

Yorkshire and the Humber

Yorkshire and the Humber produced 9.6% of UK-domiciled PhD graduates and employed 5.6% of the UK PhD workforce in the DLHE survey. The region was one of the less popular for mobile PhD graduates. When compared to the national averages, PhD graduates from Yorkshire and the Humber universities had slightly higher unemployment rates and were slightly less likely to gain work outside the UK. Just under half remained in Yorkshire and the Humber for work.

Key statistics:

The 695¹ UK-domiciled PhD graduates from institutions in Yorkshire and the Humber made up 9.6% of the UK total:

- 55% were male and 45% female, identical to the UK average
- 26% studied part-time, consistent with the UK average of 27%
- The most popular subjects were chemistry, psychology, medicine and education.

Of the 375 (54%) who responded to the 2004 DLHE² survey:

- 81.5% entered employment in the UK³
- 3.8% were unemployed, higher than the UK average of 3.2%
- 6.2% continued their careers overseas compared to 8.1% across the UK.

Of the 305 PhD graduates from universities in Yorkshire and the Humber who entered employment in the UK:

- 50% entered the education sector, predominantly in higher education
- 14.8% were employed in manufacturing and 13.5% in the health sector
- 52% remained in the region and 48% moved to other regions of the UK.

Yorkshire and the Humber employed 245 (5.6%) of the UK-domiciled PhD graduate workforce:

- 68% of these gained their PhD at institutions in the region
- 32% moved to Yorkshire and the Humber from other regions of the UK
- 61.5% were employed in the education sector: 50% as postdoctoral researchers; 33% in university teaching roles, primarily as lecturers
- 31% of all PhD graduates working in Yorkshire and the Humber were employed as postdoctoral researchers.

Yorkshire and the Humber was a net exporter (-28.4%) of UK-domiciled PhD graduates:

- PhD graduates who left Yorkshire and the Humber for work were most likely to move to the North West, East Midlands, the South East and London
- Yorkshire and the Humber attracted 5% of the UK-domiciled PhD graduates who left their region of study for known UK locations
- PhD graduates moving to the region were most likely to come from the North West, East Midlands and East of England and work in the education (61%) or manufacturing (18%) sector.

Overview of Yorkshire and the Humber higher education institutions⁴

There are eight universities and two higher education colleges in Yorkshire and the Humber. The higher education population in these institutions was around 140,000 full-time equivalent (FTE) students in 2003/04. The largest institution in the region was the University of Leeds with over 27,000 student FTEs.

Within Yorkshire and the Humber, 4% of students were registered for postgraduate research degrees, predominantly at the institutions with a substantial research income: the Universities of Sheffield and Leeds, which dominate the region in terms of research income, York, Bradford and Hull (see Table One).

Higher education institution	Final year PhD numbers
The University of Sheffield	445
The University of Leeds	435
The University of York	155
The University of Hull	125
The University of Bradford	90
Sheffield Hallam University	45
The University of Huddersfield	35
Leeds Metropolitan University	10
York St John College	10
Total	1350

Table One: Final year PhD researchers by HEI in Yorkshire and the Humber⁵

The research strengths of universities in Yorkshire and the Humber are reflected in Figure One, derived from the results of the 2001 Research Assessment Exercise (RAE)⁶. Further analysis of the RAE results shows that 68% of submissions from the region's institutions were rated at 4 or above, with 43% scoring the highest ratings of 5 and 5* – the fourth highest proportion of any UK region. These top rated departments were across the subject spectrum indicating the broad range of research expertise in the region, with particular strengths in the physical sciences.

¹ All figures are rounded to the nearest five for data protection

² Destination of Leavers from Higher Education – a survey of all UK and EU first and higher degree graduates

³ 74% are classified as 'working in the UK'; 7.5% are 'working and studying in the UK'. The data throughout WDPDR on employment includes both classifications

⁴ HEFCE 2004 Regional Profiles: Yorkshire and the Humber

⁵ These figures were derived from the HESA student record data for those who were scheduled to complete their enrolment period in 2002/03. They include international PhD researchers who were not included in the DLHE survey. See www.hesa.ac.uk/pi/0203/research.htm

