

# North West England

The North West produced 8.1% of UK-domiciled PhD graduates and employed 7.9% of the UK PhD workforce in the DLHE survey. The region saw only a small net outflow of PhD graduates. When compared to the national averages, PhD graduates from North West HEIs had one of the higher unemployment rates. Just over half of them remained in the North West for work.

## Key statistics:

The 590<sup>1</sup> UK-domiciled PhD graduates from institutions in the North West made up 8.1% of the UK total:

- 52% were male and 48% female, compared to the UK average of 55% and 45%
- 29% studied part-time, consistent with the UK average of 27%
- The most popular subjects were medicine, chemistry, biology and physics.

Of the 415 (70%) who responded to the 2004 DLHE<sup>2</sup> survey:

- 81.6% entered employment in the UK<sup>3</sup>
- 4.1% were unemployed, higher than the UK average of 3.2%
- 5.1% continued their careers overseas compared to 8.1% across the UK.

Of the 330 PhD graduates from HEIs in the North West who entered employment in the UK:

- 49.6% entered the education sector, predominantly in higher education
- 19.2% were employed in the health sector and 12.3% in manufacturing
- 58% remained in the North West and 42% moved to other regions in the UK.

The North West employed 7.9% of the UK-domiciled PhD graduate workforce:

- 58% of these gained their PhD at North West institutions
- 42% moved to the North West from other regions of the UK
- 52% were employed in the education sector: 47% as postdoctoral researchers; 36% in university teaching roles, primarily as lecturers
- 24.5% of all PhD graduates working in the North West were employed as postdoctoral researchers.

The North West was a net exporter (-8.1%) of UK-domiciled PhD graduates:

- PhD graduates who left the North West for work were most likely to move to London, the South East and Yorkshire and the Humber
- The North West attracted 9% of all 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 Yorkshire and the Humber, the West Midlands, the South East and East of England and work in the education sector (44%).

## Overview of North West higher education institutions<sup>4</sup>

There are seven universities and seven higher education colleges in the North West. In 2003/04, there were nearly 180,000 full-time equivalent (FTE) students in higher education institutions (HEIs) in the region. The largest institution is the University of Manchester with over 31,000 student FTEs.

3.5% of students in the region were registered for postgraduate research degrees, predominantly at the institutions with large research incomes – the Universities of Manchester, which dominates the region in terms of research income, Liverpool and Lancaster (see Table One).

| Higher education institution          | Final year PhD numbers |
|---------------------------------------|------------------------|
| The University of Manchester          | 710                    |
| The University of Liverpool           | 280                    |
| The University of Lancaster           | 225                    |
| The University of Salford             | 70                     |
| Manchester Metropolitan University    | 60                     |
| Liverpool John Moores University      | 20                     |
| The University of Central Lancashire  | 20                     |
| Chester College of HE                 | 10                     |
| Edge Hill College of Higher Education | 10                     |
| St Martin's College                   | 10                     |
| Total                                 | 1415                   |

**Table One: Final year PhD researchers by HEI in the North West<sup>5</sup>**

The research strengths of universities in the North West are reflected in Figure One, derived from the results of the 2001 Research Assessment Exercise (RAE)<sup>6</sup>. Further analysis of the RAE results shows that 63.5% of submissions from the region's institutions were rated at 4 or above, with over a third (36.5%) scoring the highest ratings of 5 and 5\*. These top rated departments were across the subject spectrum indicating the broad range of research expertise in the region.

<sup>1</sup> All figures are rounded to the nearest five for data protection

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

<sup>3</sup> 74.1% 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

<sup>4</sup> HEFCE 2004 Regional Profiles: North West

<sup>5</sup> 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 [www.hesa.ac.uk/pi/0203/research.htm](http://www.hesa.ac.uk/pi/0203/research.htm)

<sup>6</sup> Data set available at [www.hero.ac.uk/rae/Results](http://www.hero.ac.uk/rae/Results)

