occupations', largely as clergy.

'Education and teaching professional' roles accounted for 33%, below the average across A&H subjects (48%), though above the average across all disciplines (22%). The proportion in HE lecturer roles was 14%, equalling the all disciplines average, though the lowest of all A&H subjects.

7% of UK-employed respondents from theology entered research roles, which occur across the different types of employment shown in Figure 7. Further analysis showed 6% of UK-employed respondents entered research staff roles in higher education[10], well below the A&H discipline average of 20% and 14% respectively and those for the doctoral population as a whole (35% and 23%).

All other occupational areas employed very small numbers – less than 15 respondents over the five-year period.

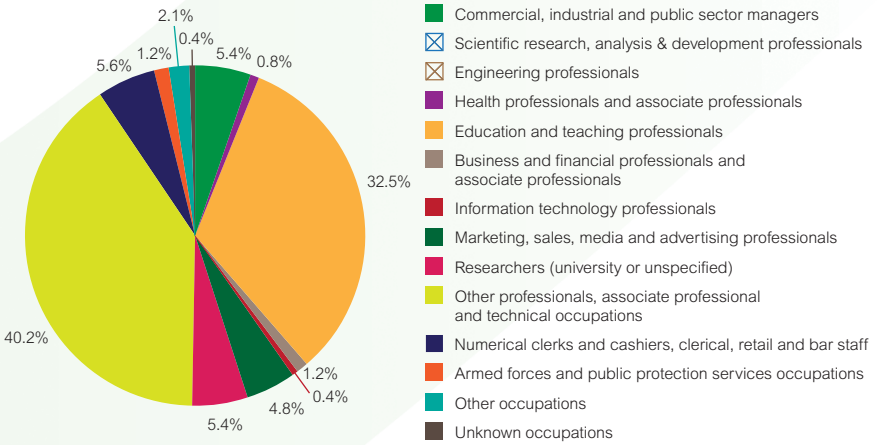

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in theology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[10] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Linguistics and classical and ancient languages

385 UK-domiciled doctoral graduates (8% of A&H cohort), 260 respondents (67%) of which 190 entered employment in the UK (2003–2007)

Over 2003–2007, UK-domiciled graduates in linguistics and classical and ancient languages were 53% female and 33% had studied part-time. Respondents from these subjects were slightly less likely than other A&H subjects to combine work and study (12%) (Table 2). The education sector absorbed 73% of respondents employed in the UK, above the average for A&H (67%) (Table 3).

'Education and teaching professional' roles were most popular accounting for 49%, in line with the A&H average and well above that for across all disciplines (22%). The proportion in HE lecturer roles was 26%, close to the A&H average of 27%.

One in five UK-employed respondents in linguistics and classical and ancient languages entered 'other professional, associate professional and technical occupations' (18%). The third largest category was 'researchers (university or unspecified)' (11%). However, research roles occur across the different types of employment shown in Figure 8. Analysis of SOCs shows research occupations account for a total of 23% of respondents in these subjects employed in the UK. Further analysis showed 18% of UK-employed respondents entered research staff roles in higher education[11]. Both are above the discipline average of 18% and 14% respectively, but below those for the doctoral population as a whole (35% and 23%).

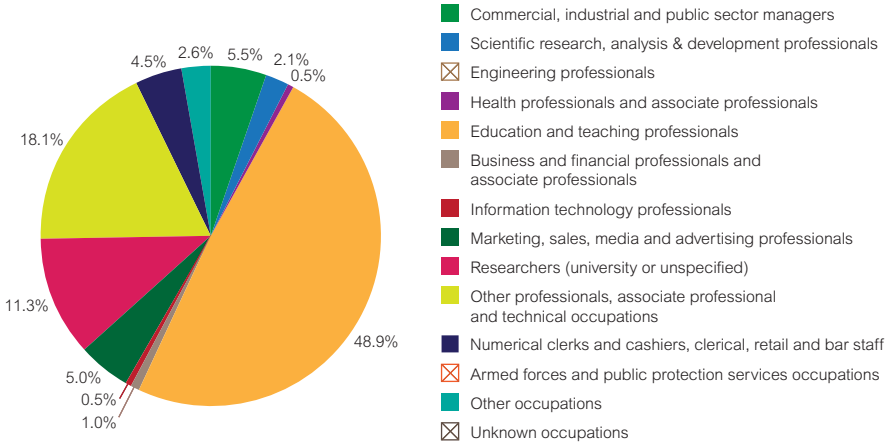

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in linguistics, classical and ancient languages, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Other subjects in arts and humanities[12]

1565 UK-domiciled doctoral graduates (31% of A&H cohort), 1045 respondents (67%) of which 815 entered employment in the UK (2003–2007)

Over 2003–2007, UK-domiciled doctoral graduates in other subjects in arts and humanities were 46% female and 39% had studied part-time. Respondents in this subject grouping were slightly more likely to enter work in the UK (65%) than across all A&H subjects (62%) (Table 2). Of these, the education sector absorbed two thirds, in line with the average for A&H subjects (67%) (Table 3).

The wide spread of occupations entered by respondents in other subjects in arts and humanities over 2003–2007 reflects the range of smaller subjects that have been combined to form this category.

Respondents in other subjects in arts and humanities were slightly more likely to enter 'education and teaching' roles (50%) than the A&H average (48%), and well above the all disciplines average of 22%. 32% were employed as HE lecturers compared with an A&H average of 27%.

One in ten UK-employed respondents from other A&H subjects entered 'other professional, associate professional and technical occupations' (11%); these included social science researchers. 'Researchers (university or unspecified)' accounted for 10%. However, research roles occur across the different types of employment shown in Figure 9. Analysis of SOCs shows research occupations account for a total of 17% of respondents in these subjects employed in the UK. Further analysis showed 12% of UK-employed respondents entered research staff roles in higher education[11]. Both are just below the discipline average of 18% and 14%, respectively, and well below those for the doctoral population as a whole (35% and 23%).

9% of UK-employed respondents entered careers in 'marketing, sales, media and advertising', compared with 7% across all A&H subjects, reflecting the predominance of media-related subjects of this subject grouping.

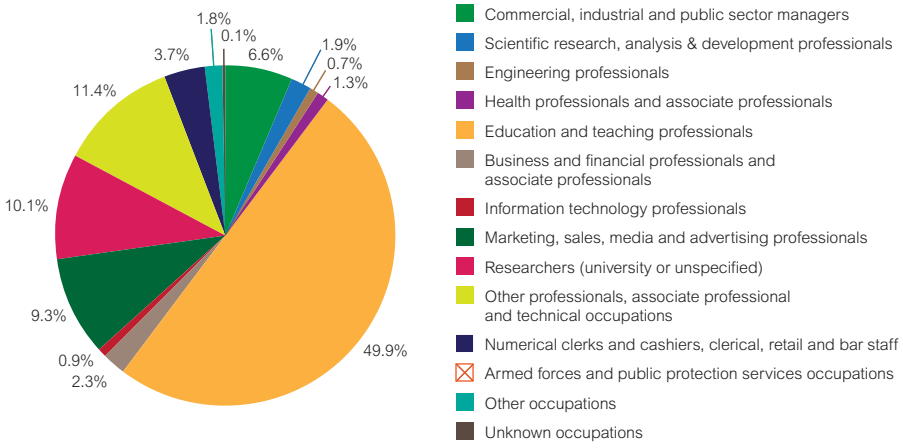

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in arts and humanities, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[11] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[12] Other A&H subjects include American studies, archaeology, art and design, cinematics, communication studies, comparative literature, design studies, drama, fine art, journalism, media studies, music, philosophy.

Biological sciences

Biological sciences doctoral graduates at a glance

Doctoral graduates from the biological sciences (BS) made up 13% of all UK-domiciled doctoral graduates in 2007 and 14% over the period 2003–2007.

- The number of BS doctoral graduates remained almost unchanged, ranging between 1015 (2005 and 2007) and 1045 (2004 and 2006)[1]
- The most popular subjects were biology, and biochemistry, molecular biology and biophysics
- The BS response rate to the DLHE survey rose from 65% (2003) to 68% in 2007
- Of UK-domiciled doctoral graduates 2003–2007, 53% of BS graduates were female; 14% achieved their doctorate through part-time study[2]

Of UK-domiciled BS doctoral graduates who responded to the DLHE survey

- The percentage working, or working and studying, in the UK was 79% in 2007 (and 77% over the period 2003–2007)
- The proportion who chose to further their careers abroad ranged from 8% (2007) to 12% (2003 and 2005) and was consistently above the average rate (7%) across all disciplines 2003–2007
- The unemployment rate (3.9% in 2007 and 2003–2007 average) was consistently lower than for BS first-degree respondents (5.1% in 2007) and masters graduates respondents (4.6% in 2007)

Looking in more detail at those BS respondents working or working and studying in the UK[3]

- The education sector (both higher and other education, across occupations) was consistently the largest employment area for BS respondents at 50% in 2007 and averaging 49% over 2003–2007
- Manufacturing was the second most popular sector, employing 21% in 2007 and averaging 22% over 2003–2007
- The percentage working in all research roles was 64%, well above the all disciplines average (35%)
- The proportion of respondents working as research staff in higher education was 36% (2003–2007), well above the all disciplines average (23%)
- BS respondents 2003–2007 were considerably less likely to enter education and teaching occupations (9%) than the doctoral graduate population as a whole (22%)

Overall survey response for biological sciences subjects

BS UK doctoral graduates	2003	2004	2005	2006	2007	Total
Total doctoral graduates in BS	1015	1045	1015	1045	1015	5135
Total respondents	660	680	685	675	695	3390
% response	65%	65%	67%	65%	68%	66%
Female respondents	355	365	365	390	370	1845
Male respondents	305	315	320	285	320	1545

Table 1: Survey response for UK-domiciled doctoral graduates 2003–2007 in biological sciences

The UK-domiciled BS doctoral graduate population varied by less than 3% over the period 2003–2007, ranging between 1015 and 1045 graduates; a stable 13%–14% of the total UK-domiciled population.

This chapter …

contains analysis of the biological sciences doctoral graduate cohort, their response rate to the DHLE survey, first destination employment rates, employment sectors and occupations. The subjects discussed are: biology; biochemistry, molecular biology and biophysics; microbiology; and agriculture. Other subjects in biological sciences are grouped together.

[1] For data protection, all figures have been rounded to the nearest five. Numbers and percentages may not total due to rounding.

[2] Compared with the total UK-domiciled doctoral graduate population where 46% were female; 27% gained their doctorate through part-time study.

[3] All data on destinations, whether in terms of occupations or sectors, is from those respondents who entered work or work and study in the UK.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment rates for biological sciences

Employment circumstances of BS respondents varied slightly more than the all disciplines average. The combined total entering UK employment or working and studying in the UK ranged from 74% (2005) to 80% (2007). Working and studying overseas accounted for between 8% (2007) and 12% (2003 and 2005).

Over 2003–2007, BS respondents entering employment or combining work and study in the UK was 77% compared with 81% of all respondents. The proportion of those working or studying overseas (10%) was above that for all respondents (7%). Unemployment was 3.9% (also 3.9% in 2007) compared with 3.4% across all disciplines (3.1% in 2007). However, the employment picture at broad discipline level masks variations between different subjects.

Biology accounted for 32% of UK-domiciled BS doctoral graduates, and biochemistry, molecular biology and biophysics 21%; all other subject groups had fewer than 10%. Amalgamating data from 2003–2007 creates sufficient numbers to identify employment rates, sectors and occupations doctoral graduates entered in the following subjects: biology; biochemistry, molecular biology and biophysics; microbiology; and agriculture. All other BS subjects are discussed as 'other biological sciences[4].

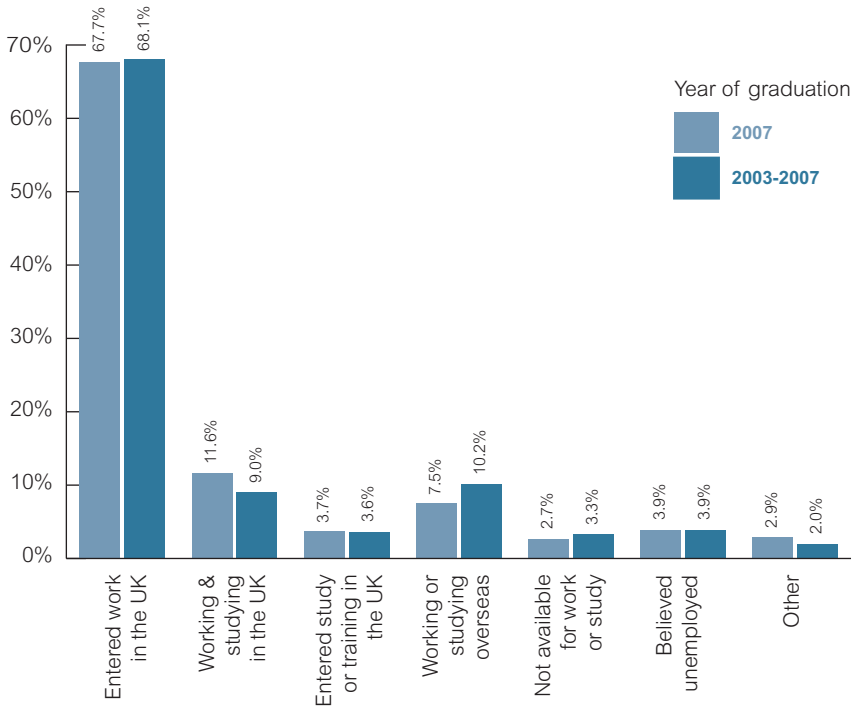

Figure 1: Employment circumstances of UK-domiciled BS doctoral graduate respondents: 2007 and 2003–2007 comparison

Summary of employment outcomes by subject 2003–2007

BS UK-domiciled respondents	Biology	Biochemistry, molecular biology and biophysics	Microbiology	Agriculture	Other subjects in biological sciences
Entered work in the UK	66.6%	67.7%	77.1%	71.8%	67.2%
Working and studying in the UK	8.8%	8.0%	4.8%	9.9%	10.5%
Entered study or training in the UK	3.3%	4.1%	1.1%	2.4%	4.1%
Working or studying overseas	10.5%	12.7%	9.6%	6.4%	9.0%
Not available for work or study	3.8%	3.1%	2.4%	3.5%	3.2%
Believed unemployed	4.3%	2.9%	3.7%	3.8%	4.3%
Other	2.7%	1.4%	1.3%	2.1%	1.6%

Table 2: Employment circumstances of UK-domiciled BS doctoral graduates 2003–2007: respondents in different subjects in biological sciences

[4] Other biological science subjects include animal science, botany, food and beverage studies, forestry, genetics, sports science, veterinary medicine, dentistry and science, zoology.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment sectors for biological sciences doctoral graduates

Employment in the education sector (both higher and other education) accounted for half of BS respondents who graduated in 2007 (50%) similar to the BS and all disciplines (49% 2003–2007).

Manufacturing was the second most popular employment sector for BS respondents (22% 2003–2007), above the average for all respondents (14%). After a decline from 25% (2003) to 21% (2004) BS employment in manufacturing remained stable.

Among 2007 BS respondents, the finance, business and IT sectors overtook health and social work as the third most popular destination. 10% of respondents entered these sectors in 2007, compared with 7% over 2003–2007 as a whole.

Employment in the health and social work sectors ranged between 8% (2007) and 12% (2004 and 2005) and averaged 10% over 2003–2007.

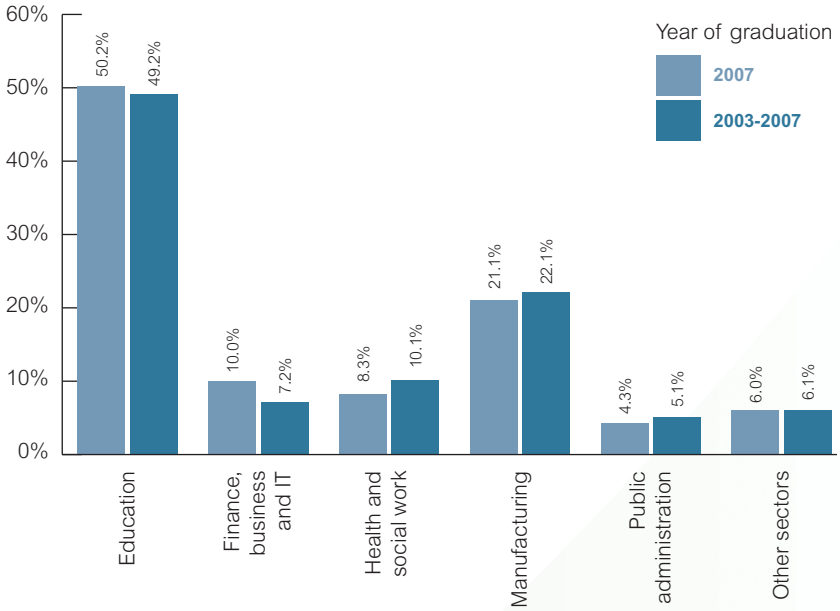

Figure 2: Employment sectors entered by UK-domiciled BS respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

Summary of employment sectors by subject 2003–2007

BS UK-domiciled respondents	Biology	Biochemistry, molecular biology and biophysics	Microbiology	Agriculture	Other subjects in biological sciences
Education	49.4%	50.4%	47.3%	50.9%	48.4%
Finance, business and IT	8.0%	7.6%	7.0%	6.3%	6.5%
Health and social work	8.7%	10.5%	14.8%	0.3%	11.9%
Manufacturing	19.5%	26.0%	27.4%	17.0%	22.2%
Public administration	7.3%	2.2%	1.6%	12.6%	4.3%
Other sectors	7.1%	3.4%	1.9%	12.9%	6.7%
Other	2.7%	1.4%	1.3%	2.1%	1.6%

Table 3: Employment sectors entered by UK-domiciled BS respondents working in the UK and graduating in 2003–2007 from different biological sciences subjects, based on Standard Industrial Classifications (SIC) returned in the DLHE surveys

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Occupations of biological sciences doctoral graduates

Over three in every five BS respondents were employed in research occupations, the highest proportion of any discipline. Research roles occur across the different types of employment shown in Table 4. Analysis of SOCs shows research occupations accounted for a total of 64% of 2003–2007 BS respondents employed in the UK. Further analysis showed 36% of BS respondents entered research staff roles in higher education[6]. BS researchers outside HE were typically employed in research institutes, pharmaceutical and chemical companies[7]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were well above the averages for the doctoral population as a whole, at 35% and 23% respectively, and were the highest proportions of any discipline group.

9% (225) of BS respondents were employed as 'education and teaching professionals' across all sectors of education 2003–2007. This proportion is considerably lower than that for all disciplines (22%). 115 of these, 4% of all BS respondents, gained HE lectureship positions compared with 14% across all disciplines. The proportions entering education and teaching roles in general and HE lectureships in particular were the lowest of all the discipline groups.

Patterns of employment for BS respondents 2003–2007 show a strong link between research subject and occupation, with relatively few BS respondents entering occupations only indirectly related or unrelated to their subject area[8]. For example, 5% were employed as 'commercial, industrial and public sector managers', compared with 7% across all respondents. However, the 4% employed in 'marketing, sales, media or advertising professional' roles was above the all disciplines average of 3%.

Overall, 2003–2007 was a relatively stable period for BS doctoral graduate employment. UK employment rates were below that for all disciplines; conversely, a higher proportion of BS respondents chose to continue their career abroad. Research role destinations dominated and were well above the average for the doctoral population as a whole. We now look in more detail at the employment rates, sectors and occupations of BS doctoral graduates by subject.

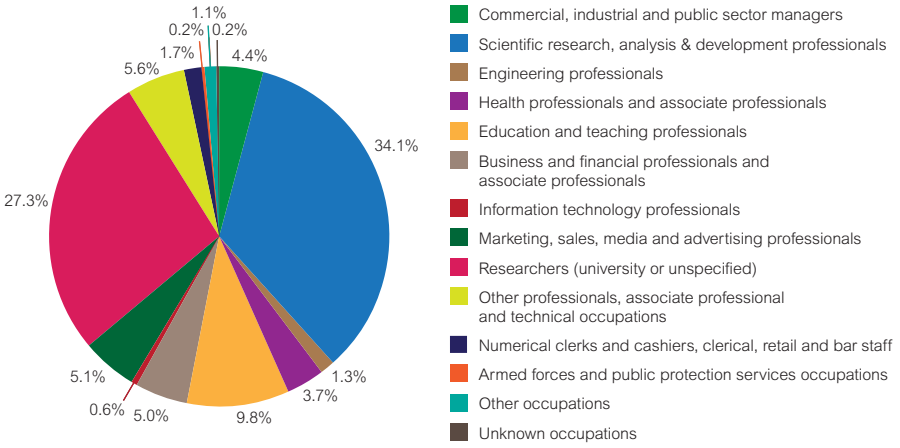

Figure 3: Types of work entered by UK-domiciled BS doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[5]

BS UK-domiciled respondents	2003	2004	2005	2006	2007	Total
Commercial, industrial and public sector managers	5.3%	5.4%	5.5%	4.9%	4.4%	5.1%
Scientific research, analysis & development professionals	40.7%	38.7%	40.6%	39.1%	34.1%	38.6%
Engineering professionals	1.2%	1.1%	1.2%	1.0%	1.3%	1.2%
Health professionals and associate professionals	4.3%	5.7%	4.3%	3.1%	3.7%	4.2%
Education and teaching professionals	8.4%	8.6%	7.2%	9.7%	9.8%	8.8%
Business and financial professionals and associate professionals	3.1%	2.3%	2.5%	3.8%	5.0%	3.4%
Information technology professionals	1.4%	0.9%	0.2%	1.0%	0.6%	0.8%
Marketing, sales, media and advertising professionals	3.5%	2.2%	3.8%	4.5%	5.1%	3.8%
Researchers (university or unspecified)	23.1%	23.7%	25.6%	23.3%	27.3%	24.6%
Other professionals, associate professional and technical occupations	6.6%	7.4%	5.4%	6.4%	5.6%	6.3%
Numerical clerks and cashiers, clerical, retail and bar staff	0.6%	2.2%	2.5%	2.0%	1.7%	1.8%
Armed forces and public protection services occupations	0.2%	0.2%	0.0%	0.2%	0.2%	0.2%
Other occupations	1.6%	1.5%	1.0%	0.9%	1.1%	1.2%
Unknown occupations	0.0%	0.0%	0.2%	0.2%	0.2%	0.1%

Table 4: Types of work entered by UK-domiciled BS doctoral graduates (2003–2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[9]

[5] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2008 after graduating from UK universities in 2007.