⁶ Data set available at www.hero.ac.uk/rae/Results

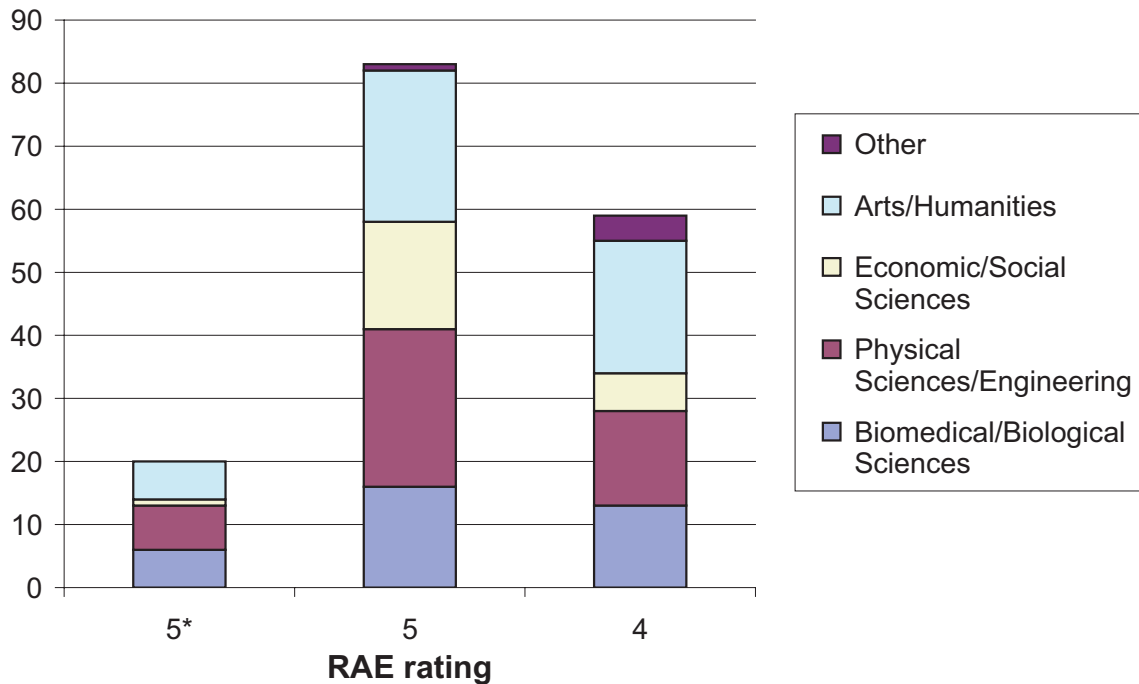


Figure One: Research subjects of top graded RAE submissions in Yorkshire and the Humber

Economic strengths

Manufacturing accounts for almost 18% of the region’s employment, compared to a figure of 14% across England, but traditional industries, such as coal mining, textiles and steel, have declined. Conversely, financial and call-centre based service industries have grown. Unemployment in Yorkshire and the Humber stands at 5%⁷, in-line with the English average of 4.8%.

Yorkshire Forward, the region’s Regional Development Agency, puts research at the heart of its economic strategy⁸, seeing the potential of universities to drive forward development activities. It describes them as “businesses in their own right, engines of technology transfer to stimulate research and development in businesses, catalysts of new business start-ups, magnets for inward investment, significant employers and trainers of people from local economies and producers of graduates and intellectual capital”. In addition to developing and strengthening the links between the HEIs and other sectors in the region, specific high-technology industries have also been identified, which include advanced engineering and metals, bioscience, chemicals, digital industries and food and drink (including agriculture).

When compared to other UK regions, research in Yorkshire and the Humber is behind other regions. Its levels of research and development (R&D) expenditure are amongst the lowest of

any UK region. The Business Enterprise R&D Survey, conducted by the Office of National Statistics⁹, reported that in 2002, the gross domestic expenditure on R&D, as a percentage of Total Gross Value Added, was 1.1% for Yorkshire and the Humber, compared to 2.0% for the UK as a whole.

Profile of PhD graduates from Yorkshire and the Humber

Of the 7270 UK-domiciled PhDs who graduated in the UK in 2003, 9.6% (695) graduated from higher education institutions (HEIs) in Yorkshire and the Humber. Of these PhD graduates, 45% were female and 55% male, giving Yorkshire and the Humber the same proportion of female doctoral graduates as the UK average. Part time study was slightly less common in Yorkshire and the Humber than in other regions, accounting for 26% of degrees awarded, compared to the UK average of 27%.

