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.

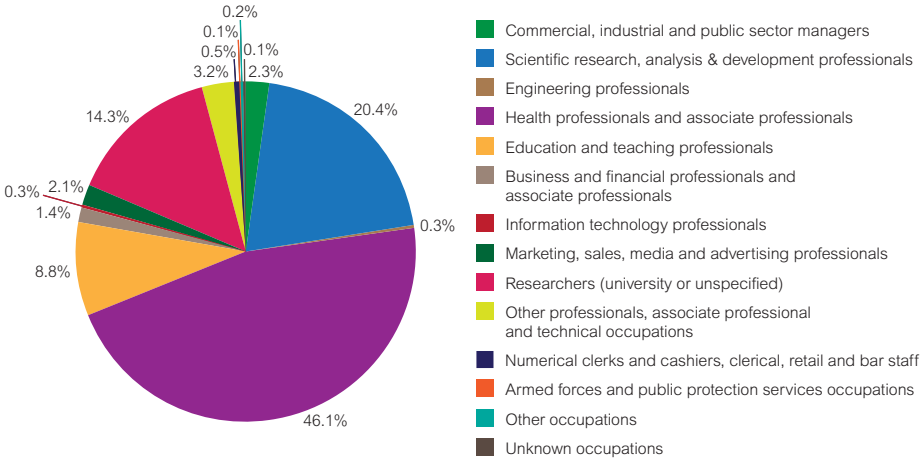

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in clinical and pre-clinical medicine, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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.

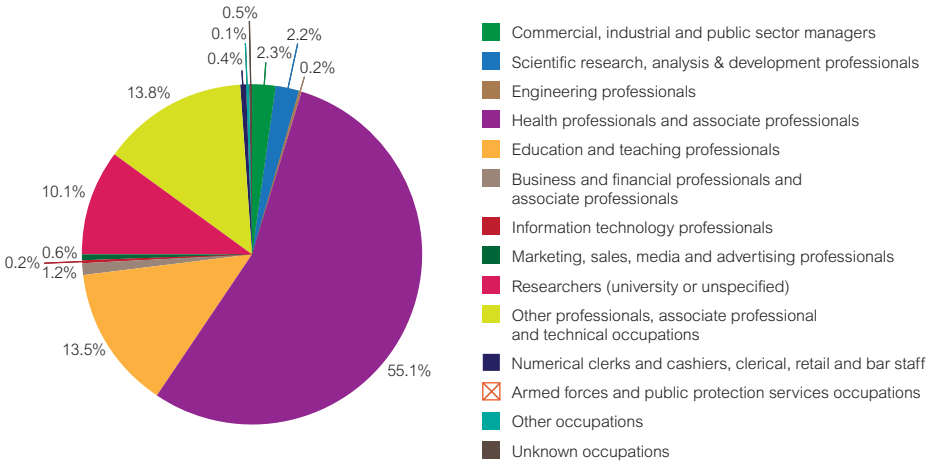

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in psychology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[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.

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

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.

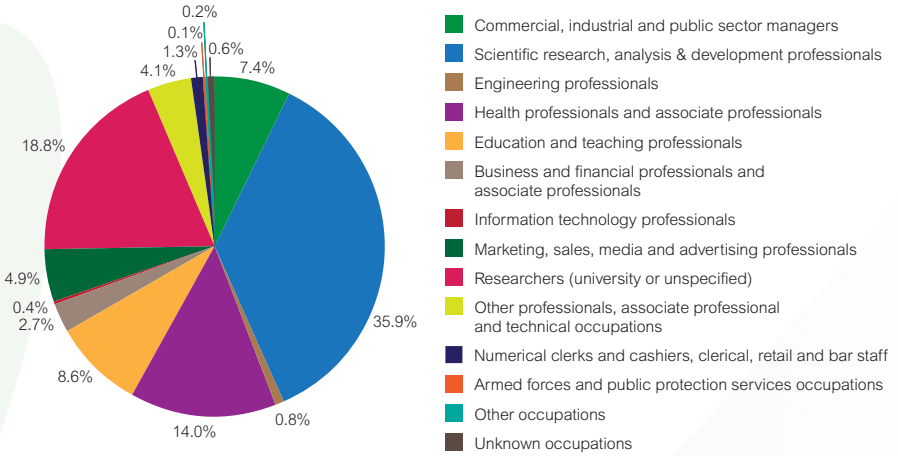

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in pharmacology, toxicology and pharmacy, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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).

