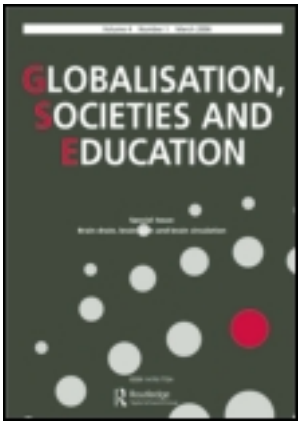

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How global is the UK academic labour market?

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One of the themes of the recent sociology of higher education has been the globalisation of knowledge and the professional transfer of scientists and researchers. In this paper we show how these transfers of people and knowledge are disproportionately characteristic of: (a) some institutions; and (b) some cost centres. We argue that universities form part of an international labour market for high skilled workers in prestige institutions. However, globalisation also has a second face in relation to labour markets in higher education. This refers to the deployment of overseas junior staff in areas unsupplied by the British system.

Keywords: overseas academic staff; labour migration; labour mobility; globalisation; higher education; replacement labour; labour markets

Introduction

One of the constant themes of the recent sociology of higher education (HE) has been the globalisation of both knowledge and the professional transfer of scientists and researchers. Within this literature globalisation is often treated in terms of culture transfers, knowledge transfers and challenges to local identities. However, a key material feature is also the intensification of competition – in all kinds of markets – from the local and regional to the global. This has happened in universities. A consequence of this has been the amplification of inequalities, marked in HE in the UK by the detaching of a small cluster of elite universities from the rest. These elite universities function in quite different ways, illustrated in this paper by the concentration of overseas research staff and funding.

Musselin (2004) argued on the basis of a small qualitative study of academics in France, Germany and the UK in 1995 (and another in France in 2002) that academic national labour markets in Europe are very different from each other, and that none include many non-nationals. Indeed, she argues that transnational mobility is the exception rather than the rule – though this may grow in the future. She notes that the most common case of transnational mobility is post-doctoral researchers going to a research centre but points out that these are invariably fixed-term positions (two or three years) that do not lead to a career abroad, as the formal and informal processes of progression and promotion present various obstacles to non-nationals. Research centres, when recruiting post-docs, are not offering them – and do not prepare them for – a career in the host country (Musselin 2004, 68) and 'very few post-docs see it as an opportunity to begin an international career' (69). Musselin's (2004) article is,

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however, not very detailed and evidenced and at best is based on two qualitative studies and general, un-cited commentary about processes and cultures in Germany and France.

In this paper we use quantitative data in order to assess not only the extent of the contemporary globalisation or employment of non-nationals in higher education (HE) in the UK, but also the way in which this globalisation works, especially with regard to differences between institutions (Golden Triangle, Russell Group, other pre-1992 and post-1992) and cost centres (subject types). The Golden Triangle to which we refer includes Imperial College, King's College, the LSE, UCL, Oxford and Cambridge Universities. These institutions not only receive a large section of the research budget in the UK, but also enjoy a worldwide reputation for excellence in their own right[1].

The Russell Group[2] is an association of 20 major research-intensive universities of the UK, which together receive a very large proportion (around two thirds) of research grant and contract funding in the UK. In the UK, those universities created in or after 1992 from polytechnics and colleges of higher education are commonly referred to as 'new' or 'post-1992' institutions – typically with a much lower proportion of research grant funding. Polytechnics were initially created in the UK towards the middle of the 1960s, when the then Secretary of State for Education initiated a new sector of higher education. Polytechnics were intended to complement the older, more academically orientated universities and focus on professional and vocational programmes of study.

The paper presents two core arguments. Firstly, we argue that there is a concentration in elite UK universities (Golden Triangle/Russell Group) of funding, research and therefore overseas research only (RO) staff. Second, we argue that there are three different labour markets in higher education; the aforementioned for lower level contract research staff, a further market for elite academic teaching and research (TR) staff, and another for replacement staff in under-supplied or shortage areas.