[6] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[7] Small numbers were also identified in the food and drink industry and in the manufacture of precision instruments.

[8] The 6% employed in 'other professionals, associate professional and technical occupations' included conservation roles and some lab technicians.

[9] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2004, 2005, 2006, 2007 and 2008 after graduating from UK universities in 2003, 2004, 2005, 2006 and 2007.

Biology

1660 UK-domiciled doctoral graduates (32% of BS cohort), 1140 respondents (69%) of which 860 entered employment in the UK (2003–2007)

Biology was the largest subject within biological sciences, accounting for nearly one third of BS doctoral graduates (32%) over 2003–2007. Over half of UK-domiciled biology doctoral graduates were female (54%); 13% gained their doctorate through part-time study. The subject area mirrored the BS average in terms of outcomes for employment (Table 2). The top employment sectors were also similar to the BS average, with the education sector employing 49% of respondents in both biology and all of BS, while manufacturing took 20% for biology compared with 22% for BS overall (Table 3).

Research roles were the dominant occupations. These occur across the different types of occupation shown in Figure 4. Analysis of SOCs shows research occupations accounted for a total of 62% of biology respondents employed in the UK. Further analysis showed 38% of respondents entered research staff roles in higher education[10]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were close to the discipline averages (64% and 36%) .

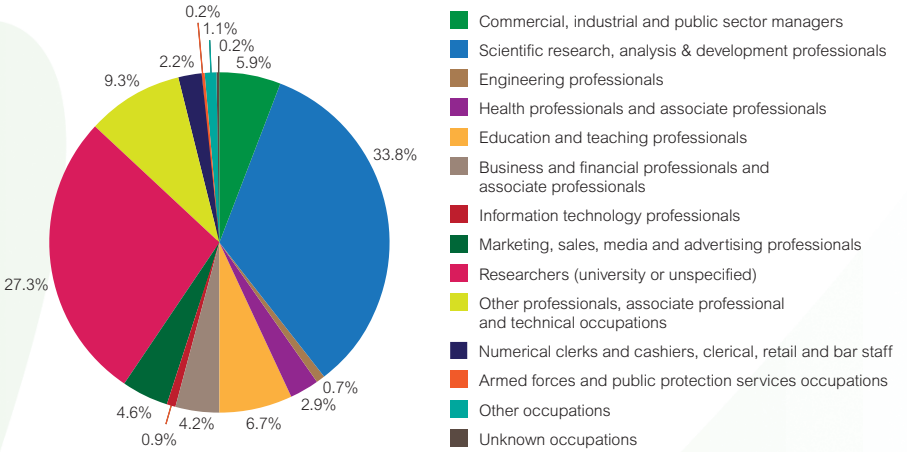

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in biology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The only other significant category was 'other professionals, associate professional and technical occupations' at 9%, above the BS average of 6%.

At 7% the proportion entering 'education and teaching' roles was below the average across BS subjects (9%) and well below respondents across all disciplines (22%). Only 3% of respondents became HE lecturers. Conversely, the proportions entering 'marketing, sales and advertising' (5%) and 'business and finance professionals' (4%) were slightly above those for all BS subjects and all disciplines.

Biochemistry, molecular biology and biophysics

1075 UK-domiciled doctoral graduates (21% of BS cohort), 740 respondents (69%) of which 550 entered employment in the UK (2003–2007)

Biochemistry, molecular biology and biophysics accounted for one in five UK-domiciled BS doctoral graduates over 2003–2007. These subjects had the lowest percentage of UK-domiciled doctoral graduates who had studied part-time outside the physical sciences subjects, at 7%. 53% of UK-domiciled doctoral graduates were female. 13% of respondents from these subjects chose to continue their career abroad (Table 2), along with chemistry, the highest proportion of any subject over 2003–2007. The education sector, largely higher education, absorbed the most respondents employed in the UK (50%), followed by the manufacturing sector (26%) (Table 3).

Research roles strongly dominated. These occur across the different types of employment shown in Figure 5. Analysis of SOCs shows research occupations accounted for a total of 71% of biochemistry, molecular biology and biophysics respondents employed in the UK. Further analysis showed 43% of respondents entered research staff roles in higher education[10]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were above the discipline averages (64% and 36%). Respondents from these subjects were the most likely of any subject to be employed as research staff in higher education, and, along with microbiology, to be in a research role across any sector.

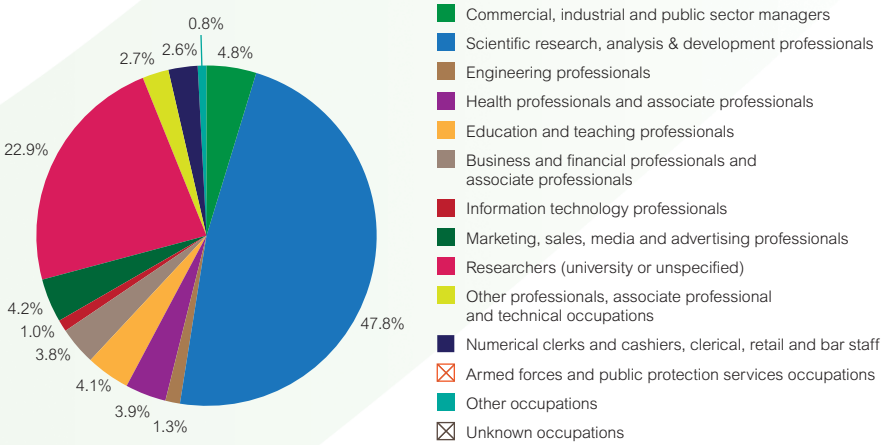

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in biochemistry, molecular biology and biophysics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Conversely, only 4% entered 'education and teaching roles', compared with 9% across BS and 22% across all disciplines. Less than 2% became HE lecturers (4% in BS and 14% overall). The remaining respondents were spread in small numbers across a wide variety of occupations.

[10] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Microbiology

345 UK-domiciled doctoral graduates (7% of BS cohort), 230 respondents (66%) of which 185 entered employment in the UK (2003–2007)

54% of UK-domiciled doctoral graduates in microbiology were female, 13% gained their doctorate part-time. These proportions mirrored the BS averages. Respondents in microbiology were least likely of those in BS subjects to be combining UK work with study, or to enter further study/training (Table 2).

The education sector, largely higher education, absorbed the most respondents employed in the UK (47%), followed by manufacturing (26%). Respondents in microbiology were slightly more likely to be employed in the health and social work (15%) sector than those in other BS subjects (Table 3).

Research roles were the prime destination for respondents in microbiology. Research roles occur across the different types of employment shown in Figure 6. Analysis of SOCs shows research occupations accounted for a total of 71% of microbiology respondents employed in the UK. Further analysis showed 38% of respondents entered research staff roles in higher education[11]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were above the BS discipline averages (64% and 36%). Microbiology respondents were, jointly with respondents from biochemistry, molecular biology and biophysics, the most likely of any subject to be employed in a research role. The proportion of microbiology respondents working in research roles outside academia at 33% was particularly high. Only chemistry had a higher proportion (36%).

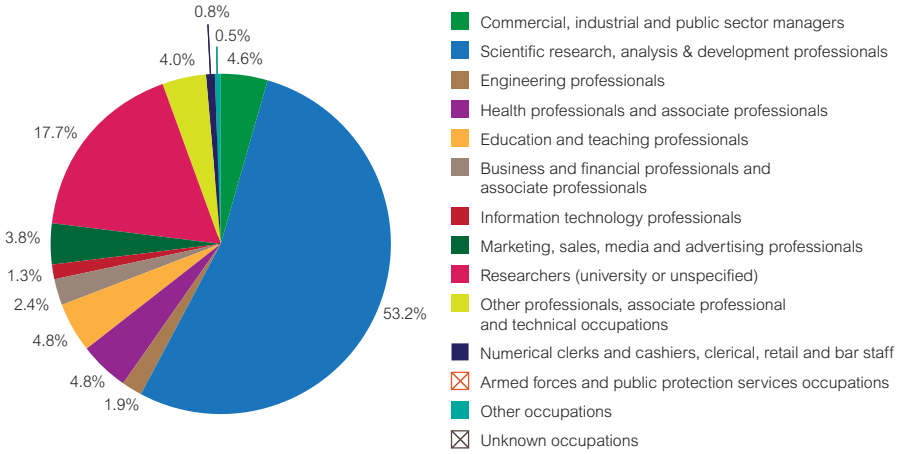

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in microbiology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Conversely, only 5% entered 'education and teaching professional' roles[12], compared with 9% across all BS subjects and 22% across the doctoral graduate population as a whole. The remaining respondents were spread in small numbers across a wide variety of occupations.

Agriculture

250 UK-domiciled doctoral graduates (5% of BS cohort), 185 respondents (75%) of which 150 entered employment in the UK (2003–2007)

50% of UK-domiciled doctoral graduates in agriculture were female; 22% gained their doctorate through part-time study (the highest proportion of the discipline, though still below the all disciplines average of 27%). Respondents in agriculture were the least likely in BS to continue their career abroad at 6% (Table 2). The education sector, largely higher education, absorbed the most respondents employed in the UK (51%), followed by the manufacturing sector (17%). Public administration and other sectors, which include the land-based sectors, each accounted for 13% (Table 3) – among the highest proportions for these sectors across all respondents.

Research roles were the dominant occupations. These occur across the different types of employment shown in Figure 7. Analysis of SOCs shows research occupations accounted for a total of 60% of agriculture respondents employed in the UK. Further analysis showed 28% of respondents entered research staff roles in higher education[11]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were below the discipline averages (64% and 36%) but above those for respondents as a whole (35% and 23%).

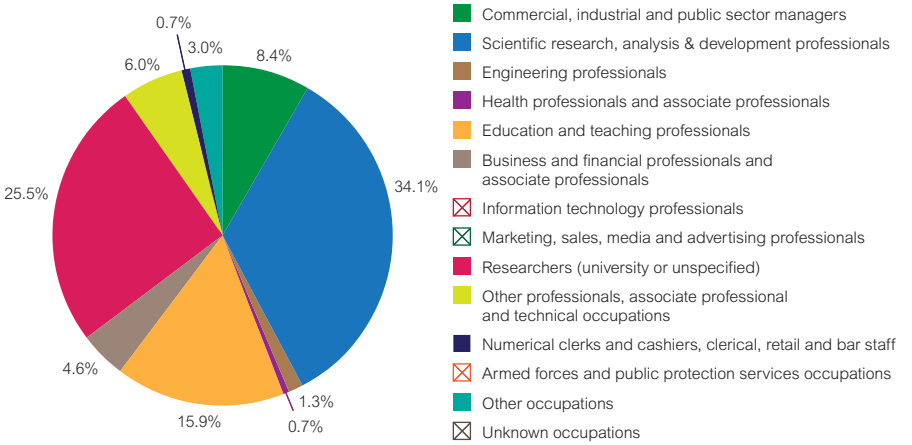

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in agriculture, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

'Education and teaching professional' roles accounted for 16%, well above the average across BS subjects (9%), though below the average for respondents across all disciplines (22%). The proportion of respondents in HE lecturer roles was 9%, which was the highest proportion of the BS subjects analysed.

The only other significant destinations for respondents in agriculture were 'commercial, industrial and public sector manager' occupations. These absorbed 8%, compared with 5% of all BS doctoral graduates and 7% across respondents as a whole.

[11] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[12] Only 1% (fewer than five respondents) became HE lecturers.

Other biological sciences[13]

1805 UK-domiciled doctoral graduates (35% of BS cohort), 1095 respondents (61%) of which 840 entered employment in the UK (2003–2007)

53% of UK-domiciled doctoral graduates in other biological sciences were female; 18% gained their doctorate through part-time study[14]. Respondents were narrowly the most likely group in BS to be combining work and study in the UK (Table 2). The education sector, largely higher education, absorbed the most other biological sciences respondents employed in the UK (48%), followed by the manufacturing sector (22%) (Table 3).

The spread of occupations entered by respondents in other biological sciences reflects the wide range of smaller subjects that have been combined to form this category, such as sports science, genetics and zoology.

Research roles absorbed three in five respondents in other biological sciences. Research roles occur across the different types of employment shown in Figure 8. Analysis of SOCs shows research occupations accounted for a total of 60% of respondents from these subjects employed in the UK. Further analysis showed 32% of respondents entered research staff roles in higher education[15]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were a little below BS discipline averages (64% and 36%, respectively) but well above those for respondents as a whole (35% and 23%).

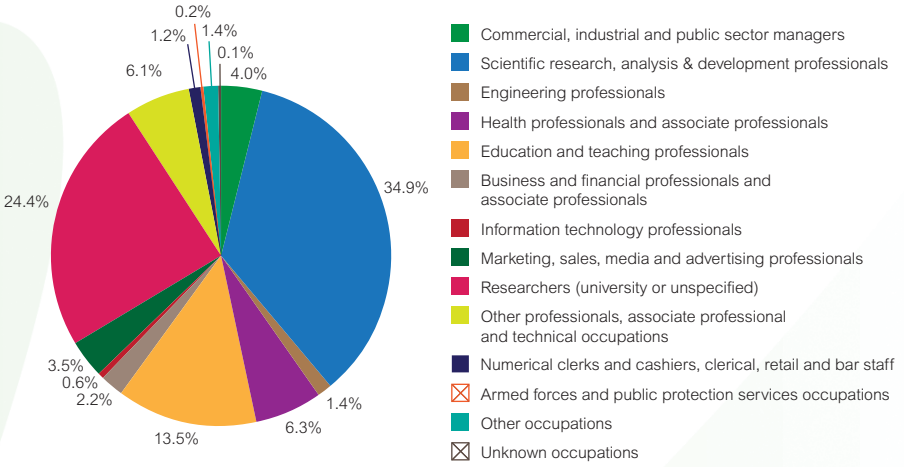

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in biological sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

UK-employed respondents in other biological sciences were more likely to enter 'education and teaching professional' roles (14%), compared with the BS average (9%), though still below the all disciplines average of 22%. 8% were employed as HE lecturers, also a higher proportion than the BS average (4%). The 6% entering 'health professional and associate professional' roles was also higher than across all BS subjects (4%).

[13] Other biological science subjects include animal science, botany, food and beverage studies, forestry, genetics, sports science, veterinary medicine, dentistry and science, zoology.

[14] The BS discipline is notable for its consistency in the proportion of females (50%–54%), while the proportion of BS respondents who gained their doctorate through part-time study 2003–2007 ranged from 7% to 22%.

[15] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Biomedical sciences

Biomedical sciences doctoral graduates at a glance

Doctoral graduates from the biomedical sciences (BMS) made up 25% of all UK-domiciled doctoral graduates in 2007 and 26% over the period 2003–2007.

- The number of BMS UK-domiciled doctoral graduates grew from 1825 in 2003 to 1970 in 2007[1]. Over 2003–2007 BMS made up between 25% and 27% of all UK-domiciled doctoral graduates
- The most popular subjects were clinical and pre-clinical medicine, and psychology
- The BMS response rate to the DHLE survey rose from 62% of doctoral graduates in 2003 to 70% in 2007
- Of UK-domiciled doctoral graduates from 2003–2007, 61% of BMS graduates were female; 31% achieved their doctorate through part-time study[2]

Of UK-domiciled BMS doctoral graduates who responded to the DLHE survey

- The percentage working, or working and studying, in the UK averaged 85% over the period 2003–2007
- The proportion who chose to further their careers abroad declined from 7% (2003) to 4% (2007)
- The unemployment rate was 2.0% (in 2007 and 2003–2007 average) – the lowest of all the discipline groups, and consistently lower than for BMS first-degree respondents (3.2% in 2007) and masters graduate respondents (2.4% in 2007)

Looking in more detail at those BMS respondents working or working and studying in the UK[3]

- The health and social work sector was consistently the largest employment area for BMS respondents. It absorbed 50% in 2007 and averaged 48% over 2003–2007
- The proportion working in the education sector ranged from 34% (2003) to 40% (2005) and averaged 37% over 2003–2007
- The most popular occupations were 'health professionals and associate professionals' (including clinical psychologists), accounting for 41% of BMS respondents 2003–2007
- The percentage working in all research roles was 31%, just below the all discipline average of 35%
- The percentage working as research staff in higher education was 22% (2003–2007), comparable to the all disciplines average (23%)
- BMS respondents 2003–2007 were less likely to enter 'education and teaching' occupations (13%) than the doctoral graduate population as a whole (22%)

Overall survey response for biomedical sciences subjects

BMS UK doctoral graduates	2003	2004	2005	2006	2007	Total
Total doctoral graduates in BMS	1825	1755	1920	1940	1970	9410
Total respondents	1135	1140	1330	1355	1385	6340
% response	62%	65%	69%	70%	70%	67%
Female respondents	700	715	835	845	920	4010
Male respondents	435	425	495	510	465	2330

Table 1: Survey response for UK-domiciled doctoral graduates 2003–2007 in biomedical sciences

The UK-domiciled BMS doctoral graduate population rose to 1970 in 2007, a five-year high (2004 saw the lowest number, 1755). It constituted 25% of all UK-domiciled doctoral graduates in 2003, 2004 and 2007, 27% in 2005 and 26% in 2006.

This chapter …

contains analysis of the biomedical sciences doctoral graduate cohort, their response rate to the DHLE survey, first destination employment rates, employment sectors and occupations. The subjects discussed are: clinical and pre-clinical medicine; psychology; pharmacology, toxicology and pharmacy; anatomy, physiology and pathology; and nursing. Other subjects in biomedical sciences are grouped together.

[1] For data protection, all figures have been rounded to the nearest five. Number and percentages may not total due to rounding.

[2] Compared with the total UK-domiciled doctoral graduate population where 46% were female; 27% gained their doctorate through part-time study.

[3] All data on destinations, whether in terms of occupations or sectors, is from those respondents who entered work or work and study in the UK.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment rates for biomedical sciences

Employment circumstances of BMS respondents were stable over five years. The 2007 figures shown in Figure 1 correspond within one percentage point to five year totals 2003–2007, with the exception of the 'working and studying in the UK' category where the 2007 rate (14%) is 2% higher. BMS respondents 2003–2007 had the highest UK employment and lowest unemployment rate of all the discipline groups. Those entering employment or combining work and study in the UK was 85% (86% in 2007), compared with 81% of all respondents. Unemployment was 2% compared with 3% across all disciplines. The proportion of those working overseas declined (5% over 2003–2007 but 4% in 2007) and was 2% below that for all respondents (7% over 2003–2007 and 6% in 2007). However, the employment picture at broad discipline level masks variations between different subjects.

Medicine and psychology were the most popular subjects at 39% and 29% of UK-domiciled BMS doctoral graduates, respectively. All other subjects had fewer than 10% of BMS doctoral graduates. Amalgamating data from 2003–2007 creates sufficient numbers to identify employment rates, employment sectors and occupations doctoral graduate respondents entered in the following subjects: clinical and pre-clinical medicine, psychology, pharmacology, toxicology and pharmacy, anatomy, physiology and pathology, and nursing. All other BMS subjects[4] are discussed as 'other biomedical sciences'.

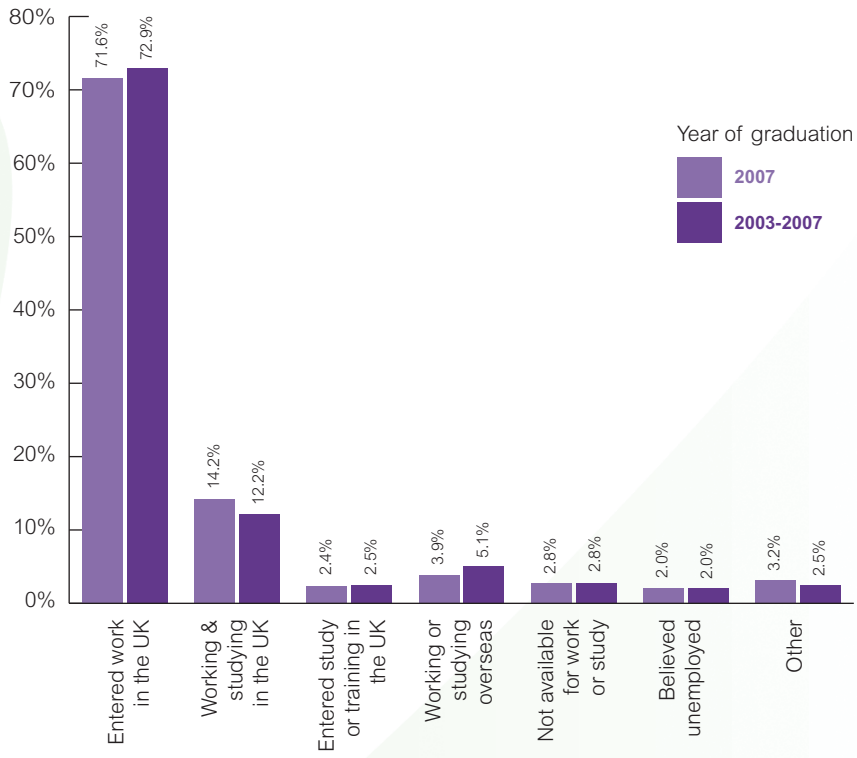

Figure 1: Employment circumstances of UK-domiciled BMS doctoral graduate respondents: 2007 and 2003–2007 comparison

Summary of employment outcomes by subject 2003–2007

BMS UK-domiciled respondents	Clinical and pre-clinical medicine	Psychology	Pharmacology, toxicology and pharmacy	Anatomy, physiology and pathology	Nursing	Other subjects in biomedical sciences
Entered work in the UK	69.8%	78.1%	70.8%	64.9%	73.3%	74.7%
Working and studying in the UK	15.1%	11.1%	7.6%	10.8%	16.9%	10.5%
Entered study or training in the UK	2.6%	1.3%	3.1%	6.8%	1.6%	2.6%
Working or studying overseas	5.4%	2.1%	9.7%	11.7%	2.4%	5.3%
Not available for work or study	2.4%	3.6%	3.4%	2.3%	0.5%	2.1%
Believed unemployed	1.7%	2.0%	3.4%	1.6%	1.6%	1.8%
Other	3.0 %	1.8 %	2.1 %	1.7 %	3.7 %	3.0 %

Table 2: Employment circumstances of UK-domiciled BMS doctoral graduates 2003-2007: respondents in different subjects in biomedical sciences

[4] Other biomedical science subjects include clinical dentistry, complementary medicine, nutrition, ophthalmics, aural and oral sciences and medical technology.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment sectors for biomedical sciences doctoral graduates

Employment in the health and social work sector accounted for half of those of UK-employed BMS respondents in 2007. This is slightly above the 2003–2007 average of 48%[5]. Unsurprisingly, this is well above levels for other disciplines: the average across all respondents was 17%.