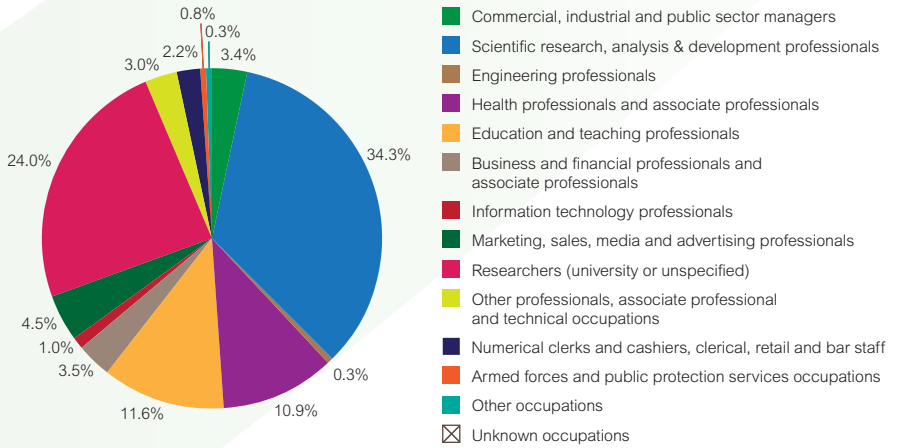

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in anatomy, physiology and pathology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

'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%).

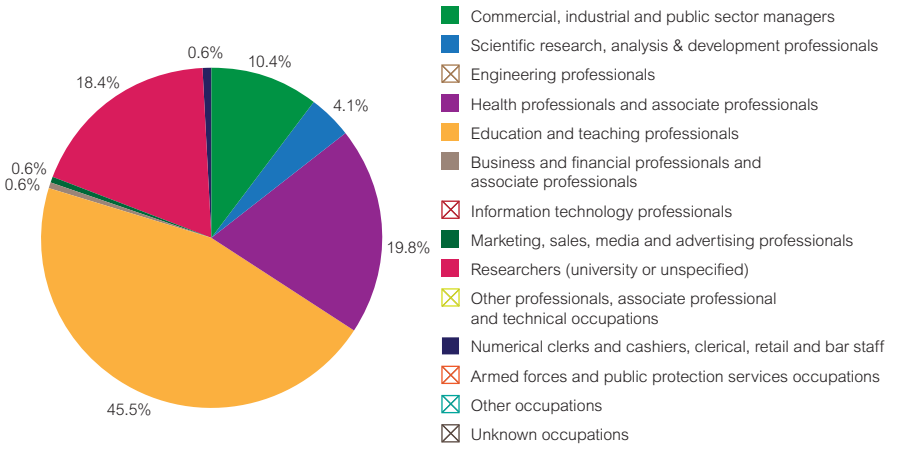

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in nursing, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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%).

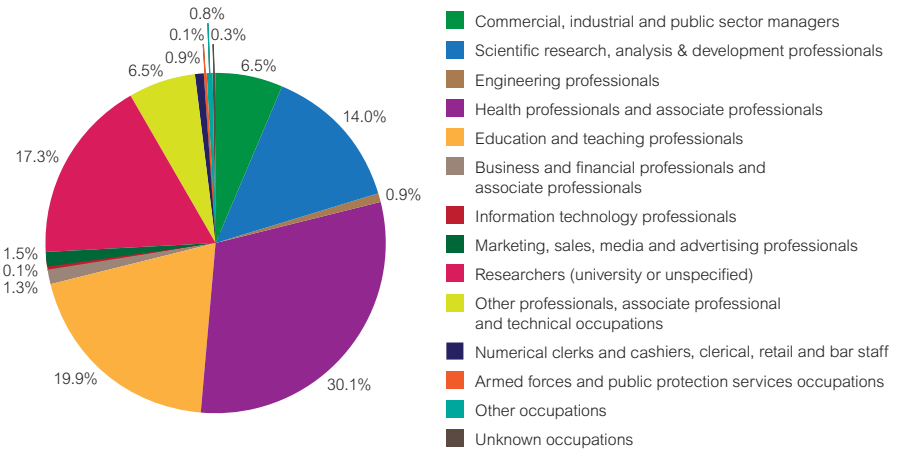

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in other subjects in biomedical sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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].