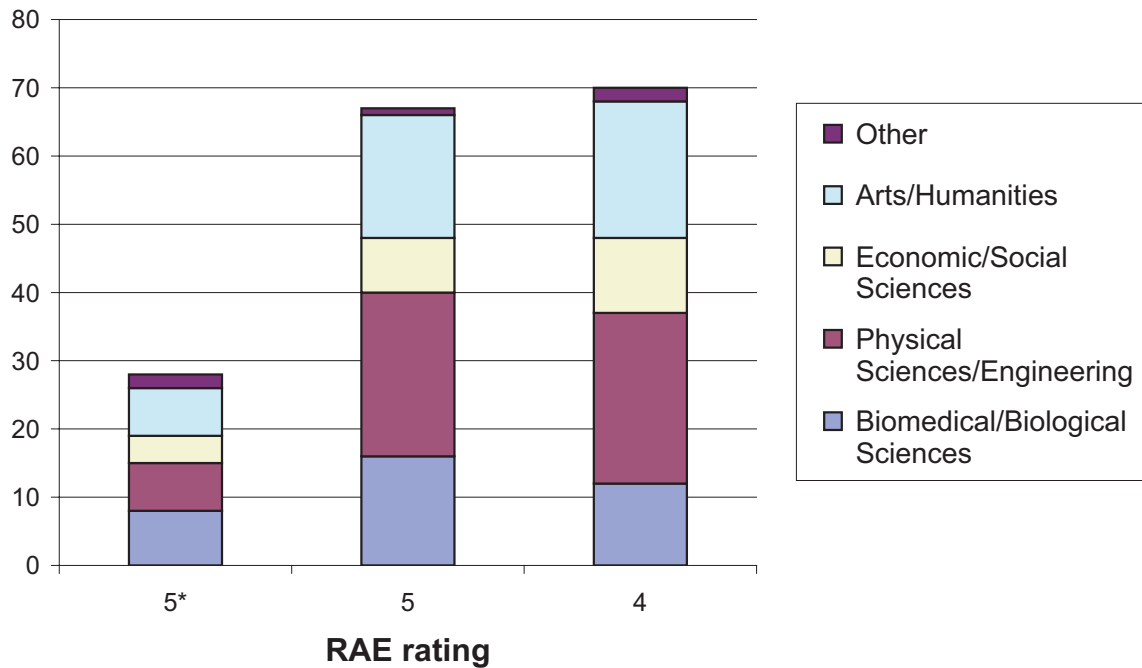


Figure One: Research subjects of top graded RAE submissions in the North West

### Economic strengths

The North West economy has traditionally been strong in industries such as textiles, shipping and engineering, but as these have declined, the economy has shifted towards new sectors such as biotechnology, chemicals, aerospace and ICT. Unemployment in the region stands at 4.9%<sup>7</sup>, just above the English average of 4.8%.

The North West Development Agency (NWDA) sees the region's education and science base as an asset, which needs to be fully utilized. A major driver within the economic policy of the NWDA is the need to improve the productivity of the region, by investing in innovation, R&D, leadership and higher level skills. The NWDA is also focusing funding and support on knowledge-based sectors, including biomedical science, energy and environmental technologies, advanced flexible materials and the digital and creative industries. By 2009 the region aims to have created 80,000 new jobs in the 'knowledge' occupations.

When compared to other UK regions, levels of research and development (R&D) expenditure in the North West are higher than the UK average. The Business Enterprise R&D Survey, conducted by the Office of National Statistics<sup>8</sup>, reported that in 2002, the gross domestic expenditure on R&D, as a percentage of Total Gross Value Added, was 2.2% for the North West,

compared to 2.0% for the UK as a whole. However, the NWDA recognizes that much of this is concentrated in a few large companies and that many companies invest little in R&D and innovation.

### Profile of PhD graduates from the North West

Of the 7270 UK-domiciled PhDs who graduated in the UK in 2003, 8.1% (590) graduated from North West HEIs. Of the UK-domiciled PhD graduates, 48% were female and 52% male, giving the North West a higher proportion of female doctoral graduates than the UK average (45%). Part-time study was slightly more common in the North West than in other regions, accounting for 29% of degrees awarded, compared to the UK average of 27%.

Figure Two shows the breakdown of PhD graduates by subject groups compared to the UK average. Overall, the picture is consistent with the national average. Proportionally more PhD graduates from institutions in the North West came from the economic and social sciences (15.1% compared to 11.1% across the UK) and the physical sciences (33.6% compared). Fewer came from the arts and humanities subject area (10.1% compared to 13.7% across the UK) and the biosciences (10.9% compared to 12.4%). The remainder came from 'other' subjects including education (5.1% compared to 3.9%).