Figure Two shows the breakdown of PhD graduates from the region by subject groups: similar figures to the UK averages. More PhD graduates from universities in Yorkshire and the Humber came from the biosciences (13.6% compared to 12.4% across the UK), social sciences (14.3% compared to 11.1% across the UK). Slightly fewer came from the arts and humanities (11.4% compared to 13.7%) and the medical sciences (23.6% compared to 26.9%), with an almost identical proportion in the physical sciences (32.1% compared to 32%).

⁷ HEFCE 2004 Regional Profiles: Yorkshire and the Humber

⁸ The Regional Economic Strategy is available from www.yorkshire-forward.com/

⁹ www.statistics.gov.uk/; also useful is “Regional Competitiveness and State of the Regions” by Mukund Lad at www.dtistats.net/sd/rci/

Yorkshire & The Humber

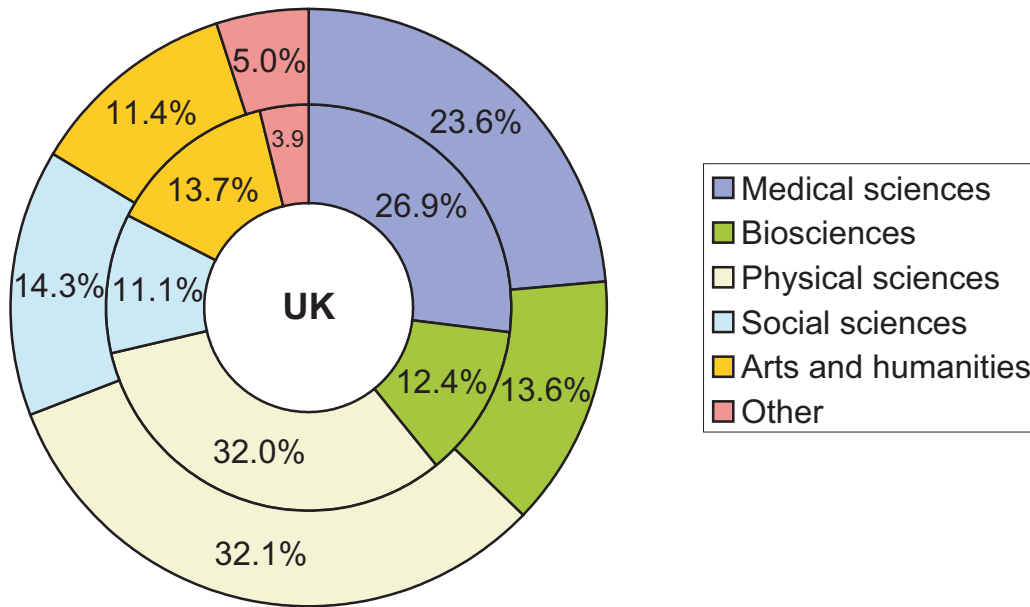


Figure Two: Subject groups of UK-domiciled PhD graduates from Yorkshire and the Humber HEIs (outer ring) compared to all UK HEIs (inner ring) in 2003

The list of 'top ten' subjects for PhD graduates from Yorkshire and the Humber (Table Two) shows little consistency with the UK figures. The same subjects of chemistry, psychology and medicine are in the top three, although in a different order. Five subjects appear in the table for Yorkshire and the Humber, which do not appear in the UK chart: business studies, civil, mechanical, electronic and electrical engineering, and subjects allied to medicine. Many of the actual proportions are low, indicating that there is a wide spread of subjects in the region.