Education, the second most popular sector, absorbed 36% of 2007 BMS respondents, just below the 2003–2007 average of 37%. Across all disciplines, the education sector 2003–2007 absorbed 49%.

Manufacturing was the only other sector to employ significant numbers of BMS respondents. Both in 2007 and over 2003–2007 some 9% entered employment in the sector. After a decline from 12% (2003) to 8% (2004) BMS employment in manufacturing remained stable.

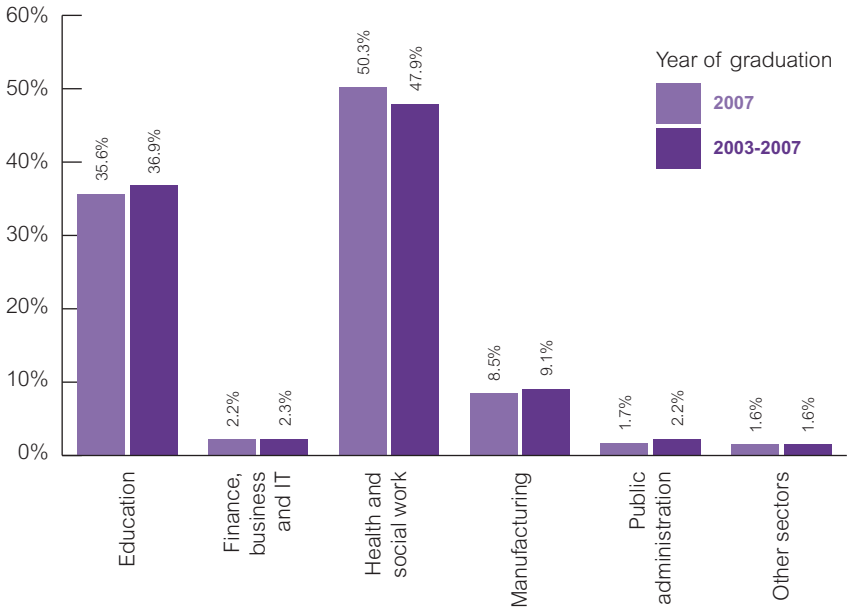

Figure 2: Employment sectors entered by UK-domiciled BMS respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

Summary of employment sectors by subject 2003–2007

BMS UK-domiciled respondents	Clinical and pre-clinical medicine	Psychology	Pharmacology, toxicology and pharmacy	Anatomy, physiology and pathology	Nursing	Other subjects in biomedical sciences
Education	34.1%	28.1%	43.2%	57.0%	63.0%	45.6%
Finance, business and IT	1.8%	1.8%	4.8%	5.7%	0.6%	2.3%
Health and social work	52.5%	64.1%	12.3%	19.2%	31.1%	38.8%
Manufacturing	9.2%	1.9%	31.7%	14.4%	3.0%	9.3%
Public administration	1.4%	3.1%	2.7%	2.2%	1.2%	1.8%
Other sectors	1.0%	1.1%	5.3%	1.5%	1.2%	2.2%

Table 3: Employment sectors entered by UK-domiciled BMS respondents working in the UK and graduating in 2003–2007 from different biomedical sciences subjects, based on Standard Industrial Classifications (SIC) returned in the DLHE surveys

[5] Over 2003–2007, the lowest proportion of BMS doctoral graduates entering the health and social work sector was in 2005 (45%).

Occupations of biomedical sciences doctoral graduates

'Health professional and associate professional' roles (41%) dominated the destinations of BMS respondents[7]. This was largely due to the high proportions of those entering these roles from the two largest BMS subjects; clinical and pre-clinical medicine and psychology. The proportion of those in 'health professional and associate professional' roles grew slightly, from 38% in 2003 to 42% in 2007.

Research roles[8] occur across the different occupations shown in Table 4. Analysis of SOCs shows research occupations account for a total of 31% of BMS respondents employed in the UK over 2003–2007. Further analysis showed that over 2003–2007, 22% entered research staff roles in higher education, very close to the average for the doctoral population as a whole (23%).

Across all BMS subjects, the NHS was the principal destination for researchers outside higher education as healthcare scientists. Research institutes and pharmaceutical companies also absorbed significant numbers.

13% (700) BMS respondents were employed as 'education and teaching professionals' across all sectors of education 2003–2007. This proportion is considerably lower than that for all disciplines (22%). 520 of these (10% of all BMS respondents) gained HE lectureship positions. Nursing, however, furnished an exceptionally high proportion in 'education and teaching professional' roles (46% of respondents).

Patterns of employment for BMS respondents show a strong link between research discipline and professional role with fewer than average respondents entering occupations only indirectly related or unrelated to their subject area. For example 4% were employed as 'commercial, industrial and public sector managers', compared with 7% across all respondents.

Overall, 2003–2007 was a largely stable period for BMS doctoral graduate employment. UK employment rates were above that for all disciplines: conversely, a lower proportion of BMS respondents chose to continue their career abroad. Health professional roles absorbed over two-fifths of BMS respondents working in the UK. Research role destinations were a little below the average for all disciplines. We now look in more detail at the employment rates, sectors and occupations of BMS doctoral graduates by subject.

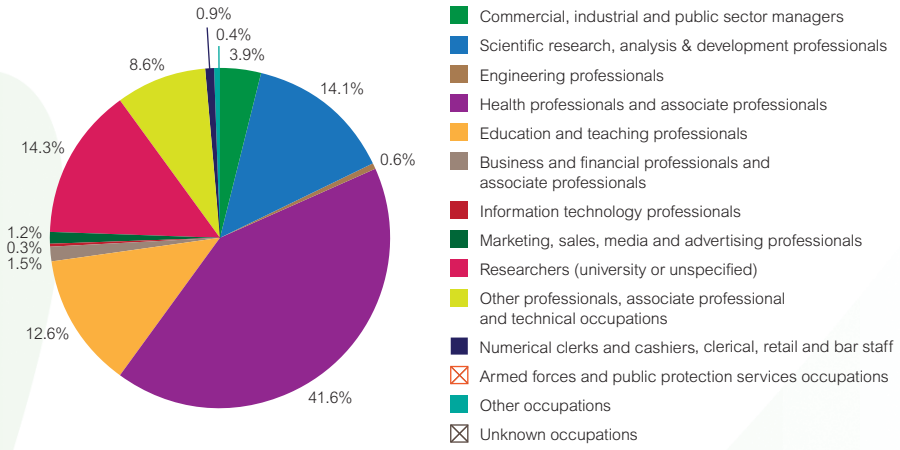

Figure 3: Types of work entered by UK-domiciled BMS doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[6]

BMS UK-domiciled respondents	2003	2004	2005	2006	2007	Total
Commercial, industrial and public sector managers	3.4%	3.7%	3.2%	4.2%	3.9%	3.7%
Scientific research, analysis & development professionals	16.6%	15.6%	16.5%	14.3%	14.1%	15.4%
Engineering professionals	0.5%	0.7%	0.2%	0.1%	0.6%	0.4%
Health professionals and associate professionals	38.4%	39.7%	41.7%	42.1%	41.6%	40.9%
Education and teaching professionals	13.1%	13.4%	13.9%	12.9%	12.6%	13.2%
Business and financial professionals and associate professionals	1.6%	1.6%	1.7%	1.3%	1.5%	1.5%
Information technology professionals	0.2%	0.4%	0.3%	0.2%	0.3%	0.3%
Marketing, sales, media and advertising professionals	2.6%	2.6%	1.6%	1.9%	1.2%	1.9%
Researchers (university or unspecified)	14.2%	13.8%	15.3%	14.5%	14.3%	14.5%
Other professionals, associate professional and technical occupations	7.5%	6.4%	4.7%	7.8%	8.6%	7.0%
Numerical clerks and cashiers, clerical, retail and bar staff	0.8%	1.1%	0.4%	0.5%	0.9%	0.7%
Armed forces and public protection services occupations	0.3%	0.1%	0.1%	0.0%	0.0%	0.1%
Other occupations	0.4%	0.5%	0.1%	0.3%	0.4%	0.3%
Unknown occupations	0.2%	0.4%	0.2%	0.1%	0.0%	0.2%

Table 4: Types of work entered by UK-domiciled BMS doctoral graduates (2003–2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[9]

[6] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2008 after graduating from UK universities in 2007.

[7] In 'What Do PhDs Do? – Trends' (2007) (WDPDT) the health professionals and associate professionals category is less populated. Coding changes since the publication of WDPDT have resulted in a number of roles being reclassified. In this instance, the largest difference has been made by the occupation of clinical psychologist moving from the 'other professionals, associate and technical professionals' category to 'health professionals and associate professionals'.

[8] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[9] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2004, 2005, 2006, 2007 and 2008 after graduating from UK universities in 2003, 2004, 2005, 2006 and 2007.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Clinical and pre-clinical medicine

3685 UK-domiciled doctoral graduates (39% of BMS cohort), 2285 respondents (62%) of which 1940 entered employment in the UK (2003–2007)

Clinical and pre-clinical medicine was the largest subject across all disciplines, and accounted for nearly two in five UK-domiciled BMS doctoral graduates over 2003–2007. 55% of UK-domiciled doctoral graduates were female, 39% had studied part-time. Respondents were more likely to be 'working and studying in the UK' (15%) than the average across BMS subjects (12%) and less likely to have 'entered work in the UK'; 70% compared with 73% across all BMS subjects (Table 2). The unemployment rate (1.7%) was below the BMS average (2.0%). The health and social work sector absorbed 53% of respondents working in the UK, above the BMS average of 48%. The education sector accounted for 34%, below the BMS average of 37% (Table 3).

Unsurprisingly, 'health professional and associate professional' roles were the most popular employment destinations of 2003–2007 clinical and pre-clinical medicine respondents (46%). Research roles occur across the different types of employment shown in Figure 4. Analysis of SOCs shows research occupations account for 35% of clinical and pre-clinical medicine respondents employed in the UK. Further analysis showed 23% of UK-employed respondents entered research staff roles in higher education[10]. Both statistics are close to BMS and all discipline averages.

With health professional or research-related roles absorbing the vast majority of respondents in medicine, only one-fifth of respondents entered other occupational categories (Figure 4): 9% were employed as 'education and teaching professionals'[11], well below the 22% average for all respondents and the balance of 11% spread across a wide range of occupations.

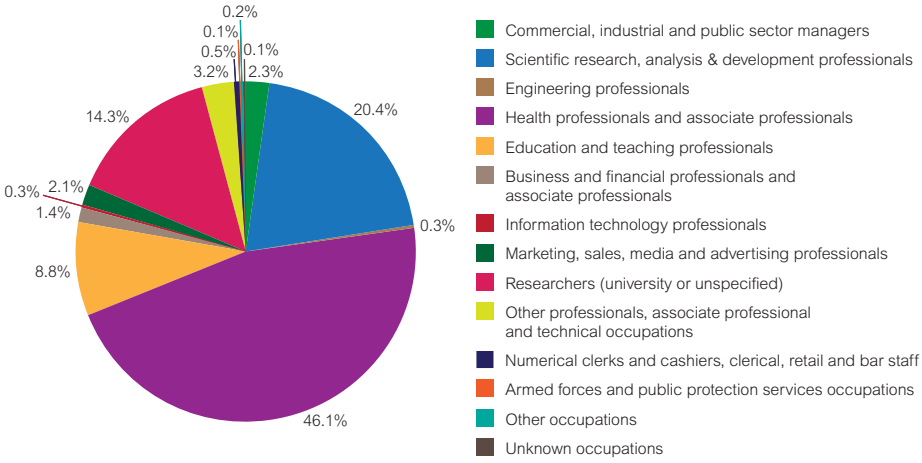

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in clinical and pre-clinical medicine, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Psychology

2700 UK-domiciled doctoral graduates (29% of BMS cohort), 1915 respondents (71%) of which 1710 entered employment in the UK (2003–2007)

Psychology was the second largest BMS subject and the third largest of all subjects over 2003–2007. The proportion of female UK-domiciled doctoral graduates (74%) was well above the average for BMS (61%). In contrast, those who had studied part-time (20%) were under-represented compared with the BMS average (31%). Together, 'entered employment' and 'working and studying' in the UK accounted for 89% of respondents, the highest proportion of BMS subjects (average 85%). Respondents in psychology were the least likely to continue their career abroad (2%) of all BMS subjects (Table 2). The health and social work sector absorbed 64% of respondents employed in the UK, the highest proportion among BMS subjects. Conversely, the proportion employed in the education sector (28%) was the lowest in BMS (Table 3).

By far the most popular destinations for 2003–2007 respondents in psychology were 'health professional and associate professional' occupations (55%), reflecting the primacy of clinical psychologist roles.

Research roles occur across the different types of employment shown in Figure 5. Analysis of SOCs shows that research occupations accounted for a total of 14% of psychology respondents employed in the UK. Further analysis showed 13% of respondents entered research staff roles in higher education[10]. The proportions of respondents employed in research roles across all employment sectors and as HE research staff are below the averages for BMS as a whole at 31% and 22%, respectively.

14% of psychology respondents entered 'education and teaching' roles, close to the average for all BMS subjects (13%), though well below that for all disciplines (22%). HE lecturer roles accounted for 9% (150 of the 230 respondents in education and teaching occupations). Other occupations were FE teaching professionals and university tutorial and teaching assistants.

The concentration of respondents in psychology across professional roles in clinical psychology, research and teaching resulted in fewer than average entering occupations only indirectly related or unrelated to their subject area. Only 9% entered other occupations shown in Figure 5.

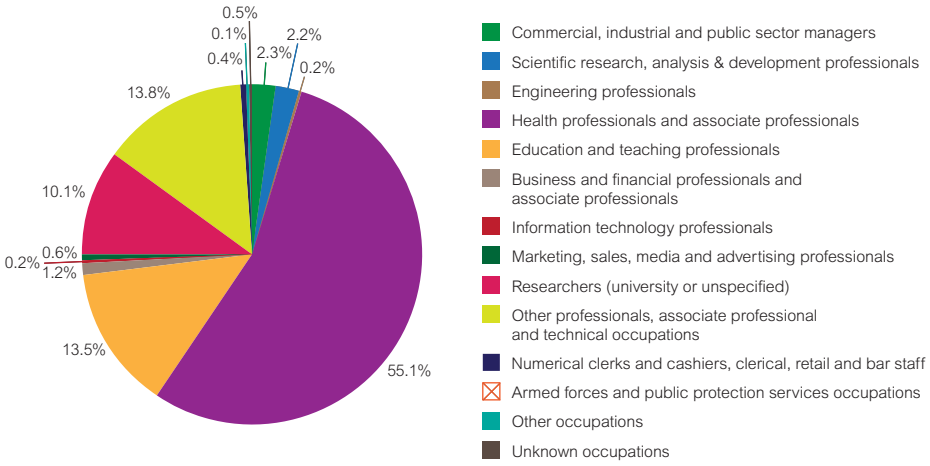

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in psychology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[10] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[11] 135 of the 170 education and teaching professionals were HE lecturers.

Pharmacology, toxicology and pharmacy

890 UK-domiciled doctoral graduates (9% of BMS cohort), 640 respondents (72%) of which 500 entered employment in the UK (2003–2007)

The proportion of female UK-domiciled pharmacology, toxicology and pharmacy doctoral graduates (54%) was below the BMS average (61%) and the proportion of UK-domiciled doctoral graduates who had studied part-time (14%) was the lowest of BMS subjects. Respondents were less likely to be working and studying (8%) than the BMS average (12%) and more likely to be unemployed at 3.4% compared with 2% across all BMS subjects (Table 2). The education sector absorbed 43% of pharmacology, toxicology and pharmacy respondents, above the BMS average (37%), and the proportion employed in manufacturing (32%) was the highest of BMS subjects (Table 3).

The overall employment pattern for respondents in pharmacology, toxicology and pharmacy had more in common with that of the biological sciences than with that for the overall biomedical sciences. Research roles were the prime destination for respondents in these subjects. Research roles occur across the different types of employment shown in Figure 6. Analysis of SOCs shows that research occupations accounted for a total of 55% of respondents employed in the UK. Further analysis showed 32% of respondents entered research staff roles in higher education[12]. The proportions of respondents employed in research roles across all employment sectors and as HE research staff are well above the averages for BMS as a whole at 31% and 22% respectively. Notable destinations for researchers outside higher education were research institutes and the pharmaceutical sector.

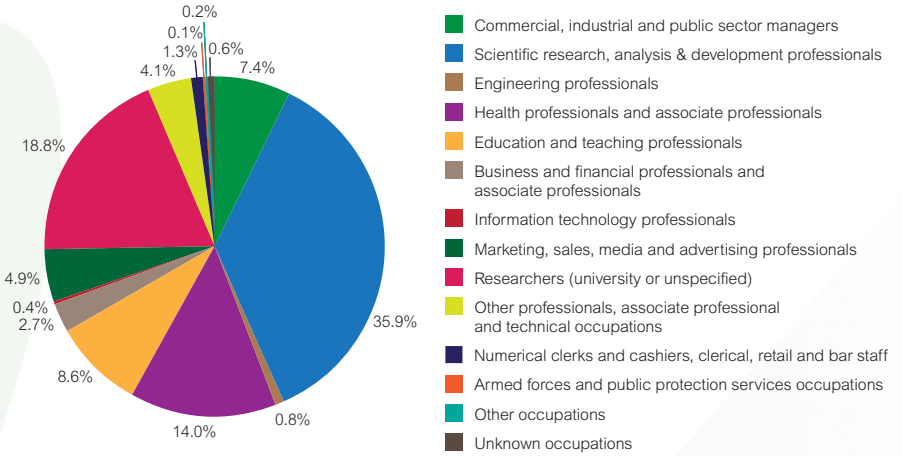

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in pharmacology, toxicology and pharmacy, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

In contrast to the high numbers of HE research staff, only 5% of respondents entered HE lecturer roles compared to the BMS average of 10%. Overall, 'education and teaching professional' roles absorbed 9%, again below the discipline average (13%).

Of other occupational areas, commercial, industrial and public sector manager roles are noteworthy; at 7% the proportion was similar to the average across all disciplines and above the BMS average. Although small in number (25) the proportion of those entering marketing and sales roles was higher than both the BMS and all disciplines averages.

Anatomy, physiology and pathology

585 UK-domiciled doctoral graduates (6% of BMS cohort), 405 respondents (69%) of which 305 entered employment in the UK (2003–2007)

The proportion of female UK-domiciled anatomy, physiology and pathology doctoral graduates (54%) was below the BMS average (61%), as was the proportion of UK-domiciled doctoral graduates who had studied part-time; 16% compared with a BMS average of 31%. Respondents from anatomy, physiology and pathology were the most likely to be working or studying overseas (12%) and the most likely to enter study or training in the UK (7%) of the BMS subjects (Table 2). The education sector absorbed 57% of respondents; well above the BMS average of 37% (Table 3).

The overall employment pattern for respondents in anatomy, physiology and pathology had more in common with that for the biological sciences than with that for the overall biomedical sciences. Research roles dominated. Research roles occur across the different types of employment shown in Figure 7. Analysis of SOCs shows that research occupations accounted for a total of 58% of respondents employed in the UK. Further analysis showed 42% of respondents entered research staff roles in higher education[12]. The proportions of respondents employed in research roles across all employment sectors and as HE research staff are well above the averages for BMS as a whole (31% and 22% respectively).

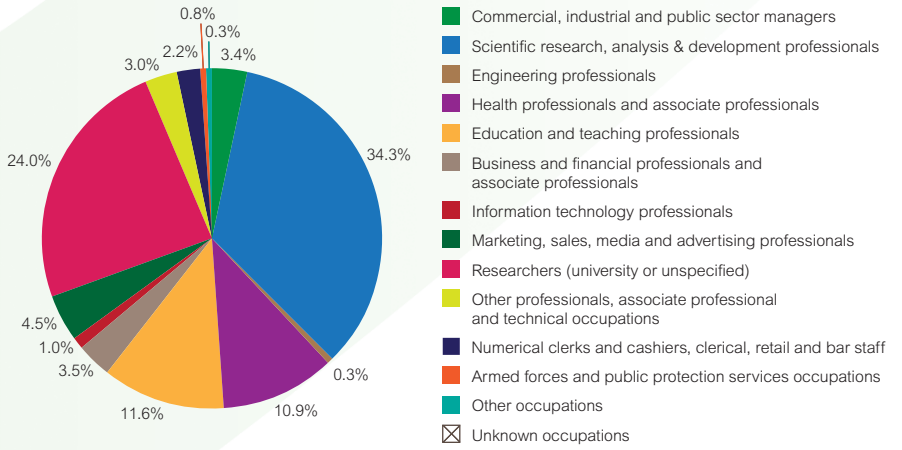

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in anatomy, physiology and pathology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

'Education and teaching professional' roles accounted for 12% of anatomy, physiology and pathology respondents, in line with the average across BMS subjects.

The proportion in HE lecturer roles (6%) was slightly below the BMS average (10%). 'Health professional and associate professional' roles accounted for 11%, well below the BMS average (41%). Of other occupational areas, each absorbed less than 5% of respondents from anatomy, physiology and pathology.

[12] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Nursing

260 UK-domiciled doctoral graduates (3% of BMS cohort), 190 respondents (73%) of which 170 entered employment in the UK (2003--2007)

Among BMS subjects nursing furnished the highest proportions of female UK-domiciled doctoral graduates (77%) and those who had studied part-time (68%). Respondents were more likely to be 'working and studying in the UK' (17%) than the BMS average (12%) and less likely to be unemployed; 1.6% compared with 2% across BMS as a whole (Table 2). The education sector absorbed 63% of respondents working in the UK, the highest proportion of BMS subjects. Conversely, employment in the health and social work sector (31%) was below the BMS average of 48% (Table 3).

'Education and teaching professional' roles dominated the employment destinations of UK employed respondents in nursing 2003–2007 (46%). This is over twice the proportion across the entire doctoral population (22%). The vast majority of these attained HE lectureships (40%), well above the all disciplines percentage of 14%.

The second most popular destination for respondents in nursing was 'health professional or associate professional' (20%), which was well below the average for BMS subjects (41%).

