Universities UK

Policy Briefing

Talent wars: the international market for academic staff

Policy Briefings

This series of Policy Briefings published by Universities UK will provide authoritative and accessible analyses of current and emerging higher education policy issues. We aim to publish at least six booklets a year on major topics of the day, with an analysis of an issue, identification of policy options and, where relevant, a Universities UK or sector position. The booklets will draw on existing Universities UK policy work as well as new research that it has undertaken or commissioned.

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Talent wars: the international market for academic staff

Executive summary

· The total number of higher education academic staff in the UK has increased in recent years by 11 per cent and the proportion of staff over the age of 55 has risen.

· At present the UK is not experiencing widespread staff recruitment and retention difficulties but there are some subject areas where recruitment is more challenging.

· In the academic year 2005/06 19.1 per cent of academic staff were non-UK nationals and this group has increased significantly in recent years; 27 per cent of all academic staff appointed in 2005/06 were non-UK nationals.

· Students are the major source of new entrants to the academic profession, including increasing numbers of international students studying in the UK.

· The UK (and other major English-speaking countries) have increasing numbers of international students on doctoral programmes, especially in science, engineering and technology.

· The factors influencing student decisions about whether to pursue academic careers or other careers are complex. Pay is a significant consideration but other factors relating to working conditions, pensions, administrative burdens and bureaucracy may become more important.

· In total there are more incoming academics than academic emigrants from the UK. In 2005/06 there were significant inflows from overseas at lecturer, researcher and other grades, with greater outflow than inflow at senior lecturer/researcher and professorial level. The greater net inflow at lecturer, researcher and other grades is welcome but the greater net outflow needs to be monitored in future.

· The major countries of origin of non-UK academic staff working in UK universities are Germany, China, the United States, the Republic of Ireland, Italy and France. These staff tend to be younger than their UK colleagues.

· Non-UK academic staff working here are more concentrated in the following academic disciplines: languages, computer science, mathematics, physics, engineering and technology and social/political studies.

· Many countries are engaged in higher education reforms that should result in more effective and efficient systems. It will also mean increased international competition for highly qualified academic staff as countries try to retain them in their own systems or at least to encourage them to return after a period overseas.

· Increased research and development targets in many countries will mean increasing competition for researchers around the world.

· The creation of the European Higher Education Area by 2010 is another important factor in reinforcing strong international demand for appropriately qualified academic manpower.

· The increasing number of international staff working in the UK is a very positive indication of the attractiveness of the sector. Their contribution enables the UK to continue to support teaching and research in several key areas where UK nationals are found in declining numbers. However, there are potential risks associated with an over-reliance on non-UK staff who may return home or go elsewhere at some point.

· There is a need for improved intelligence on the international academic recruitment market. A greater understanding of the underlying influences on staff mobility would enable us to continue to compete effectively in the global talent war.

· Highly qualified and skilled migrants that the sector wishes to recruit and retain should be able to enter the country and remain here under the new points-based immigration system.

· Higher education institutions need to ensure that international academics receive appropriate induction, support and guidance. There is a need for greater understanding of the decision-making processes of prospective international staff including more comparative data on the benefits that are offered in different countries.

· There may also be growing pressure to consider the ethical dimensions of recruiting international staff, particularly those from developing countries in subject areas such as health.

· The international dimensions of academic staffing need to be clearly understood by institutions and national organisations. This will help to ensure that academic planning and human resource management take the impact of this wider market into account.

1. Introduction

1.1 This policy briefing aims to raise awareness and understanding among policy-makers and UK higher institutions of the international dimensions of academic staff recruitment and the factors that may influence it. This briefing summarises recent research and considers its implications for institutions and for national policies.

1.2 Higher education institutions are increasingly viewed as important drivers of economic growth, not only through the development of graduates but also because of the new knowledge their research generates. Recruiting and retaining high-quality staff in higher education is a priority around the world. A highly qualified and highly skilled higher education workforce underpins a nationally and globally competitive higher education system.

1.3 Academia is an international profession and the higher education workforce is increasingly multinational. Academic staff recruited from overseas now make up a significant element of the university workforce. Most academics collaborate with international partners, keep up to date with international research developments and attend international conferences. Maintaining international connections is a key feature of an academic career.

1.4 Academic staff are increasingly mobile and many will be internationally mobile. Some will spend short periods overseas, perhaps six months or a year as a researcher or visiting academic. Others will seek more permanent employment overseas either as a way to broaden their experience or as a longer-term career move. The development of an international academic job market means that academic salaries and working conditions in one country will have an impact on those offered in other marketplaces.

1.5 There are no overall figures for global academic movement but there are substantial flows of academics across national borders. Established patterns of migration include movement from the developing countries to developed countries, within Western Europe and between major English-speaking countries such as the United States, Canada, Australia and the UK.

1.6 International competition for academic talent is likely to increase further over the next few years as established systems seek to renew their 'greying professoriate' – predominantly older senior academic staff – and focus on developing a highly skilled workforce for economies based on technology and knowledge. Developing higher education systems are seeking to retain or recruit academic talent and academic careers are competing for recognition with other, often more financially rewarding careers.

1.7 Currently, the UK appears to be in a better position than some comparable countries, such as Canada and Australia, with less of a predominance of ageing staff than in these countries. UK salary levels are also comparable to those of most countries, except for the United States. Recent research reports no widespread difficulties in academic recruitment and retention in the UK but in recent years there have been significant changes in the nature of academic careers there[1].

1.8 The UK higher education sector has expanded, funding pressures have intensified and the academic profession has become more accountable. There has been a concern about academic pay levels in the past but salaries have been significantly increased as a result of the settlement reached in 2006. The ageing of academic staff is a potential concern. However, overall academic staff turnover has not been a problem in the last few years and recent research has suggested that turnover rates among staff were generally low and falling[2].

1.9 There are several signs that UK higher education institutions are increasingly active in recruiting staff from overseas. In some key subject areas it appears that the UK is becoming reliant on international staff and a significant proportion of the main academic supply chain (ie postgraduate researchers) is represented by non-UK nationals.

1.10 This is generally a very positive position. International staff (and students) provide the system with many highly qualified and highly talented people. People who study in the UK may choose to pursue their academic careers here as well. Even if they only work here for a brief period they are likely to develop research collaborations with UK academics that will continue for the rest of their careers.

1.11 However, the international dimensions of academic staffing and the academic supply chain need to be clearly understood by institutions and national organisations. This will enable appropriate strategies in areas such as academic planning and human resource management to be developed that take this wider market into account. Changes in other systems, perceptions about the attractiveness of an academic career as well as general lifestyle factors and settlement opportunities will all influence individuals' decisions about whether to work in the UK as an academic.

2. The current position in the UK

2.1 In 2005/06, there were 164,877 academic staff in UK higher education institutions, of which 111,412 were full-time and 53,465 were part-time. About 15 per cent of full-time academic staff were over the age of 55 and the equivalent figure for part-time staff was 22 per cent. The number of international staff (non-UK) in 2005/06 was 31,477, 21 per cent of the total academic staff population with known nationality.

2.2 The number of academic staff has increased significantly in recent years. There was a growth of 11 per cent between 1995 and 2000 and further expansion is likely[3]. Between 1995/96 and 2003/04 the number of staff in chemistry, physics, engineering and mathematics decreased, although total academic staff numbers grew substantially. The proportion of staff aged 55 or over increased and the proportions of women, non-UK nationals and staff from minority ethnic backgrounds also rose during this period[4].

2.3 The Higher Education Funding Council for England (HEFCE) has modelled estimates of how many academic staff might need to be recruited each year until 2011 so that staff levels are maintained and grow in line with student number projections[5]. According to these calculations just over 6,000 recruits to permanent academic positions will be required each year from 2004/05 to 2010/11 to maintain 2003/04 staffing levels. Between 7,000 and 12,000 additional recruits may be required to ensure that staff numbers increase in proportion to student numbers[6].