According to the funding model, overseas academic staff are attracted to posts advertised in research-rich departments with large funds. Accordingly, we would expect to see overseas RO staff concentrated in elite, high research higher education institutions (HEIs). The argument from the elite university model is that high prestige universities attract staff because they are world-class universities through which high-flying staff members circulate. In these HEIs there is an international labour market for TR academics in prestige institutions which, we shall see, have a high presence of overseas staff. This labour market is therefore populated by high prestige global career academics.

We also argue that globalisation has a further face in relation to labour markets in HE: the deployment of overseas staff, particularly at an early career stage, in areas unsupplied by the British system. According to a replacement labour model, certain positions in the academic labour market are difficult to fill for one of two main reasons. These are: first, under production (i.e., not enough student through-put in the UK) and/or second, the attractiveness of commercial careers within the wider labour market. In these circumstances, academic staff from overseas act essentially as replacement labour. According to this model we would expect to find overseas staff concentrated in typically under-supplied areas or unattractive posts (fixed term junior positions within some sub-fields of engineering, for instance). In some cases of course, several of these arguments will be operating at once.

Globalisation in higher education

Recent literature in the sociology of HE acknowledges that in an age of globalisation (of commerce, mass culture and commodities), HE has been touched by these wider processes of globalisation, and in a variety of ways (Scott 2000; Deem 2001; Naidoo 2003; Altbach 2004; Teichler 2004). Empirically, globalisation in HE has several possible manifestations. The term might refer to the presence of overseas academic staff in research and teaching posts in UK universities. It could also mean the presence of overseas students, both undergraduate and postgraduate, on a global basis (Merrick 2004).

Thirdly, globalisation may refer not just to the presence of overseas academics in universities but also to how they work, including how non-overseas individuals work. The phrase globalised academic might equally refer, for instance, to overseas or UK staff that have collegial relationships with other academics in, say, New Zealand, the US, Denmark or India. This aspect of globalisation is something more than the presence of particular overseas academics in the labour market in the UK. Globalisation could also refer to global partnerships between institutions and the world base of some universities, e.g., US universities with campuses in other countries. Yet whilst the latter are significant elements of globalisation, our focus in this paper is on the first of these definitions: the presence of overseas academic staff in RO and TR posts in UK universities.

A particular theme within the literature in this field has been the globalisation of knowledge and the professional transfer of scientists and researchers (Mahroum 1999b; Casey et al. 2001; Ackers 2005; Morano-Foadi 2005). Alongside this, recent evaluation studies by the Higher Education Policy Institute (HEPI) (Sastry 2005), Higher Education Funding Council for England (HEFCE 2005) and Association for University Teachers (AUT 2005) have all used national UK HESA (Higher Education Statistics Agency) data to pursue concerns with the increasing globalisation of the academic workforce in the UK.

The 2005 report for the Higher Education Policy Institute (Sastry 2005) used data from the HESA Individualised Staff Record to produce estimates of immigration and emigration of academic staff to and from the UK for the period 1995–1996 to 2002–2003. Whilst we believe there is evidence that the records of staff's last post and post they move to are unreliable, the report does provide data showing a fairly steep decline in immigration after a peak in 2000–2001. It also provides evidence that rates of immigration and emigration differ dramatically according to subject discipline. For instance, the report states that 37% of immigrants and 41% of emigrants in 2002–2003 were in the biological, mathematical and physical sciences, whereas only 19% of staff as a whole were in these subjects (Sastry 2005). Using the total staff numbers as a measure, our data show overseas growth in every part of the sector, at all levels and in virtually every cost centre. At face value this appears contrary to the findings presented in the HEPI report. However, it is entirely plausible that there could have been a fall in the number of movements at the same time as an absolute increase in the number of non-UK staff.

HEFCE (HEFCE 2005) also used data from the HESA individualised staff records for 1994–1995 to 2002–2003, in addition to the HESA new individualised staff record for 2003–2004. This report drew attention to an apparently important change in the numbers and proportions of groups of staff by nationality. The biggest increase was in the number of Eastern and Central European staff (which increased by 164% since 1995–1996). Western European and Scandinavian staff were the largest group after UK nationals, and had also grown significantly over the period. The report also noted

increases in levels of non-UK staff across all grades. Of those permanent academic staff whose academic discipline was known in 2003–2004, languages had the highest proportion of non-UK nationality staff (19%) and education the lowest (4%). (Languages are, though, a special case because they hire staff as lecturers and the like by dint of the nature of the subject. This does not necessarily make them more global – at least not in the same way.)