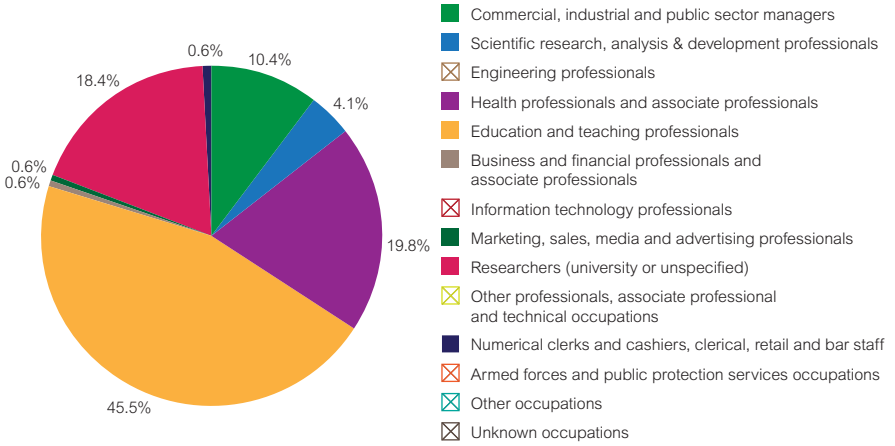

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in nursing, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Research roles occur across the different types of employment shown in Figure 8. Analysis of SOCs shows that research occupations accounted for a total of 23% of nursing respondents employed in the UK. Further analysis showed 15% of respondents entered research staff roles in higher education[13]. The proportions of nursing respondents employed in research roles and as HE research staff are below the averages for BMS as a whole (31% and 22% respectively).

The only other significant destinations for respondents in nursing were 'commercial, industrial and public sector manager' occupations. These absorbed 10%, compared with 4% of all BMS doctoral graduates.

Other biomedical sciences[14]

1290 UK-domiciled doctoral graduates (14% of BMS cohort), 910 respondents (71%) of which 765 entered employment in the UK (2003–2007)

UK-domiciled other biomedical sciences doctoral graduates were 60% female and 40% had studied part-time, compared with 46% female and 27% part-time study across all BMS subjects.

Other biomedical sciences respondents' employment circumstances corresponded to the BMS averages for: entering employment or working and studying in the UK (85%); working or studying overseas (5%); unemployment (2%) (Table 2). The education sector accounted for 46% of respondents, above the BMS average of 37%, whereas the 39% absorbed by the health and social work sector was below the BMS average of 48% (Table 3).

The wide spread of occupations entered by other respondents in biomedical sciences reflects the range of smaller subjects that have been combined to form this category, for example dentistry and opthalmics. Respondents in other biomedical sciences were less likely to enter 'health professional and associate professional' roles (30%) than the average for BMS (41%). They were more likely to enter 'education and teaching professional' roles (20%), compared with the BMS average (13%). The proportion of respondents employed as HE lecturers (15%) was also higher than the BMS average (10%) but close to the all disciplines average (14%).

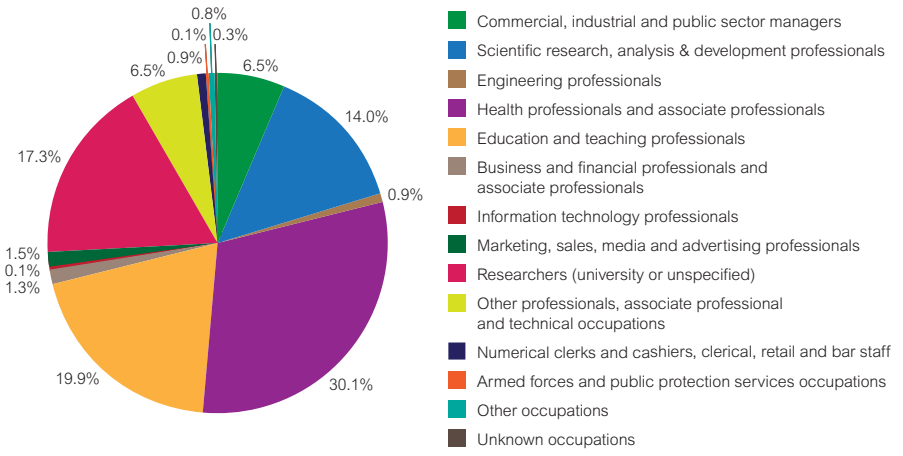

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in biomedical sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Research roles occur across the different types of work shown in Figure 9. Analysis of SOCs shows research occupations account for a total of 32% of respondents employed in the UK. Further analysis showed that 22% of UK-employed respondents entered research staff roles in higher education[13]. Both reflect the BMS averages.

[13] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[14] Other biomedical science subjects include clinical dentistry, complementary medicine, nutrition, ophthalmics, aural and oral sciences and medical technology.

Physical sciences and engineering

Physical sciences and engineering doctoral graduates at a glance

Doctoral graduates from physical sciences and engineering (PS&E) are the largest group in our survey, making up 32% of all UK-domiciled doctoral graduates over the period 2003–2007 and 33% in 2007.

- There were over 10% more PS&E doctoral graduates in 2003-2007 (2590) than the 2003–2007 average (2315)[1]
- The most popular subjects were chemistry and physics
- The PS&E response rate to the survey rose from 66% of UK-domiciled doctoral graduates in 2003 to 70% in 2007
- Over 2003–2007, 27% of PS&E UK-domiciled doctoral graduates were female; 14% achieved their doctorate through part-time study[2]

Of UK-domiciled PS&E doctoral graduates who responded to the DLHE survey

- The percentage working or working and studying in the UK was 78% over the period 2003–2007
- The proportion working abroad declined slightly from 10% (2003–2005) to 8% (2006–2007), but remained above the average rate across all disciplines
- The unemployment rate was over 4.5% (2003-2007 average), the highest of all the discipline groups, but remained consistently lower than for PS&E first-degree (7.8% average) and masters graduates (5.3% average)

Looking in more detail at those PS&E respondents working or working and studying in the UK[3]

- The education sector was the largest employment area for PS&E respondents and absorbed 41% in 2007
- The proportion of PS&E respondents employed in manufacturing (around 25%) and business, finance and IT (almost 20%) were considerably higher than the proportions for these sectors across all disciplines
- The most popular occupation was researcher (both within and outside academia), accounting for 43% of all employed PS&E respondents 2003–2007
- The proportion working as research staff in higher education remained stable after 2004 at 28% each year
- PS&E respondents were less likely to enter education and teaching occupations (11%) than the doctoral graduate population as a whole (22%)

Overall survey response for physical sciences and engineering subjects

PS&E UK doctoral graduates	2003	2004	2005	2006	2007	Total
Total doctoral graduates in PS&E	2330	2300	2250	2370	2590	11840
Total respondents	1550	1560	1555	1630	1810	8110
% response	66%	68%	69%	69%	70%	69%
Female respondents	430	430	440	480	510	2300
Male respondents	1120	1120	1115	1150	1300	5810

Table 1: Survey response for UK-domiciled doctoral graduates 2003–2007 in physical sciences and engineering

Over the five-year period the UK-domiciled PS&E doctoral graduate population first dipped slightly then rose more steeply to almost 2600 in 2007. Like other disciplines PS&E saw a small improvement in survey response rate over 2003–2007.

This chapter …

contains analysis of the physical sciences and engineering doctoral graduate cohort, their response rate to the DHLE survey, first destination employment rates, employment sectors and occupations. The subjects discussed are: chemistry; physics; computer science; mathematics; physical and terrestrial geographical and environmental sciences; geology; electrical and electronic engineering; mechanical engineering; and civil engineering. Other subjects are grouped together in other physical sciences or in other engineering.

[1] For data protection, all figures have been rounded to the nearest five. Number and percentages may not total due to rounding.

[2] Compared with the total UK-domiciled doctoral graduate population where 46% were female; 27% gained their doctorate through part-time study (2003–2007).

[3] All data on destinations, whether in terms of occupations or sectors, is from those respondents who entered work or work and study in the UK.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment rates for physical sciences and engineering

Employment circumstances of PS&E respondents showed a stable five-year pattern. The 2007 figures shown in Figure 1 correspond within one percentage point to five year totals 2003–2007, with the exception of the 'working and studying in the UK' category where the 2007 rate (12%) is 2% higher. PS&E respondents who graduated in 2007 were more likely to work or study overseas (9% compared with 6%) and slightly more likely to be unemployed (4% compared with 3%) than respondents across all disciplines. However, the employment picture at broad discipline level masks variations between different subjects.

Among PS&E doctoral graduates 2003–2007, chemistry (24%) and physics (13%) were the dominant subjects. All other subjects had fewer than 10% of PS&E doctoral graduates. Amalgamating data from 2003–2007 creates sufficient numbers to identify employment rates, sectors and broad types of work respondents entered in the following subjects: chemistry; physics; computer science; mathematics; physical and terrestrial geographical and environmental sciences; geology; electronic and electrical engineering; mechanical engineering; and civil engineering. All other PS&E subjects are discussed either as 'other physical sciences'[4] or 'other engineering'[5].

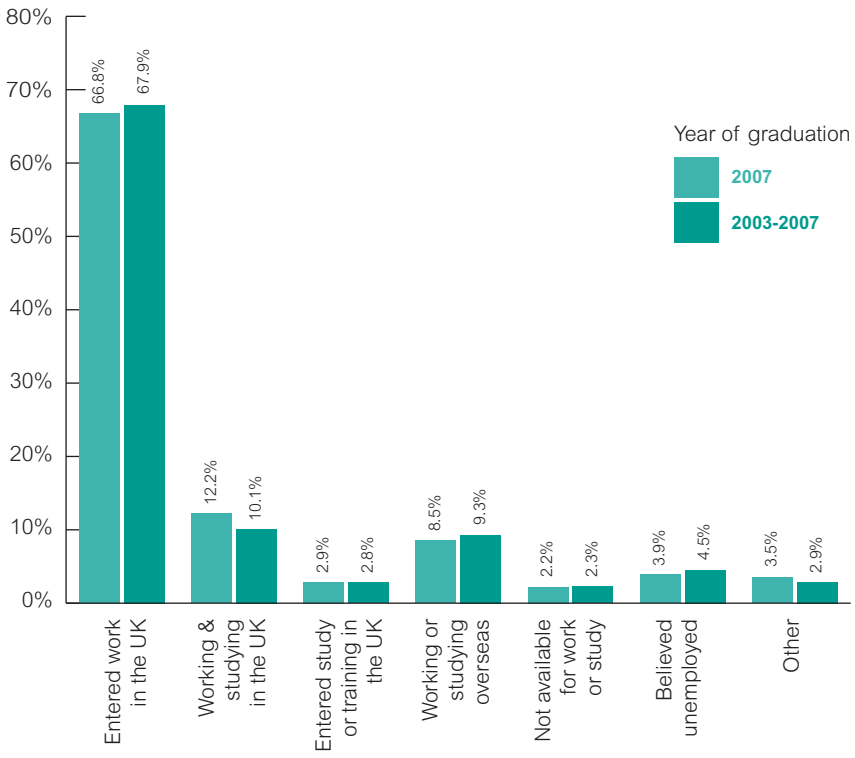

Figure 1: Employment circumstances of UK-domiciled PS&E doctoral graduate respondents: 2007 and 2003–2007 comparison

Summary of employment outcomes by subject 2003–2007

PS&E UK-domiciled respondents	Chemistry	Physics	Computer science	Mathematics	Physical and terrestrial geography and environmental sciences	Geology	Other physical sciences	Electronic and electrical engineering	Mechanical engineering	Civil engineering	Other engineering
Entered work in the UK	65.2%	62.5%	71.8%	62.5%	70.8%	66.2%	63.8	74.9%	76.1%	76.0%	71.5%
Working and studying in the UK	8.8%	10.7%	12.3%	12.1%	7.9%	11.6%	12.7%	6.7%	8.1%	9.9%	11.2%
Entered study or training in the UK	3.1%	4.4%	2.8%	4.6%	2.6%	2.3%	3.1%	1.5%	1.1%	0.7%	2.0%
Working or studying overseas	12.9%	12.3%	4.9%	9.2%	10.0%	12.2%	8.8%	5.6%	5.9%	5.3%	6.2%
Not available for work or study	2.4%	1.7%	1.3%	2.2%	2.5%	1.2%	2.9%	3.0%	2.4%	2.2%	2.9%
Believed unemployed	5.1%	5.6%	3.1%	6.2%	4.4%	3.7%	3.9%	4.8%	3.1%	4.0%	3.6%
Other	2.5%	2.9%	3.7%	3.3%	1.6%	2.8%	4.7%	3.5%	3.3%	1.8%	2.7%

Table 2: Employment circumstances of UK-domiciled PS&E doctoral graduates 2003–2007: respondents in different subjects in physical sciences and engineering

[4] Other physical science subjects include astronomy, materials science, metallurgy, minerals technology, statistics, and town and country planning.

[5] Other engineering subjects include aeronautical, general, chemical, maritime and production engineering, architecture, building, and maritime technology.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment sectors for physical sciences and engineering doctoral graduates

Employment in the education sector, largely higher education, was the most common destination for PS&E respondents, accounting for 42% of UK-employed respondents over 2003–2007 (41% from 2007). Across all disciplines, the education sector absorbed 49% over 2003–2007.

Manufacturing, the second most popular sector for PS&E doctoral graduates, employed one quarter of the PS&E respondents. This is the highest of all disciplines (well above the 14% across all respondents over 2003–2007). PS&E employment in manufacturing varied year on year between 23% (2005) and 28% (2003). The 2007 proportion mirrored the five-year average (25%).

One fifth of PS&E respondents were employed in the third most popular sector 2003–2007, finance, business and IT. This saw a slight increase from 18% (2003) to 21% (2007). PS&E subjects account for two thirds of all respondents in the finance, business and IT sector: 1220 of the 1880 entrants over the five-year period.

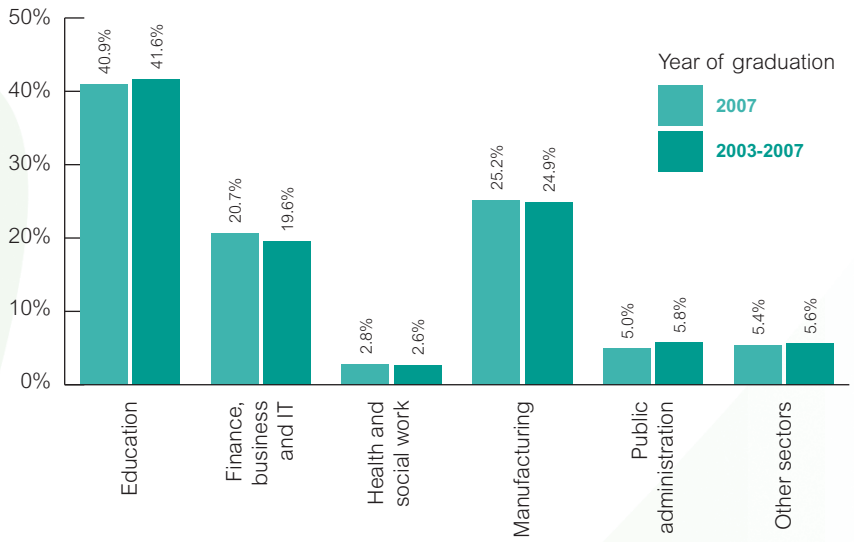

Figure 2: Employment sectors entered by UK-domiciled PS&E respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

Summary of employment sectors by subject 2003–2007

PS&E UK-domiciled respondents	Chemistry	Physics	Computer science	Mathematics	Physical and terrestrial geography and environmental sciences	Geology	Other physical sciences	Electronic and electrical engineering	Mechanical engineering	Civil engineering	Other engineering
Education	33.0%	44.6%	58.1%	42.4%	50.1%	43.2%	48.8%	44.5%	36.1%	35.4%	39.4%
Finance, business and IT	11.7%	20.0%	26.9%	33.7%	16.0%	19.1%	19.7%	21.4%	19.3%	30.5%	20.1%
Health and social work	2.6%	4.7%	1.6%	3.0%	2.6%	1.8%	4.8%	1.5%	2.1%	0.9%	1.4%
Manufacturing	42.6%	18.9%	8.7%	9.5%	14.4%	22.0%	15.3%	23.7%	34.3%	11.9%	26.6%
Public administration	4.5%	8.5%	1.4%	7.4%	8.5%	6.9%	5.8%	5.0%	1.8%	7.7%	6.4%
Other sectors	5.5%	3.3%	3.3%	4.0%	8.4%	7.1%	5.6%	4.0%	6.3%	13.6%	6.1%

Table 3: Employment sectors entered by UK-domiciled PS&E respondents working in the UK and graduating in 2003–2007 from different physical sciences and engineering subjects, based on Standard Industrial Classifications (SIC) returned in the DLHE surveys

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Occupations of physical sciences and engineering doctoral graduates

Research roles absorbed over two in five respondents. Research roles occur across the different types of occupation shown in Table 4. Analysis of SOCs shows research occupations accounted for 43% of PS&E respondents employed in the UK both in 2007 and over the period 2003–2007. Further analysis shows 28% of PS&E respondents entered research staff roles in higher education[7]. The proportions of respondents employed in research roles across all employment sectors and as research staff in higher education were above the averages for respondents as a whole, at 35% and 23% respectively.

'Engineering professionals' were the next largest occupational group, accounting for 12% of respondents in 2007. Both numbers and percentages saw a slight fall over the five-year period.

The 11% employed as 'education and teaching professionals' remained stable over 2003–2007. This is half that for all disciplines (22%). A stable 6%–7% were employed as HE lecturers, again well below all disciplines average of 14% over 2003–2007.

While roles related to research, engineering and education and teaching accounted for two thirds of PS&E respondents, the other third were distributed across a wide range of roles. Of the occupations absorbing smaller numbers of PS&E graduates, the largest variation was seen in 'business and financial professionals and associate professional' roles. This category showed a slight upwards trend, employing 5% of PS&E respondents in 2003 and 9% in 2006.

Overall, 2003–2007 was a largely stable period for PS&E doctoral graduate employment. UK employment rates were slightly below that for all disciplines; conversely, an above-average proportion of PS&E respondents chose to continue their career abroad. Research role destinations showed little variation and were consistently above the average for all disciplines. Employment in manufacturing dipped but rose in 2007. We now look in more detail at the employment rates, sectors and occupations of PS&E doctoral graduates by subject.

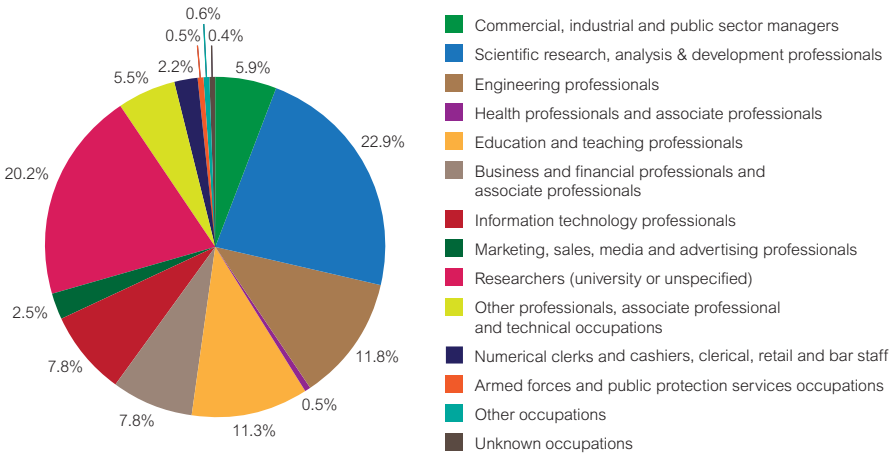

Figure 3: Types of work entered by UK-domiciled PS&E doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[6]

PS&E UK-domiciled respondents	2003	2004	2005	2006	2007	Total
Commercial, industrial and public sector managers	7.7%	7.4%	6.6%	6.6%	5.9%	6.8%
Scientific research, analysis & development professionals	24.1%	24.6%	21.5%	22.8%	22.9%	23.1%
Engineering professionals	15.3%	12.2%	13.8%	10.8%	11.8%	12.7%
Health professionals and associate professionals	0.7%	0.8%	0.3%	0.6%	0.5%	0.6%
Education and teaching professionals	10.7%	11.9%	13.2%	10.4%	11.3%	11.5%
Business and financial professionals and associate professionals	5.0%	5.5%	6.8%	8.8%	7.8%	6.8%
Information technology professionals	7.5%	6.3%	5.9%	7.8%	7.8%	7.1%
Marketing, sales, media and advertising professionals	2.3%	2.0%	2.7%	2.7%	2.5%	2.4%
Researchers (university or unspecified)	16.6%	18.6%	20.3%	21.2%	20.2%	19.4%
Other professionals, associate professional and technical occupations	4.9%	5.4%	5.1%	4.3%	5.5%	5.0%
Numerical clerks and cashiers, clerical, retail and bar staff	3.0%	2.7%	2.0%	2.8%	2.2%	2.5%
Armed forces and public protection services occupations	0.7%	0.3%	0.3%	0.2%	0.5%	0.4%
Other occupations	1.3%	1.5%	1.5%	1.1%	0.6%	1.2%
Unknown occupations	0.1%	0.8%	0.2%	0.0%	0.4%	0.3%

Table 4: Types of work entered by UK-domiciled PS&E doctoral graduates (2003–2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[8]

[6] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2008 after graduating from UK universities in 2007.

[7] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter.

[8] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2004, 2005, 2006, 2007 and 2008 after graduating from UK universities in 2003, 2004, 2005, 2006 and 2007.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Chemistry

2820 UK-domiciled doctoral graduates (24% of PS&E cohort), 2010 respondents (71%) of which 1435 entered employment in the UK (2003–2007)

Chemistry had the largest number of UK-domiciled doctoral graduates in physical sciences and engineering at 24% of the PS&E cohort and the second highest in any discipline (behind clinical and pre-clinical medicine). Females were under-represented (36%) compared to the all discipline average (46%), but above the PS&E average (27%) 2003–2007. The proportion of chemistry respondents who had gained their doctorate through part-time study was the joint lowest of any subject (5%) alongside physics. Respondents were more likely to be working or studying overseas (13%) than in any other PS&E subject (Table 2). The manufacturing sector was the most popular destination for UK-employed chemistry respondents (Table 3), which at 43% was the highest proportion in any subject. The proportion of UK-employed respondents who remained in the education sector (33%) was the second lowest (after psychology).

Research roles absorbed three in five chemistry respondents. Research roles occur across the different types of occupations shown in Figure 4. Analysis of SOCs shows research occupations accounted for 60% of respondents 2003–2007 employed in the UK (compared with 43% across PS&E as a whole). Further analysis shows 24% of respondents entered research staff roles in higher education (compared with 28% across all PS&E subjects)[9]. Research outside academia thus absorbed 36%, the highest proportion of any subject (15% PS&E and 13% all disciplines).