Entrants to academic careers in the UK

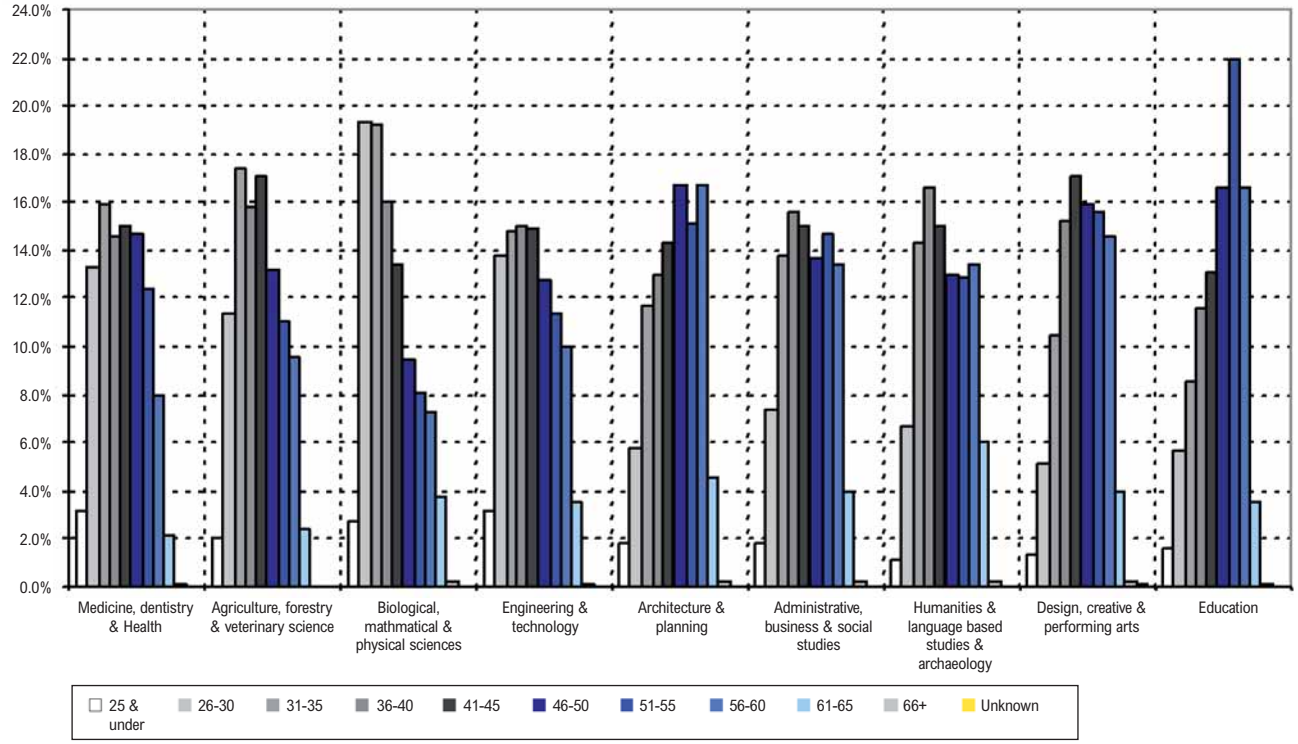
Table 1: Origin of staff entrants to the UK higher education sector in 2001/02

Previous position/origin	UK%	Non-UK %	Total %
Student	19	14	34
Student in the UK	19	10	29
Student abroad	0	5	5
UK public sector	21	4	25
UK non-public sector	13	4	17
Abroad	5	16	21
Non-UK higher education institution	2	9	11
Non-UK research institute	1	5	6
Non-UK employment	1	3	4
Not in regular employment	2	1	3

Source: National Institute for Economic and Social Research (NIESR), 2005.

2.4 Academic employees are recruited from two main sources: students (both UK-domiciled and non-UK domiciled) (34 per cent) and employees from other sectors in the UK (42 per cent). Most of the remainder are employed abroad (21 per cent). A high percentage of entrants is non-UK (40 per cent), comprising 10 per cent international students studying in the UK, 5 per cent of students who were studying abroad and 24 per cent non-UK employees (16 per cent employed abroad and 8 per cent employed in the UK).

Chart 1: Age distribution by groups of full-time UK academic staff by subject 2005/06



Source: HESA (2007) *Resources in higher education institutions 2005/06;* Table 11

Recruitment issues

2.5 Academic staff turnover rates in the UK are relatively low. Some 87 per cent of the academic staff working in higher education in 2001/02 were working in the same institution as in the previous year and the recruitment rate was 13 per cent[7]. Turnover appears to be higher in science than in non-science subjects, which may relate to higher levels of fixed-term contracts in science subjects than in other areas.

2.6 The latest report on staff recruitment in UK universities, published in 2005 by the Universities and Colleges Employers Association (UCEA), indicated that most institutions had experienced recruitment and retention difficulties 'sometimes' for academic staff[8]. There are particular issues about recruitment to law, business and management, economics, accounting, computing/IT and health subjects, perhaps due to strong demand for similar groups of these types of professionals in other parts of the economy.

2.7 One of the ways in which higher education institutions have sought to address such recruitment difficulties is to give greater attention to seeking applications from overseas. The UCEA report comments:

''The case study higher education institutions receive an increasing number of applications from overseas. Sometimes this is as a result of a deliberate strategy to widen the search for candidates particularly in academic specialities or for senior research posts with a limited candidate pool. However, in one case the institution was looking to achieve a better fit with their student profile in a particular academic discipline. At other times this was an outcome of using the internet for advertising vacancies which has a wide international reach. There are some concerns, however, raised about the appropriateness of these applicants, and about the commitment to stay with the institution of these, often very geographically mobile, individuals'[9].

2.8 The growing importance of international academic recruitment has been confirmed by other recent research. A study by the National Institute for Economic and Social Research (NIESR)[10] analysed the recruitment processes of a sample group of higher education institutions and found that recruitment searches were increasingly extending overseas – to the Far East, China, Russia and mainland Europe. This is in line with the case studies in the UCEA survey[11], showing that staff shortages and recruitment difficulties are encouraging institutions to look overseas.

2.9 Research on recruitment and retention trends across the Commonwealth[12] suggests that the situation is worse in some other countries; in Australia, New Zealand and Canada a large majority of respondents anticipated increased recruitment difficulties.

Age profile

2.10 Concerns about the age profile of academic staff in UK higher education institutions have been highlighted for a number of years. The proportion of full-time academic staff aged over 55 has risen from 10.8 per cent to 17.1 per cent of the total workforce during the period 1995/96 to 2005/06.The subject groups with the highest proportions of academic staff aged over 55 in 2005/06 were: education (27 per cent), architecture and planning (21 per cent), humanities and language-based studies and archaeology (20 per cent) and administrative, business and social studies (19 per cent).

2.11 Many of these subjects, except education, are also areas with significant numbers of non-UK staff, as highlighted in Table 9 below.

Pay levels

2.12 Academic pay levels have compared unfavourably with some other jobs in the UK, particularly in areas such as business, health and education. In general, pay awards in the health and education sectors were higher than those in higher education in some previous years[13] and there was concern about the pay gap between these sectors and higher education. However, recent NHS and teachers' pay increases have been somewhat lower, whereas the three-year higher education pay settlement reached in 2006 together with the effect of new pay structures adopted as part of the framework agreement will significantly raise higher education pay levels.

Academic mobility: 'brain circulation'

2.13 There is little evidence to support the view that there is a significant 'brain drain' – a net loss of academics from the UK. Academic staff are mobile and some are internationally mobile but many also return after a period working overseas[14]. 'Brain circulation' may be a more appropriate term as some staff move between different countries at different stages in their careers.