Analysis by the AUT (AUT 2005) compared HESA data for the academic years 1995–1996 and 2001–2002. In both these years the AUT analysis showed that the great majority of UK academic cost centres had seen a net gain in their numbers of overseas academic staff. The report (perhaps predictably) claims that the increase in the importation of academic staff, especially in the sciences and engineering, is less a tribute to the attractions of UK science than a necessary response to supply shortages engendered by deficiencies within the UK HE system.

Ackers and Gill's (2005) is the only work to have focused specifically on early career researchers, defined as those on research-only contracts and in lower research grades. (The age of those in such grades was not though taken into account.) In 2002–2003 almost two fifths (38%) of these researchers were non-UK nationals. This compared to only 18.5% of staff on all other grades. Such an apparent increase in the numbers of non-UK staff employed at UK HEIs over time has led to questions concerning the issue of supply within the UK system itself.

Brain drain

Two particular concerns evident in the literature and on the policy agenda concern expansion and demographic change in HE and the perceived losses to the system through emigration or 'brain drain', alongside an ongoing concern with the so-called marketisation of HE. Initial policy thinking in the 1950s and 1960s saw what was termed the brain drain as a damaging phenomenon. It was perceived as a threat to UK economic success. Historically, the brain drain issue has become conceptualised in progressively more complex terms. Later consideration of compensating inflows of skilled immigrants brought brain 'gain' into the vocabulary.

Recent literature distinguishes between two main types of mobility: external, which involves losses from the system as a result of emigration, and internal, which refers to losses within the national system to other sectors. In the case of the labour market for academics, the most relevant types of internal and external mobility concern: movement from the education system to the labour market; mobility within the public research sector and between public research and industry; mobility within industry; and international mobility which sheds light on the temporary and permanent migration of academic personnel. The most recent formulation speaks of the concept of a beneficial 'brain circulation' within a global community. Issues concerning the movement of academics and researchers have also more recently been conceptualised in terms of the recruitment of needed 'talent' within knowledge-driven economies.

Various sorts of geographical mobility exist: short-term overseas visits, long-term stays, and permanent stays. When highly skilled persons are involved in one of these various forms of mobility, various outcomes might result from it. Gaillard and Gaillard (1998) and Johnson and Regets (1998) talk of a notion of brain circulation. This form of mobility, which referred to longer-term subsequent expatriation of skilled personnel in and out of various locations, is often perceived as a positive mobility that provides a channel for knowledge transfer.

Subsequent thinking seemed to coalesce around the notion of 'magnet' disciplines and research institutions. Mahroum (1998) for instance emphasised the geographical clustering of European migrants to the US in a few centres of excellence but noted that magnetism is not simply generated by good science. Additional factors such as flexible and open career structures, high rewards, a strong entrepreneurial culture and a good quality of life are also key elements in the reputation of a magnet (Mahroum 1999a). Evidence from Italian immigrants to the UK confirms the importance of magnets, with their mix of scientific and cultural attractions (Ackers 2005).

In addition to domestic policies, programmes to ease or assist immigration are also influential. Mahroum (1999c) for instance argues that countries with special legislation to attract highly skilled migrants are the best placed to benefit from the global talent pool, with measures to ease the entry and boost the post-training employment and entrepreneurial opportunities of overseas students being particularly significant.

The issue of supply

One reason that there might be shortages in an area that attracts overseas staff is that the British university system is under-producing them, i.e., not enough students or graduates in physics or other sciences. A major review of the supply of individuals with science, technology, engineering and mathematics skills (Roberts 2002) identified a number of problems concerning the supply of individuals at different educational levels, including A level, university and doctoral takers. Indeed, the Roberts Review provided evidence of a marked decline in the number of students studying certain science subjects, compared to business studies, for example, which showed a strong progression rate from A level to degree.