The 40% of respondents in chemistry who moved out of research-focussed roles were spread across a wide range of occupations. The 7% entering 'education and teaching professional' roles formed a smaller proportion than for the PS&E discipline area as a whole (12%), well below that for all disciplines (22%). Only 1% gained HE lectureships, joint lowest of all subjects (with physics and microbiology). Although small, the proportion entering 'marketing, sales and media occupations' was above average: 5% compared with 2% across all PS&E subjects and 3% across all disciplines.

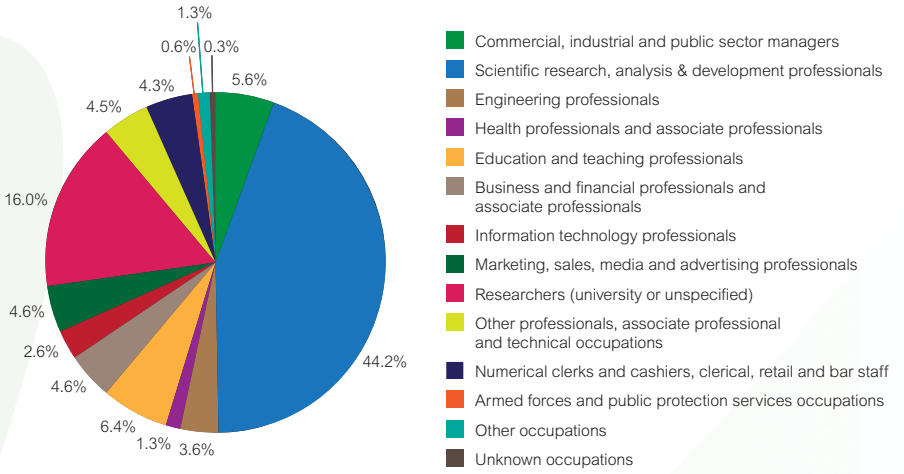

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in chemistry, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Physics

1535 UK-domiciled doctoral graduates (13% of PS&E cohort), 1050 respondents (68%) of which 750 entered employment in the UK (2003–2007)

Only 5% of UK-domiciled physics doctoral graduates gained their doctorate through part-time study, the lowest percentage in any subject apart from chemistry. Females (one in five graduates) were also under-represented compared to the all discipline average (46%) and PS&E average (27%) 2003–2007. Compared with other PS&E subjects, the proportion of respondents employed in the UK was lower than average, but a higher than average proportion chose to continue their career abroad (Table 2). The pattern of employment sectors entered by respondents, led by the education sector, followed the discipline average fairly closely, but employment in manufacturing (19%) was below the discipline average (25%) (Table 3).

The most popular destinations for 2003–2007 respondents in physics were research-related occupations. Research roles occur across the different types of occupations shown in Figure 5. Analysis of SOCs shows research occupations accounted for 58% of respondents 2003–2007 employed in the UK. Further analysis shows 38% of PS&E respondents entered research staff roles in higher education[9], the highest proportion in PS&E (28%) and third highest of all subjects[10].

Although 45% remained in the education sector, just 5% entered 'education and teaching professional' roles, a proportion well below that for all PS&E (12%) and for all disciplines (22%). Only 1% gained HE lectureships, joint lowest of all subjects (with chemistry and microbiology).

The next most popular occupations were 'information technology professional' roles at 9%, compared with 7% across all PS&E subjects, and 'business and financial professionals and associate professionals', again 9% compared with 7% across all PS&E subjects. The remaining respondents in physics were spread across a wide range of occupational areas, of which 'engineering professionals' (4%) formed the largest group.

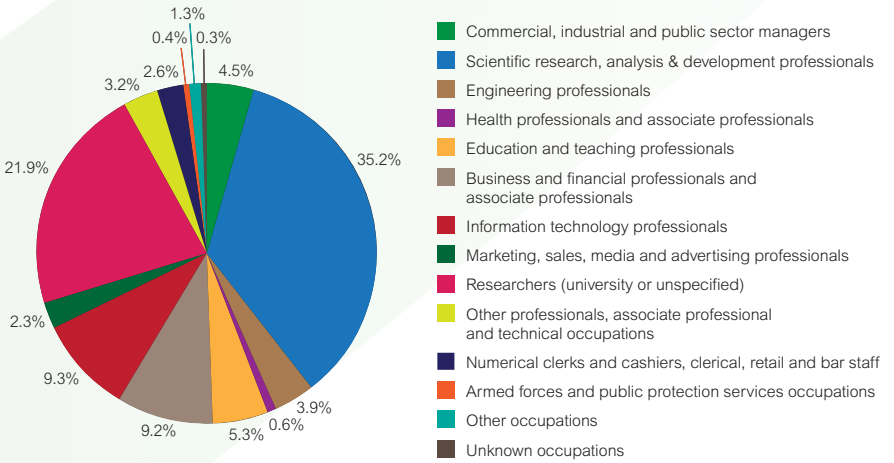

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in physics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[9] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter.

[10] Behind biochemistry, molecular biology and biophysics (43%) and anatomy, physiology and pathology (42%).

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Computer science

830 UK-domiciled doctoral graduates (7% of PS&E cohort), 530 respondents (64%) of which 440 entered employment in the UK (2003–2007)

Over 2003–2007, 25% of UK-domiciled doctoral graduates in computer science gained their doctorate through part-time study, above the average across PS&E subjects (14%) and close to that across all disciplines (27%). Females were under-represented at 19% compared with 27% across PS&E and 46% across all disciplines. Respondents had one of the highest UK employment rates in PS&E, but the lowest proportion choosing to continue their career abroad (5%). The unemployment rate was, at 3.1%, joint lowest in PS&E (Table 2). Respondents in computer science were more likely than those in other PS&E subjects to remain in the education sector (58%) (Table 3).

The most popular occupations for respondents in computer science were 'information technology professionals' (31%) and research roles. Research roles occur across the different types of occupations shown in Figure 6. Analysis of SOCs shows research occupations accounted for 32% of respondents 2003–2007 employed in the UK. Further analysis shows 33% of respondents entered research staff roles in higher education[11].

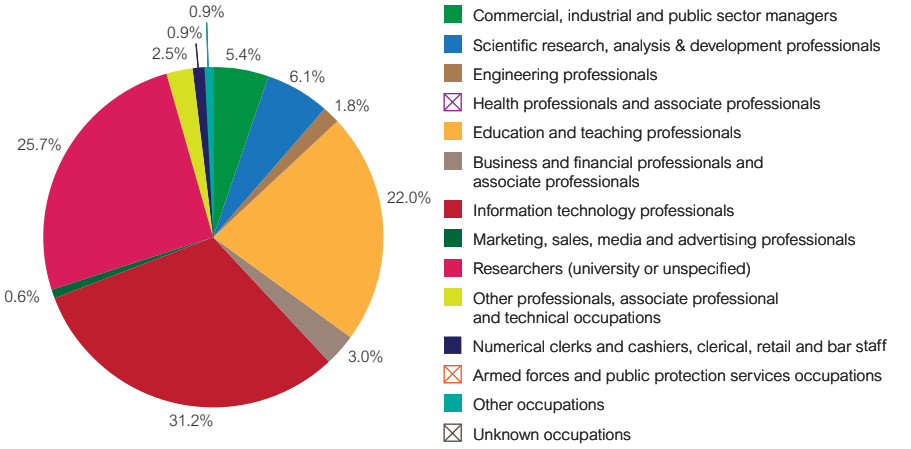

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in computer science, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

22% of computer science respondents entered 'education and teaching' roles compared with 12% across all PS&E subjects. This was the highest proportion of any PS&E subject and similar to the rate for UK-domiciled doctoral graduate respondents as a whole. 16% gained HE lectureships, the highest percentage of all PS&E subjects (average 6%) and higher than the all disciplines average of 14%.

Of other occupational areas, only 'commercial, industrial and public sector manager' roles absorbed more than 5% of computer science respondents.

Mathematics

790 UK-domiciled doctoral graduates (7% of PS&E cohort), 560 respondents (71%) of which 405 entered employment in the UK (2003–2007)

23% of UK-domiciled 2003–2007 doctoral graduates in mathematics were female; 7% gained their doctorate through part-time study. Both are below average for PS&E subjects. At 6.2% unemployment rates for respondents in mathematics were the highest of any subject analysed (Table 2). Education was the most popular employment sector, absorbing 42% of respondents employed in the UK (Table 3). One in three mathematics respondents entered the finance, business and IT sectors, a higher proportion (34%) than in any other subject.

Although research was the leading destination for mathematics respondents over 2003–2007, it was by a notably smaller margin than for PS&E as a whole. Research roles occur across the different types of employment shown in Figure 7. Analysis of SOCs shows research occupations accounted for 30% of respondents in mathematics employed in the UK, compared with 43% across PS&E as a whole. Further analysis shows 21% of respondents entered research staff roles in higher education, compared with 28% across all PS&E subjects[11].

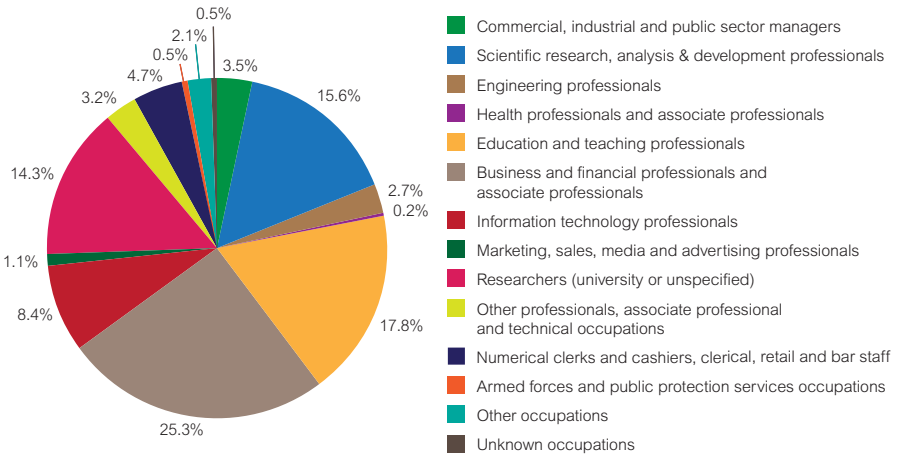

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in mathematics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

One in four mathematics respondents entered 'business and financial professional and associate professional' roles (25%); bearing out the demand in the financial services sector for high level quantitative skills. Across all disciplines only 4% entered these occupations.

18% of mathematics respondents entered 'education and teaching professional' roles, above the rate for PS&E subjects as a whole (12%) but below that for all disciplines (22%). 8% of respondents attained HE lectureships.

The remaining respondents in mathematics entered a wide range of occupations, of which 'information technology professionals' formed the largest group (8%).

[11] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter. The limits of the DLHE survey pose particular problems for identifying computer scientists in research roles. The proportion identified as research staff in HE may be overstated, as it is likely to include some non-research staff employed by universities in IT services. Conversely, the percentage in research roles may be understated, as some respondents coded as 'IT professionals' in Figure 6 are likely to be in research roles.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Physical and terrestrial geographical and environmental sciences

710 UK-domiciled doctoral graduates (6% of PS&E cohort), 495 respondents (70%) of which 385 entered employment in the UK (2003–2007)

Doctoral graduates in physical and terrestrial geographical and environmental sciences had the most gender parity of all PS&E subjects, with 44% females (just below the 46% all disciplines average). 14% gained their doctorates through part-time study. Respondents from these subjects were less likely to combine work and study or enter further study or training than the PS&E average (Table 2). Just over 50% of respondents in UK employment remained in the education sector – the second highest proportion in PS&E (Table 3).

Research-related occupations were the most popular destinations for respondents from physical and terrestrial geographical and environmental sciences. Research roles occur across the different types of employment shown in Figure 8. Analysis of SOCs shows research occupations accounted for 54% of respondents employed in the UK, notably above the 43% across PS&E as a whole. Further analysis shows 32% of respondents entered research staff roles in higher education, compared with 28% across all PS&E subjects[12].

15% of physical and terrestrial geographical and environmental sciences respondents were 'education and teaching professionals', a proportion above that for the PS&E discipline area (12%) but below that for all disciplines (22%). HE lecturer roles accounted for 8% of respondents.

15% also entered 'other professional, associate professional and technical occupations'. Nearly half were working as conservation, heritage and environmental protection officers.

The remaining physical and terrestrial geographical and environmental sciences respondents were spread across a wide range of occupational areas, of which 'commercial, industrial and public sector managers' (7%) formed the largest group.

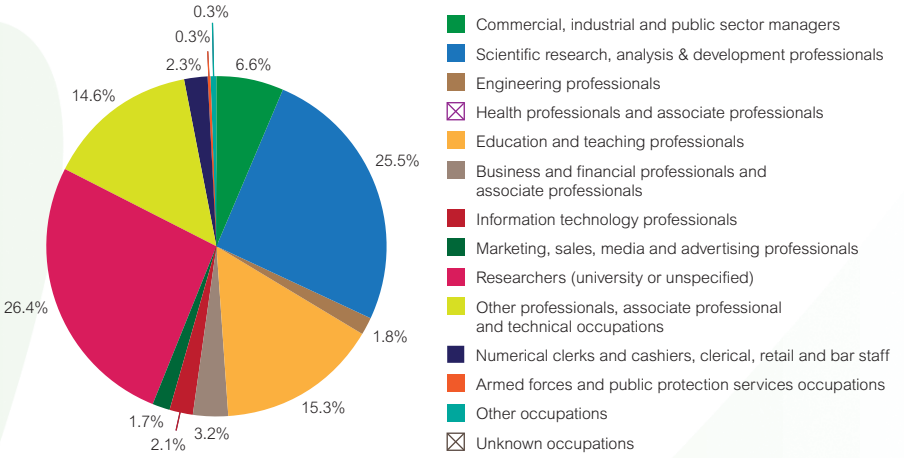

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in physical and terrestrial geographical and environmental sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Geology

450 UK-domiciled doctoral graduates (4% of PS&E cohort), 300 respondents (66%) of which 225 entered employment in the UK (2003–2007)

42% of 2003–2007 doctoral graduates in geology were female, one of the highest proportions of females in PS&E. 10% gained their doctorate through part-time study, compared with 14% across all PS&E subjects. 12% of respondents chose to continue their career abroad (Table 2), above the PS&E average. Of those respondents employed in the UK, 43% entered the education sector (Table 3). A similar percentage was divided between manufacturing (22%) and the finance, business and IT sectors (19%).

Research-related roles dominated UK employment destinations for geology respondents. Research roles occur across the different types of occupations shown in Figure 9. Analysis of SOCs shows research occupations accounted for 62% of respondents employed in the UK 2003–2007, the highest proportion of all PS&E subjects. Further analysis shows 29% of respondents entered research staff roles in higher education, close to the 28% average across all PS&E subjects[12]. The proportion of geology respondents working in research roles outside academia at 33% was particularly high, compared with PS&E as a whole (15%) and across all disciplines (13%). Only chemistry had a higher proportion (36%).

The proportion of geology respondents entering 'education and teaching professional' roles at 9% was lower than that for all PS&E subjects (12%) and considerably below that for all disciplines (22%). Only 5% of respondents gained HE lectureships. Other significant destinations for respondents in geology were 'other professionals, associate professional and technical occupations' (9%) and 'commercial, industrial and public sector manager' occupations (6%).

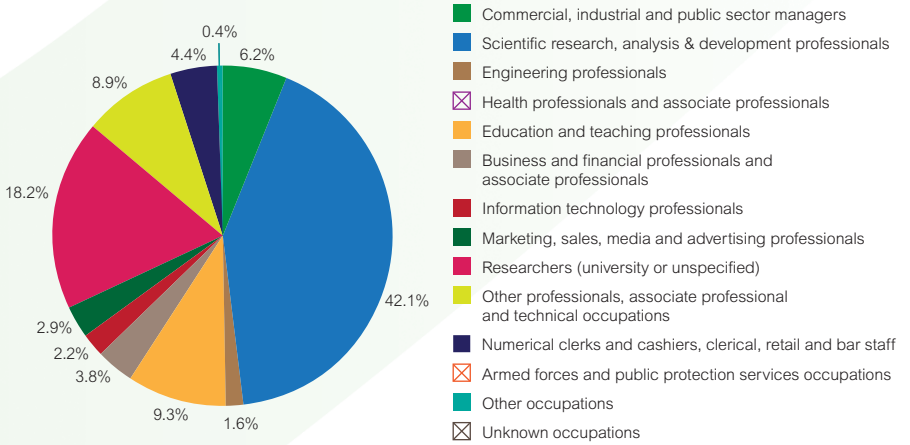

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in geology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[12] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Other physical sciences[13]

880 UK-domiciled doctoral graduates (7% of PS&E cohort), 600 respondents (68%) of which 450 entered employment in the UK (2003¬–2007)

This group of doctoral graduates from other physical sciences was 36% female and consisted of 17% who gained their doctorate through part-time study. Both of these percentages are above the PS&E average (27% female, 14% part-time study). 77% of respondents entered UK employment while 9% chose to work or study abroad (Table 2). 49% of those employed in the UK remained in the education sector (Table 3), mirroring the average across all disciplines.

Research roles were the prime destination for doctoral graduates in other physical sciences over 2003–2007. Research roles occur across the different types of employment shown in Figure 10. Analysis of SOCs shows research occupations accounted for 42% of respondents employed in the UK, mirroring the 43% across PS&E as a whole. Further analysis shows that 28% of respondents in other physical sciences entered university research staff roles, the same proportion as respondents across all PS&E subjects[14].

'Education and teaching professional' roles absorbed 17% of respondents, above the PS&E average (12%). 11% of respondents became HE lecturers, well above the PS&E average of 6%.

One in ten respondents worked as 'business and financial professionals and associate professionals'. The relatively broad spread of these and other occupational areas entered by respondents in other physical sciences reflects the wide range of smaller subjects that have been combined to form this category.

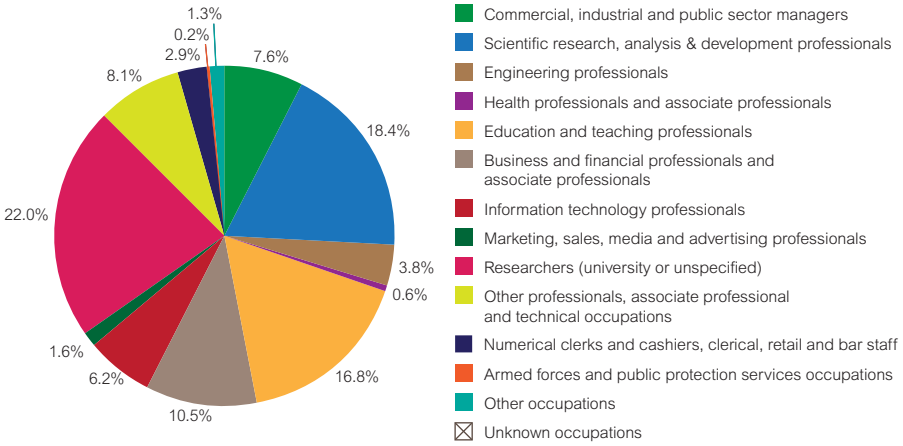

Figure 10: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in physical sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Electrical and electronic engineering

740 UK-domiciled doctoral graduates (6% of PS&E cohort), 495 respondents (67%) of which 405 entered employment in the UK (2003–2007)

Over 2003–2007, electrical and electronic engineering was the largest engineering subject. It also had the largest gender imbalance of any subject with 13% female UK-domiciled graduates. 22% of UK-domiciled graduates gained their doctorate through part-time study. 75% of respondents 'entered work in the UK'. The 7% 'working and studying in the UK' was the lowest proportion in PS&E (Table 2). Employment in the education sector led at 45% of respondents; an equal proportion was divided between manufacturing at 24% and finance, business and IT at 21% (Table 3).

Unsurprisingly, the largest group of electrical and electronic engineering respondents comprised 'engineering professionals' (31%). Over 2003–2007, a similar proportion of respondents was employed in research roles which occur across the different types of employment shown in Figure 11. Analysis of SOCs shows research occupations accounted for 30% of respondents employed in the UK compared with 43% across PS&E as a whole. Further analysis shows 33% of respondents entered research staff roles in higher education compared with 28% across all PS&E subjects[15].

12% of electrical and electronic engineering respondents were employed as 'information technology professionals'. The 11% in 'education and teaching professional' roles corresponds to the proportion for PS&E subjects as a whole, but is only half that across all disciplines (22%). Only 5% of respondents were HE lecturers.

One in six electrical and electronic engineering respondents entered other occupations. The largest group were 'commercial, industrial and public sector managers' (6%).

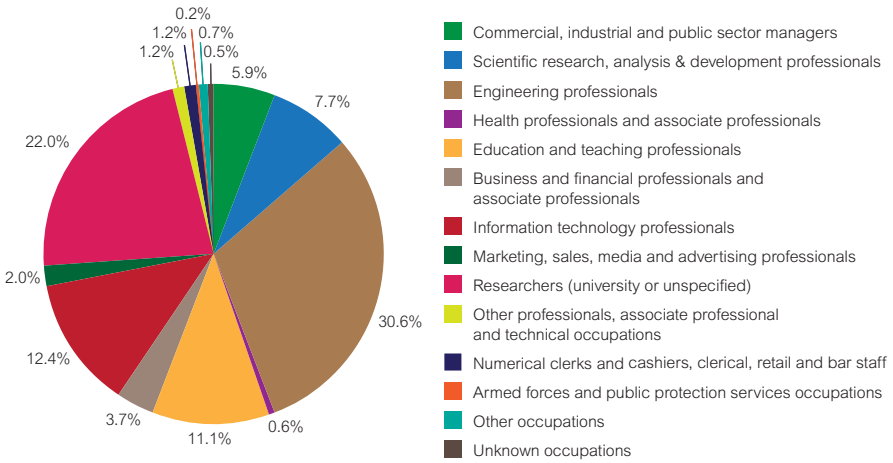

Figure 11: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in electrical and electronic engineering, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[13] Other physical science subjects include astronomy, materials science, metallurgy, minerals technology, statistics, and town and country planning.

[14] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter.

[15] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter. The proportion shown in research roles (30%) is considered to understate actual figures as the DLHE survey does not enable identification of 'engineering professionals' who are employed in research roles.