2.14 A recent report by the Higher Education Policy Institute (HEPI) examined academic migration to and from the UK. This showed that there was substantial net immigration to the UK between 1995/96 and 2002/03[15]. Around 1.4 academics arrived for every 1 that left. In 2003/04 and 2004/05 there was a decline in the level of net immigration to UK higher education although the figure still remains positive. Immigration and emigration rates have tended to increase as the total staffing

complement of the sector has increased.

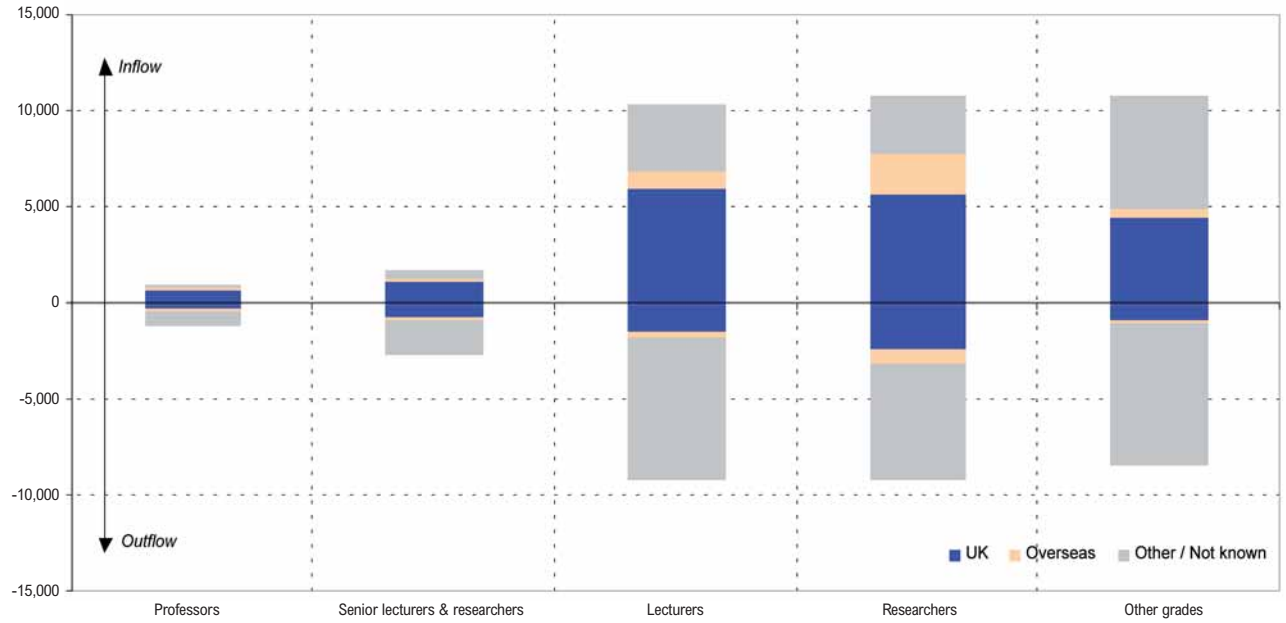
2.15 Migration generally involves junior staff, with researcher grades accounting for around two-thirds of migration in both directions. About half of all migrations in both directions are accounted for by non-UK nationals on researcher grades. This may indicate that a significant element of migration is due to post-doctoral researchers who spend a comparatively short period of time in the UK. For many UK nationals periods overseas may be viewed as career development rather than permanent emigration. There are clearly some differences in mobility according to permanent or non-permanent employment status.

2.16 Research undertaken by Evidence Ltd attempted to analyse the movement of researchers by publication[16]. Overall, about 45 per cent of highly cited researchers based in the UK have spent some time overseas during their careers. This was a lower mobility rate than in many European countries or in Canada or Australia although it was greater than it was in the United States and France.

2.17 There was no net 'brain drain' from the UK to the United States among highly cited researchers but rather the reverse. There was significant international mobility of UK academics but no measurable brain drain among highly cited researchers. Evidence Ltd also looked at immigration to the UK research base in 1999 and 2004. Comparing the two years there was a decrease in immigration from Europe and North America but an increase from Asia, Australia and New Zealand.

2.18 An analysis of data on academic staff in 2005/06 revealed significant inflows from overseas at lecturer, researcher and other grades, with greater outflow than inflow at senior lecturer/researcher and professorial level. The greater net inflow at lecturer, researcher and other grades is welcome but the greater net outflow from the UK at senior levels should be noted and monitored in future years.

Chart 2: Inflows and outflows of academic staff in the UK by grade and destination, 2005/06



	Professors	Senior lecturers & researchers	Lecturers	Researchers	Other grades
Net balance:	-55	-990	+1,190	+1,680	+2,395
(2004/05)	*(-180)*	*(-265)*	*(+2,725)*	*(+605)*	*(+7,530)*

Source: HESA (2007) *Resources in HEIs 2005/06*

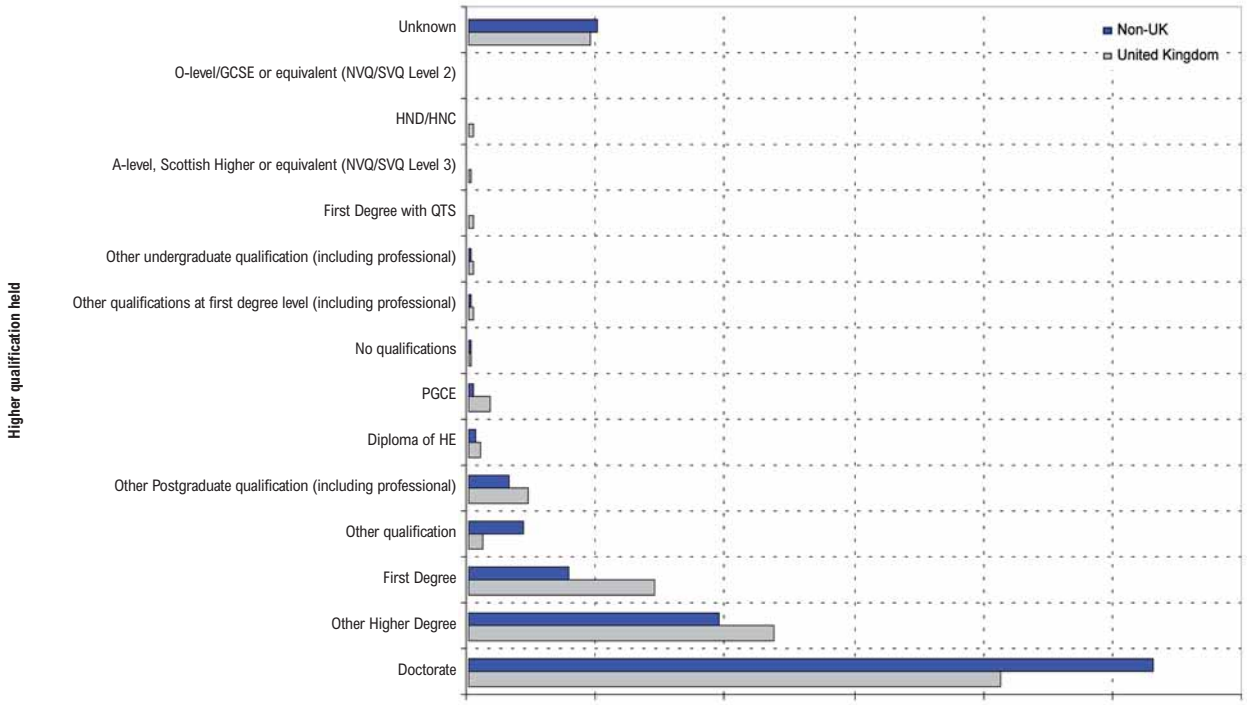
Profile of the international staff in UK higher education institutions

2.19 In 2005/06 there were 31,477 non-UK nationals in academic posts in UK higher education institutions, representing 19.1 per cent of total academic staff. In parallel to the position for international students, many academics from overseas working here specialise in subject areas that the government has identified as being of national importance. According to a recent report, 37 per cent of academic immigrants to the UK in 2002/03 worked in the biological, mathematical and physical sciences[17].