Subject and ranking	Yorkshire and the Humber	Total (and position) in UK
1. Chemistry	6.2%	7.7% (2)
2. Psychology	3.7%	7.6% (3)
3. Clinical Medicine	3.5%	8.2% (1)
4. Academic studies in education	2.7%	3.1% (6)
5. Biology	2.5%	5.2% (4)
6. Molecular biology, biophysics and biochemistry	2.2%	2.5% (9)
7. Business studies	2.2%	2.1% (14)
8. Civil engineering	1.7%	1.2% (23)
9. Mechanical engineering	1.7%	2.0% (16)
10. Others in subjects allied to medicine	1.6%	1.8% (18)
10. Electronic and electrical engineering	1.6%	2.1% (11)

Table Two: Top subjects studied by PhD graduates in Yorkshire and the Humber HEIs compared to the UK figures

What do PhDs from Yorkshire and the Humber do?¹⁰

Of the 695 UK-domiciled PhD graduates in 2003 from Yorkshire and the Humber HEIs eligible for the 2004 survey, 375 responded. At 54%, this is the lowest response rate of any region, well below the UK average 66%.

Figure Three summarises the responses to the DLHE survey. 74% of UK-domiciled PhD graduates from Yorkshire and the Humber institutions had entered the workplace when the survey was conducted, consistent with UK figure of 72.7%. A further 7.5% were engaged in work and study simultaneously – slightly lower than the UK average of 8%. Fewer PhD graduates moved overseas (6.2%) than for the UK as a whole (8.1%). At 3.8%, the unemployment rate for UK-domiciled PhD graduates from institutions in the region was slightly higher than the UK average of 3.2%.

¹⁰ The data in this section refers to PhD graduates from Yorkshire and the Humber HEIs who were working in all regions of the UK

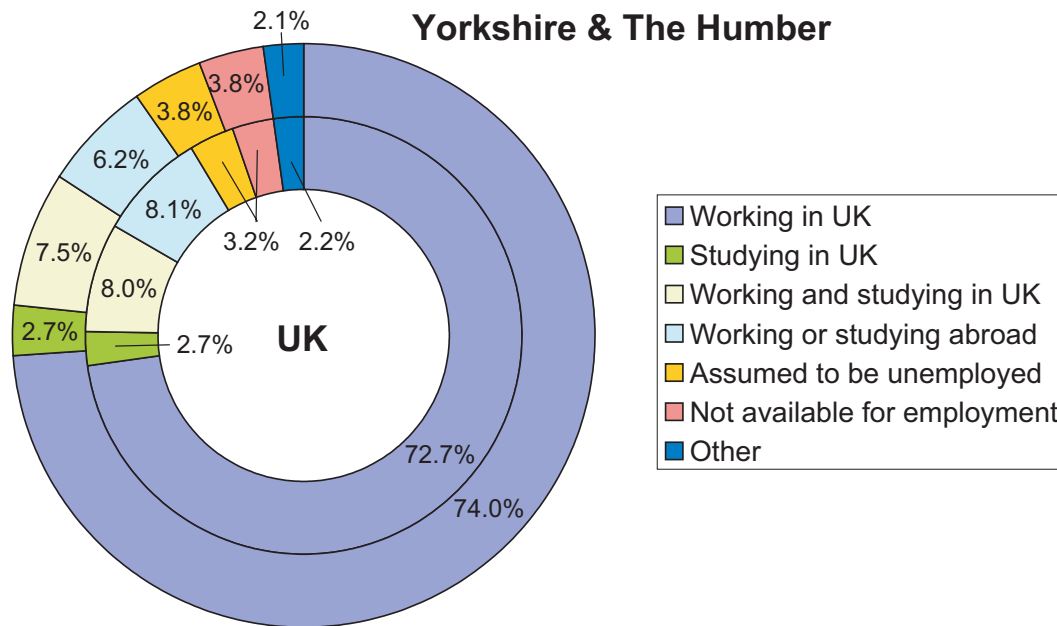


Figure Three: First destinations of UK-domiciled PhD graduates for all subjects from HEIs in Yorkshire and the Humber (outer ring) compared to all UK HEIs (inner ring) from 2004 DLHE survey responses

Employment sectors

The 81.5% of PhD graduates from Yorkshire and the Humber HEIs working or working and studying in the UK were employed in a range of sectors across the UK. Consistent with the UK average (47.8%), the education sector was the dominant destination, employing 50%, predominantly in higher education.

The balance (50%) were employed in a range of occupations across all sectors, although as Figure Four illustrates, the breakdown of employers was similar to the UK average figures.