Beyond this, however, evidence about the extent to which different academic specialties have a weak basis in terms of run-through from subject level to individual staff in academic and research posts, is poorly supported.

What is clearer is that there is a market for professional expertise (engineers, business managers, lawyers, medics, etc) within the private and public sectors outside of academia. Social science researchers for example may be found in universities, research institutes or commercial organisations – in careers in marketing for instance. Engineers, lawyers and chemists similarly inhabit jobs both in universities and outside the academy in private sector organisations. Some span the two. The commercial marketplace is therefore likely to be important for attracting staff. Indeed, where there are professions with attractive labour markets outside universities (such as industries related to oil

Table 1. Percentage of year group taking SET qualifications, 2000.

	A level %	First degree %	PhD %
Mathematics	7.8	0.6	0.05
Physics	4.1	0.3	0.07
Chemistry	5.1	0.5	0.13
Biology	6.6	2.5	0.25
Engineering and technology	2.2	2.8	0.24
Computer science	2.8	1.5	0.04
Business studies	4.7	4.4	0.05

Source: Roberts (2002, 23).

exploration, medicine or law), which attract highly qualified people and pay well because they are a lucrative area, this may mean that universities find it hard to recruit scholars. Although we do not know for sure, it is reasonable to suggest that the more attractive and under-supplied those labour markets are, the more UK people will gravitate to positions within them. And, in turn, the more likely that UK people will find university positions in the same area relatively unattractive. This leaves open shortage areas in universities. The available evidence shows that this is certainly likely to be the case in some engineering sub-fields and in the field of medicine (Sanders 2004).

The Roberts Report noted the emergence of alternative employment opportunities for graduates in mathematics and physics, many of whom had been lured, it is argued, into the financial services sector (Roberts 2002, 25). (How the current economic downturn is likely to affect trends is, as yet, unknown. It is likely, though, that jobs in this sector will suffer at least in the immediate future.) The chief executive of the Particle Physics and Astronomy Research Council (PPARC) was reported echoing Roberts' sentiments when they were quoted as saying that 'physics graduates can earn so much money elsewhere that teaching in a high school is not attractive' (quoted in Fazackerley 2004).

The president of the British Computer Society was reported in 2006 (Ghosh 2006) as saying that unless urgent steps were taken there would not be enough qualified graduates to meet the demands of UK industry. Figures reported showed that between 2002 and 2006 demand for IT and computer graduates had doubled whilst the number of students actually studying the subject had declined by a third. Balakrishnan (2007) reported on the CBI's plan to double the number of students in science, technology, engineering and maths and noted that even when students do study these subjects at degree level, 'many who take the subject at university tend to move away from science technology engineering and maths-related jobs once they graduate'.

A recent article in the *International Herald Tribune* (Merriman 2008) referred to a shortage of engineers in the oil industry, which lost out to higher paying careers in the 1980s and 1990s, including the high-tech and financial services industries. An annual skills survey of 500 UK businesses by the Institution of Engineering and Technology showed that more than 70% of engineering and technology companies were struggling to recruit experienced or mid career level staff (Bond 2007). Reference to the current shortage of engineers and geoscientists to help meet record global energy demand was also made by the Society of Petroleum Engineers (Adams 2006).

A review of human resource strategies undertaken by Ackers and Gill (2005) highlighted a concern, in a number of research intensive UK institutions in particular, regarding attractive pathways out of the academic sector. This was particularly the case in disciplines such as maths, biology, physiology and genomics where alternative routes into industry were very strong. One London-based institution reported that 'in some areas it is becoming increasingly difficult to recruit UK staff', referring to the impact of attractive alternatives both abroad and from other professions in London (Ackers and Gill 2005). Despite the existing, often patchy evidence it remains difficult to know whether a particular shortfall is caused by under-supply or by qualified individuals entering other careers (or both).

This paper presents an updated analysis of the uneven spread of globalisation in Britain's universities, especially with respect to institution type, cost centre and academic employment function (see below). In doing so we suggest three factors which influence the presence of non-UK staff in the UK HE labour market. These are: elite labour markets, the demand for research only staff in funded programmes, and

patterns of replacement labour. Using national HESA data on all academic staff, from 1998–1999, 2001–2002 and 2004–2005, we also look at the trends of change over this period.