<sup>7</sup> HEFCE 2004 Regional Profiles: North West

<sup>8</sup> [www.statistics.gov.uk/](http://www.statistics.gov.uk/); also useful is 'Regional Competitiveness and State of the Regions' by Mukund Lad, available at [www.dtistats.net/sd/rci/](http://www.dtistats.net/sd/rci/)

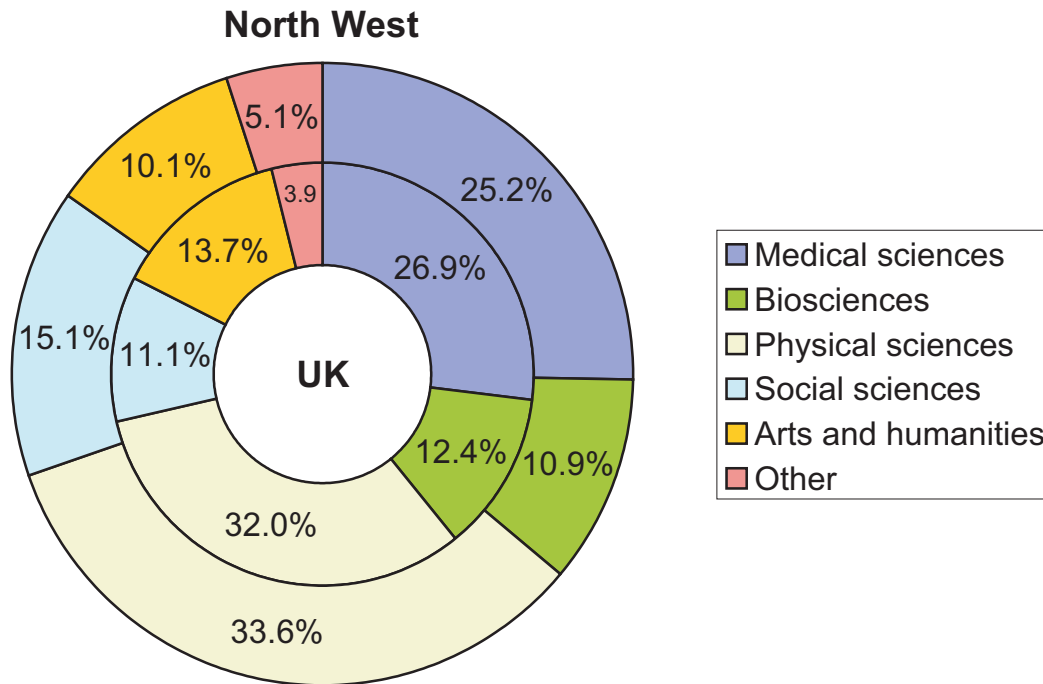


Figure Two: Subject groups of all UK-domiciled PhD graduates from North West HEIs (outer ring) compared to all UK HEIs (inner ring) in 2003

The list of 'top ten' subjects for PhD graduates from the North West (Table Two) shows strong parallels with the UK results. The main exception is the appearance of social policy in a far higher position than in the national subject rankings.

| Subject and ranking   | North East | Total (and position) in UK |
|---|------------|----------------------------|
| 1. Clinical Medicine  | 3.4%       | 8.2% (1)                   |
| 2. Chemistry  | 4.7%       | 7.7% (2)                   |
| 3. Biology  | 2.9%       | 5.2% (4)                   |
| 4. Physics  | 4.1%       | 4.4% (5)                   |
| 5. Psychology   | 4.9%       | 7.6% (3)                   |
| 6. Academic studies in education                                | 2.5%       | 3.1% (6)                   |
| 7. Social Policy  | 2.9%       | 1.0% (28)                  |
| 8. Pharmacology, toxicology and pharmacy                        | 2.4%       | 2.9% (7)                   |
| 9. Physical terrestrial geographical and environmental sciences | 2.0%       | 2.1% (11)                  |
| 10. Mechanical engineering                                      | 2.0%       | 2.0% (16)                  |
| 10. History by period   | 4.3%       | 2.5% (9)                   |

Table Two: Top subjects studied by PhD graduates in North West HEIs compared to UK figures

### What do PhD graduates from the North West do?<sup>9</sup>

Of the 590 UK-domiciled PhD graduates in 2003 from North West Higher Education Institutions who were eligible for the 2004 survey, 415 responded. At 70%, this response rate is higher than the UK average 66%.

