

Northern Ireland

Northern Ireland produced 3.6% of the UK-domiciled PhD graduates and employed 4.1% of the UK PhD workforce in the DLHE survey. PhD graduates from Northern Ireland's universities were the least likely to be unemployed and were more likely to move to the EU at the start of their careers. The region had the highest retention rate in the UK with 83% of all the UK-domiciled

Key statistics:

The 265¹ UK-domiciled PhD graduates from Northern Ireland's institutions made up 3.6% of the UK total:

- 45% were male and 55% female, identical to the UK average
- 36% studied part-time, higher than the UK average 27%
- The most popular subjects were 'others allied to medicine', biology and psychology.

Of the 205 (77%) who responded to the 2004 DLHE² survey:

- 85.5% entered employment in the UK³
- 1.4% were unemployed, which is the lowest rate in the UK
- 4.8% started their careers overseas compared to 8.1% across the UK.

Of the 175 PhD graduates from Northern Ireland's universities entered employment in the UK:

- 52.3% entered the education sector, predominantly in higher education
- 19.9% were employed in the health sector and 10.2% in manufacturing
- 89% remained in Northern Ireland and 11% moved to other regions of the UK.

Northern Ireland employed 170 (4.1%) of the UK-domiciled PhD graduate workforce:

- 92% of these gained their PhD at Northern Ireland's institutions
- 8% moved to Northern Ireland from other regions of the UK
- 53.2% were employed in the education sector: 38% of these as postdoctoral researchers; 46% in university teaching roles, primarily as lecturers
- 20% of all PhD graduates working in Northern Ireland were employed as postdoctoral researchers.

Northern Ireland was a net exporter (-9.6%) of UK-domiciled PhD graduates:

- PhD graduates who left Northern Ireland for work were most likely to move to other parts of the EU (which may indicate Eire)
- Northern Ireland attracted only 1% of the UK-domiciled PhD graduates who left their region of study for known UK locations

Overview of Northern Ireland's higher education institutions

There are two universities and two university colleges in Northern Ireland, with over 53,000 students enrolled on higher education courses in 2003/04. The two largest institutions are Queen's University, Belfast and the University of Ulster, which over 70% of these students attended.

Figures from the Department for Education and Learning for 2003/04 state that 5% of the total student population in Northern Ireland were enrolled on postgraduate research degree programmes, predominately at the universities of Queen's and Ulster (see Table One).

Higher education institution	Final year PhD numbers
The Queen's University of Belfast	245
University of Ulster	135
Total	380

Table One: Final year PhD researchers by HEI in Northern Ireland⁵

The research strengths of the higher education institutions (HEIs) in Northern Ireland 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 69% of submissions from the region's institutions were rated at 4 or above, with just under a third (31%) scoring the highest ratings of 5 and 5*. These top rated departments are across the subject spectrum indicating the broad range of expertise available in the region's institutions, with particular strengths in arts and humanities.

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 78.7% are classified as 'working in the UK'; 6.8% are 'working and studying in the UK' The data in WDPDR on employment includes both classifications

⁴ Statistical Profile of Northern Ireland Higher Education 2003/04 www.delni.gov.uk/