Mechanical engineering

600 UK-domiciled doctoral graduates (5% of PS&E cohort), 395 respondents (66%) of which 335 entered employment in the UK

24% of mechanical engineering doctoral graduates studied for their doctorate part-time; 15% were female. The gender imbalance was the second largest of all subjects after electrical and electronic engineering. Respondents in mechanical engineering had, along with those in computer science, the lowest unemployment rate in PS&E 2003–2007 at 3.1% (Table 2). The education sector was the most popular for respondents employed in the UK, absorbing 36%, closely followed by manufacturing with 34%[16] (Table 3).

Of all respondents 2003–2007, those in mechanical engineering were most likely to be employed as 'engineering professionals' (45%). Research roles were the next most popular group of occupations. Research roles occur across the different types of employment shown in Figure 12. Analysis of SOCs shows research occupations accounted for 24% of respondents employed in the UK compared with 43% across PS&E as a whole. Further analysis shows 30% of mechanical engineering respondents entered research staff roles in higher education compared with 28% across all PS&E subjects[17].

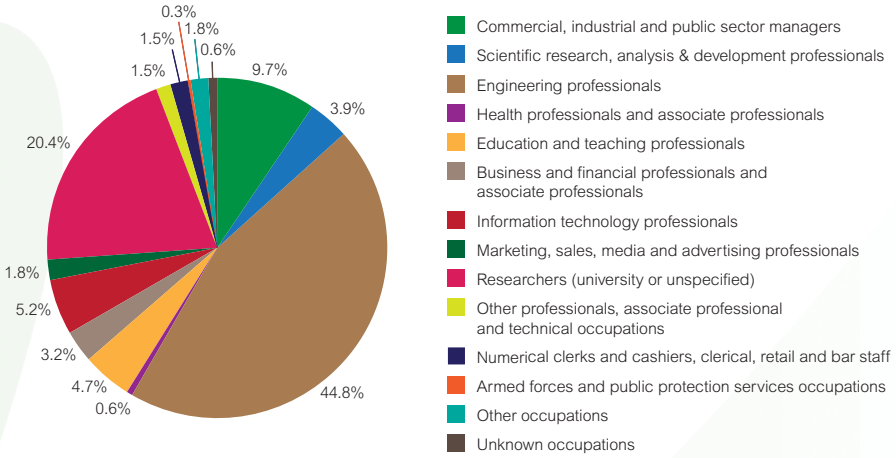

Figure 12: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in mechanical engineering, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The third most popular destination of mechanical engineering respondents was 'commercial, industrial and public sector managers' (10%). These were mostly managers in production, works and maintenance. This group of occupations absorbed a higher proportion of mechanical engineering respondents than the combined PS&E subjects and all disciplines (both 7%).

Only 5% entered 'education and teaching professional' roles, with 2% of mechanical engineering respondents employed as HE lecturers.

Civil engineering

405 UK-domiciled doctoral graduates (3% of PS&E cohort), 275 respondents (67%) of which 235 entered employment in the UK

Over 2003–2007, 24% of UK-domiciled doctoral graduates in civil engineering were female, just below the PS&E average (27%). 30% gained their doctorate through part-time study; the highest proportion of any PS&E subject. 86% of civil engineering respondents were employed in the UK, the highest proportion across PS&E. Conversely, only 5% chose to continue their career abroad, one of the discipline's lowest proportions (Table 2). Although the education sector absorbed the most civil engineering respondents at 35% of those employed in the UK, this proportion was the lowest of all PS&E subjects. The finance, business and IT sectors accounted for 31% (Table 3) – the second highest proportion after respondents from mathematics.

Unsurprisingly, the most popular occupations for 2003–2007 respondents in civil engineering were 'engineering professional' roles at 34%.

Research roles were next in popularity. Research roles occur across the different types of employment shown in Figure 13. Analysis of SOCs shows research occupations accounted for 26% of respondents employed in the UK compared with 43% across PS&E as a whole. Further analysis shows 22% of respondents entered research staff roles in higher education compared with 28% across all PS&E subjects[17].

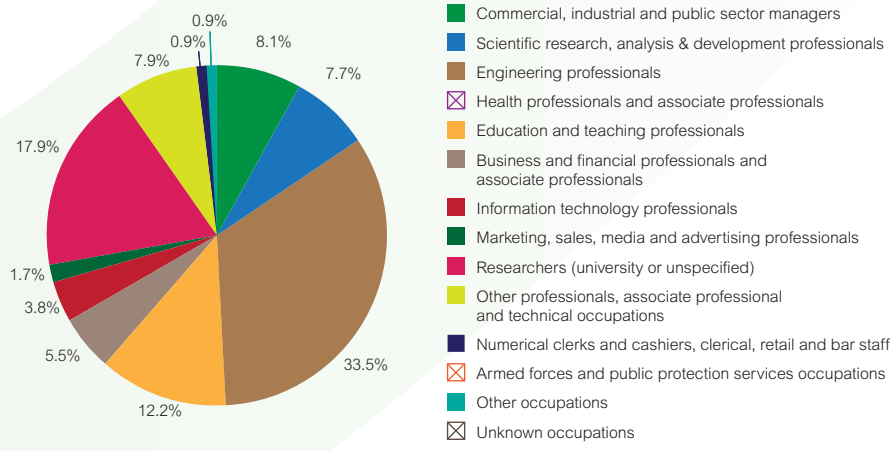

Figure 13: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in civil engineering, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The 12% of civil engineering respondents in 'education and teaching professional' roles corresponds to PS&E subjects as a whole (11%), but is well below the proportion across all disciplines (22%).

Three-quarters of those in 'education and teaching professional' roles attained HE lectureships (9% of respondents).

'Commercial, industrial and public sector managers' (8%) and 'other professionals, associate professional and technical occupations' (8%) covered a wide range of occupations in statistically insignificant numbers.

[16] The proportion of respondents entering manufacturing was second only to chemistry (across all subjects).

[17] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter. The proportion shown in research roles is considered to understate actual figures as the DLHE survey does not enable identification of 'engineering professionals' who are employed in research roles.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Other engineering[18]

2090 UK-domiciled UK doctoral graduates (7% of PS&E cohort), 1410 respondents (67%) of which 1150 entered employment in the UK

Over 2003–2007, 24% of UK-domiciled doctoral graduates in other engineering subjects were female, close to the PS&E average of 27%, and 22% gained their doctorate through part-time study, above the discipline average of 14%. UK employment rates among respondents 2003–2007 were above the discipline average (78%), while the proportion who chose to continue their career abroad was below the PS&E average at 9% (Table 2). The education sector absorbed the most respondents in UK employment at 39% (Table 3). The manufacturing sector accounted for 27%, just above the PS&E average of 25%.

The most popular occupations of other engineering respondents were 'engineering professionals' (27%) and research roles. Research roles occur across the different types of employment shown in Figure 14. Analysis of SOCs shows research occupations accounted for 28% of respondents employed in the UK compared with 43% across PS&E as a whole. Further analysis shows 22% of respondents entered research staff roles in higher education compared with 28% across all PS&E subjects[19].

The third most popular set of occupations of other engineering respondents were 'education and teaching professional' roles, absorbing 15%. HE lectureships accounted for 10% of respondents.

The spread of occupations entered by the remaining other engineering respondents reflects the range of engineering subjects which have been combined to form this category, such as chemical, process and energy, production and manufacturing, as well as aerospace engineering. Respondents in other engineering were more likely to become 'commercial, industrial and public sector managers' than those from all PS&E and across all disciplines (7%). Typical occupations are 'production, works and maintenance managers', 'marketing and sales managers' and 'research and development managers'. The percentage entering 'business and financial professional and associate professional occupations' (6%) was slightly larger than for respondents across all disciplines (4%).

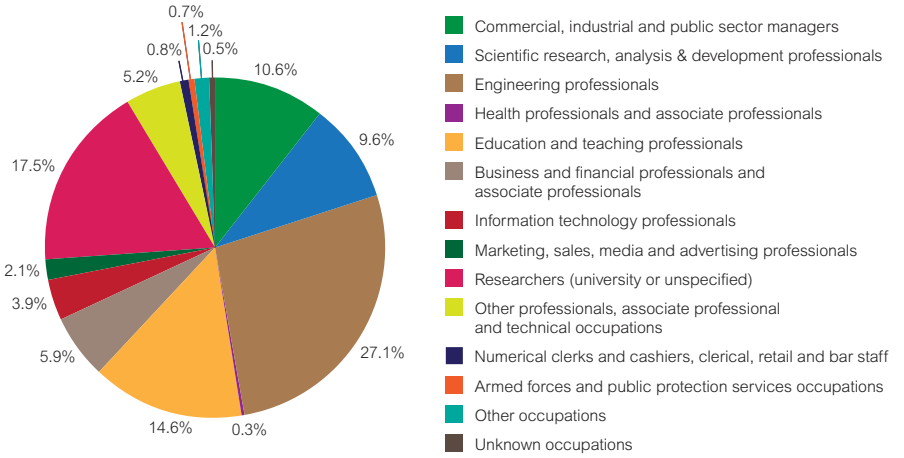

Figure 14: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other engineering subjects, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[18] Other engineering subjects include aeronautical, general, chemical, maritime and production engineering, architecture, building, and maritime technology.

[19] The methods for calculating doctoral graduates employed both in research roles and as research staff in HE are given in the methodology chapter. The proportion shown in research roles is considered to understate actual figures as the DLHE survey does not enable identification of 'engineering professionals' who are employed in research roles.

Social sciences

Social sciences doctoral graduates at a glance

Doctoral graduates from the social sciences (SS) made up 10% of all UK-domiciled doctoral graduates in 2007 and over the period 2003–2007.

- The number of SS doctoral graduates varied between 690 in 2005 and 810 in 2003[2]
- The most popular subjects were business and management, sociology, and politics
- The average SS response rate to the survey between 2003–2007 was 66% and was highest in 2005 at 70%
- Of UK-domiciled doctoral graduates 2003–2007, 48% of SS graduates were female; 42% had achieved their doctorate through part-time study[3]

Of UK-domiciled SS doctoral graduates who responded to the DLHE survey

- The percentage working, or working and studying in the UK averaged 84% over the period 2003–2007
- The proportion who chose to further their careers abroad averaged 4%
- The unemployment rate (3.3% 2007 and 2.4% 2003–2007 average) was consistently lower than for SS first-degree (5.5% in 2007) and masters graduates (3.7% in 2007)

Looking in more detail at those SS respondents working or working and studying in the UK[4]

- The education sector was consistently the largest employment area for SS respondents, absorbing 71% in 2007and 66% over 2003–2007
- SS respondents 2003–2007 were considerably more likely to enter 'education and teaching' occupations (45%) than the doctoral graduate population as a whole (22%)
- 34% of SS respondents entered higher education lecturer positions – the highest proportion of any discipline 2003–2007 and more than double the all disciplines average (14%)
- The percentage working in all research roles was 24%, well below the all disciplines average (35%)
- 18% moved into research staff roles in higher education below the average for all disciplines (23%)

Overall survey response for social science subjects

SS UK-domiciled doctoral graduates	2003	2004	2005	2006	2007	Total
Total doctoral graduates in SS	810	725	690	725	805	3750
Total respondents	510	460	480	455	545	2450
% response	63%	63%	70%	63%	69%	66%
Female respondents	275	230	245	235	255	1240
Male respondents	235	230	235	220	290	1210

Table 1: Survey response for UK-domiciled doctoral graduates 2003–2007 in social sciences

The UK-domiciled SS doctoral graduate population was almost identical in 2003 and 2007 at 810 and 805 having dipped to 690 in 2005. SS doctoral graduates accounted for one in ten of the UK-domiciled doctoral graduate population.

This chapter …

contains analysis of the social sciences doctoral graduate cohort, their response rate to the DHLE survey, first destination employment rates, employment sectors and occupations. The subjects discussed in this chapter are business and management; sociology; politics; human and social geography; law; and economics. Other subjects in social sciences are grouped together. Although not included in the social sciences totals[1], academic studies in education is discussed as a subject.

[1] Academic studies in education are not classified as a social science in JACS and are separate in the HESA data.

[2] For data protection, all figures have been rounded to the nearest five. Number and percentages may not total due to rounding.

[3] Compared with the total UK-domiciled doctoral graduate population where 46% were female; 27% gained their doctorate through part-time study.

[4] All data on destinations, whether in terms of occupations or sectors, is from those respondents who entered work or work and study in the UK.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment rates for social sciences

Employment circumstances of SS respondents varied slightly more over time than the all disciplines average. The combined total entering UK employment or working and studying in the UK ranged from 83% (2007) to 88% (2003). Working or studying overseas accounted for between 3% (2003) and 5% (2005).

Over 2003–2007, SS respondents entering employment or combining work and study in the UK totalled 84% compared with 81% of all respondents. However, the proportion working or studying overseas (4%) was below that for all respondents (7%). Unemployment averaged 2.4% over 2003–2007, compared with 3.4% across all disciplines. In 2006 SS unemployment was less than 1%: the lowest of any discipline between 2003 and 2007. However, the employment picture at broad discipline level masks variations between different subjects.

Over 2003–2007 business and management graduates accounted for 24% of SS doctoral graduates, with numbers recovering after a mid-period dip. Sociology accounted for 15% and politics 13%; all other subject groups had fewer than 10% of UK-domiciled SS doctoral graduates. Amalgamating data from 2003–2007 creates sufficient numbers to identify employment rates, sectors and broad types of work that respondents entered in the following subjects: business and management; sociology; politics; human and social geography; law; and economics. All other SS subjects are discussed as 'other social sciences'[5]. Although the employment outcomes of doctoral graduates in academic studies in education are discussed as a subject on page 49, these doctoral graduates do not form part of the overall SS cohort discussed here[5].

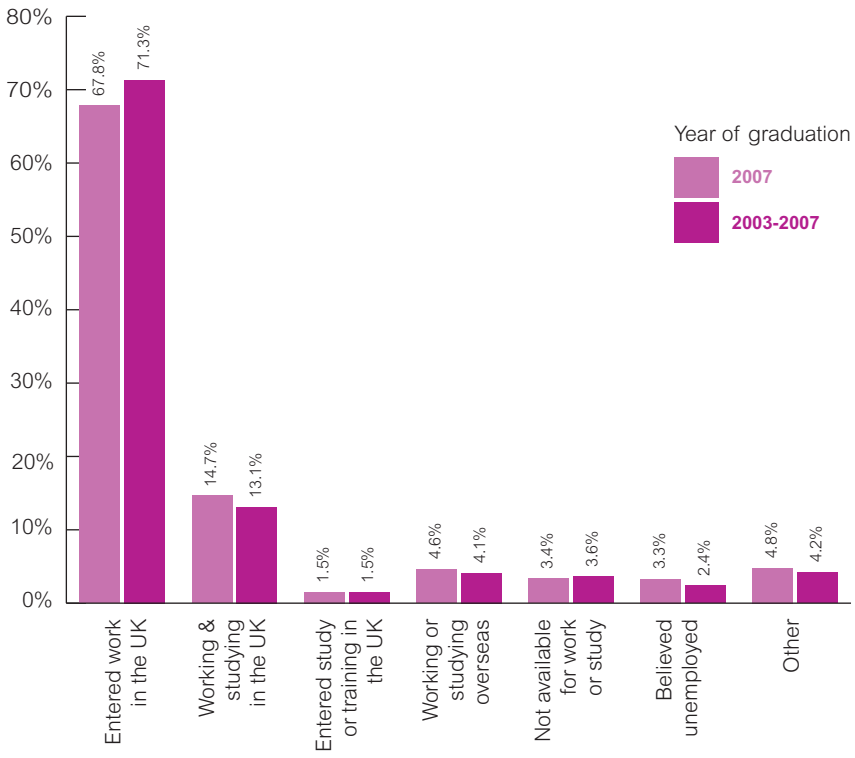

Figure 1: Employment circumstances of UK-domiciled SS doctoral graduate respondents: 2007 and 2003–2007 comparison

Summary of employment outcomes by subject 2003–2007

SS UK-domiciled respondents	Business and management	Sociology	Politics	Human and social geography	Law	Economics	Other subjects in social sciences	Academic studies in education
Entered work in the UK	72.2%	71.0%	69.4%	73.8%	69.5%	72.9%	70.8%	74.5%
Working and studying in the UK	14.1%	12.7%	10.6%	12.2%	15.3%	10.0%	13.8%	12.4%
Entered study or training in the UK	1.2%	1.4%	2.1%	1.5%	2.3%	2.3%	1.0%	0.6%
Working or studying overseas	1.9%	2.9%	6.2%	5.2%	4.2%	8.7%	4.3%	2.6%
Not available for work or study	4.5%	4.6%	3.4%	0.5%	3.1%	1.6%	3.7%	4.7%
Believed unemployed	1.3%	2.2%	3.4%	4.8%	0.5%	2.0%	3.1%	1.9%
Other	4.8%	5.2%	5.0%	2.0%	5.2%	2.6%	3.3%	3.3%

Table 2: Employment circumstances of UK-domiciled SS doctoral graduates 2003–2007: respondents in different subjects in social sciences

[5] Other SS subjects include catering and institutional management, land and property management, marketing and market research, psychology (without a significant element of biological science), transport, other business and administrative studies, and 'other social studies'. Note that doctoral studies in the field of education are treated separately, on page 49.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Employment sectors for social sciences doctoral graduates

Employment in the education sector dominated, accounting for over two thirds (71%) of respondents who graduated in 2007, above the 2003–2007 average of 66%. Across the doctoral graduate population as a whole the education sector 2003–2007 absorbed 49% of respondents.

The finance, business and IT sector employed a stable one in ten of SS respondents, equalling the average across the doctoral population as a whole. The health and social work sector employed 8% over 2003–2007 but only 6% in 2007.

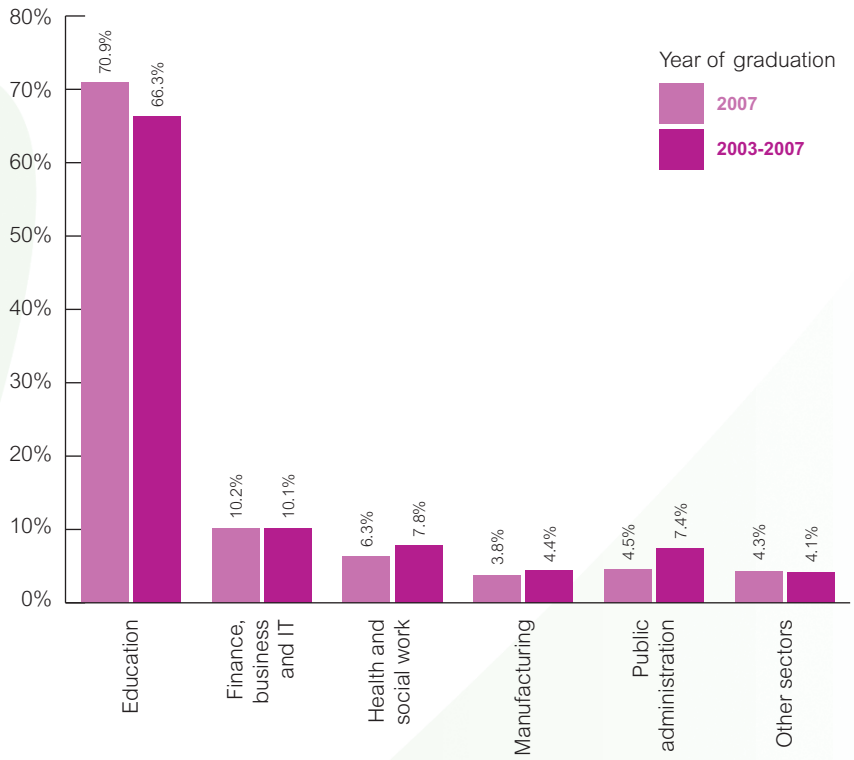

Figure 2: Employment sectors entered by UK-domiciled SS respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

Summary of employment sectors by subject 2003–2007

SS UK-domiciled respondents	Business and management	Sociology	Politics	Human and social geography	Law	Economics	Other subjects in social sciences	Academic studies in education
Education	65.6%	71.4%	69.6%	59.3%	73.9%	59.3%	63.6%	78.7%
Finance, business and IT	17.6%	4.4%	8.6%	9.4%	5.7%	14.9%	7.0%	2.8%
Health and social work	4.0%	9.2%	2.6%	5.8%	5.7%	4.5%	15.5%	4.6%
Manufacturing	4.2%	3.8%	3.9%	7.9%	3.4%	6.4%	3.7%	1.8%
Public administration	5.0%	7.4%	10.6%	9.6%	9.6%	7.7%	6.8%	8.7%
Other sectors	3.5%	3.8%	4.7%	8.0%	1.7%	7.3%	3.3%	3.4%

Table 3: Employment sectors entered by UK-domiciled SS respondents working in the UK and graduating in 2003–2007 from different social sciences subjects, based on Standard Industrial Classifications (SIC) returned in the DLHE surveys

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Occupations of social sciences doctoral graduates

45% (915) of SS respondents were employed as 'education and teaching professionals' in 2007. This proportion is considerably higher than that for all disciplines (22%). 705 of these, 34% of all SS respondents, gained HE lectureship positions, the highest proportion of all disciplines (14% average)[7]. Other significant roles in education and teaching were FE teaching professionals, university tutorial and teaching assistants and secondary teachers.

Research roles occur across the different types of employment shown in Table 4. Analysis of SOCs shows research occupations accounted for a total of 24% of SS respondents employed in the UK. Further analysis showed 18% of SS respondents entered research staff roles in higher education[8]. The proportions of respondents employed in research roles across all employment sectors and as HE research staff were below the averages for the doctoral population as a whole, at 35% and 23%, respectively.

14% of SS respondents were employed as 'commercial, industrial and public sector managers', compared with 7% across all disciplines. The 6% employed as 'business and financial professionals and associate professionals' was also above the all disciplines average (4%).

Overall, 2003–2007 was a relatively stable period for SS doctoral graduate employment. UK employment rates were above that for all disciplines; unemployment rates below. The education sector employment dominated, with education and teaching destinations well above the average for the doctoral population as a whole. We now look in more detail at the employment rates, sectors and occupations of SS doctoral graduates by subject.