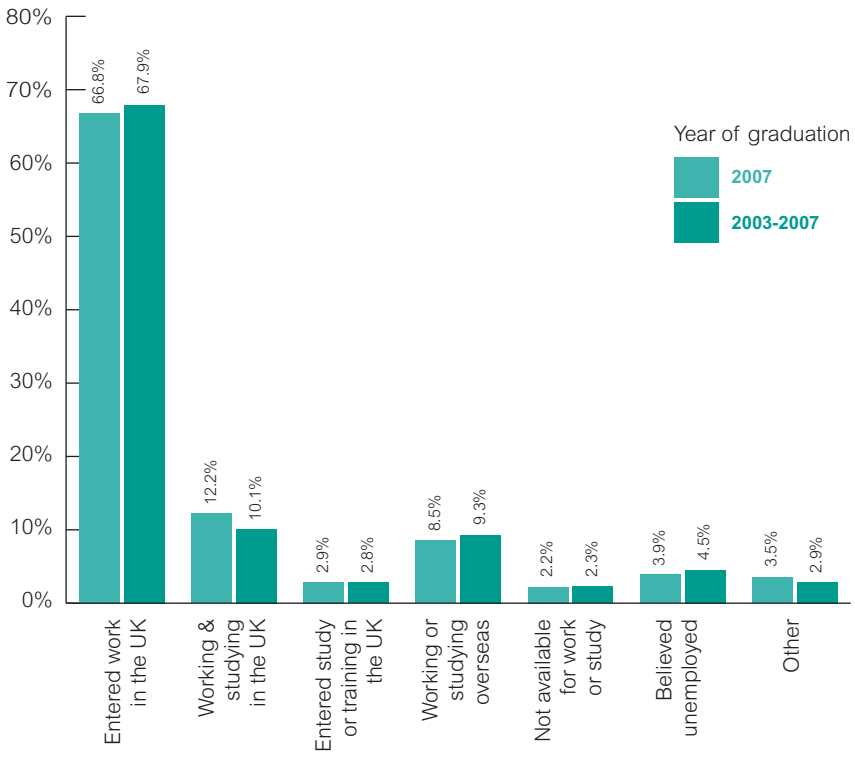

Figure 1: Employment circumstances of UK-domiciled PS&E doctoral graduate respondents: 2007 and 2003–2007 comparison

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.

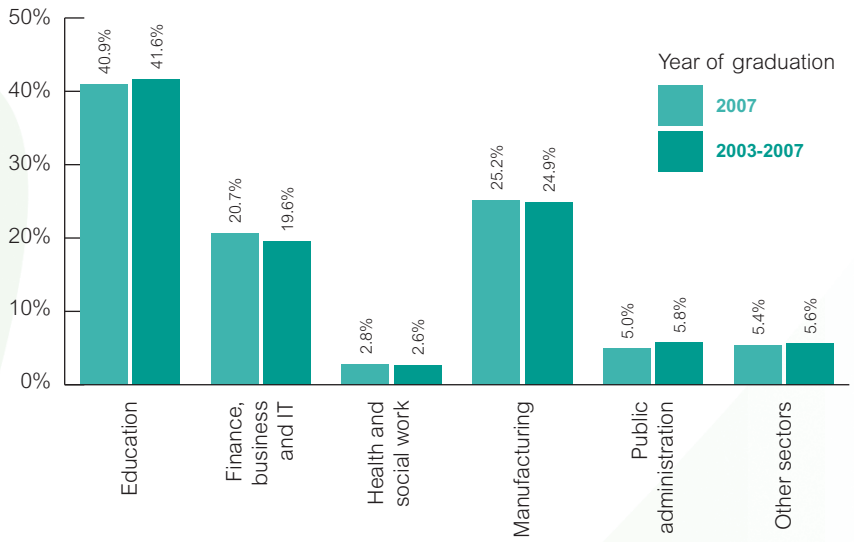

Figure 2: Employment sectors entered by UK-domiciled PS&E respondents working in the UK, based on Standard Industrial Classifications (SIC): 2007 and 2003–2007 comparison

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.

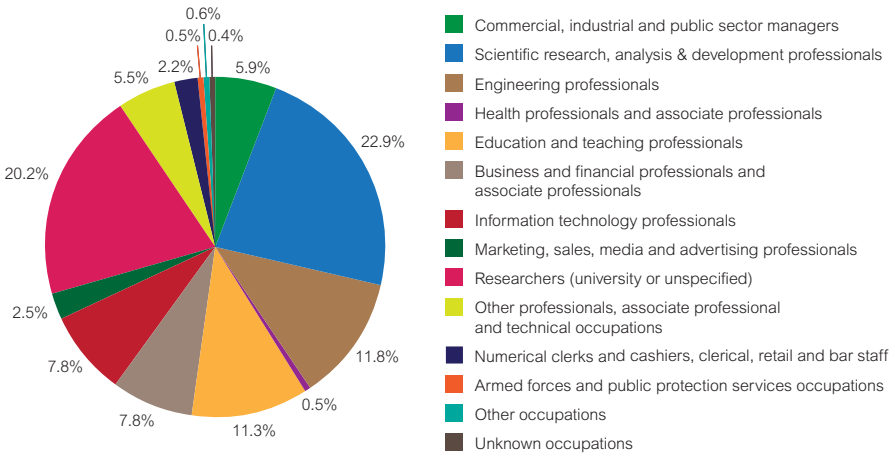

Figure 3: Types of work entered by UK-domiciled PS&E doctoral graduates (2007), based on Standard Occupational Classifications (SOC) returned in the DLHE surveys[6]

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.

