

Migration of Academic Staff to and from the UK

Bahram Bekhradnia and Thomas Sastry¹

Introduction

1. Debate about academic mobility has continued for the last 40 years. Mostly it has focused on emigration from the UK and for much of that time was founded on a belief that the UK suffered from a 'brain drain'. However, in recent years it has become recognised that there is gain to the UK from migration, as well as loss.
2. The term 'brain drain' originated in the late 1950s and was probably first given prominence by a Royal Society report in 1963. Prompted by concern at the loss of a number of outstanding scientists in the previous five years, including nine of its Fellows, the Society surveyed over 500 heads of departments in its disciplines. From the responses it estimated an annual permanent emigration of some 60 university staff per year and that this rate had increased threefold over the previous decade; for recent PhDs the rate of permanent emigration was estimated at 140 a year (12 per cent of the total output).
3. In the following years the issue was addressed in a number of further inquiries and reports. All were focused on outward migration, and mobility was seen in terms of the risk of intellectual seepage - particularly from Europe to the USA - and termed a 'brain drain'. Only with the Royal Society's 1987 report *The migration of scientists to and from the UK* (Royal Society, 1987) was inward migration addressed. This survey of universities, research institutes and industry sought evidence for the previous 10 years. In the university sector 740 emigrants were identified, averaging 74 annually compared with 60 annually in the 1963 report. 556 academic immigrants were identified, including 140 who were British nationals. The report concluded that the brain drain was - in net terms - small scale, though still a cause for concern. A subsequent Royal Society paper *Migration of scientists and engineers 1984-1992* (Ringe, 1993) largely confirmed these findings. There has been no specific inquiry since then, that is, for the last decade.

¹ Summary report, based on research by William Solesbury Associates and Evidence Limited

4. Historically, the issue has become conceptualised in progressively more complex terms. 'Brain drain' was the sole concern in the 1960s and - as the pejorative nature of the term suggests - it was regarded as a threat to UK science. Only later was the inflow of scientists and engineers and the small scale of net outward migration recognised. Thence 'brain gain' came into the vocabulary. More recently the concept of a beneficial 'brain circulation' has come into play.

5. This report explores

- The volume and pattern of academic mobility between the UK and the rest of the world.
- What is driving it.
- How it impacts academic research in the UK.

6. The report draws on two studies, available on the HEPI website, which were commissioned for this purpose, from William Solesbury Associates (WSA) and Evidence Limited, as well as an analysis of HESA data by Tom Sastry of HEPI. These reports themselves draw on four main data sources:

- The annual data on staff movements in higher education institutions for the years 1994-2002, compiled by the Higher Education Statistics Agency (HESA).
- The publications record of highly cited staff, which over time reveals their movement between institutions and countries.
- The publications record of a larger sample of academic staff, sampled in 1994, 1999 and 2004, which show the mobility of staff more generally.
- The careers of Academicians (Fellows of the Academy of Medical Sciences(AMS), the British Academy (BA), the Royal Academy of Engineering (RAE)and the Royal Society (RS)), as summarised in Who's Who.

7. In addition, the study by WSA conducted a number of more in-depth analyses:
- Interviews with senior representatives of a sample of universities and learned societies.
 - An e-mail survey of academic migrants.
 - A literature survey of relevant research and reports.
 - An analysis of relevant policies and programmes.

Immigration and emigration: who and how many?

8. Analysis of the HESA data suggests in that UK over the entire 1995-6 to 2002-03 period there was substantial net immigration - on average about 1.4 academics² arrived for every one who left. However, over the past two years there has been a decline in the level of net immigration, although it remains strongly positive. Over the period 2.6 per cent of academics immigrated and 1.9 emigrated. Both immigration and (especially) emigration rates have tended to increase throughout the period even as the total staffing complement of the sector (the denominator in the calculation) has increased.