Manufacturing industries employed 14.8% of Yorkshire and the Humber PhD graduates, slightly less than the 16.3% employed in the sector across the UK. 64% of these PhD graduates were employed in the chemical and pharmaceutical industries, accounting for 9.5% of all Yorkshire and the Humber UK-domiciled PhD graduates (compared to a national proportion of 11%).

The health service employed fewer PhD graduates from this region's universities (13.5% compared to 15.5% across the UK). Slightly greater numbers were employed by business, finance and IT industries and in the public sector. Assorted other industrial sectors accounted for the remaining 4.3% of PhD graduates.

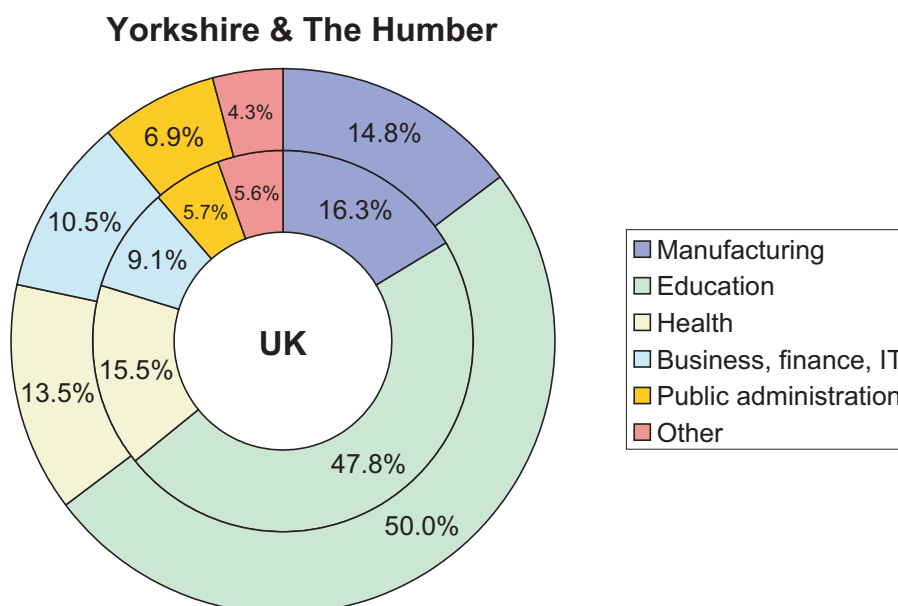


Figure Four: Employment sectors entered by UK-domiciled doctoral graduates from Yorkshire and the Humber HEIs (outer ring) compared to all UK HEIs (inner ring), based on Standard Industrial Classifications returned in 2004 DLHE survey

Career occupations

We examined the specific occupations entered by PhD graduates from Yorkshire and the Humber institutions. Although the previous employment sector analysis was similar to the UK as a whole, stronger variations emerge in the actual occupations of PhD graduates (Figure Five).