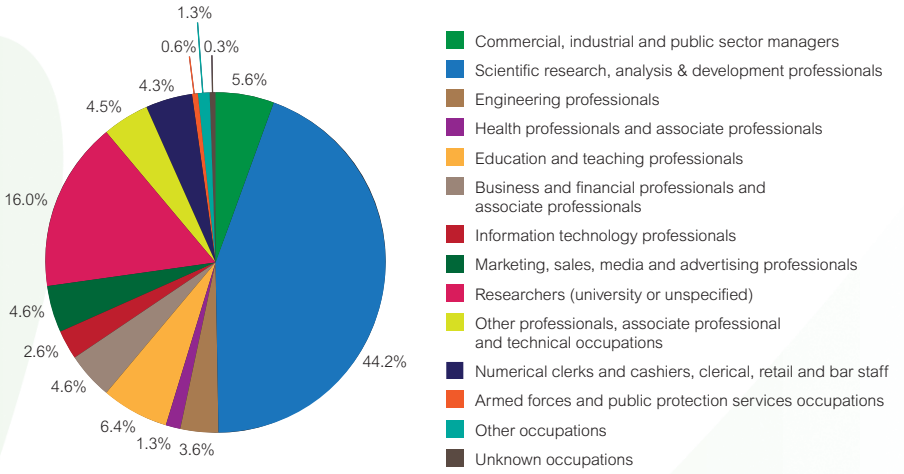

Figure 4: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in chemistry, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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.

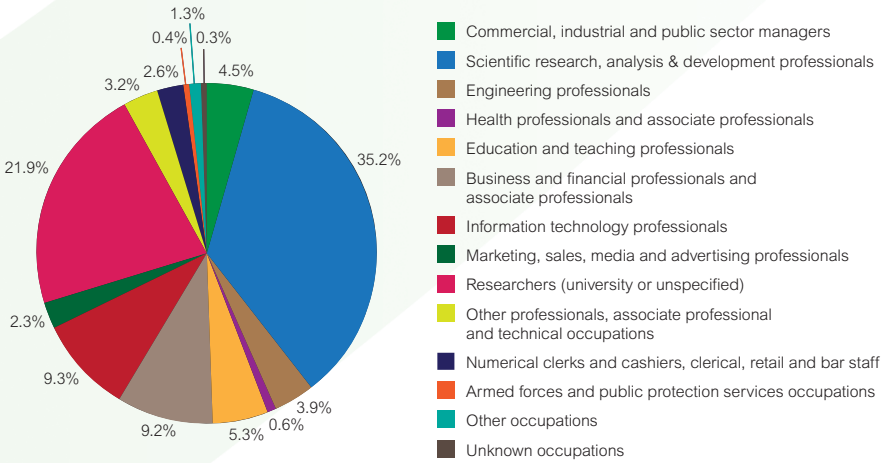

Figure 5: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in physics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[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].

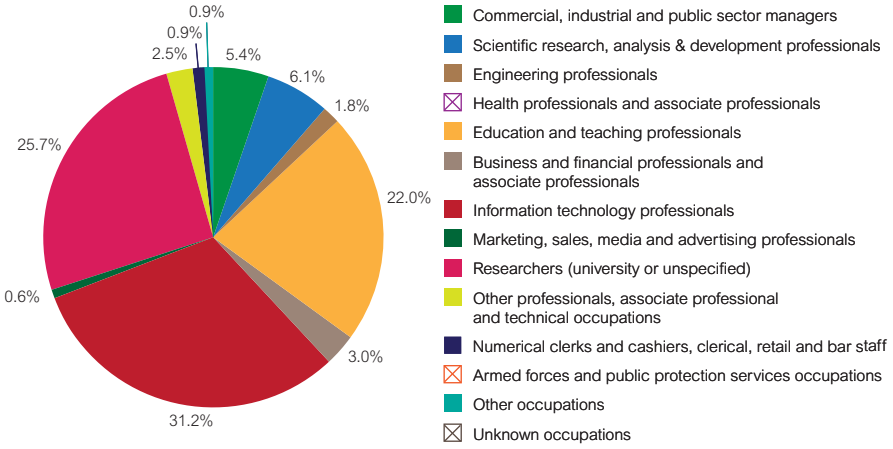

Figure 6: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in computer science, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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].