9. As is illustrated in Charts 1a and 1b below, migration is overwhelmingly a phenomenon affecting junior staff. Staff on researcher grades account for roughly two thirds of migration in both directions (and indeed about half of all migrations in both directions are accounted for by non-UK nationals on researcher grades). This strongly suggests that the overall figures for migration are heavily influenced by a large group of postdoctoral researchers who spend (and possibly intend to spend) only a limited time in the UK. Migration of this type would be unlikely to have disruptive effects upon UK academic departments. The absolute numbers of emigrants and immigrants at senior levels are not high and migration rates are low (emigration of lecturers, senior lecturers and professors is under 1 per cent throughout the period, immigration rates are slightly

² The terms 'academic' and 'academic staff' are used in this report to cover all those staff recorded by HESA as being on 'academic contracts', and the data shown here cover all such staff. These cover both relatively junior postdoctoral researchers as well as the most senior professors. Clearly different considerations apply to these, and where possible and appropriate data for different grades have been shown separately, and appropriate conclusions drawn. However, the publications and citations database does not differentiate in this way.

higher and fluctuate a little more, probably because of the impact of the RAE cycle on recruitment behaviour).

Chart 1a and 1b: Estimated total Annual Migrations 1994-95 – 2002-03, by grade³

Chart 1a Immigrants by grade

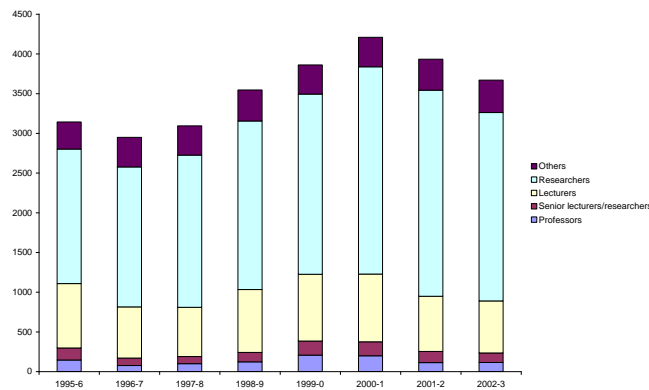
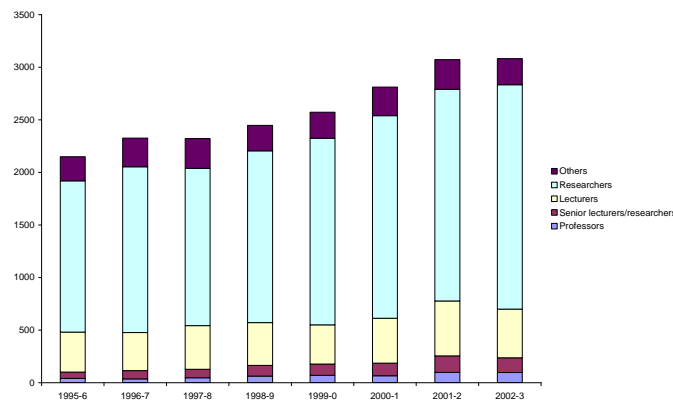


Chart 1b Emigrants by grade



Source: HESA Staff Record

10. Whereas the study of HESA data shows net immigration over the period, the study of publications and citations suggests that overall, taking into account all researchers with publications to their names in the relevant sample years, there is net emigration -- i.e. the UK loses more staff than it gains. However, this picture is reversed when looking at the sample of highly cited researchers. So, the study of mobility based on

³ The previous employment of a high proportion of staff who joined their institution in the previous year and the destinations of a higher proportion of those who have left is not known. To arrive at realistic estimates of immigration and emigration it was necessary to make assumptions about the number of these 'not knowns' who were immigrants and emigrants and the number of these at each grade, nationality etc. The method used to do this is described in Annex A.

publications refines the conclusions based on the study of HESA data. Together they suggest that whereas the UK may gain people without publications to their name - typically postdoctoral staff - among academic staff who publish the UK loses people in the early stages of their career – perhaps better established post-doctoral staff – but that it attracts more people than it loses at later stages in their careers, when they have built up a research reputation⁴.

11. This conclusion is reinforced by the finding that significantly fewer of those who immigrated did not subsequently carry on publishing than those who emigrated.. This implies that whatever their numbers, the significance of the emigrants in terms of the quality of staff is lower than those coming in. More immigrants than emigrants are established researchers who continue to publish. Almost all highly cited UK staff who go abroad subsequently returned, and this is so with academicians as well. Although there may be a net quantitative loss to the UK, there is a qualitative gain.

12. More generally, mobility is associated with high quality. 45 percent of the highly cited sample from the UK were employed abroad during some part of the survey time (compared to just 16 per cent of academics more generally). And the survey of academicians revealed that the great majority of these (85 per cent of Fellows of the Royal Society, 74 per cent of Fellows of the British Academy, 58 per cent of the Academy of Medical Sciences and 61 per cent of the academic Fellows of the Royal Academy of Engineering) had spent some abroad – frequently as postdoctoral fellows - but had returned. The very good people from the UK who go abroad frequently do so as postdoctoral fellows and then return to the academic profession in this country.