⁵ These figures are 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

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

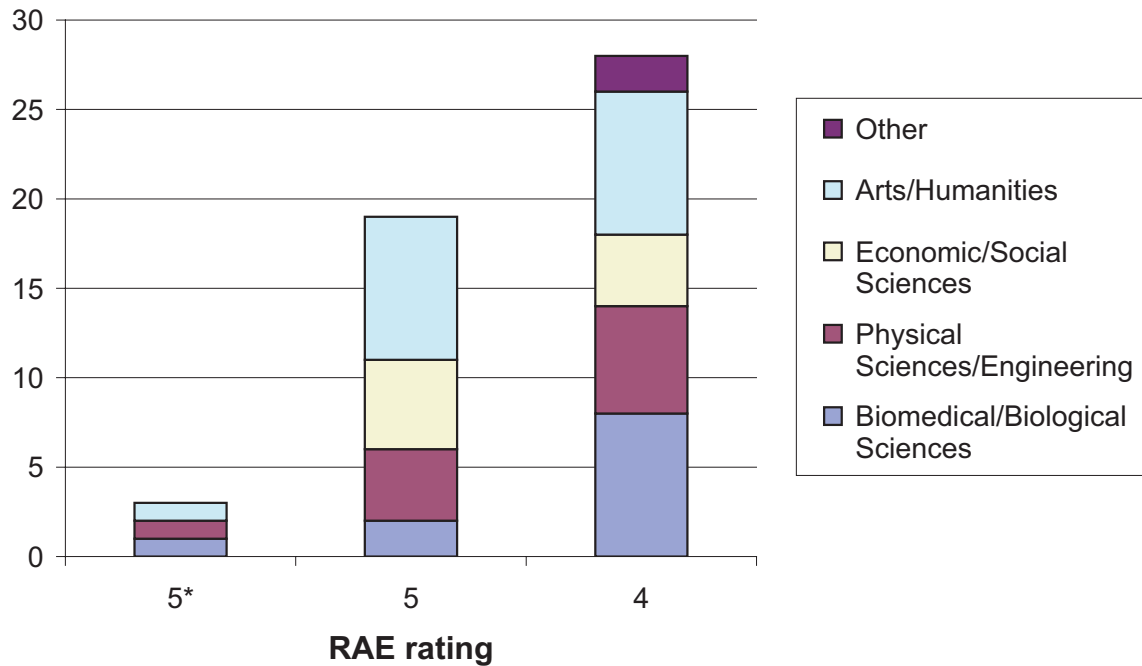


Figure One: Research subjects of top graded RAE submissions in Northern Ireland

Economic strengths

Northern Ireland had a traditional industrial economy, with strengths in shipbuilding, textiles and agriculture. As with most of the UK, this has gradually been eroded and replaced in part by service industries. However, Northern Ireland's main economic development organisation, Invest Northern Ireland⁷, envisages a very different economy in the future with knowledge-based industries at the heart of long-term prosperity.

The region now has a policy⁸ which aims to develop its science and technology driven and knowledge-based strengths through funded research and development (R&D) and through strengthened links between higher education and the business sector, all with a view to improving corporate productivity.

Although compared to the UK figures of 2.1%, R&D spending in Northern Ireland currently is low⁹ at 1.2% of GVA¹⁰, the region has seen a trend of increasing levels of R&D spending. However, much of this money comes from a small number of companies that invest heavily, while many companies are

investing well below the national average. The innovation strategy aims to address this and to maximize the knowledge and economic value of its researchers.

Profile of PhD graduates from Northern Ireland

Of the 7270 UK-domiciled PhDs who graduated in the UK in 2003, 3.6% (265) graduated from HEIs in Northern Ireland. Of these PhD graduates, 45% were female and 55% male, identical to the UK average. Part-time study was more common in Northern Ireland than in other regions, accounting for 36% of degrees awarded, compared to the UK average of 27%.

Figure Two shows the breakdown of UK-domiciled PhD graduates by subject groups. A significantly higher percentage of PhD graduates from Northern Ireland HEIs came from the medical sciences at 35.9% compared to 26.9% across the UK. Smaller proportions came from the physical sciences (24.5% compared to 32%) and arts and humanities (11.3% compared to 13.7%). The other subject areas were similar to the UK average figures.

⁷ www.investni.com/

⁸ 'think, create, innovate: the regional innovation strategy for Northern Ireland' www.detini.gov.uk/

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

¹⁰ GVA (Gross Value Added) differs from GDP in that subsidies are added and taxes on products are deducted