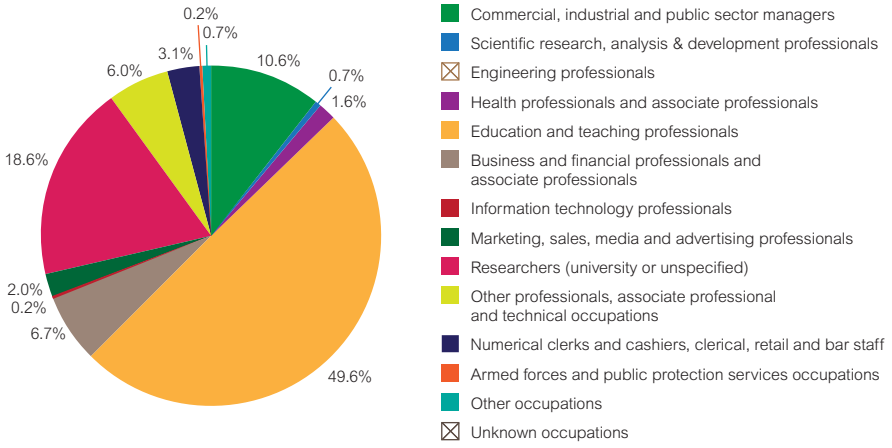

Figure 3: Types of work entered by UK-domiciled SS doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[6]

SS UK-domiciled respondents	2003	2004	2005	2006	2007	Total
Commercial, industrial and public sector managers	12.5%	15.3%	15.4%	15.2%	10.6%	13.7%
Scientific research, analysis & development professionals	1.7%	0.3%	1.0%	0.7%	0.7%	0.9%
Engineering professionals	0.0%	0.8%	0.0%	0.5%	0.0%	0.2%
Health professionals and associate professionals	5.7%	1.8%	1.3%	1.8%	1.6%	2.5%
Education and teaching professionals	46.1%	38.9%	43.4%	45.1%	49.6%	44.8%
Business and financial professionals and associate professionals	5.2%	7.5%	4.6%	4.8%	6.7%	5.8%
Information technology professionals	0.9%	0.7%	1.0%	0.5%	0.2%	0.7%
Marketing, sales, media and advertising professionals	1.7%	1.8%	1.3%	2.0%	2.0%	1.8%
Researchers (university or unspecified)	14.5%	17.8%	17.5%	18.3%	18.6%	17.3%
Other professionals, associate professional and technical occupations	10.0%	12.2%	12.1%	8.1%	6.0%	9.6%
Numerical clerks and cashiers, clerical, retail and bar staff	1.3%	1.2%	0.8%	1.2%	3.1%	1.6%
Armed forces and public protection services occupations	0.0%	0.3%	0.5%	1.0%	0.2%	0.4%
Other occupations	0.2%	1.3%	1.0%	0.7%	0.7%	0.8%
Unknown occupations	0.2%	0.3%	0.0%	0.0%	0.0%	0.1%

Table 4: Types of work entered by UK-domiciled SS doctoral graduates (2003–2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[9]

[6] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2008 after graduating from UK universities in 2007.

[7] Arts and humanities had a higher proportion of respondents entering the 'education and teaching professional' group of occupations.

[8] The methods of calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

[9] Types of work being undertaken by UK-domiciled respondents working in the UK on January 15 2004, 2005, 2006, 2007 and 2008 after graduating from UK universities in 2003, 2004, 2005, 2006 and 2007.

Business and management

905 UK-domiciled doctoral graduates (24% of SS cohort), 605 respondents (67%) of which 520 entered employment in the UK (2003–2007)

Over 2003–2007, business and management was the largest subject group in SS, and included a very high proportion of doctoral graduates who had studied part-time, 63% compared with the SS average of 42% and the all disciplines average of 27%. Female doctoral graduates at 41% were below the SS average of 48%. Respondents in business and management had the highest UK employment rate[10] (86%) and lowest proportion entering overseas work or study (2%) of SS subjects (Table 2). The education sector dominated UK employment (Table 3), absorbing two thirds of respondents, followed by the finance, business and IT sector (18%), well above the proportion for all SS and all disciplines (10%) and only just below the proportion in physical sciences and engineering (20%).

Employment of business and management respondents across a range of 'education and teaching professional' roles (51%) was above the SS average (45%) and much above the proportion of respondents across the doctoral population as a whole (22%). 41% of respondents in these subjects entered HE lecturer roles, again above the SS average (34%) and all disciplines average (14%). The majority of the remainder were FE teaching professionals.

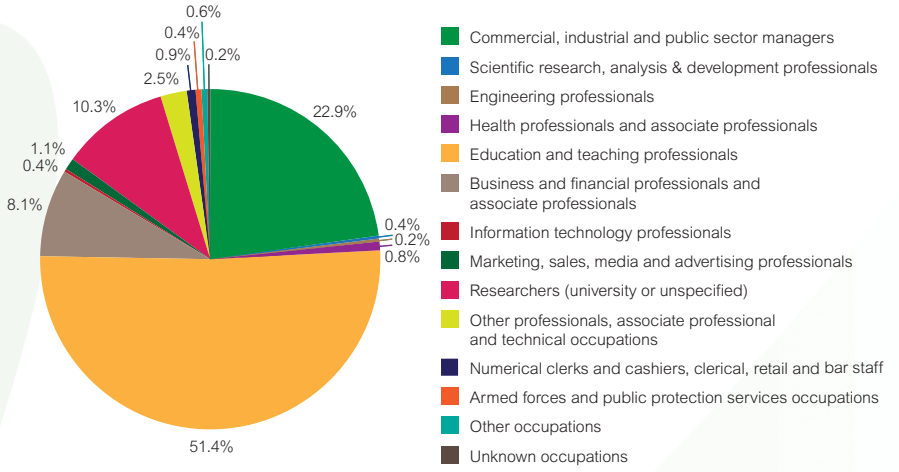

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in business and management, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

'Commercial, industrial and public sector manager' roles were second most popular (23%) for business and management respondents. Typical occupations were: marketing managers, research and development managers, and hospital and health service managers. 'Business and financial professionals' accounted for only 8% of business and management respondents.

Research roles occur across the different types of employment shown in Figure 4. Analysis of SOCs shows research occupations account for a total of 12% of business and management respondents employed in the UK. Further analysis showed 10% of UK-employed respondents entered research staff roles in higher education[11]. Both are below the discipline average of 24% and 18%, respectively.

Sociology

580 UK-domiciled doctoral graduates (15% of SS cohort), 380 respondents (66%) of which 315 entered employment in the UK (2003–2007)

Over 2003–2007, sociology had one of the highest proportions of females (59%) and of doctoral graduates who had studied part-time (46%) across the UK-domiciled doctoral population. 84% of sociology respondents were employed in the UK (Table 2), the same proportion as for SS as a whole. The education sector dominated UK employment, absorbing 71% of sociology respondents, followed by the health and social work sector (9%) (Table 3).

Employment of sociology respondents across a range of 'education and teaching professional' roles at 41% was below the SS average of 45% but well above the proportion across the doctoral population as a whole (22%). 33% entered HE lecturer roles, close to the SS average (34%) and over twice that across all disciplines (14%).

Research roles occur across the different types of employment shown in Figure 5. Analysis of SOCs shows research occupations account for a total of 32% of sociology respondents employed in the

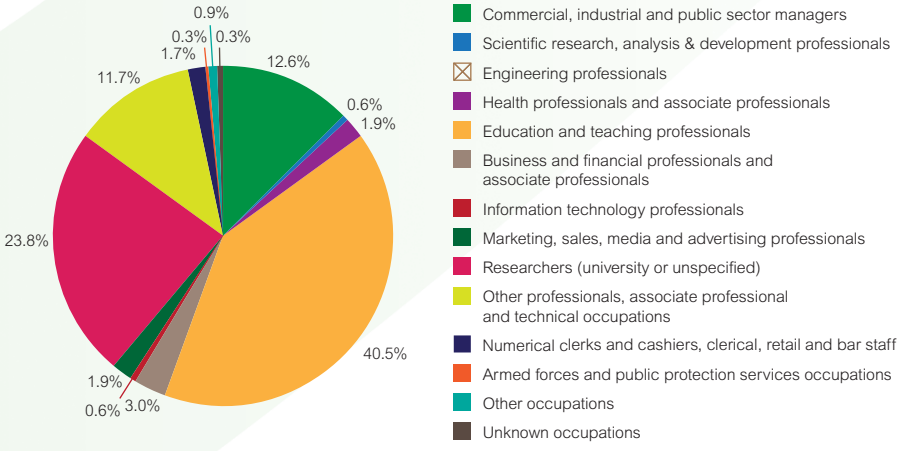

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in sociology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

UK. Further analysis showed 26% of UK-employed respondents entered research staff roles in higher education[11]. Both are above the discipline average of 24% and 18%, respectively.

'Commercial, industrial and public sector manager' roles were the only other significant group of occupations of sociology respondents at 13%.

[10] The combined total of those who 'entered work in the UK' and who were 'working and studying in the UK'.

[11] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Politics

470 UK-domiciled doctoral graduates (13% of SS cohort), 295 respondents (62%) of which 230 entered employment in the UK (2003–2007)

Over 2003–2007, females (36%) and those who studied for their doctorate part-time (22%) were under-represented in the politics subject area compared to the SS averages of 48% and 42%, respectively. The proportion of politics respondents continuing their career overseas (6%) was above the SS average (4%) and in UK employment (80%) was below the discipline average at 84% (Table 2). Employment in the education sector dominated at 70%. 11% of respondents entered the public administration sector, the highest proportion of any SS subject (Table 3).

Over 2003–2007, 47% of respondents entered education and teaching professional roles, close to the SS average (45%) and well above the 22% across the doctoral graduate population as a whole. 31% entered HE lecturer roles, a little below the SS average (34%) but more than double that across all disciplines (14%). The second largest group in education and teaching occupations were teaching professionals in further education.

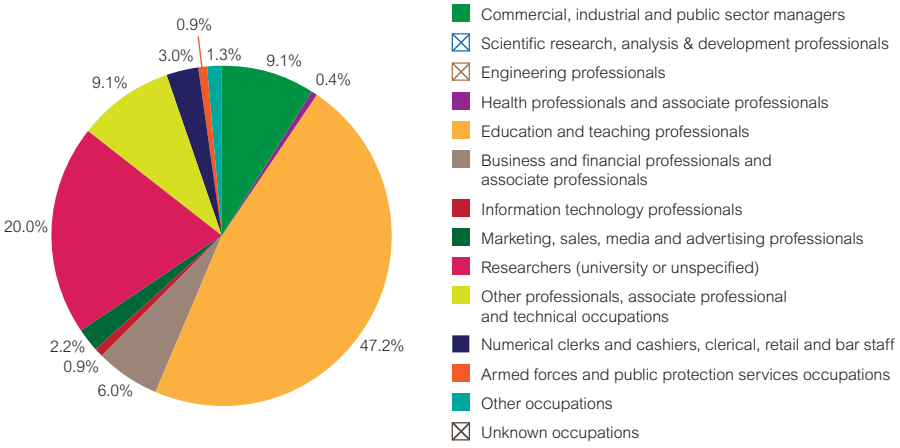

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in politics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Research roles occur across the different types of employment shown in Figure 6. Analysis of SOCs shows research occupations accounted for a total of 27% of politics respondents employed in the UK. Further analysis showed 19% of UK-employed respondents entered research staff roles in higher education[12]. Both slightly above the discipline average of 24% and 18%, respectively.

The remaining politics respondents were spread in small numbers across a wide variety of occupations.

Human and social geography

325 UK-domiciled doctoral graduates (9% of SS cohort), 200 respondents (62%) of which 170 entered employment in the UK (2003–2007)

Only 18% of human and social geography doctoral graduates studied for their doctorate part-time, the lowest proportion among SS subjects. The proportion of female doctoral graduates at 50% was close to the SS average of 48%. Human and social geography furnished one of the highest UK employment rates in SS (86% of respondents) (Table 2). The education sector absorbed 59% of human and social geography respondents. Public administration was just ahead among remaining sectors in absorbing 10% (Table 3).

Over 2003–2007, the most popular occupations for human and social geography respondents were 'education and teaching professionals' (30%). This figure was below the SS average of 45% but above the 22% across respondents from all disciplines. 20% entered HE lecturer roles, again below the SS average (34%) but above that across all disciplines (14%).

The next most popular occupations were research roles. Research roles occur across the different types of employment shown in Figure 7. Analysis of SOCs shows research occupations accounted for a total of 39% of human and social geography respondents employed in the UK. Further analysis showed 26% of UK-employed respondents entered research staff roles in higher education[12]. Both are well above the discipline average of 24% and 18%, respectively: human and social geography respondents were the most likely of all SS respondents to be employed in research roles.

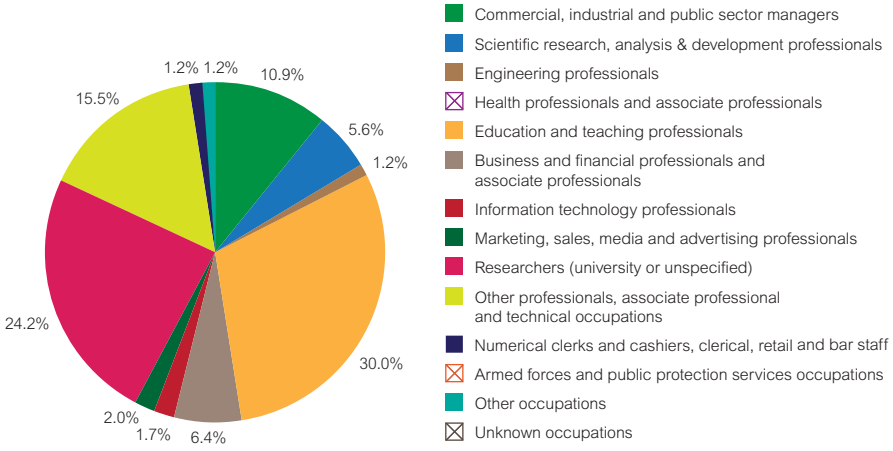

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in human and social geography, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The only other significant destinations for respondents in human and social geography were 'commercial, industrial and public sector manager' occupations. These absorbed 11%, compared with 14% of all SS respondents and 7% across respondents as a whole.

[12] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Law

320 UK-domiciled doctoral graduates (9% of SS cohort), 215 respondents (67%) of which 175 entered employment in the UK (2003–2007)

Over 2003–2007, the proportion of female doctoral graduates in law (52%) was above average[13]. The percentage of law doctoral graduates who had studied part-time (37%) was between the SS (42%) and all disciplines (27%) averages. Law respondents furnished the highest proportion of SS graduates combining work and study (15%), and the lowest unemployment rate (0.5%), the lowest unemployment rate of any subject analysed (Table 2). Three quarters of respondents in law remained in the education sector (74%), the largest proportion of all SS subjects. The public administration sector absorbed one in ten (Table 3).

'Education and teaching professional' roles dominated for law respondents, absorbing 64%, the highest proportion of all SS subjects and significantly above the average for respondents across all disciplines (22%). The proportion in HE lecturer roles was 56%, which was again the highest proportion among any subjects analysed.

'Other professionals, associate professionals and technical occupations' was the next largest occupational category for law respondents at 13%. This category includes legal professionals as well as, for example, social science researchers and social workers.

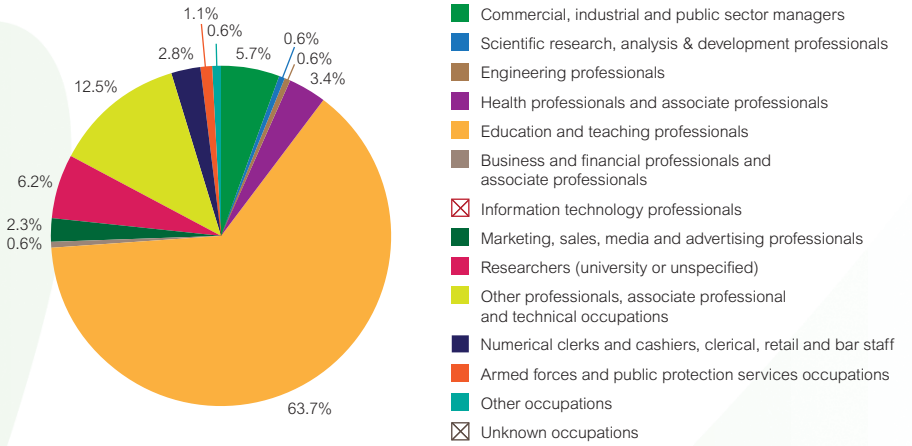

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in law, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Research roles occur across the different types of employment shown in Figure 8. Analysis of SOCs shows research occupations accounted for a total of 9% of law respondents employed in the UK.

Further analysis showed 7% of UK-employed law respondents entered research staff roles in higher education[14]. Both are well below the discipline average of 24% and 18%, respectively. Respondents from law were the least likely of all respondents to be employed in research roles, with the exception of theology respondents (8%).

Economics

265 UK-domiciled doctoral graduates (7% of SS cohort), 155 respondents (57%) of which 125 entered employment in the UK (2003–2007)

Over 2003–2007, females at 35% were under-represented among UK-domiciled doctoral graduates in economics. The proportion of those who had gained their doctorate through part-time study at 30% was below that for all social sciences (42%). Economics furnished the highest proportion of SS respondents choosing to continue their career abroad (9%) (Table 2). In the UK, the education sector absorbed the most economics respondents (59%), below the SS average (66%) but above that across all disciplines (49%). The finance, business and IT sector absorbed 15%, compared with 10% across SS as a whole (Table 3).

The most popular occupations were 'education and teaching professionals' at 38% of economics respondents. This figure was below the SS average (45%) but well above the 22% across the respondent population as a whole. 26% of respondents entered HE lecturer roles, again below the SS average (34%) but above that across all disciplines (14%).

Research roles occur across the different types of employment shown in Figure 9.

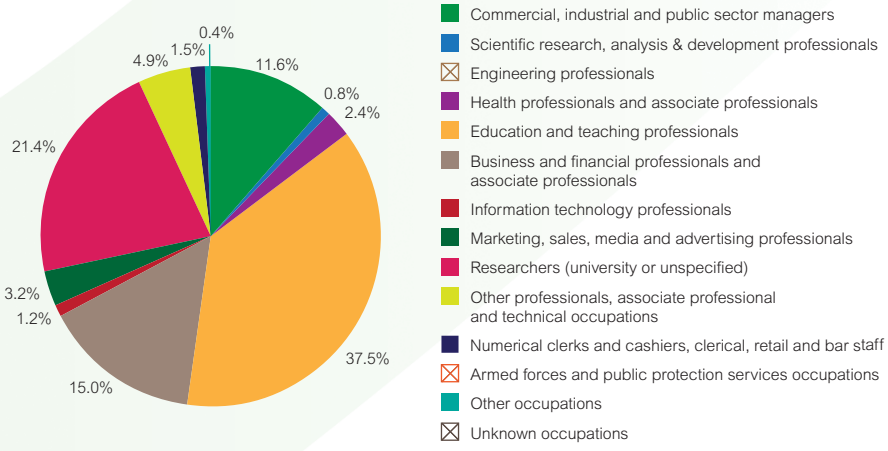

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in economics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Analysis of SOCs shows research occupations accounted for a total of 27% of respondents in economics employed in the UK. Further analysis showed 20% of UK-employed economics respondents entered research staff roles in higher education[14]. Both are a little above the discipline average of 24% and 18%, respectively.

Unsurprisingly, the proportion of economics respondents employed in 'business and financial professional and associate professional' occupations at 15% was well above the SS (7%) and all disciplines (4%) average. The remaining respondents were spread in very small numbers across a wide variety of occupations.

[13] Females accounted for 48% of SS doctoral graduates and 46% across all disciplines.

[14] The methods for calculating doctoral graduates employed in research related roles and as research staff in HE are given in the methodology chapter.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Other social sciences[15]

885 UK-domiciled doctoral graduates (24% of SS cohort), 600 respondents (68%) of which 510 entered employment in the UK (2003–2007)

'Other social sciences' contained a higher than average proportion of female doctoral graduates (58%). The percentage who had studied part-time at 43% was close to the SS average of 42%. The combined proportion of those 'entering work in the UK' and 'working and studying in the UK' (85%) was also near average (84% across all SS) (Table 2). The education sector was the most popular destination at 64%. Next was the health and social work sector (16%, the highest proportion in SS), reflecting the make up of this group of subjects (Table 3).

As with all SS subjects analysed, 'education and teaching professional' roles were the prime destination (40%) of other social sciences respondents. This was below the discipline average of 45%. The proportion of respondents specifically employed as HE lecturers (30%) was again below the SS average (34%) but well above that across all disciplines (14%). The second largest group in 'education and teaching professional' roles were FE teaching professionals.

Research roles occur across the different types of employment shown in Figure 10. Analysis of SOCs shows research occupations accounted for a total of 27% of other social sciences respondents in these subjects employed in the UK. Further analysis showed 21% of UK-employed respondents entered research staff roles in higher education[16]. Both are a little above the discipline average of 24% and 18%, respectively.

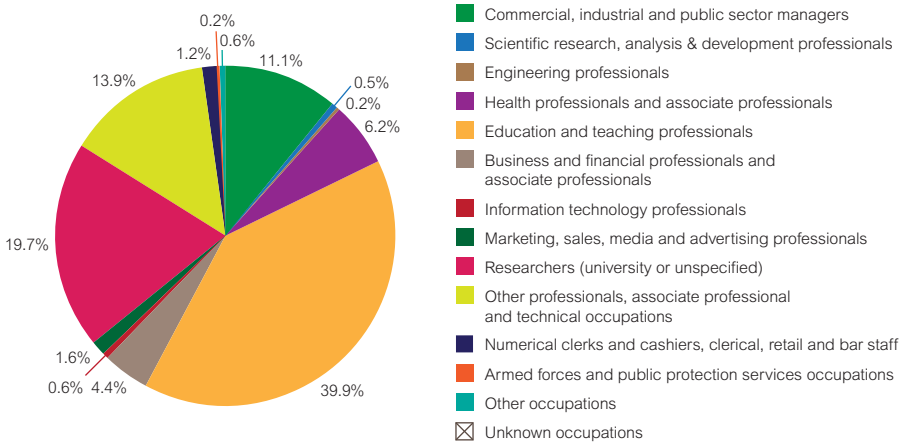

Figure 10: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in social sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

The only other group of occupations employing a significant proportion of other social science respondents was 'commercial, industrial and public sector managers' (11%), which covered a wide range of managerial occupations.