2.20 The most common academic disciplines of non-UK national academic staff in 2005/06 were physics (4.6 per cent), economics (4.1 per cent), computer science (3.7 per cent), chemistry (3.5 per cent) and psychology (3.4 per cent).

2.21 A doctorate was the most common highest qualification held by academic staff. The proportion of non-UK national academic staff with a doctorate as the highest qualification was higher (53 per cent) than among staff who were UK nationals (41 per cent). The proportion of academic staff whose highest qualification was a first degree also differed between the two groups (UK nationals 15 per cent; non-UK nationals 8 per cent).

Chart 3: Highest qualification held by academic staff by nationality, 2005/06



Source: HESA *Staff record 2005/06*

Table 2: Major non-UK nationalities of academic staff in UK higher education institutions, 2005/06

Nationality	Academic staff
Germany	3,130
Republic of Ireland	2,410
United States	2,380
China (People's Republic of)	2,280
Italy	1,870
France	1,850
Greece	1,610
India	1,330
Australia	1,270
Spain	1,170
Canada	930
The Netherlands	790
Russia	620
Japan	440
New Zealand	430
Malaysia	410
Poland	360
Sweden	310
Portugal	290
Belgium	280

Source: HESA *Staff record 2005/06*

Table 3: Major non-UK nationalities of staff graded as researchers, 2005/06

Nationality	Researchers
China (People's Republic of)	1,450
Germany	1,070
France	900
Italy	750
Greece	570
India	570
Republic of Ireland	560
United States	510
Spain	490
Australia	440
Russia	340
The Netherlands	320
Canada	230
Japan	200
Poland	190
Malaysia	170
Sweden	160
Portugal	150
New Zealand	140
Iran	120

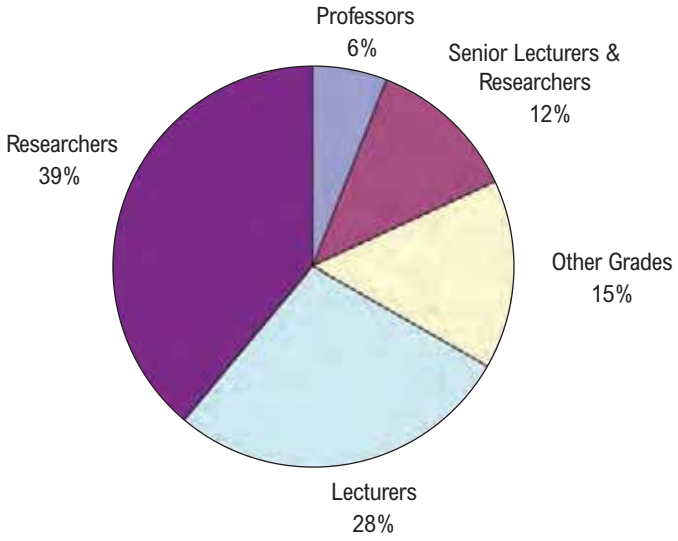
Source: HESA *Staff record 2005/06* (value rounded to nearest 10)

2.22 Table 2 shows that nationals of Germany, the Republic of Ireland, the United States and China make up very substantial numbers of staff. However, these overall figures need to be looked at more closely to explore the proportion of non-UK national academic staff in each academic grade.

2.23 Chart 4 illustrates that almost 40% of all non-UK academic staff are researchers, and more information on the nationalities of researchers is provided in Table 3.

2.24 Table 3 confirms that Chinese nationals are the largest single group of non-UK nationals among research staff. Researchers constitute approximately two-thirds of all Chinese staff in UK higher education institutions. For comparison, the following table shows the major nationalities of staff employed at lecturer grade.

Chart 4: Proportion of non-UK national academic staff by grade, 2005/06



Source: *HESA Staff record 2005/06*

Table 4: Major non-UK nationalities staff at lecturer grade, 2005/06

Nationality	Lecturers
Germany	920
Republic of Ireland	900
United States	720
Greece	520
Italy	490
China (People's Republic of)	410
France	400
India	360
Canada	320
Australia	310
Spain	300
The Netherlands	190
Russia	120
Malaysia	120
New Zealand	120
Japan	100
South Africa	100
Nigeria	90
Poland	90

Source: HESA *Staff record 2005/06* (values rounded to nearest 10)

2.25 A slightly different picture is presented here, with staff from the Germany, Ireland, the United States and other European and English-speaking countries being the most prominent. However, China now has the sixth highest number of lecturers at UK higher education institutions and India the eighth highest number. Table 5 indicates that the largest non-UK national groups among professorial staff were from the United States, the Republic of Ireland, Germany and Australia. It also shows that a similar distribution of nationality is seen among professorial staff as among the teaching and research staff generally.

Table 5: Major non-UK nationalities of professorial staff, 2005/06

Nationality	Professors
United States	350
Republic of Ireland	220
Germany	210
Australia	180
The Netherlands	90
Canada	90
Italy	80
Greece	70
India	60
Russia	60
New Zealand	50
China (People's Republic of)	40
France	40
Belgium	30
Iran	20
South Africa	20
Sweden	20
Israel	20
Spain	20

Source: HESA *Staff record 2005/06* (values rounded to nearest 10)

2.26 Table 6 below shows that non-UK staff tend to be younger than their UK equivalents.

Table 6: The age of higher education staff by nationality, 2005/06

Nationality	<30 years	30-39 years	40-49 years	50-59 years	60+ years
UK staff	9.8%	23.5%	29.1%	28.8%	8.9%
Non-UK staff	18.8%	44.7%	24.5%	9.6%	2.4%
Total	**11.7%**	**27.8%**	**28.2%**	**24.8%**	**7.5%**

Source: HESA *Staff record 2005/06*

Non-UK academic staff turnover

2.27 Staff recruited from the rest of the European Union, European Economic Area countries and Australia, New Zealand and the United States are more likely to expect to leave UK higher education than those coming from other countries overseas[18]. This may indicate that individuals enter academic employment after completing a higher degree in the UK but intend to return to their home country at some point. It also suggests that differences in political and social circumstances between countries of origin may influence the propensity to remain here.

Changes in the composition of academic staff by nationality

2.28 Research undertaken by HEFCE in 2005 analysed changes in permanent academic staff by broad UK and non-UK nationals categories between 1995/96 and 2003/04. This showed that there were increases in the number of international academic staff in UK higher education institutions from all parts of the world. Particular increases can be seen in academic staff numbers from Western Europe and Scandinavia, Eastern and Central Europe and China, Japan and East Asia.