Figure Three summarises the responses to the DLHE survey. 74.1% of UK-domiciled PhD graduates from North West institutions had entered the workplace when the survey was conducted, slightly higher than the overall UK figure of 72.7%. A further 7.5% were engaged in work and study simultaneously, slightly lower than the UK average 8%. Fewer PhD graduates had moved overseas (5.1%) than for the UK as a whole (8.1%). At 4.1%, unemployment rates for UK-domiciled PhD graduates from institutions in the region were slightly higher than the UK average 3.2%.

<sup>9</sup> The data in this section refers to PhD graduates from North West HEIs who were working in all regions of the UK

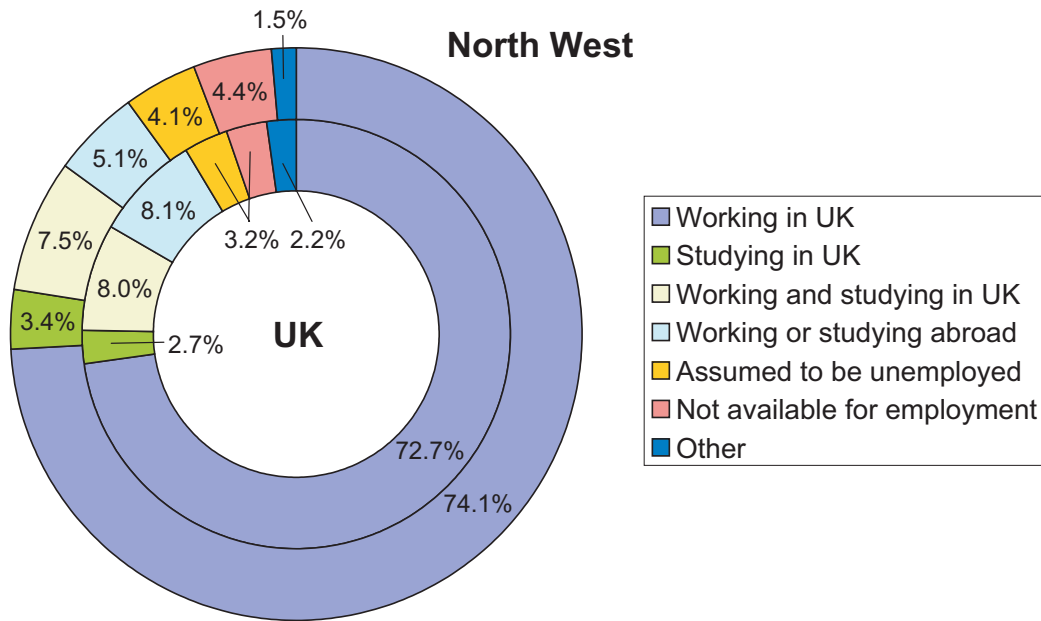


Figure Three: First destinations of UK-domiciled PhD graduates for all subjects from North West HEIs (outer ring) compared to all UK HEIs (inner ring) from 2004 DLHE survey responses

### Employment sectors

The 81.6% of PhD graduates from North West HEIs working or working and studying in the UK were employed in a range of sectors across the UK. Consistent with the UK average, education was the dominant employment sector (49.6% compared to 47.8% across the UK), predominantly in higher education.

The balance (50.4%) were employed in a range of occupations across all sectors, although as Figure Four illustrates, there are some differences with the UK average figures.

Manufacturing industries employed a lower proportion of North West PhD graduates, accounting for 12.3% compared to 16.3% across the UK as a whole. 66% of these PhD graduates were employed in the chemical and pharmaceutical industries, accounting for 8% of all North West UK-domiciled PhD graduates (compared to a national proportion of 11%).

The health service employed more PhD graduates from this region's HEIs (19.2%) compared to the UK average (15.5%). Slightly lower numbers were employed by business, finance and IT industries and in the public sector. Assorted other industrial sectors accounted for the remaining 6.9% of PhD graduates.