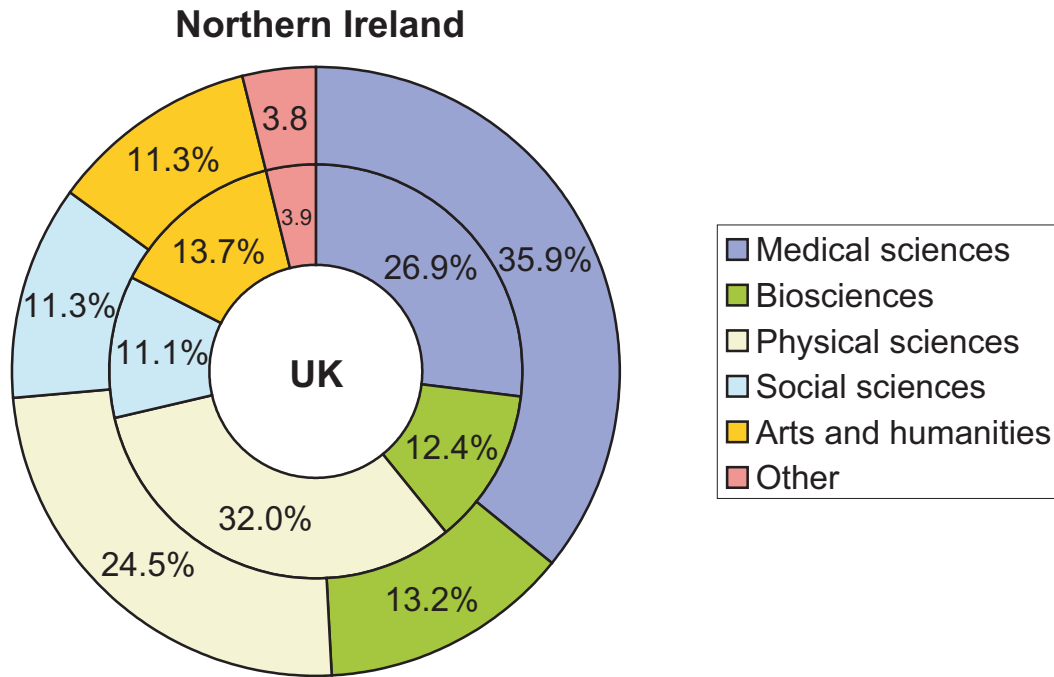


Figure Two: Subject groups of all UK-domiciled PhD graduates from HEIs in Northern Ireland (outer ring) compared to all UK HEIs (inner ring) in 2003

Five of the UK 'top ten' subjects for PhD graduates also appear in the table for Northern Ireland's HEIs (Table Two). The two most popular UK subjects, clinical medicine and chemistry, do not appear in the Northern Ireland table, but other medical sciences are popular. The category of 'other physical sciences' may better describe the multidisciplinary approach taken in the chemical sciences at Queen's University, Belfast. Civil engineering also makes an appearance on the Northern Ireland list.

Subject and ranking	Northern Ireland	Total (and position) in UK
1. Others in subjects allied to medicine	10.1%	1.8% (18)
2. Biology	6.0%	5.2% (4)
3. Psychology	4.9%	7.6% (3)
4. Others in medicine and dentistry	4.3%	0.5% (45)
5. Pharmacology, toxicology and pharmacy	4.0%	2.9% (7)
6. History by period	3.4%	2.5% (9)
7. Academic studies in education	2.6%	3.1% (6)
8. Electronic and electrical engineering	2.6%	2.1% (11)
9. Others in physical sciences	2.3%	0.3% (57)
10. Civil engineering	2.3%	1.2% (23)

Table Two: Top subjects studied by PhD graduates in Northern Ireland HEIs compared to UK figures

What do PhDs from Northern Ireland do?¹¹

Of the 265 UK-domiciled PhD graduates from Northern Ireland's HEIs in 2003 eligible for the 2004 survey, 205 responded. This 77% response rate was the highest of any region in the UK.

78.7% of UK-domiciled PhD graduates from Northern Ireland's institutions had entered the workplace when the survey was conducted, compared to the overall UK figure of 72.7%. A further 6.8% were engaged in work and study simultaneously. Fewer PhD graduates had moved overseas (4.8%) than for the UK as a whole (8.1%). At 1.4%, unemployment rates for UK-domiciled PhD graduates from Northern Ireland's institutions were significantly lower than the UK average of 3.2%.