13. In further detail:

- By *employment grade* migrants are predominantly researchers : on average 61 per cent of immigrants were researchers compared to 21 per cent lecturers, 4 per cent senior lecturers, another 4 per cent professors, and 11 per cent other grades. Among emigrants the figures were similar – 67 per cent were researchers, compared to 16 per cent lecturers, 4 per cent senior lecturers,

⁴ This conclusion is a reasonable deduction from the data, which reconciles the different findings. .

2 per cent professors, and 10 per cent other grades. This further confirms the conclusion that migration is more common in early academic careers, and also that among more senior staff the UK tends to gain rather than lose.

- While mobility now characterises the careers of leading researchers in the UK and internationally, there is a mix of personal and professional motives driving this. The most common reason given in the follow-up survey conducted by WSA related to “career development”, followed by “intellectual opportunities”. 80 per cent of those moving thought their career had been "strongly improved", but this judgement was more common for UK researchers who had gone abroad than for non-UK staff who had come to this country.
- There is more turnover in the UK among foreign nationals than UK nationals. Indeed in 2002-03 48 per cent of estimated *emigrants* (and, less surprisingly, 53 per cent of immigrants) were non-UK nationals on researcher grades, suggesting that migration figures are inflated by large numbers of relatively transient overseas postdoctoral researchers.
- The publications analysis revealed that many UK researchers subsequently maintained the overseas research links they established, often leading to formal associations such as Visiting Professorships at an American University. For many, clearly, mobility is a career enhancing experience.
- The follow-up interviews revealed that a major attraction of the UK - and the reason for inward mobility - was its more open and meritocratic academic culture, in comparison to some countries.

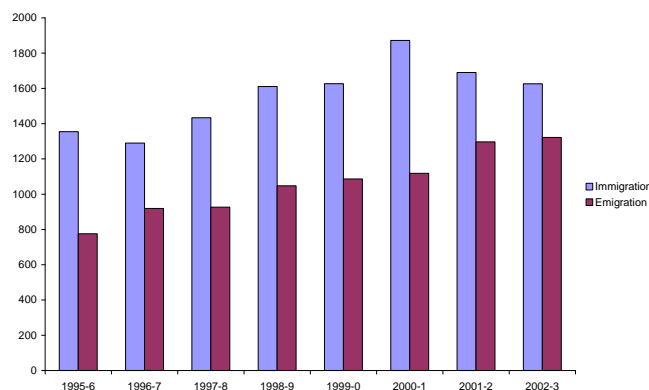
14. All these findings reinforce the point that among UK staff most mobility is among junior researchers, often before they have embarked on a research career, and that for the great majority these periods employed abroad should not be regarded so much as emigration as career development. For immigrants there is more mobility among established researchers, though young people still predominate.

Sources and destinations

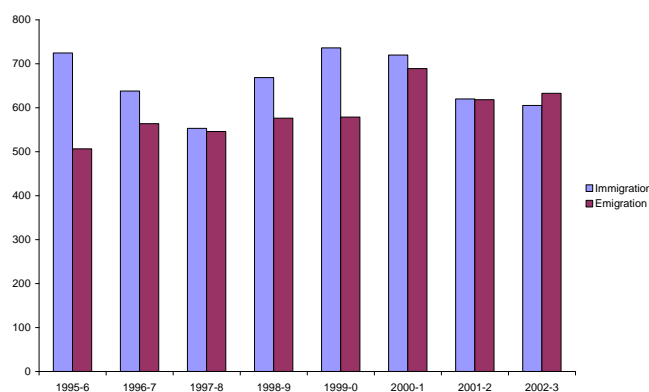
15. The HESA data reveal that over the 1994-5 to 2002-03 period 44 per cent of immigrants arrived from elsewhere in the EU 15⁵, 19 per cent from the US and 37 per cent from the Rest of the World. Over the period the EU share of immigration was flat, the US share declined (it actually ended the period lower than it began it in absolute as well as relative terms) whilst the rest of the world increased. Over the same period, 41 per cent of emigrants left for the EU, as against 23 per cent for the US and 36 per cent for the rest of the world. There was an increase in the absolute numbers of emigrants to all regions with emigrants heading to the EU increasing fastest.