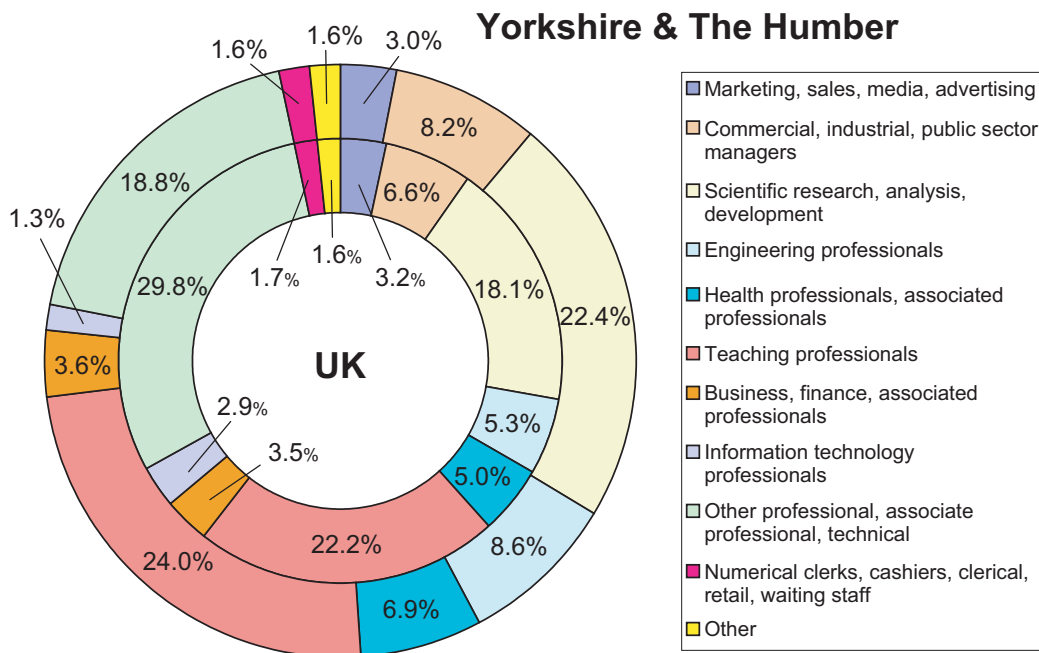


Figure Five: Types of work entered by UK-domiciled PhD graduates from HEIs in Yorkshire and the Humber (outer ring) compared to all UK institutions (inner ring), based on Standard Occupational Classifications returned in 2004 DLHE survey

The 'other professionals' classification (18.8%), which includes postdoctoral researchers¹¹, accounts for a significantly lower proportion of PhD graduates from the region entering employment compared with the UK average (29.8%). At first sight, this appears to indicate that significantly less PhD graduates from Yorkshire and the Humber were employed in postdoctoral positions than the UK average. However, the proportion of UK-domiciled PhD graduates working in scientific research, analysis and development was higher for Yorkshire and the Humber (22.4%) compared to the UK average (18.1%). As the manufacturing sector employed a lower percentage of PhD graduates from the region than the UK average, this is unlikely to account for the difference. On further examination, this category also included the coding of some scientists who were working in academic laboratories. The engineering professionals classification also included some postdoctoral researchers in named engineering specialisms within academia. Overall the percentage of PhD graduates from Yorkshire and the Humber going into postdoctoral positions across the UK is slightly higher than average at 23% compared to the UK average of 22%.

Migration

We examined the migration patterns of UK-domiciled PhD graduates from Yorkshire and the Humber's HEIs who were in employment at the time of the survey (Figure Six).

In common with most other regions, the outflow of PhD graduates from Yorkshire and the Humber outstripped the intake. 28% fewer PhD graduates started work in the region than the total number of PhD graduates from the region¹². 145 PhD graduates (45% of total employed) left Yorkshire and the Humber for employment in other regions of the UK. This proportion is higher than the average figure for all regions of 38%. PhD graduates from Yorkshire and the Humber moved across the UK with the North West and East Midlands being most popular, each attracting 8%. Other popular regions were the South East and London¹³.

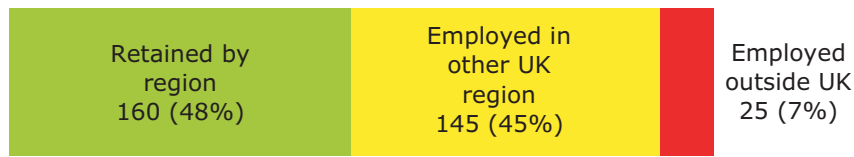
Another 25 PhD graduates (7% of total employed) left Yorkshire and the Humber for work or work and study abroad, compared to the national proportion of 9%.

¹¹ 'What Do PhDs Do?' methodology describes the process of identifying postdoctoral researchers in universities www.grad.ac.uk/wdpd

¹² The net migration figures should be treated with care. 2.5% of the total DLHE respondents did not identify a specific region of employment. If these respondents are skewed to one region this will impact significantly on the net migration figures

¹³ Data protection prohibits a full analysis of region to region migration

(a) PhDs graduating from Yorkshire and the Humber



(b) PhDs employed in the region

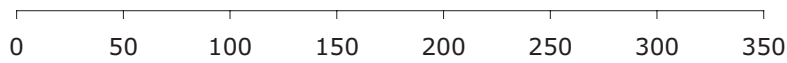


Figure Six: Mobility of Yorkshire and the Humber PhD graduates in employment (a) and origin (region of study) of PhD graduates working in Yorkshire and the Humber (b)

What do PhD graduates employed in Yorkshire and the Humber do?¹⁴

160 UK-domiciled PhD graduates from Yorkshire and the Humber HEIs were working in the region at the time of the survey, representing 68% of the total number of PhDs working in the region. These were joined by 75 UK-domiciled PhD graduates from other regions in the UK who gained employment in the region. Within this cohort, small numbers came from each of the other UK regions, but the North West provided the most substantial number at 8% of the regional PhD labour force, along with the East Midlands (5%) and the East of England (4%). In total, 5% of all UK-domiciled PhD graduates who leave their regions of study for known UK locations move to Yorkshire and the Humber for work or work and study.