¹¹ The data in this section refers to PhD graduates from Northern Ireland's HEIs who were working in all regions of the UK

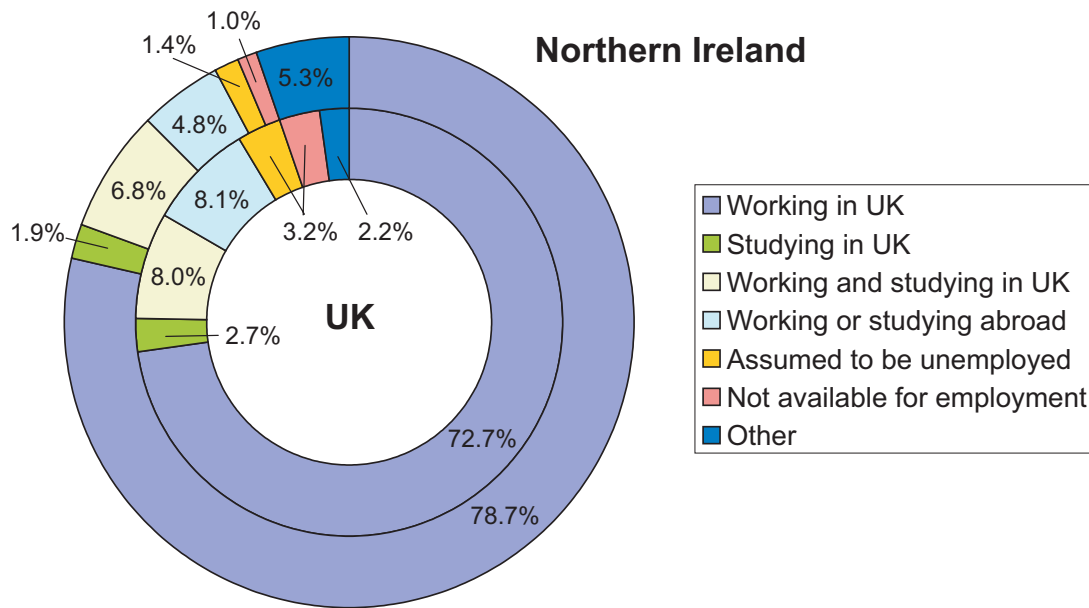


Figure Three: First destinations of UK-domiciled PhD graduates for all subjects from HEIs in Northern Ireland (outer ring) compared to all UK HEIs (inner ring) from 2004 DLHE survey responses

Employment sectors

The 85.5% PhD graduates from Northern Ireland’s 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 52.3%, predominantly in higher education.

The balance (47.7%) was employed in a range of occupations across all sectors. The differences, when compared to the UK picture, reflecting the nature of the Northern Ireland labour market and economy (see Figure Four).

Manufacturing industries employed a lower percentage of Northern Ireland PhD graduates, at 10.2% compared to 16.3% across the UK. 44% of these were employed in the chemical and pharmaceutical industries, accounting for 4.5% of all Northern Ireland doctoral graduates (compared to a national figure of 11%).

The health service employed proportionally more PhD graduates from Northern Ireland’s universities at 19.9% compared to 15.5% across the UK, reflecting the strength of the medical sciences. The public sector was also a more popular sector than across the UK at 9.1% compared to 5.7%. A smaller proportion (5.1%) were employed in the business, finance, IT sector compared to the UK average of 9.1%.

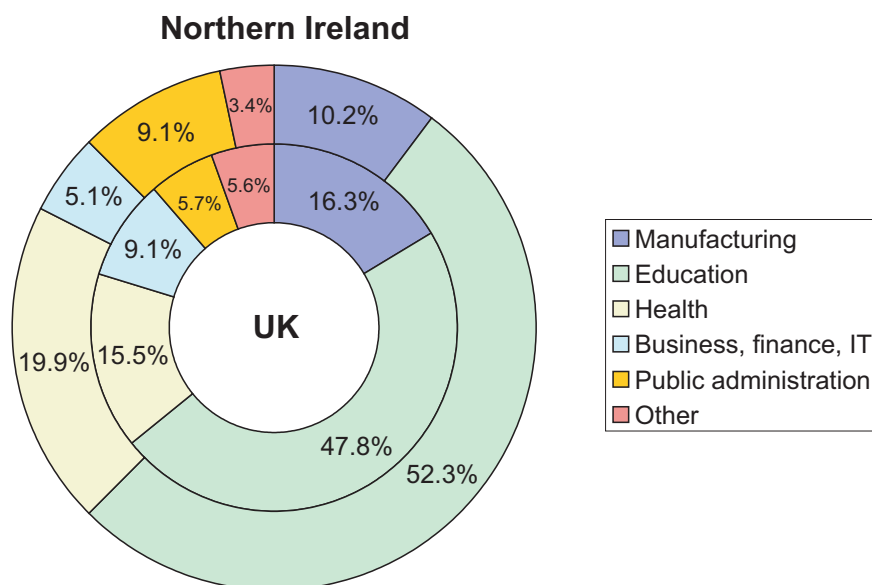


Figure Four: Employment sectors entered by UK-domiciled doctoral graduates from Northern Ireland’s HEIs (outer ring) compared to all UK HEIs (inner ring), based on Standard Industrial Classifications returned in 2004 DLHE survey