Figure 2. Estimated inward and outward migration by region 1995/96-2002/03

2a European Union (EU15)

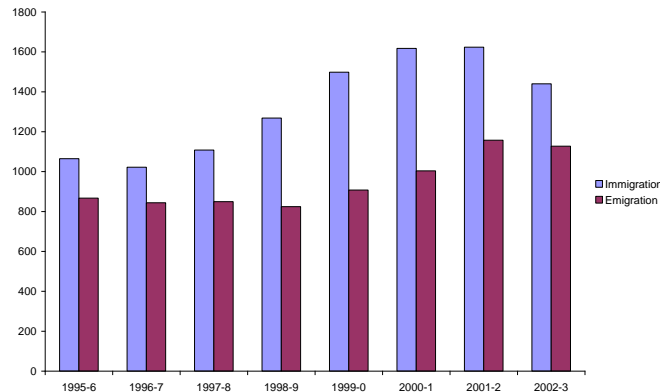


2b United States



⁵ The EU 15 comprises the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland (Republic), Luxembourg, Netherlands, Portugal, Spain, Sweden

2c Rest of the World



Source: HESA Staff record

16. In apparent contrast to the HESA data, the Evidence analysis of publications shows the USA still to be dominant, and this contrast between the HESA and the publications data suggests that the EU may be a source and destination for younger people without publications to their name. This conclusion is reinforced when the lifetime careers of academicians are analysed in the same geographical terms: the USA remains dominant and the EU and Rest of the World of lesser, but equal, importance.⁶ This may be because these are rather older than the average, and as movement tends to occur early in a career this pattern may reflect the relatively greater popularity of the USA some time ago. On the other hand, it may reflect the high status that the USA has and its ability to attract the highest calibre people. And high levels of mobility among younger staff within Europe are not surprising in view of the importance attached to this by the European Union, and the programmes that are in place to encourage this.

17. Among those Academicians who worked abroad one or more times in their career, the USA emerges as the most common destination, most strongly with Fellows of the Royal Society (85 per cent) but also important for BA (69 per cent), AMS (68 per cent) and RAE academic (63 per cent) Fellows. It is interesting in passing to note how very mobile Academicians are. 25 per cent of those Royal Society and Academy of Medical Sciences Fellows who have worked abroad have done so in all three regions (USA,

⁶ The two data are not strictly comparable – the HESA data records migration for employment in specific years, the Academy data records lifetime mobility in terms of overseas appointments of all kinds.

Europe and the Rest of the World), as have 15 per cent of British Academy Fellows and 9 per cent of Royal Academy of Engineering academic Fellows.

18. This pattern is repeated in the analysis of publications, which shows that for all highly cited researchers, from the UK and elsewhere, the USA was – as with the academicians above – the most common destination for research experience abroad; but the net flow of migration was from the USA to the UK. In the larger sample of UK researchers (i.e. looking beyond the highly cited), all the Anglophone countries were major origins and destinations for migrants in the 1995-2004 decade; but looking at the sub-group of migrant academics who had migrated to and then departed from the UK in this period, these more frequently came from other European countries.

19. In this context it is worth noting the finding from the HESA data that in the period 1995-2002 non-UK nationals despite representing only 17 per cent of staff accounted for the great majority of immigrants (74 per cent) – which is, perhaps, not surprising - but also a large majority of the emigrants (63 per cent). Both these proportions increased progressively over the period. Clearly there is a lot of mobility in and out of the UK by foreign researchers. The pattern among these – particularly among Europeans – looks as though it may have similarities to the pattern of UK academics who went to the USA early in their careers, established their academic reputations (or failed to do so) and then returned to the UK.

20. UK international mobility – at around 45 per cent of the highly cited - exceeds that of the USA and is considerably higher than that of Italy or France but is less than Germany, other Anglophone countries, and the Netherlands and Switzerland (which has a particularly mobile population). However, since the UK research base is of high international quality then there could be more opportunities to join excellent groups at home than overseas, excepting the USA.

21. Researchers from the USA are themselves remarkably immobile internationally. Fewer than 10 per cent of the highly cited sample had been awarded a higher degree by a non-USA institution and only 5 per cent had postdoctoral or tenured research experience overseas. The broad opportunities provided by the USA research system for internal movement means that this is perhaps not a true index of their real mobility.