Table 7: Trends in the distribution of permanent academic staff by nationality, 1995/96 to 2003/04

Nationality	1995/96	2000/01	2003/04	% change 1995/96 to 2003/04
UK	42,966	46,418	50,298	10%
Western Europe and Scandinavia	1,285	2,153	3,018	120%
Eastern and Central Europe	286	588	806	164%
United States, Canada, Australia, and New Zealand	1,235	1,603	1,926	46%
China, Japan and East Asia	268	388	526	84%
Middle East and Central Asia	430	517	678	48%
Other non-European	433	507	609	32%
Unknown	4,406	2,471	1,448	N/A
Total	**51,309**	**54,645**	**59,309**	**16%**

Source: HEFCE (2005) *Staff employed at HEFCE funded HEI's: trends, profits and projections* – Table 14

2.29 Table 8 provides more detail on the increases in absolute numbers of staff from particular regions.

Table 8: Annual changes in the distribution of permanent academic staff by nationality, 1995/96 to 2003/04

Nationality	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
UK	42,966	44,571	43,044	44,102	45,122	46,418	47,053	48,224	50,298
Western Europe and Scandinavia	1,285	1,382	1,475	1,621	1,878	2,153	2,394	2,622	3,018
Eastern and Central Europe	286	317	338	421	496	588	654	698	806
Australia, United States, Canada and New Zealand	1,235	1,305	1,277	1,343	1,462	1,603	1,682	1,768	1,926
China, Japan and East Asia	268	299	302	325	341	388	426	478	526
Middle East and Central Asia	430	428	427	442	481	517	545	606	678
Other non-European nationality	433	423	431	453	474	507	519	547	609
Unknown	4,406	3,361	2,766	2,752	2,472	2,471	2,307	1,743	1,448
Total	**51,309**	**52,086**	**50,060**	**51,459**	**52,726**	**54,645**	**55,580**	**56,686**	**59,309**

Source: HEFCE (2005) *Staff employed at HEFCE funded HEI's: trends, profits and projections* – Table E50, Annex D

Subject areas and nationality

2.30 The HEFCE study also analysed the percentage of non-UK nationals in particular subject areas and the results are outlined in Table 9 below.

Table 9: The distribution of permanent academic staff by subject and nationality, 2002/03 to 2004/05

Subject	% Non-UK nationals 2002-03	% Non-UK nationals 2003-04	% Non-UK nationals 2004-05
Subjects allied to medicine	7%	8%	8%
Biological sciences	11%	10%	11%
Veterinary sciences	9%	8%	11%
Chemistry	10%	9%	10%
Physics	15%	15%	17%
Other physical sciences	8%	7%	9%
Mathematical sciences	17%	15%	17%
Computer science/information	15%	16%	17%
Engineering/technology/building	15%	15%	16%
Social/political/economic studies	15%	14%	16%
Law	14%	14%	15%
Business/administration	11%	11%	13%
Languages	19%	19%	20%
Humanities	14%	14%	15%
Creative arts/design	6%	7%	7%
Education	4%	4%	5%
Unknown/combined	15%	25%	21%
Total	**12%**	**13%**	**14%**

Source: HEFCE (2005) *Staff employed at HEFCE funded HEI's: trends, profits and projections* – Table 14

2.31 HEFCE's analysis revealed that the major subject areas with significant numbers of non-UK national academic staff were languages, physics, mathematical sciences and computer science, with other subject areas closely behind. It is useful to cross-reference these areas with the subjects identified as having high proportions of academic staff at the upper end of the age range (as outlined in paragraph 2.10 above). There are several subject areas with high proportions of academic staff aged over 50 (with the exception of education) that have high proportions of non-UK national staff. The report also provided an analysis of academic nationalities by broad regions in particular subject areas and details are attached at Annex A.

3. The position in comparator countries

3.1 There is a growing global demand for high-quality academic staff from other English-speaking providers around the world as well as from rapidly developing or reforming higher education systems in other countries. A number of providers in other countries are increasingly providing higher education in English. A recent study of recruitment and retention trends in the Commonwealth[19] highlighted the fact that the global mobility of academics is increasing, with institutions that responded to the study employing an average of 'foreign nationals' of 12 per cent of academic staff.

International academic pay levels

3.2 There are very few international studies of relative levels of academic pay in different countries. One notable example is the salary survey carried out by the Association of Commonwealth Universities (ACU)[20]. This examines academic salaries and associated benefits in 46 higher education institutions in five countries – Australia, Canada, New Zealand, South Africa and the United Kingdom. Australian academic pay scales are above those of the other countries in terms of purchasing power parity (a measure that equalises the purchasing power of different currencies in their home countries for a given basket of goods), with the UK being third after Canada followed by New Zealand and South Africa. However, when UK salaries are converted using nominal exchange rates they are the highest. UK academics, in common with many other UK workers, experience a relatively high cost of living.

3.3 The survey shows that Canada had the highest starting salaries for academics. Compared with Canada and Australia the UK appears to reward senior academics less generously but compares quite favourably for lower grade academics. In all countries academic salaries compared poorly with those for equivalent roles in other parts of the private sector.

3.4 Research by NIESR indicated that academic pay in the UK is low relative to other highly qualified jobs in the UK, which may reduce the attractiveness of entry to the sector. However, they compare favourably with those in Sweden, Japan, Australia and New Zealand, are the same as in Denmark, France and Canada but are lower than in the United States. The United States system is much more disparate than the UK with greater pay disparities between different types of higher education institutions.

3.5 An ageing academic staff profile is common to many of the countries comparable and competing with the UK. The proportion of academics aged 55 and over is rising in all the major developed English-speaking countries. In 2002 it was 36 per cent in Australia, in Canada 30 per cent, in New Zealand 35 per cent, in the United States 30 per cent and in the United Kingdom it was 20 per cent[21]. So the UK is not in an unreasonable position, and by 2005/06 the percentage of academic staff over 55 had reduced to 19 per cent according to 2005/06 figures.

3.6 A study of the age profile of academic staff in the UK, Australia, Canada and the United States in 2003 concluded that there were potentially serious recruitment problems ahead in these countries, because of the age profile of staff and the planned growth in student numbers[22]. However, the study judged that the issues were more serious for the United States and Canada than the UK and Australia.

Australia

3.7 Just under 30 per cent of Australian academics are 50–59 years old[23]. The proportion of academic staff aged over 50 increased between 1995 and 2004, while those in the 25–39 and 40–49-year-old age groups decreased over the same period. The greatest concentration of academics between the ages of 55–64 was in the areas of administration, business, economics and law, with 22 per cent of their staff in this age bracket. This was followed by humanities with 19 per cent between the age of 55–64 and then by health sciences, with 17 per cent in this group. The number of international academic staff working in Australian universities is not known.

United States

3.8 In 2003 there were 143,235 non-resident aliens employed by colleges and universities in the United States[24]. Within this figure 28,359 were faculty members and 85,746 were instruction and research assistants, which would appear to indicate that non-resident aliens tend to be concentrated in junior roles in American institutions. There are also probably significant numbers of other non-United States citizens who are categorised as resident aliens working as academics in American higher education.

3.9 Over 30 per cent of academic staff are reported as being aged 55 or over. Fewer than 10 per cent are under 35 years old[25]. There is a particularly high proportion of academic staff in the older age bands in the humanities, education and agriculture. The average age of academic staff in the United States is 49. However, there are differences in academic employment terms and conditions there that may influence these figures.

Canada

3.10 Around 16 per cent of full-time faculty staff in Canadian universities and colleges are non-Canadian nationals[26]. Canada has an increasingly ageing academic staff. In 2001 nearly 30 percent of professors were over the age of 55 compared to 26 per cent in 1996[27]. The number of overall academic staff under the age of 30, between 30–34 and 25–49 declined between 1996 and 2001. The average age of academic staff is now 49, an increase from 47 at the start of the 1990s and 44 at the beginning of the 1980s[28].

4. The student supply chain

4.1 International students represent a significant potential labour force for higher education institutions and other employers. Research by the Organisation for Economic Cooperation and Development (OECD) in 1999 indicated that 47 per cent of foreign-born PhD graduates studying in the United States remain in the country after completing their studies. Nearly 25 per cent of immigrants on H1B temporary visas in 1999 were initially students at American universities. The average stay rates of foreign science and engineering PhD graduates in the US between 1990 and 1999 were higher among migrants from China (87 per cent), India (82 per cent) and the UK (79 per cent) than among those from Taiwan (57 per cent) or South Korea (39 per cent).