Career Occupations

We examined the specific occupations entered by UK-domiciled PhD graduates from Northern Ireland’s institutions. Differences with the UK average emerged that are consistent with the variations in subject areas of PhD graduates and employment sectors.

The biggest variation is in the health professionals category, which accounted for 11.9% of employed PhD graduates from this region compared to 5% nationally. A higher percentage were employed as teaching professionals at 28.4% compared to 22.2%, but fewer at 24.4% in ‘other professions’ (which includes some postdoctoral researchers) compared to 29.8% UK average. A slightly lower proportion was employed as scientific researchers at 16.5% compared to 18.1%. Generally, a lower percentage of Northern Ireland PhD graduates were employed in managerial or business positions, and in technical fields.

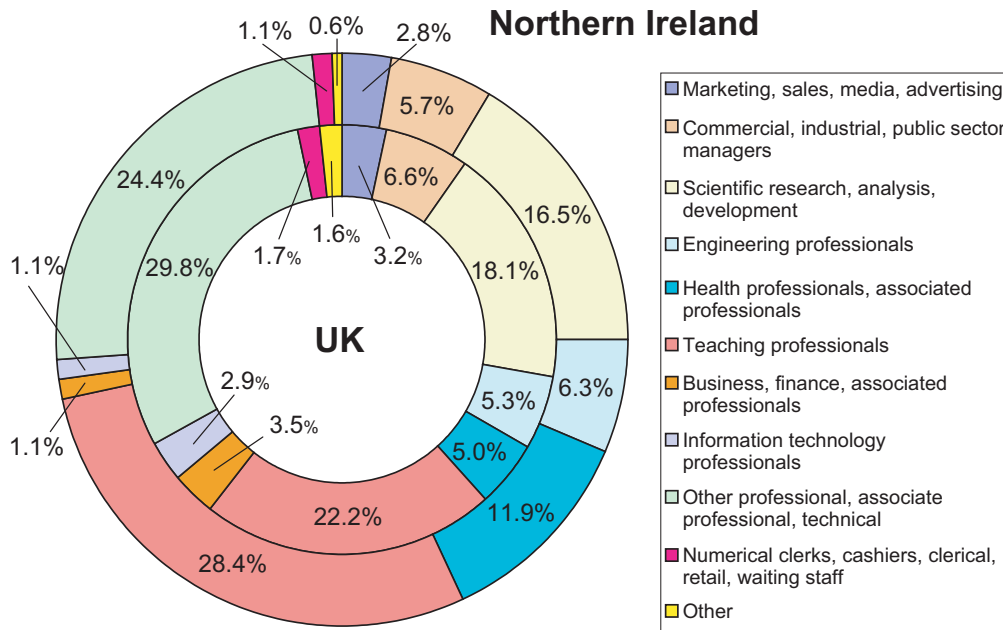


Figure Five: Types of work entered by UK-domiciled PhD graduates from HEIs in Northern Ireland (outer ring) compared to all UK institutions (inner ring), based on Standard Occupational Classifications returned in 2004 DLHE survey.

Migration

We examined the migration patterns of UK-domiciled PhD graduates from Northern Ireland’s HEIs who were in employment at the time of the survey.

89% of the UK-domiciled PhD graduates from Northern Ireland HEIs remained in Northern Ireland for employment. However, in common with almost all regions, Northern Ireland still saw a net loss of PhD graduates. 9.6% fewer PhD graduates started work in Northern Ireland than the total number of PhD graduates from the region¹².

20 PhD graduates (11% of total employed) left Northern Ireland for employment in other regions of the UK. This is the lowest proportion of any region and compares to the UK average figure of 38%. The majority of PhDs going to other regions of the UK described their destination as ‘England’, which prevents more detailed analysis.

Another 10 PhD graduates (6% of total employed) left Northern Ireland for work or work and study outside the UK (compared to the national proportion of 9%).