Which Universities?

22. Immigration is concentrated in research-strong universities which see themselves recruiting and retaining staff in an international labour market. In 2002-03, four institutions were responsible for employing 31 per cent of academic immigrants and 12 for recruiting 50 per cent⁷

23. Academic mobility is concentrated in certain disciplines: 37 per cent of immigrants and 41 per cent of emigrants⁸ in 2002-03 were in biological, mathematical and physical sciences – in short, the disciplines associated with high levels of grant funding. Only 19 per cent of staff as a whole are in these subjects. Given the prevalence of researcher grade staff in migration and the role of grant funding in creating opportunities for these staff, the prevalence of health disciplines and physical sciences in the migration statistics is perhaps predictable. What is surprising, given the level of grant funding in medical research is that medicine dentistry and health account for a smaller proportion of migrants (in both directions) than of staff in general. It is unlikely that this reflects immobility amongst laboratory academics in medical subjects but it may be that clinical and/or nursing academics have low levels of mobility which bring down the average.

24. Among those interviewed in the universities most affected by migration, most believed that it had increased in the last decade and most also believed that they had been net gainers both in terms of numbers and quality. Some, recognising that they were in a competitive, international, market for high quality researchers, had started to focus their recruitment practice accordingly.

25. “We are beneficiaries of the free market, not its victims” said one interviewee. The benefits are seen not just as securing the best people for a job but, more widely, as injecting into the institution’s research work new researchers with different perspectives and traditions. Some concerns were expressed over the willingness of staff recruited

⁷ Based on those reported as having been employed overseas in the previous year without reference to estimates of the distribution of those whose previous employment is not known

⁸ As footnote 8

from overseas to engage with teaching and administration but this only emphasises that international recruitment is a tool of particular importance to research strong institutions.

26. These institutions accept the loss of good people to overseas universities as the price they pay for themselves being able to attract good people from around the world. They accept high levels of mobility as a consequence of their ambition to recruit and retain the best researchers; most promote themselves internationally and some are proactive in recruiting internationally

Conclusions

27. These findings reveal a picture of international academic mobility that is in some respects contrary to the views that have informed past debate of the issue in the UK. The findings also provide a richer picture of mobility than was available hitherto, especially in its variation by career stage, origins and destinations, institutions and disciplines.

28. The main finding is that the very great majority of movement takes place among junior postdoctoral staff, and this is entirely positive for this country. We gain more than we lose among such staff, and the great majority of our senior academics spent time abroad in postdoctoral positions – this is associated with early career development. Despite well-publicised stories about Nobel Prize winners abandoning this country for the USA, there is far less movement among staff later in their careers, but to the extent that there is, here too this country appears to gain. This is so even with the USA, where it is clear that there is no net ‘brain drain’ among the top researchers (including the most highly cited) but rather the reverse.

29. Overall the growing significance of international mobility poses opportunities and challenges for academic research in the UK. Among the challenges are the threat to research performance and reputation when leading researchers emigrate. However these appear to be far outweighed by the opportunities, which include the recruitment of the best research staff in the world, as well as the opportunity for young academics embarking on their career to acquire expertise. It is always possible of course that in the future this generally comforting picture will be overturned by external developments

beyond our control. For example it could be that the long predicted retirement bulge in the USA may occur and suck in UK academics, or that the Canadian initiative to recruit more professors may have the same impact. However, there is no evidence at present pointing in these directions.

30. It is worth noting that overall levels of mobility – both inwards and outwards – are modest. Although our staff are more mobile than some, they are very much less mobile than those in Germany, other Anglophone countries (other than the USA), the Netherlands and Switzerland.

31. The level of mobility among the UK's research excellent appears to be higher than the average among UK academics. Most go aboard at some point (normally at the beginning of their career) but the great majority return. Mobility is associated with high quality: not all migrants are high quality - a significant proportion who migrate do not subsequently pursue an academic career – but a high proportion of those who become senior academics have migrated at some point, usually early in their careers.

32. The USA remains the most important among source and destination countries, but there is some evidence that its pre-eminence may be reducing, and European countries gaining ground. However, the USA remains the dominant source and destination of the most highly talented.

33. There may be some evidence that researchers from European countries are beginning to treat the UK as UK researchers regard the USA, coming here to begin their careers and establish their reputations, and then returning to their home countries to continue their careers.