4.2 As students provide the largest source of entrants to academic employment in the UK, as indicated in Table 1, it is useful to highlight some of the issues that may be affecting this important supply chain and what the supply chain may look like elsewhere.

United States

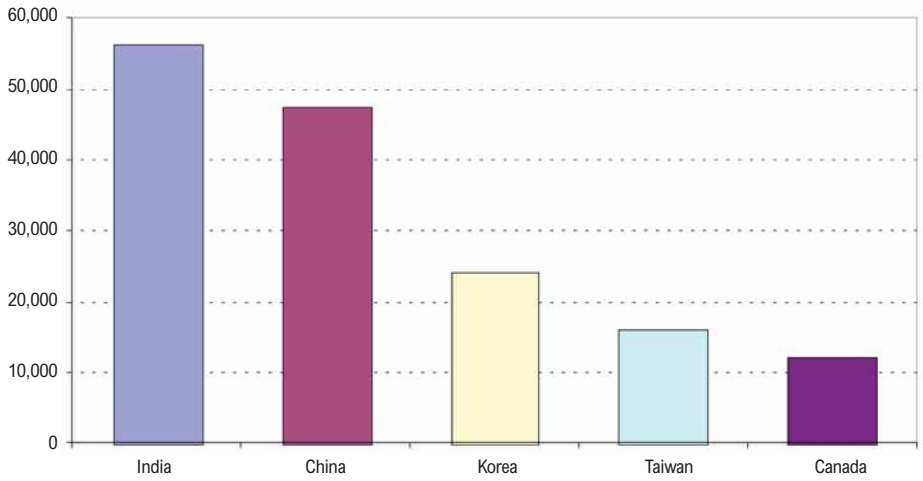
4.3 The United States receives the largest number of international students in the world. In 2005/06 there were 564,766 international students in American universities and colleges, 259,717 at graduate level.

Table 10: International students in United States universities and colleges by level, 2004/05 and 2005/06

Academic level	2004/05	2004/05 % of total	2005/06	2005/06 % of total	% change
Associate	65,667	11.6	63,598	11.3	-3.2
Bachelor	173,545	30.7	172,744	30.6	-0.5
Graduate	264,410	46.8	259,717	46	-1.8
Masters	121,523	21.5	115,434	20.4	-5
Doctoral	102,084	18.1	107,993	19.1	5.8
Professional	7,675	1.4	8,463	1.5	10.3
Unspecified	33,128	5.9	27,827	4.9	-16
Other	61,417	10.9	68,707	12.2	11.9
Total	**565,039**		**564,766**		**-0.05**

Source: Institute of International Education, 2006

Chart 5: Graduate students in United States universities and colleges – top five countries of origin, 2005/06



Source: Institute of International Education, 2006

4.4 The most popular fields of study for international students in the United States in 2005/06 were business and management (18 per cent of the total), engineering (16 per cent) and physical and life sciences (9 per cent), followed closely by social sciences, mathematics and computer sciences (all 8 per cent). This year three of the leading fields reported less than 1 per cent change in enrolments compared to last year, but engineering declined by 5 per cent and mathematics and computer science declined by 10 per cent. Fields experiencing growth include the fine and applied arts (up 5 per cent), health professions (up 3 per cent), and intensive English language (up 7 per cent)[29].

Australia

4.5 There were 172,297 international students in Australian universities in 2006, which is an increase of 5.2 per cent compared to 2005.

Table 11: Country of origin of international students studying at Australian universities in 2005 and 2006

Country	2005	2006	Change %
China	40,163	46,075	14.7%
India	22,207	25,431	14.5%
Malaysia	15,384	14,932	-2.9%
Hong Kong	10,743	9,948	-7.4%
Indonesia	9,555	8,772	-8.2%
Singapore	8,353	7,862	-5.9%
Korea	5,332	5,590	4.8%
Thailand	5,222	4,891	-6.3%

Source: Australian Education International, 2007

4.6 Calculating the number of international students on postgraduate research programmes in Australia is problematic. However, there are indications that there are relatively low numbers on these programmes, with the majority of its international students being enrolled on undergraduate programmes. A study based on a sample of 30,943 international students enrolled in Australian universities between 2002 and 2005 found that only 1,048 were on doctoral programmes and only 188 were on research masters' programmes[30].

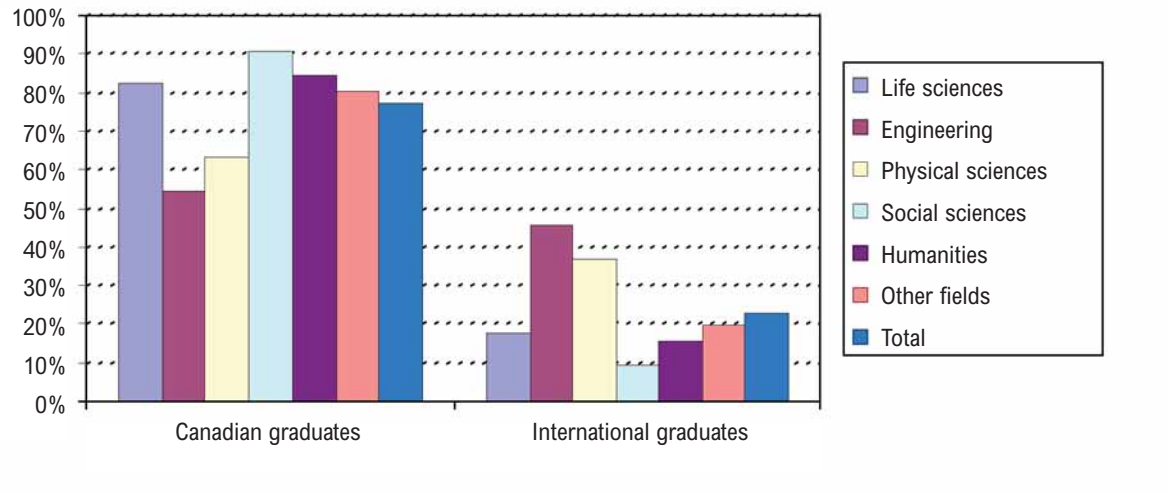
4.7 A report on PhD study in Australia indicated that the number of its citizens completing doctorates had increased by around 1 per cent in total between 2001 and 2004[31]. However, there was a decline of 6 per cent in the number of Australians completing doctorates in engineering during this period, a 20 per cent decline in natural and physical sciences and a 42 per cent decline in earth sciences.

Canada

4.8 As Canadian higher education is run at provincial rather than federal level the collection of national data is limited although Statistics Canada provides some useful information. In November 2006 its website reported that 75,200 students from other countries had enrolled at Canadian universities in 2004/2005, representing an increase of 7.3 per cent on the previous year[32]. International students represented 7.4 per cent of the total registrations. Half of these students were from Asia, and China accounted for 46.4 per cent of this group.

4.9 In 2003/04 international students represented almost one-quarter of all doctoral graduates[33] in Canada. About 23 per cent of all doctoral graduates from Canadian universities in 2003/04 were international, or visa, students and the vast majority (about 75 per cent) were men. The most popular programmes of study for these graduates were engineering, physical sciences and life sciences. About three-quarters of all international students graduated from one of these three programmes, compared to about a half of all Canadian graduates. International students accounted for about 4 out of every 10 graduates from engineering and physical science programmes.