Study and methods

The quantitative data on which the paper draws are the annually collected employment data pertaining to staff working in HE institutions in the UK, hereafter referred to as the Higher Education Statistics Agency or HESA data[3]. We use data for the years 1998–1999, 2001–2002 and 2004–2005 (HESA 1999, 2002, 2005), concentrating on the key role of a small group of elite institutions. (We have also completed some 40 interviews with overseas academics working in UK institutions, questioning them about their personal narratives of their careers and future plans, collegial relationships and ways of working in their discipline. This gives us a second set of data which allow us an insight into what we call the processes of globalisation, or how globalisation actually works within HE. These are explored in a forthcoming paper.)

HESA data and definition of key variables

The HESA staff record provides data in respect of the characteristics of members of all academic staff employed under a contract of employment by a HEI in the UK. In 2004–2005 HESA collected data from 182 individual HEIs. This meant data on approximately 130,000 academic staff in this year. These are some of the principal variables in our study.

Institution type

Golden Triangle (including Imperial College, King's College, the LSE, UCL, Oxford and Cambridge Universities); Russell Group; other pre-1992; and post-1992 HE college/specialist institutions.

HESA cost centre

This refers to the broad group of subjects where staff are located for budget purposes. Individual cost centres (e.g., clinical medicine, biosciences, chemistry, social studies, and modern languages) are assigned by HESA into groups, which reflect both academic similarities and comparable resource requirements. Engineering and technology for instance, a broad cost centre group, includes general engineering, chemical engineering, mineral, metallurgy and materials engineering, civil engineering, electrical, electronic and computer engineering, mechanical, aero and production engineering, other technologies and IT and systems sciences, computer software engineering. Staff must have at least one cost centre per contract. The 2004–2005 dataset includes cost centre for the contract with the most senior grade group (or the highest FTE if two or more contracts are at the same grade level).

Academic employment function

- Research only.
- Teaching and research[4].

Principal findings: the presence of overseas-born staff in UK higher education

In this first empirical section of the paper we ask: where are non-UK staff found and how significant is their presence? The HESA variable 'nationality' defines the country of legal nationality of a member of staff. Data is supplied to HESA in the form of country codes, which are mapped to geographical regions following consultation with the Department for Education and Skills. UK nationality staff are those whose country of legal nationality is the UK, including the Channel Islands and Isle of Man. Non-UK nationality staff are those whose country of legal nationality is a country other than the UK. For the purposes of our own analysis, non-UK nationalities were recoded to enable us to distinguish different groups of origins, e.g., Western Europe and Scandinavia, Eastern and Central Europe, China, Japan and Eastern Asia. In this section we look at three main variables: institution type, cost centre (i.e., academic discipline) and employment function (research and teaching or research only posts).

Institutional differences

Firstly, we consider the distribution of non-UK staff among four categories of institution: Golden Triangle (GT), Russell Group (RG), other pre-1992 and post-1992 institutions. The Golden Triangle universities are Oxford, Cambridge, UCL, the LSE, King's College and Imperial College. This includes four of the main London institutions, to which overseas staff are almost certainly attracted both by prestige and the capital city. The LSE, which is unique in the UK in its concentration on teaching and research across the social, political and economic sciences, is an exception to other Golden Triangle institutions, which include all the main subject areas. The universities of Oxford and Cambridge form the corners of the triangle.

In 2006–2007, all Russell Group Universities accounted for 66% (over £2.2 billion) of UK Universities' research grant and contract income, 68% of total Research Council income, 56% of all doctorates awarded in the UK, and over 30% of all students studying in the UK from outside the EU. Small in number, the RG institutions lead in research income and have large staff complements. In the 2001 national Research Assessment Exercise, 78% of the staff in Grade 5* departments and 57% of the staff in Grade 5 departments were located in Russell Group universities, and in 2007–2008 Russell Group universities were allocated approximately 66% of the total quality-related (QR) research funding allocated by the Funding Councils (www.russellgroup.ac.uk). The refined Russell Group category that we use for the purposes of our analysis in this paper consists of 14 universities (20 RG minus the six GT universities referred to above), although the RG does 'in reality' include all six of the GT universities. According to our own definition (RG-GT), 38% of all staff in our dataset were in RG universities in 2004–2005.