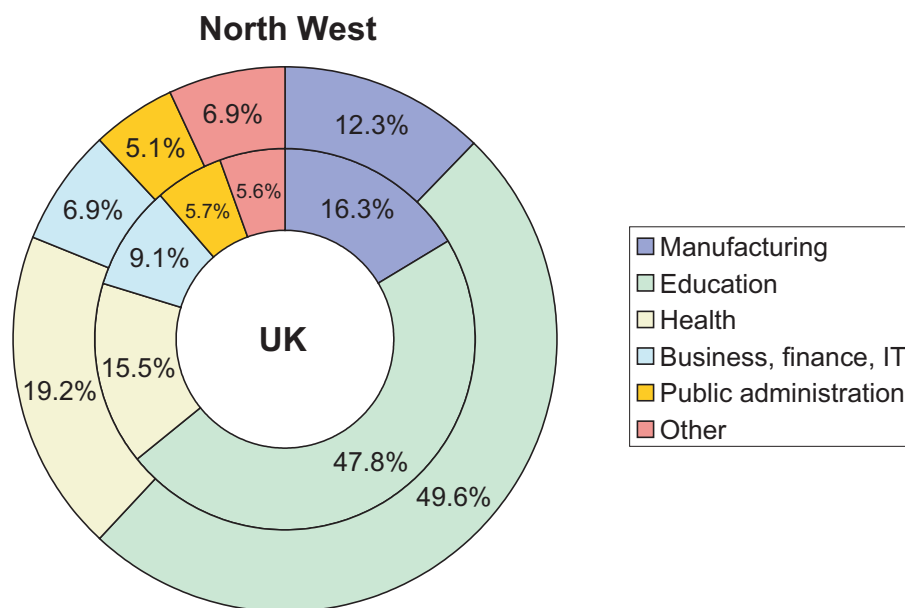


Figure Four: Employment sectors entered by UK-domiciled doctoral graduates from North West HEIs (outer ring) compared to all UK HEIs (inner ring), based on Standard Industrial Classifications returned in 2004 DLHE survey.

### Career occupations

We examined the specific occupations entered by PhD graduates from North West HEIs. As the previous employment sector analysis predicts, when compared to the UK average figures, variations are modest.

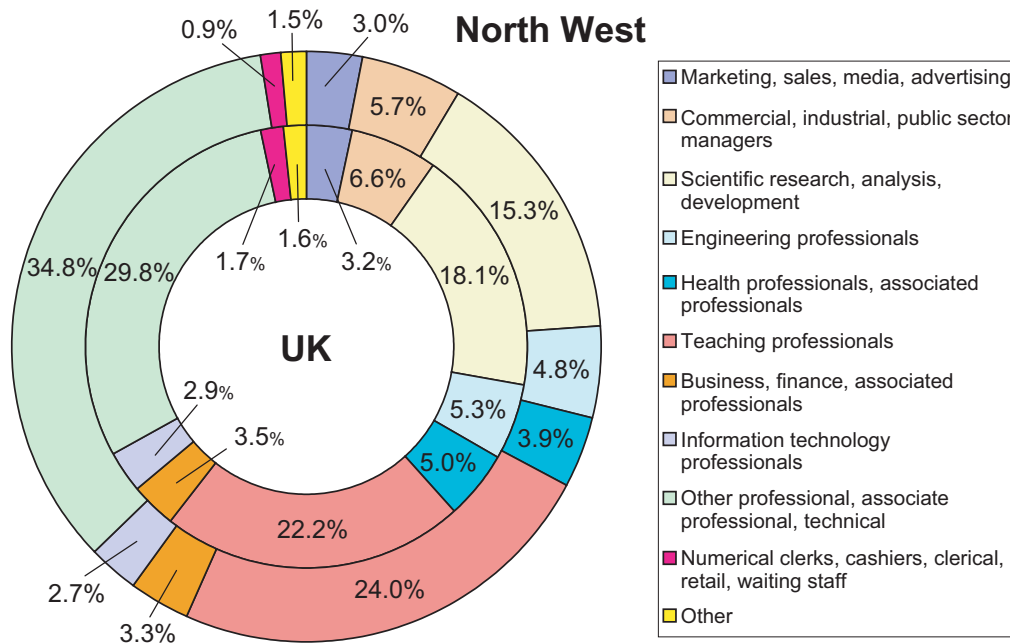


Figure Five: Types of work entered by UK-domiciled PhD graduates from HEIs in the North West (outer ring) compared to all UK institutions (inner ring), based on Standard Occupational Classifications returned in 2004 DLHE survey.

The most noticeable variations were in the proportions working in scientific research, analysis and development roles, which were around 3% lower than the national figure, and in 'other professional' roles (including postdoctoral researchers and psychologists), which were 5% higher than the UK). These figures are consistent with the variations in the employment sectors, with more PhD graduates employed in education and fewer in manufacturing. None of the other occupational categories has significant variations from the UK averages.

### Migration

We examined the migration patterns of UK-domiciled PhD graduates from North West HEIs who were in employment at the time of the survey (see Figure Six).