Chart 6: Canadian and international graduates from doctoral programmes in Canada, 2003/04

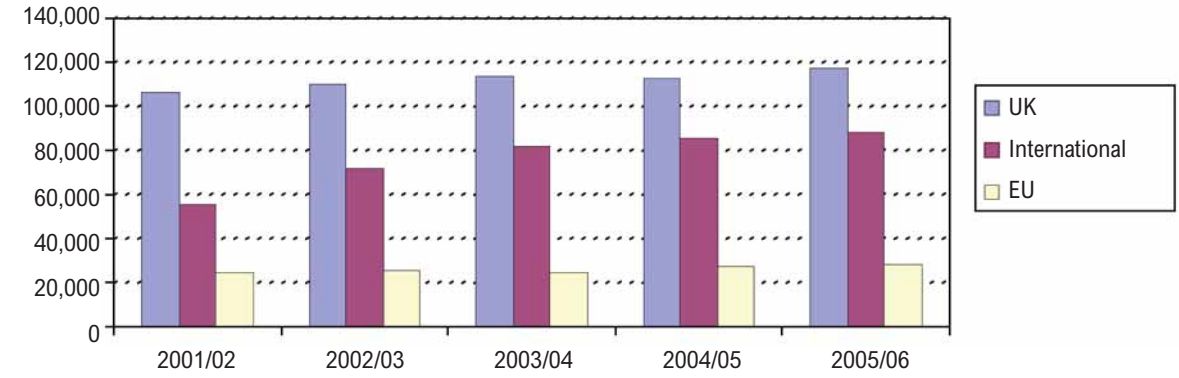


Source: Statistics Canada, 2005

United Kingdom

4.10 In 2005/06 there were 223,900 international students in UK higher education institutions. Of these 124,500 were on postgraduate programmes compared to 374,000 UK domiciled postgraduate students.

Chart 7: Total taught and research postgraduate numbers in UK higher education institutions 2001/02– 2005/06



Source: HESA, *Students in higher education institutions*, Table 1c

4.11 In 2005/06 there were 32,420 international students on research degree programmes in UK higher education institutions compared to 67,010 UK students and 14,365 EU students.

Table 12: International students on research degree programmes in UK higher education institutions, 2005/06

Non-EU regions	31,855
Other Europe	1,280
Africa	3,670
Asia	15,605
Australasia	650
Middle East	3,885
North America	5,595
South America	1,015
Non-European-Union unknown	155

Source: HESA *Students in higher education institutions* 2005/06

Table 13: Full-time postgraduate students in UK higher education institutions by selected subject areas and domicile, 2005/06

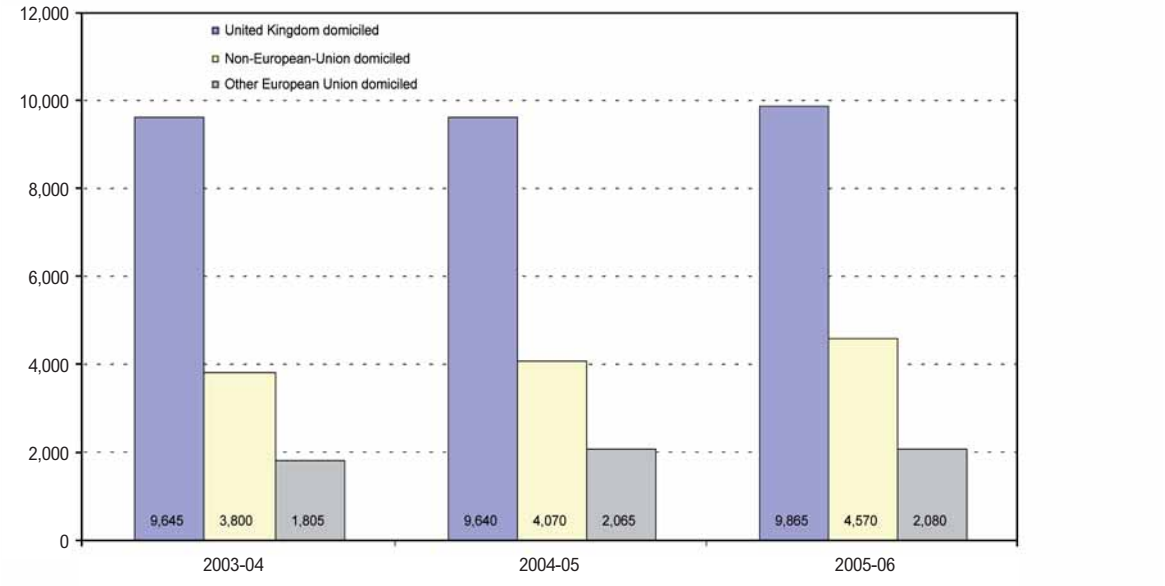
Subject	All students	International students (excluding EU)
Biological sciences	14,920	3,140
Physical sciences	13,210	3,075
Mathematical sciences	3,285	1,190
Computer sciences	12,800	7,325
Engineering and technology	21,735	11,690
Economics	4,760	2,855
Electronic and electrical engineering	6,235	3,995

Source: HESA *Students in Higher Education Institutions* 2005/06

4.12 Data on subject of study at doctoral level in the UK is not currently available and the only figures available refer to all full-time postgraduate students not only those on research programmes. Table 13 highlights the fact that over half of the postgraduate students in the broader discipline areas of computer science and engineering and technology are international students. In more specific subject areas such as economics and electronic and electrical engineering these students are particularly significant.

4.13 Overall the number of doctorates awarded annually to UK domiciled students more than doubled between 1994/95 and 2005/06 (118 per cent increase).

Chart 8: Doctorates awarded to students at UK higher education institutions 2003/04 – 2005/06



Source: HESA, *Students in higher education institutions 2003/04 – 2005/06*; Table 14

4.14 However, there are concerns about reductions in UK student numbers in some subject areas at postgraduate level. There has been a marked decline in UK students doing economics PhDs[34] and problems in access to careers for chemistry graduates[35]. The following table indicates that there have been reductions in UK nationals holding PhDs in physics and engineering/technology and building subjects.

Table 14 – Home domiciled PhD qualifiers by subject, English higher education institutions 2002/03 to 2004/05

Subject	2002/03	2003/04	2004/05	% change
Biological sciences	1,616	1,730	1,724	7%
Chemistry	686	742	707	3%
Physics	439	394	383	-13%
Mathematical sciences	205	221	223	9%
Engineering/ technology/building	1,006	945	938	-7%

Source: HEFCE (2005) *Staff employed at HEFCE funded HEI's: trends, profits and projections* – Table 14

4.15 A Treasury review of the supply of students in science, engineering and technology subjects in higher education, undertaken by Sir Gareth Roberts, considered the issue of the retention of PhD students[36]. This reflected concerns that the UK was losing these students after graduation. The review suggested that an analysis of the first destinations of PhD students might be misleading as taking a postdoctoral post overseas was often encouraged as an appropriate career move, with the individual later returning to the UK.

4.16 A study undertaken by the Engineering and Physical Sciences Research Council (EPSRC) of its postgraduates six to seven years after their studentships indicated that a significant number of students in chemistry, around 15 per cent, went to the United States for a period after graduation. However over half of them had returned to the UK by the time the study was undertaken[37].

5. Issues for the future

5.1 In recent years many countries have set their research and development spending targets as a percentage of gross domestic product: Canada has a target of 1.94 per cent by 2010; China has one of 2.5 per cent by 2020 and the European Union has agreed 3 per cent by 2010. Having these targets acknowledges the importance of research and innovation in a competitive and globalised economy and implies the availability of a highly skilled workforce. It has been estimated that at least 500,000 more researchers will be needed to meet the 3 per cent European Union target. All these targets will mean increasing competition for researchers around the world.

5.2 The creation of the European Higher Education Area by 2010, which is the aim of the Bologna Process, will ensure that other European Union member states will be seeking to attract highly talented people, both of their own and of foreign nationality, to their higher education systems. This is another important factor in ensuring that there will continue to be strong international demand for appropriately qualified academic manpower.