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

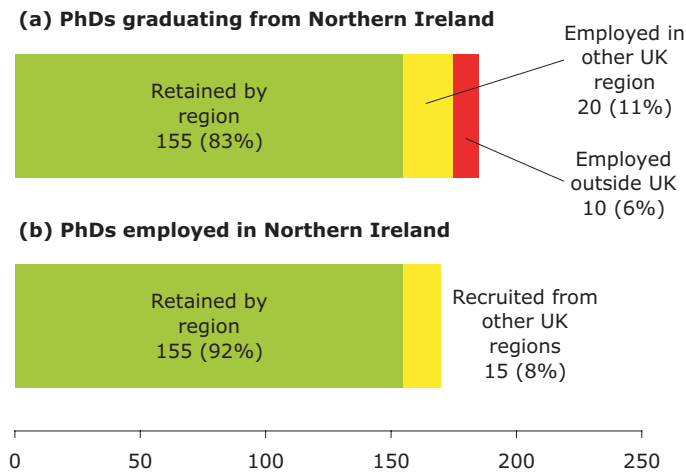


Figure Six: Mobility of PhD graduates from Northern Ireland in employment (a) and origin (region of study) of PhD graduates working in Northern Ireland (b)

What do PhD graduates employed in Northern Ireland do?¹³

155 UK-domiciled PhD graduates from Northern Ireland’s HEIs were working in the region at the time of the survey. This represented 92% of the total number of PhD graduates working in the region: the highest retention rate of any region. These were joined by 15 PhD graduates from elsewhere in the UK who had gained employment in Northern Ireland. Only 1% of UK-domiciled PhD graduates who left their regions of study for known UK locations moved to Northern Ireland: too small a number for further analysis. Of all the regions, it attracted the smallest number of PhD graduates.

Employment sectors

The employment sectors for all UK-domiciled PhD graduates employed in Northern Ireland are compared to the national picture in Figure Seven. As we might expect from the very high proportion of PhD graduates retained in the region, the employment sectors are similar to those of the PhD graduates from Northern Ireland’s institutions (presented in Figure Four).

In line with the rest of the UK, education was the largest employment sector in the region at 53.2% compared to 47.8% across the UK. Of these, 46% were employed as university lecturers and 38% as postdoctoral researchers.

The health service employed more PhD graduates in Northern Ireland at 20.1% compared to 15.5% across the UK. The public sector was also a more popular sector at 9.5% than the UK average of 5.7%.

Manufacturing industries employed a lower percentage of PhD graduates in Northern Ireland at 8.9% compared to 16.3% across the UK. Similarly, a smaller proportion were employed in the business, finance, IT sector at 4.7% compared to 9.1%.

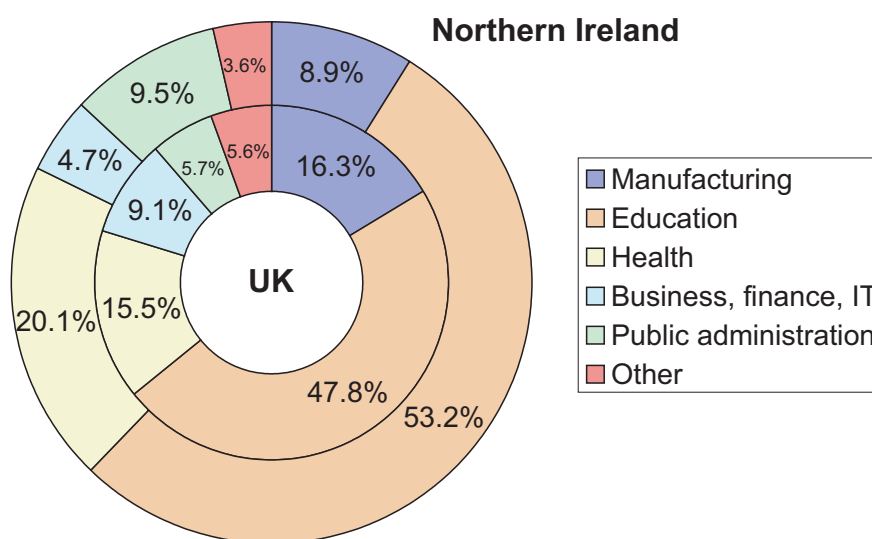


Figure Seven: Employment sectors entered by UK-domiciled PhD graduates employed in Northern Ireland (outer ring) compared to all UK regions (inner ring), based on Standard Industrial Classifications returned in the 2004 DLHE survey