Employment sectors

The employment sectors for PhD graduates employed in Yorkshire and the Humber are compared with the national picture in Figure Seven. The most obvious difference is that the education sector is very dominant in this region and employed 61.5% of PhD graduates (compared to 47.8% across the UK), predominantly in higher education. Of those employed in education, 50% were employed as postdoctoral researchers and 33% in university teaching roles, primarily as lecturers. Consequently, in Yorkshire and the Humber all the other sectors employed a lower proportion of PhD graduates compared to the UK picture.

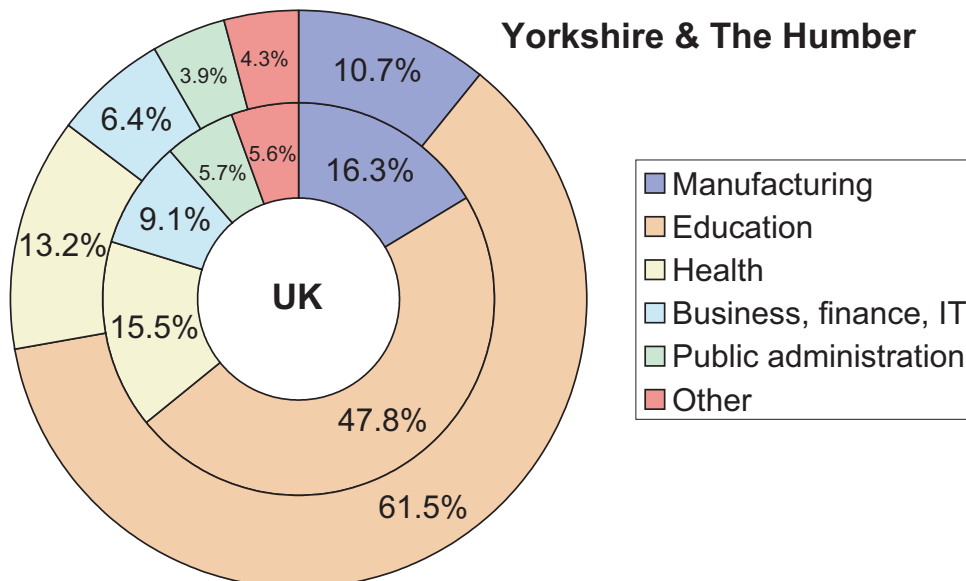


Figure Seven: Employment sectors entered by UK-domiciled PhD graduates employed in Yorkshire and the Humber (outer ring) compared to all UK regions (inner ring), based on Standard Industrial Classifications returned in the 2004 DLHE survey

¹⁴ The data in this section refers to PhD graduates from all regions in the UK who were working in Yorkshire and the Humber

For the 145 PhD graduates who moved to Yorkshire and the Humber for employment, the largest employment sector was education (61%), predominantly in higher education. Of those employed in the education sector, 52% were employed as postdoctoral researchers and 39% as university teaching staff. Other sectors that employed PhD graduates moving to the region were manufacturing (18%) and health (12%).

Career occupations

We examined the specific occupations entered by UK-domiciled PhD graduates employed in Yorkshire and the Humber. The picture is quite different to the UK average, as outlined in Figure Eight.

As with the analysis of the employment of UK-domiciled PhD graduates from the region (Figure Five), one obvious difference is the proportion working in scientific research, analysis and development, which was higher in Yorkshire and the Humber (22.6% compared to 18.1% for the UK average). As the manufacturing sector employed a smaller proportion of PhD graduates in the region than across the UK as a whole, this sector is unlikely to account for the difference. However, also included in this type of work are some scientists working in academic laboratories, so the higher proportion of scientists is more likely to be due to the coding of academic scientists in this category. The engineering professionals category also includes postdoctoral researchers in named engineering specialisms. In line with this explanation, the 'other professionals' classification accounts for a lower proportion of PhD graduates working in the region (20.9% compared to 29.8% across the UK).