In common with most regions, the North West saw a net loss of PhD graduates with 8.1% fewer PhD graduates starting work in the region than the total number of PhD graduates from the region<sup>10</sup>. 140 PhD graduates (40% of total employed) left the North West for employment in other regions of the UK. This proportion is in line with the average figure for all regions of 38%. PhD graduates from the North West moved across the UK with London and the South East most popular, each attracting 6%. Other popular regions were Yorkshire and the Humber, the West Midlands and the East of England<sup>11</sup>.

Another 25 PhD graduates (6% of total employed) left the North West for work or work and study abroad, compared to the national average of 9%.

<sup>10</sup> 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

<sup>11</sup> Data protection prohibits a full analysis of region to region migration

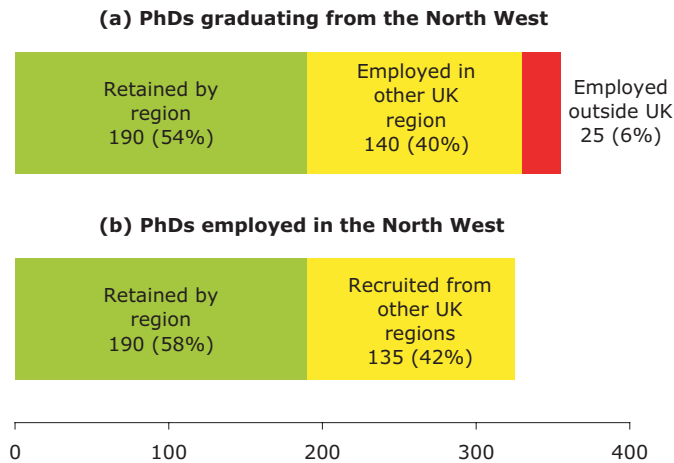


Figure Six: Mobility of PhD graduates from the North West in employment (a) and origin (region of study) of PhD graduates working in the North West (b)

### What do PhD graduates employed in the North West do?<sup>12</sup>

190 PhD graduates from the North West HEIs were working in the region at the time of the 2004 DLHE survey, representing 58% of the total number of PhDs working in the region. These were joined by 135 PhD graduates from elsewhere in the UK who gained employment in the region. Within this cohort, small numbers came from each of the other UK regions, but Yorkshire and the Humber provided the most substantial number (7% of the total North West doctoral labour force), followed by the West Midlands and South East (both 6%) and East of England (5%). In total, 9% of all UK-domiciled PhD graduates who left their regions of study for known UK locations moved to the North West.

### Employment sectors

The employment sectors for all PhD graduates employed in the North West are compared to the national picture in Figure Seven.

Consistent with the national picture, education was the dominant employment sector for PhD graduates in the North West (52% compared to 47.8% across the UK). Of these, 47% were employed as postdoctoral researchers and 36% in university teaching roles, primarily as lecturers. Overall, 24% of the PhD graduates working in the North West were employed as postdoctoral researchers<sup>13</sup>, slightly higher than the UK average of 22%.

The health sector is the second largest employment sector in the North West (19.6% compared to 15.5% across the UK). Manufacturing employed a similar proportion to the UK total (15.0% compared to 16.3%). Business, finance and IT and public administration employed fewer PhD graduates in the North West than across the UK.