¹³ The data in this section refers to PhD graduates from all regions of the UK who were working in Northern Ireland

For the 15 PhD graduates moving into Northern Ireland the biggest employment sector was education (53%), roughly equally divided between university lecturers and postdoctoral researchers. Other popular employment sectors were the business, finance and IT sector and the public sector, each employing 15% of those moving to the region¹⁴.

Career occupations

We examined the specific occupations entered by PhD graduates employed in Northern Ireland (Figure Eight). As for the previous sector analysis, the overall picture is quite similar to the occupations entered by PhD graduates from Northern Ireland's HEIs, and is also broadly similar to the UK picture.

The biggest variation is in the health professionals category, which accounted for 12.4% of the PhD graduates employed in the region, compared to 5% nationally. A higher percentage was employed as teaching professionals in the region at 30.2% compared to 22.2% across the UK.

A lower percentage (24.3%) was employed as 'other professions', which includes some postdoctoral researchers, compared to the UK average of 29.8% and as scientific researchers (16.6% compared to 18.1%).

Overall, 20% of all the UK-domiciled PhD graduates employed in Northern Ireland were employed as postdoctoral researchers¹⁵, slightly lower than the UK average of 22%.

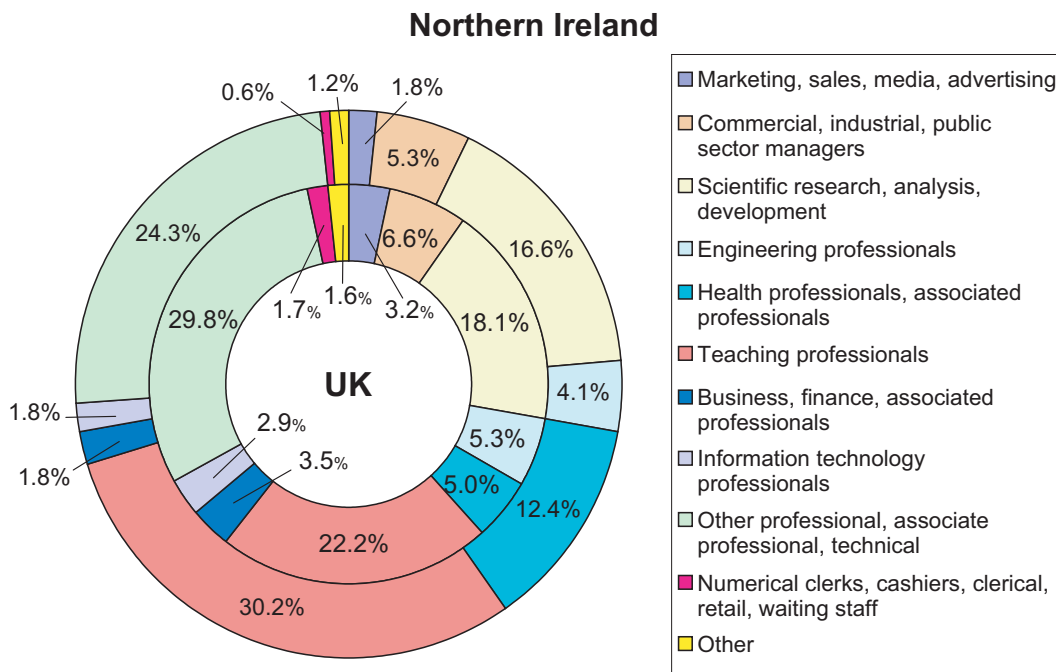


Figure Eight: Types of work entered by UK-domiciled PhD graduates employed in Scotland (outer ring) compared to all UK regions (inner ring), based on Standard Occupational Classifications returned in 2004 DLHE survey

¹⁴ The percentages quoted here should be treated with care due to the small sample size

¹⁵ 'What Do PhDs Do?' methodology describes the process of identifying postdoctoral researchers in universities www.grad.ac.uk/wdps