As with Yorkshire and the Humber PhD graduates employed across the UK, the 'other professionals' classification (20.9%), which includes postdoctoral researchers, accounts for a significantly lower proportion of PhD graduates entering employment within the region compared with the UK average (29.8%). Although this appears to indicate that significantly less PhD graduates from Yorkshire and the Humber were employed in postdoctoral positions than the UK average, further examination identified PhD graduates coded to scientific research, analysis and development employed in Yorkshire and the Humber as scientists within academic laboratories, and others coded as engineering professionals, working in named engineering specialisms within academia.

Overall, 31% of the all PhD graduates working in Yorkshire and the Humber were employed as postdoctoral researchers, markedly higher than the UK average of 22%.

A higher than average percentage (26.9%) of UK-domiciled PhD graduates also were employed in Yorkshire and the Humber as teaching professionals compared to the UK average of 22.2%. Conversely, the proportion of PhD graduates employed in IT within the region was low at 0.9% compared to 2.9% across the UK. The proportion of PhD graduates employed in most other types of occupations in Yorkshire and Humber were more in line with the UK figures.

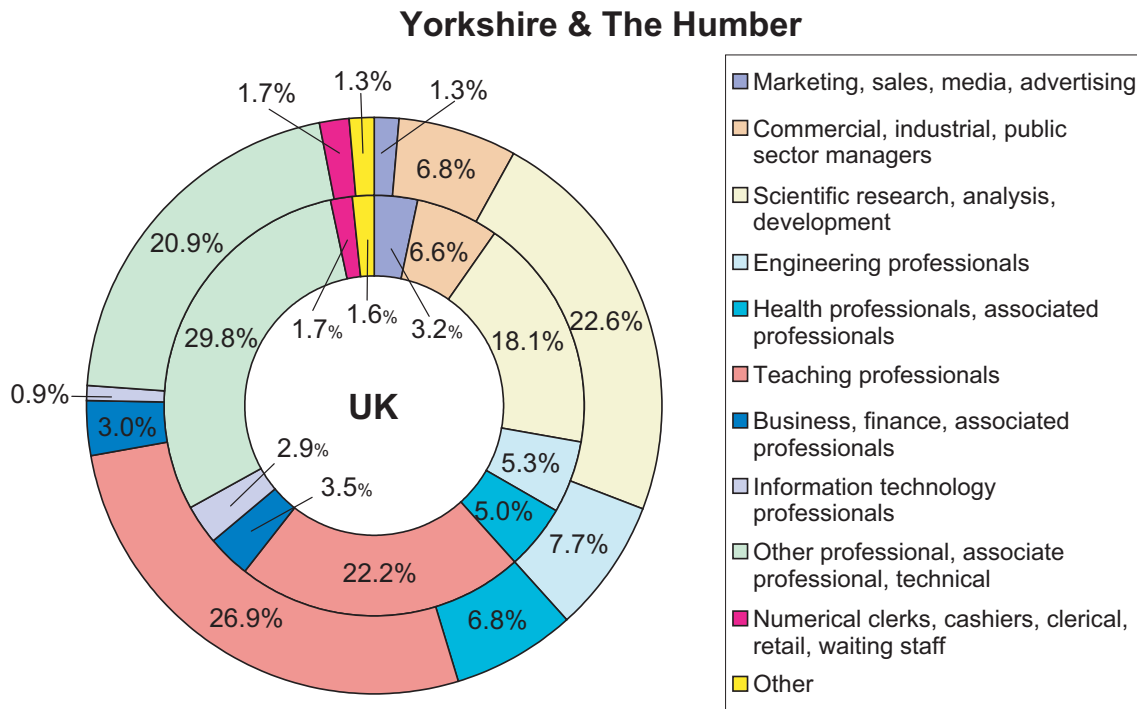


Figure Eight: Types of work entered by UK-domiciled PhD graduates employed in Yorkshire and the Humber (outer ring) compared to all UK regions (inner ring), based on Standard Occupational