Academic studies in education

1175 UK-domiciled doctoral graduates, 855 respondents (73%) of which 740 entered employment in the UK (2003–2007)

Over 2003–2007, academic studies in education contained the highest proportion of doctoral graduates who had studied part-time (82%). Female doctoral graduates (62%) were also above the all disciplines average (46%). UK employment rates (87%) were above the average for all respondents (81%), while overseas employment or study (3%) was lower (7% across all disciplines) (Table 2). Unsurprisingly, the dominant destination was the education sector, absorbing 79% (the joint highest proportion of any subjects, with modern languages). Public administration accounted for 9%, compared with only 5% across all disciplines (Table 3).

Overall, 'education and teaching professional' roles accounted for 66% of education respondents (compared with the all disciplines average of 22%). 28% of education respondents were employed as HE lecturers, 38% in other education and teaching roles such as FE teaching professionals, secondary teachers, secondary and primary head teachers and education advisors.

10% of respondents in UK employment were 'commercial, industrial and public sector managers', compared to the all discipline average of 7%. Foremost among these were 'registrars and senior administrators of educational establishments', 'research and development managers' and 'directors and chief executives of major organisations'.

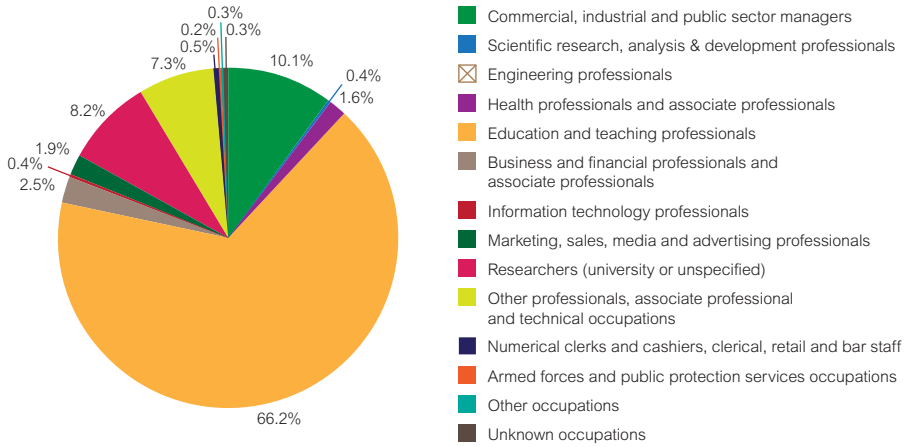

Figure 11: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in academic studies in education, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

Research roles occur across the different types of employment shown in Figure 11. Analysis of SOCs shows research occupations accounted for a total of 10% of respondents in these subjects employed in the UK. Further analysis showed 9% of UK-employed respondents entered research staff roles in higher education[16]. Both are well below the average across all respondents of 35% and 23%, respectively.

All other occupational groups in Figure 11 accounted for fewer than 10% of respondents in UK employment.

[15] Other SS subjects include catering and institutional management, land and property management, marketing and market research, psychology (without a significant element of biological science), transport, other business and administrative studies, and 'other social studies'.

[16] The methods for calculating doctoral graduates employed in research related roles and as research staff HE are given in the methodology chapter.

Methodology

This guide to the methodology used in this publication aims to facilitate comparison of institutional data against the national data[1].

'What do researchers do? First destinations of doctoral graduates by subject' (WDRDS) reports on the doctoral graduate cohort and their first employment destinations using data provided by Higher Education Statistics Agency (HESA). Employment data is collected for UK-domiciled doctoral graduates through the HESA 'Destination of Leavers from Higher Education' (DLHE) survey. The DHLE survey[2] was introduced in 2004 and each year a questionnaire is sent in January to all UK[3] and other EU-domiciled[4] doctoral researchers who graduated from UK institutions in the previous year. So, for example, the 2008 survey covered those graduating in 2007[5].

The responses to the DLHE survey enable us to comment on:

- current employment status, eg employment within the UK, unemployment, moved overseas
- first destinations at the level of broad discipline groups and larger subjects and subject groupings[6]
- first destinations broken down by gender and mode of study (part-time cf full-time)
- first destinations in terms of sector of work, eg education, manufacturing
- first destinations in terms of occupations.

The DLHE survey information does not enable us to comment on:

- 'international' doctoral graduates as national data is not collected for this cohort
- outcomes by different forms of doctorates (the survey does not distinguish, for example, professional doctorates from PhDs)
- which 'first destinations' are with new employers and which maintain employment with an existing employer
- career motivation, salary information
- longitudinal career paths of doctoral graduates[7].

Source data

The raw data come directly from the Destinations of Leavers from Higher Education Survey (DLHE) data, obtained from the Higher Education Statistics Agency (www.hesa.ac.uk).

The subset for survey response results consists of all those who responded to the survey. The subset is further refined by excluding those who were domiciled outside the UK. The data subset for employment sectors and types of work is further refined by excluding those who were working outside the UK.

Survey response categories

Entered work in the UK

Includes those listing their activity as full-time paid work, part-time paid work, voluntary or unpaid work or self-employed, in the UK.

Working and studying

Includes those listing their activity as full-time work and full-time study, full-time work and part-time study, part-time work and full-time study, and part-time work and part-time study.

Working or studying overseas

Includes those listing their activity as full-time paid work, part-time paid work, voluntary or unpaid work, self-employed, or further study overseas.

Entered study or training in the UK

Includes those listing their activity as entered study or training in the UK, and describing it as higher degree by research, higher degree-taught, diploma or certificate or professional qualification, first degree course, private study, or other study or training.

Not available for work or study

Includes those describing their employment circumstances as permanently unable to work, temporarily unable to work, retired, looking after the home or family, and taking time out in order to travel.

Believed unemployed

Includes those describing their employment circumstances as unemployed and looking for employment, further study or training, or due to start a job within the next month.

Other

Includes those describing their employment circumstances as not employed, but not looking for employment; further study or training, or something else.

General

The survey response tables (eg WDRDS Table 1, p.11) present data referring to all responding doctoral graduates domiciled within the UK.

The discipline chapters are grouped by Joint Academic Coding System (JACS) subject codes as defined below.

Responses are categorised by the reported activity and employment circumstances.

[1] This methodology was developed by Dr Charlie Ball of the Higher Education Careers Services Unit (HECSU), based on the methodology developed for the annual first degree destination publication, 'What Do Graduates Do?', produced by HECSU and the Association of Graduate Careers Advisory Services, (AGCAS).

[2] The DHLE superseded HESA's previous First Destinations Survey which was sent only to full-time UK-domiciled doctoral graduates and provided less information than DHLE.

[3] UK-domiciled are those whose normal residence is in the UK, including the Channel Islands and Isle of Man.

[4] WDRDS does not cover other EU-domiciled doctoral graduates as numbers and responses rates are too low to provide representative data.

[5] Submissions of doctoral theses and viva examinations occur throughout the year. Therefore, the resulting 'snapshot' of first destinations may record the situation of doctoral graduates anything up to 12 months after the actual completion of their degrees. However, by taking the survey at a fixed date, HESA ensures a consistent start point from which to view the data.

[6] The doctoral cohort is not large enough to support statistical analysis at subject level for individual years. Five years of data has been combined to allow statistically large enough samples to provide insights into first destinations in the larger subjects.

[7] The new DLHE longitudinal survey contacts graduates 3.5 years after the initial post graduation survey. The first full survey was undertaken early in 2009 and the analysis of this data will be the subject of a subsequent 'What do researchers do?' publication.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Subject grouping

Subjects are grouped in the discipline chapters by using the JACS codes[8] as follows:

- **biological sciences:** subjects C1–D9, excluding C8, and including J7
- **biomedical sciences:** subjects A1–B9, and C8
- **physical sciences:** subjects F0–K9, excluding J7
- **social sciences:** subjects L0–N9
- **arts and humanities:** subjects P0–W9
- **other:** refers to subjects in classes X (education) and Y (combined subjects).

Within each discipline, individual subjects and combinations of allied subjects have been selected for analysis where the UK-domiciled doctoral graduate population 2003–2007 totalled at least 250. Remaining subjects have been grouped as eg 'other biological sciences'.

The subjects/subject groupings are as follows:

- **arts and humanities:**
  - history: subjects V1 to V3
  - English: subject Q3
  - modern languages: subjects R1 to R9
  - theology: subject V6
  - linguistics and ancient and classical languages: subjects Q1, Q2 and Q4 to Q6
  - other arts and humanities: all subjects in P, Q, R, T, V and W not covered elsewhere
- **biological sciences**:
  - biology: subject C1
  - biochemistry, molecular biology and biophysics: subject C7
  - microbiology: subject C5
  - agriculture: subject D4
  - other biological sciences: all subjects in C and D not covered elsewhere
- **biomedical sciences:**
  - medicine subjects: A1 and A3
  - psychology: subject C8
  - pharmacology, toxicology and pharmacy: subject B2
  - anatomy, physiology and pathology: subject B1
  - nursing: subject B7
  - others in biomedical sciences: all subjects in A and B not covered elsewhere
- **physical sciences:**
  - chemistry: subject F1
  - physics: subject F3
  - mathematics: subject G1
  - computer science: subject G4
  - physical and terrestrial geographical and environmental sciences: subject F8
  - geology: subject F6
  - electronic and electrical engineering: subject H6
  - mechanical engineering: subject H3
  - civil engineering: subject H2
  - other physical sciences: all subjects in F and G not covered elsewhere
  - other engineering and building: all subjects in H, J and K not covered elsewhere
- **social sciences:**
  - business and management: N1 and N2
  - sociology: subject L3
  - politics: subject L2
  - economics: subject L1
  - human and social geography: subject L7
  - law: subjects M0 to M9
  - other social sciences: all in L, M and N not covered elsewhere
- **other:**
  - academic studies in education: subject X3

Employment sector breakdown

The employment sectors were broken down according to Standard Industrial Classification (SIC) codes[9].

Employment Sector Standard Industrial Classifications

Education	80
Finance, business and IT	64-67, 72, 74
Health and social work	85
Manufacturing	11, 15, 16, 20, 22-27, 29, 30-36, 40, 41, 73
Public administration	75
Other sectors	1, 2, 5, 45, 51, 52, 55, 60, 62, 63, 70, 71, 91, 92, 99, and unknown

[8] For the full JACS coding go to www.hesa.ac.uk/jacs/jacs.htm

[9] For the full SIC codes go to www.hesa.ac.uk/manuals/04018/04018a02.htm

Types of work

The 'type of work' categories are built from the Standard Occupational Classification (SOC) codes[10] as follows:

Marketing, sales, media, and advertising occupations	341-344, 354
Commercial, industrial and public sector managers	111-116, 118, 121-123, 23170, 411
Scientific research, analysis and development occupations	211, 23210
Engineering professionals	212
Health professionals and associate professionals	22110-22113, 22122[11], 22130-22160, 321, 322
Teaching professionals	23111-23160, 23190-23194
Business and finance professionals	242, 353, 356
Information technology professionals	213, 313
Other professional, associate professional and technical occupations	22120-22121, 22123, 23220, 23290-23292, 241, 243-245, 311, 312, 323, 351, 352, 355
Numerical clerks and cashiers, clerical, retail and bar staff	412-415, 421, 711, 922
Armed forces and public protection service occupation	117, 331, 942
Other occupations	511-629, 712-921, 923, 925
Unknown occupations	No assigned SOC

Research staff in higher education

One of the primary destinations of doctoral graduates is employment as research staff in HE. However, such researchers are not explicitly identified in the dataset. They have been identified in WDRDS by cross-referencing available information on industrial (SIC) and occupational (SOC) classifications. The total number of first destination HE research staff were identified in the data by the total of all doctoral graduates working in SIC 8030 (Higher Education)[12] who were also classified in the following SOCs:

21110 Chemists
21111 Research/development chemists
21120 Biological scientists and biochemists
21121 Biochemists, medical scientists
21122 Biologists
21124 Botanists
21126 Agricultural scientists
21127 Physiologists
21130 Physicists, geologists and meteorologists
21131 Physicists
21133 Geologists, mineralogists etc
21134 Meteorologists
21135 Astronomers
21136 Mathematicians
21210 Civil engineers
21220 Mechanical engineers
21221 Aeronautical engineers
21230 Electrical engineers
21240 Electronic engineers
21242 Avionics, radar and communications engineers
21250 Chemical engineers
21260 Design and development engineers
21290 Engineering professionals (not classified elsewhere)
21291 Metallurgists and material scientists
213 Information and communication technology professionals
22120 Psychologists
22121 Education psychologists
22122 Clinical psychologists
22131 Pharmacists
22132 Pharmacologists
23210 Scientific researchers
23220 Social science researchers
23290 Researchers (not classified elsewhere)
23292 Researchers (university - unspecified discipline)

Doctoral graduates employed in research roles across all sectors were derived from all those employed and giving their jobs as SOC codes 211 and 232.

[10] Data in WDRDS were built from a customised dataset: SOCs are at three digit level except where explicitly stated. For the full SOC listing go to www.hesa.ac.uk/manuals/03018/03018a04.htm

[11] In the 'What Do PhDs Do?' series (2004, 2006, 2007) UK GRAD Programme, 22122 clinical psychologists were classified under 'Other professional, associate professional and technical occupations'.

[12] This is a refinement of the methodology used in the 'What do PhDs Do?' series (2004, 2006, 2007) UK GRAD Programme, where it was only possible to cross-reference by SIC 80, (all) Education.

Data source: Graduate Prospects using DLHE surveys 2004, 2005, 2006, 2007, 2008 (© HESA)

Resources and publications

This page brings together useful resources such as reports and research studies on the careers of researchers, their employability, and UK Government and European policy relating to researcher careers[1].

Careers of doctoral graduates in the UK

'PhD study: Trends and profiles, 1996-97 to 2004-05' (2009), HEFCE
www.hefce.ac.uk/pubs/hefce/2009/09_04/

'Higher Degrees: Postgraduate Study in the UK 2000/01 to 2005/06' (2008), HECSU
www.hecsu.ac.uk/hecsu.rd/research_reports_284.htm

'What Do PhDs Do?' (2004)
www.vitae.ac.uk/CMS/files/1.UKGRAD-WDPD-full-report-Sep-2004.pdf

'What Do PhDs Do? – A Regional Analysis' (2006)
www.vitae.ac.uk/cms/files/UKGRAD-WDPD-regional-analysis-Sep-2006.pdf

'What Do PhDs Do? – Trends' (2007)
http://www.vitae.ac.uk/policy-practice/14772/What-Do-PhDs-Do-Trends.html

'What do researchers do? Career profiles of doctorate graduates' Vitae
www.vitae.ac.uk:80/careersstories

Discipline-specific career studies (UK and US)

Arts & humanities

'Career Path Study of PhD students' (2006), DTZ Consulting, Arts and Humanities Research Council
www.ahrc.ac.uk/images/PhD_Report.pdf

'PhDs in Art History: Over a Decade Later' (2003), Sadrozinski, Nerad and Cerny, University of Washington
http://depts.washington.edu/coe/cirge/html/arthistory.html

'Doctoral Futures: Career Destinations of Arts and Humanities Research Students' (2002) A copy can be obtained from cihe@btinternet.com

'From Rumors to Facts: Career Outcomes of English PhDs' (1999), Nerad and Cerny,
http://depts.washington.edu/coe/cirge/pdfs%20for%20web/rumors_to_facts.pdf

Biomedical and biological sciences

'Annual survey of UK biochemistry graduate employment' (2003), Biochemical Society
www.biochemsoc.org.uk/education/survey/default.htm

'Career paths of a 1988-1990 Prize Student Cohort' (2000), The Wellcome Trust
www.wellcome.ac.uk/assets/wtd003201.pdf

Physical sciences and engineering

'A Fifteen Year Longitudinal Career Path Study of PPARC PhD Students' (2003) and 'A Study of the Career Paths of PPARC PhD Students' (2003), DTZ Pieda Consulting/PPARC (now Science and Technology Facilities Council)
www.so.stfc.ac.uk/publications/publorderform.aspx#PG

'Employers' Views of Postgraduate Physicists' (2001), Jagger, Davis, Lain, Sinclair E and Sinclair T, IES/EPSRC
www.employment-studies.co.uk/pdflibrary/1417phys.pdf

'Postgraduate Career Progression a survey of former SERC funded postgraduates' (2000), Whitfield, National Centre for Social Research/ESPRC. It can be purchased at Natcen
www.natcen.ac.uk/natcen/pages/op_educationandskills.htm

Social sciences

'The Employment of social science PhDs in academic and non-academic jobs: research skills and postgraduate training' (May 2006), Purcell and Elias, ESRC
www.esrcsocietytoday.ac.uk/ESRCInfoCentre/Images/employment_of_soc_sci_phds_tcm6-15385.pdf

'Career Paths and Training Needs of Social Anthropology Research Students' (2005), Spencer, Mills and Jepson
www.theasa.org/news/careers_research.doc

'The Social Science PhDs - Five Years Out Survey' (2004), Nerad, CIRGE
http://depts.washington.edu/coe/cirge/html/ford.html

'Career Outcomes of Political Science PhD Recipients' (2003), Nerad, CIRGE,
http://depts.washington.edu/cirgeweb/c/publications/260/

Employability of doctoral graduates in the UK

'Employers' briefing: Targeting the postgraduate and researcher market' (2009) Vitae, AGCAS and AGR
www.vitae.ac.uk/CMS/files/upload/Employers%20Briefing_8pp_A4.pdf

'Employers' views of researchers' skills' (2007) Rugby Team/UK GRAD Programme
www.vitae.ac.uk/cms/files/Rugby-Team-Employers-views-of-researchers-skills-September-2007.pdf

'Recruiting PhDs: What works?' (2007), Jackson, UK GRAD Programme
www.vitae.ac.uk/cms/files/UKGRAD-Recruiting-PhDs-what-works-Mar-2007.pdf

'Employability and doctoral research postgraduates' (2006), Metcalfe and Gray, HEA
www.vitae.ac.uk/cms/files/HEA-ESECT-Employability-postgraduate-researchers-October-2006.pdf

'Survey of employer attitudes to postgraduate researchers' (2006), McCarthy and Simm, University of Sheffield
www.careers.dept.shef.ac.uk/pdf/employersurvey.pdf

'Survey into the career motivations and expectations of doctoral researchers' (2006) UK GRAD Programme
www.vitae.ac.uk/CMS/files/upload/career expectations survey.pdf

'EMPRESS: Employers' Perceptions of Recruiting Research Staff and Students' (2005), Souter, University of Leeds Careers Centre
http://careerweb.leeds.ac.uk/downloads/Empress_LR.pdf

'Higher Degrees of Freedom: The Value of Postgraduate Study' (2004) Institute for Employment Studies
www.employment-studies.co.uk/pubs/report.php?id=410

UK policy reviews

The Vitae website has a comprehensive policy section dedicated to UK policy relating to researchers and their professional development
www.vitae.ac.uk/policy-practice/1398/UK-policy.html

'Pathways to the future: the early career of researchers in the UK. A report by the Council for Science and Technology' London (2007) Council for Science and Technology
www.cst.gov.uk/cst/reports/#Pathways

'Leitch Review of skills' (2006)
www.hm-treasury.gov.uk/media/6/4/leitch_finalreport051206.pdf

'Increasing the Economic impact of the Research Councils - The Warry Report' (2006)
www.berr.gov.uk/files/file32802.pdf

'Code of practice for the assurance of academic quality and standards in higher education' (2004)
www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section2/default.asp

'Lambert Review of Business-University Collaboration' (2003), Sir Richard Lambert, HM Treasury
www.hmtreasury.gov.uk/consultations_and_legislation/lambert/consult_lambert_index.cfm

'SET for Success: the supply of people with science, technology, engineering and mathematics skills' (2002) Sir Gareth Roberts' Review, HM Treasury
www.hmtreasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

'Joint Statement of the UK Research Councils' Training Requirements for Research' Students (2001)
www.vitae.ac.uk/cms/files/RCUK-Joint-Skills-Statement-2001.pdf

International studies and policy reports

Summary of European policy developments and initiatives
www.vitae.ac.uk/policy-practice/1703/Initiatives.html

'Towards an open and competitive European area for research careers: Some basic findings from the Max Weber Programme Academic Careers Observatory' (2008) European University Institute
www.iue.it/MaxWeberProgramme/AcademicCareers/ACOdocument2008.pdf

'Labour market characteristics and international mobility of doctorate holders: results for seven countries' (2007) OECD
www.vitae.ac.uk/cms/files/OECD-Careers-Doctorate-Holders-first-data-7-countries-Feb-2007.pdf

'Researchers in the European Research Area' (2007) Bryony Gill and Louise Ackers
www.resistresearch.net/cms/site/docs/WP2_Researchers%20in%20the%20ERA_submission%20Final.pdf

Lisbon Strategy (2000)
www.vitae.ac.uk/policy-practice/2674/Lisbon-strategy.html

The European Research Area (part of the Lisbon strategy)
www.vitae.ac.uk/policy-practice/1707/European-Research-Area.html

The Bologna Process (started in 1999)
www.vitae.ac.uk/policy-practice/1705/Bologna-Process.html

Other career-related resources

The careers section on the Vitae researchers' portal is a comprehensive web-based resource for researchers looking to develop their careers
www.vitae.ac.uk/1270/Careers.html

It includes links to many other sources of online careers support
www.vitae.ac.uk/1679/Websites.html

Vitae also has an expanding number of resources for those supporting the career development of researchers
www.vitae.ac.uk/policy-practice/1392/Resources.html

Higher education institutions have websites with very useful resources to support the career development of their researchers, for example through university careers services, staff development units and graduate schools

Individual HEI careers services can be accessed through the Association of Graduate Careers Advisory Services (AGCAS)
www.agcas.org.uk/people/regional_groups_of_member_services

Many professional and learned societies also offer careers support to researchers

'Beyond the PhD' A career resource for arts and humanities PhD researchers
www.beyondthephd.co.uk

[1] All links were retrieved May 2009.

Incorporating the UK GRAD Programme and UKHERD

Vitae builds on previous work by the UK GRAD Programme and UKHERD. Vitae is supported by Research Councils UK (RCUK), managed by CRAC: The Career Development Organisation and delivered in partnership with regional Hub host universities.

The role of Vitae is to work with UK higher education institutions (HEIs) to embed professional and career development in the research environment. Vitae plays a major role in innovating, sharing practice and enhancing the capability of the higher education sector to provide professional development and training of researchers.

Our vision is for the UK to be world-class in supporting the personal, professional and career development of researchers.

To achieve our vision we have four aims:

- championing the development and implementation of effective policy
- enhancing higher education provision through sharing practice and resources
- providing access to development opportunities and resources
- building an evidence base to support the researcher development agenda.

For further information about the range of Vitae activities go to www.vitae.ac.uk or contact enquiries@vitae.ac.uk

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