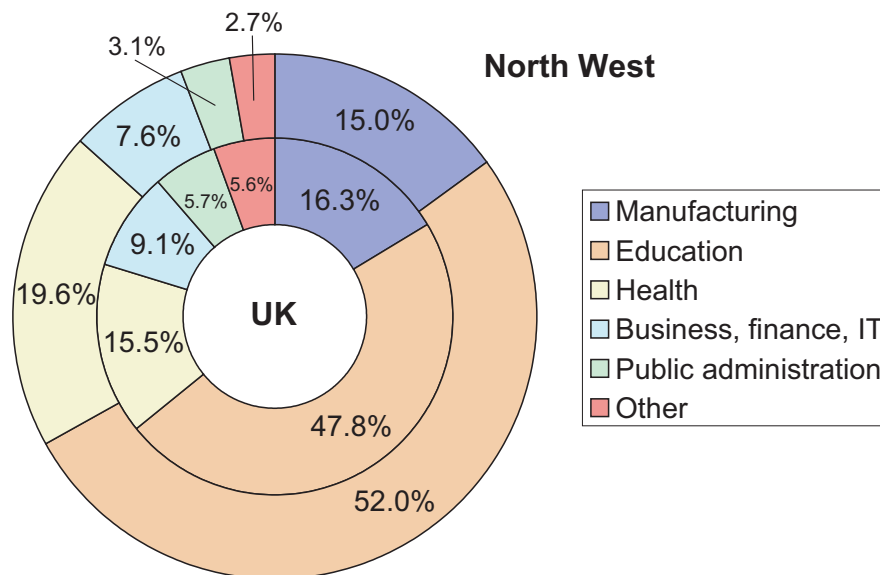


Figure Seven: Employment sectors entered by UK-domiciled PhD graduates employed in the North West (outer ring) compared to all UK regions (inner ring), based on Standard Industrial Classifications returned in the 2004 DLHE survey

<sup>12</sup> The data in this section refers to PhD graduates from all regions of the UK who were working in the North West

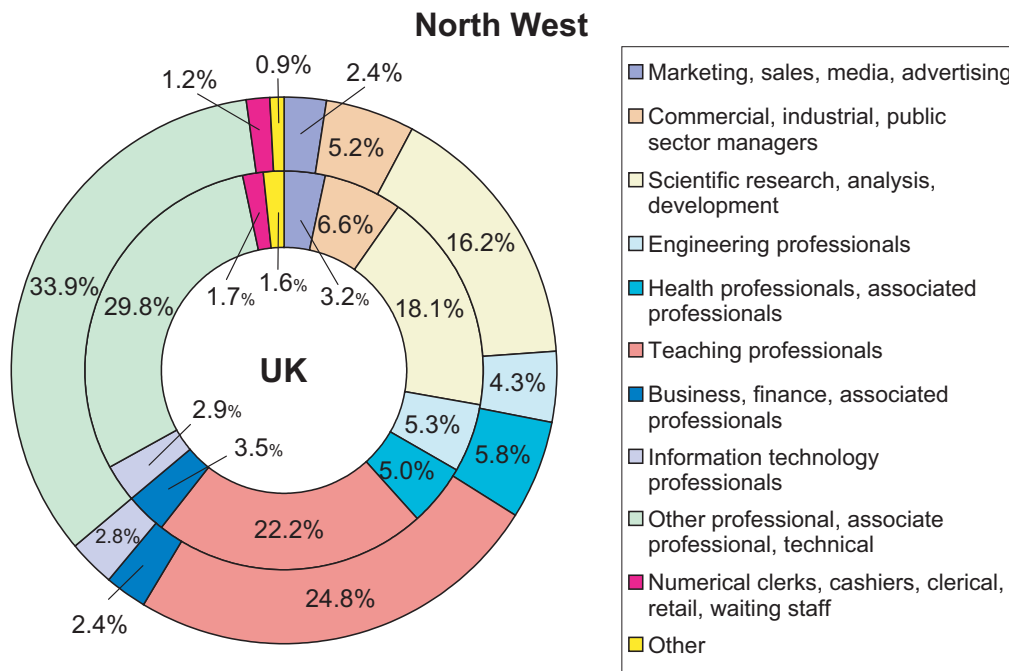
<sup>13</sup> 'What Do PhDs Do?' methodology describes the process of identifying postdoctoral researchers in universities [www.grad.ac.uk/wdps](http://www.grad.ac.uk/wdps)

For the 135 PhD graduates who moved to the North West for employment, education was the largest employment sector (44%). Of these, 32% were employed as university teaching staff and 50% as postdoctoral researchers. Other sectors that employed PhD graduates moving to the region were manufacturing (25%), health and business and finance (both 13%). The public sector and other industries and organizations employed the remainder.

### Career occupations

We compared the specific occupations of UK-domiciled PhD graduates employed in the North West to the UK picture as shown in Figure Eight.

A higher proportion of PhD graduates were employed as teaching professionals (24.8% compared to 22.2% across the UK) and in the 'other professionals' classification (33.9% compared to 29.8%), which includes some postdoctoral researchers. Slightly fewer were employed in the scientific research classification (16.2% compared to 18.1%). All of the other smaller classifications accounted for a similar proportion of PhD graduates in the North West when compared to the national picture.



**Figure Eight: Types of work entered by UK-domiciled PhD graduates employed in the North West (outer ring) compared to all UK regions (inner ring), based on Standard Occupational Classifications returned in**