5.3 Many countries are currently engaged in higher education reforms that should result in more effective and efficient systems. One common objective is for them to try to retain highly qualified staff in their own systems or at least encourage them to return after a period overseas. In particular China, Malaysia and Singapore are focusing on reforms to create 'world-class' institutions; retaining their own nationals and attracting foreign nationals will be an essential part of these strategies.

5.4 There are concerns about the migration of staff from less developed countries to developed systems which may become more acute as higher education systems in developing countries are strengthened and demand increases. There may be an increasing focus on 'ethical recruitment' that minimises the disruptive effects of the movement of academic staff for developing countries.

5.5 Some factors affecting the international recruitment of academic staff remain firmly outside the sector's control. The UK is introducing an ambitious programme of immigration reform encompassing all non-asylum migration for periods longer than six months and changes will be implemented shortly. The United States has recently adopted immigration changes that resulted in a drop in the number of international students and several cases of international academic staff being denied entry either for permanent jobs or for temporary reasons. In the UK it will be important to ensure that the highly qualified and skilled migrants that the sector wishes to recruit and retain are able to enter the country and remain here under the new points-based immigration system.

5.6 The significant numbers of international students that are concentrated in particular postgraduate research programmes in the UK can be viewed both as a problem and also a benefit for the sector. Changes may occur in key supply countries that could persuade more international students to return home immediately after graduation to pursue their careers, including academic careers, rather than remaining here. In these circumstances there could be adverse effects on employers if there are lower numbers of appropriately qualified UK students. On the other hand, weak demand from UK students for some postgraduate courses means that in several key areas higher education benefits from international students wanting to undertake research here with all the academic, cultural and economic advantages that they bring to the country. International postgraduate students who have studied here and have had a positive experience are likely to play a key role in establishing and maintaining international research collaborations and networks.

5.7 The choices facing home and international students (particularly PhD students) around whether to pursue academic careers or other careers will continue to be important. Pay will be a significant consideration but other factors relating to working conditions and bureaucracy may become more important to them. For some UK students there may be concerns about the levels of debt from undergraduate study and other career paths offering more immediate reward as well strong long-term prospects. The impact of changes in retirement and pensions arrangements may enable more flexible workforces but could limit progression in some areas.

5.8 The sector's increasing reliance on staff from overseas should be viewed positively. They help to ensure the continued provision of teaching and research at appropriate levels in key subjects where UK nationals are found in declining numbers. Again the academic and cultural benefits from international staff support our position as a major producer of world-class research and high-quality teaching. However, we need to be aware of the potential risks associated with declining UK staff and student numbers in specific subjects, including the likelihood that a significant proportion of staff from overseas may seek to move back to their home country or elsewhere.

5.9 There may also be issues for institutions to address in the recruitment, induction and retention of international academic staff. Non-UK academics, understandably, are more likely to leave the UK sector but institutions also need to ensuring that international academics receive appropriate support and guidance when recruited and throughout their employment, with the aim of helping them to pursue their careers in this country. A few institutions have developed guidance or strategies focused on the needs of international staff but it may be an issue for all higher education institutions to consider[38]. Such strategies should include the increasing numbers of staff working on behalf of UK higher education institutions that are based overseas, either in overseas campuses, partner institutions or regional offices. Such staff may be hired here or locally.

6. Universities UK actions

We will work with relevant bodies to:

- provide higher education institutions with information on international staff issues;
- try to understand more about the process of change in areas such as demographics, discipline issues, gender, countries of origin, and turnover rates in order to improve our understanding of future trends;
- provide more information on the existing and emerging key mobility routes for academic staff – in the Commonwealth, United States, Europe and Asia;
- gather more comparative data on the packages/benefits/incentives offered to international staff;
- consider our human resources policies and their cultural implications for international staff; and
- consider the issues relating to the employees of UK universities who are based offshore.

Annex A – Staff employed in higher education institutions: trends, profits and projections

Table 15: Nationality of academic staff in engineering and related subjects 1995/96–2003/04

Nationality	1995/96		2000/01		2003/04	
	Number	%	Number	%	Number	%
United Kingdom	4,881	86%	4,397	84%	4,103	83%
Western Europe and Scandinavia	71	1%	115	2%	155	3%
Eastern and Central Europe	64	1%	110	2%	131	3%
USA, Canada, Australia and New Zealand	63	1%	85	2%	86	2%
China, Japan and East Asia	74	1%	114	2%	109	2%
Middle East and Central Asia	154	3%	142	3%	147	3%
Other non-European nationality	74	1%	87	2%	89	2%
Unknown	319	6%	183	3%	102	2%
Total	**5,700**	**100%**	**5,233**	**100%**	**4,922**	**100%**

Table 16: Nationality of academic staff in computer science and related subjects 1995/96 to 2003/04

Nationality	1995/96		2000/01		2003/04	
	Number	%	Number	%	Number	%
United Kingdom	1,647	85%	2,125	83%	2,461	82%
Western Europe and Scandinavia	40	2%	107	4%	166	6%
Eastern and Central Europe	28	1%	61	2%	90	3%
USA, Canada, Australia and New Zealand	36	2%	51	2%	54	2%
China, Japan and East Asia	15	1%	27	1%	57	2%
Middle East and Central Asia	26	1%	34	1%	59	2%
Other non-European nationality	18	1%	32	1%	42	1%
Unknown	125	6%	123	5%	89	3%
Total	**1,935**	**100%**	**2,560**	**100%**	**3,018**	**100%**

Table 17: Nationality of academic staff in mathematical sciences 1995/96 to 2003/04

Nationality	1995/96		2000/01		2003/04	
	Number	%	Number	%	Number	%
United Kingdom	1,932	87%	1,768	83%	1,690	85%
Western Europe and Scandinavia	34	2%	78	4%	99	5%
Eastern and Central Europe	38	2%	88	4%	79	4%
USA, Canada, Australia and New Zealand	64	3%	82	4%	72	4%
China, Japan and East Asia	13	1%	19	1%	18	1%
Middle East and Central Asia	22	1%	22	1%	18	1%
Other non-European nationality	14	1%	11	1%	11	1%
Unknown	95	4%	62	3%	13	1%
Total	**2,212**	**100%**	**2,130**	**100%**	**2,000**	**100%**

Table 18: Nationality of academic staff in physics 1995/96 to 2003/04

Nationality	1995/96		2000/01		2003/04	
	Number	%	Number	%	Number	%
United Kingdom	1,631	89%	1,509	85%	1,383	84%
Western Europe and Scandinavia	37	2%	89	5%	114	7%
Eastern and Central Europe	12	1%	35	2%	41	2%
USA, Canada, Australia and New Zealand	48	3%	49	3%	43	3%
China, Japan and East Asia	9	0%	12	1%	17	1%
Middle East and Central Asia	15	1%	15	1%	15	1%
Other non-European nationality	5	0%	11	1%	12	1%
Unknown	76	4%	45	3%	21	1%
Total	**1,833**	**100%**	**1,765**	**100%**	**1,646**	**100%**

Table 19: Nationality of academic staff in chemistry 1995/96 to 2003/04

Nationality	1995/96		2000/01		2003/04	
	Number	%	Number	%	Number	%
United Kingdom	1,507	92%	1,395	90%	1,336	90%
Western Europe and Scandinavia	18	1%	48	3%	62	4%
Eastern and Central Europe	6	0%	13	1%	14	1%
USA, Canada, Australia and New Zealand	27	2%	37	2%	34	2%
Other non-European nationality	21	1%	18	1%	22	1%
Unknown	63	4%	41	3%	16	1%
Total	**1,642**	**100%**	**1,552**	**100%**	**1,484**	**100%**

Source all tables: HEFCE (2005): *Staff employed at HEFCE funded HEI's: trends, profits and projections* – Table 14

Notes

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