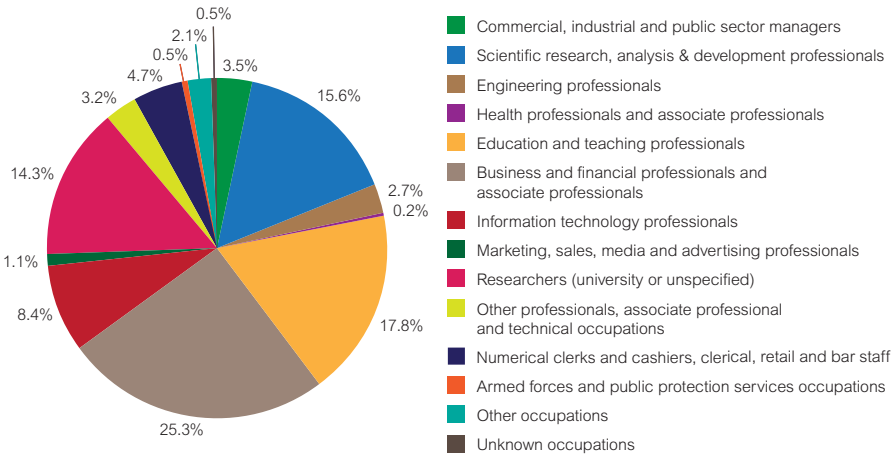

Figure 7: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in mathematics, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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.

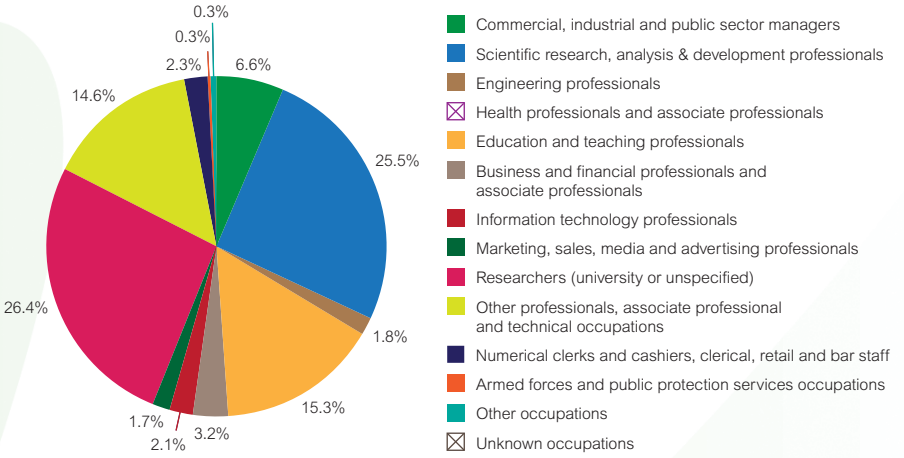

Figure 8: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in physical and terrestrial geographical and environmental sciences, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

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%).

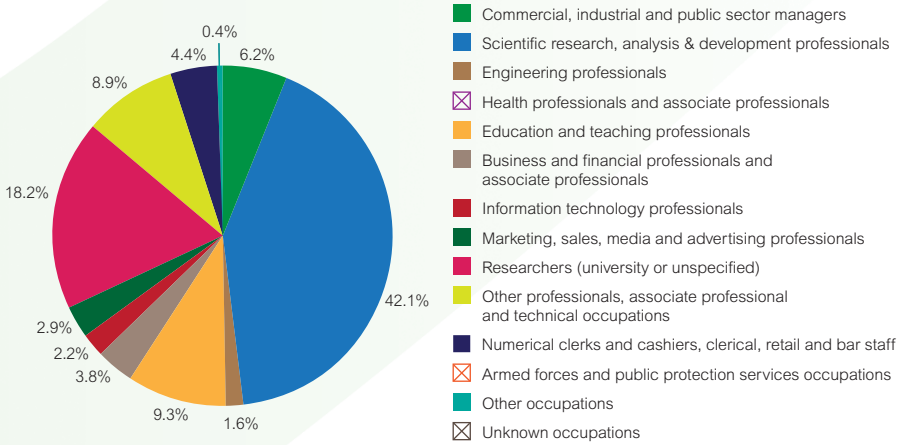

Figure 9: Types of work entered into by UK-domiciled respondents employed in the UK, graduating in 2003–2007 in geology, based on Standard Occupational Classifications (SOC) returned in the DLHE surveys

[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)