We look first at the percentage of non-UK staff by institution type (GT, RG–GT, other pre-92, post-92) for all three years. In the most recent year of data, in GT universities 33% of all staff were non-UK; in RG 21.4%; in other pre-92 22%; and in post-92 10%. The real stand-outs are GT with a third of its staff from overseas; and post-92 with only 10%.

The percentage of staff who were non-UK increased over the three years for all types of university. So even in post-92 universities, by 2005 nearly one quarter of RO staff were non-UK. This suggests that, despite the institutional differences identified above, the pressures to hire non-UK staff have increased year on year across all types

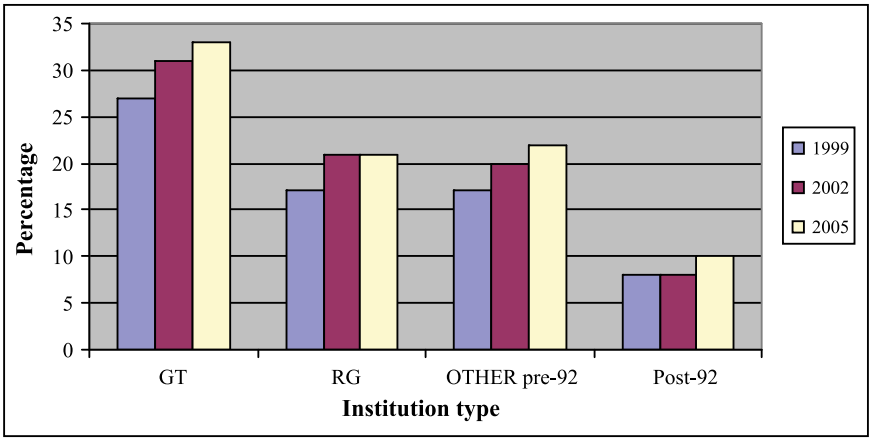

Figure 1. Percentage of non-UK staff by year and institution type: all staff.

of institution. We shall see, though, that the post-1992 institutions do not typically have staff in the subjects which have large numbers of non-UK staff (e.g., large engineering faculties).

Clearly, the larger institutions will soak up more of the total of non-UK staff because more of the staff total is in large institutions. The RG–GT and other pre-92 are about the same in size with regard to total staff (although there are more institutions in the latter). In 2004–2005 the total number of TR staff in the RG–GT was 17,189, and for the other pre-92 institutions it was 19,530. The total number of RO staff was 12,396 in the RG–GT and 9141 in the other pre-1992 universities, with little difference in the cost centres that these non-UK staff were in. As our data testify, RG institutions are typically much bigger than others within the sector.

In terms of explaining the presence of non-UK staff, academic function is crucial. Figures 2 and 3 show that the percentage of staff who were from non-UK origins increased over the three years for all categories of academic post.

The RG often seem to differ little from all pre-92, with the big marker being GT; and also GT plus all pre-92 often seem to differ little from the post-92 (which are clearly different institutions since they do not have the large and expensive research subject areas). But with 14 RG universities and 43 other pre-92 universities, absolute numbers are larger per institution in the RG case. In total numbers there were many more RO staff in RG universities in 2004–2005. It is not clear, however, why other pre-92 have proportionately more non-UK TR staff.

There may be some difference in where staff come from, which could be a clue to the speculation about funding as regards replacement labour. However, when we examine type of university by country of origin there does not appear to be a big difference. The main difference is that GT institutions are much more able to attract US academics than anybody else, with no real difference between the pre-92 RG and non-RG universities. For overseas TR staff in GT universities, 4% (307 staff) were from the US in 2005; 86.4% (6684) were from EU-25 countries, and 8% (617) were from the rest of the world. In the other pre-92 institutions in this year just 2.2% (421) of overseas staff came from the US; 89.3% (17,443) were from the EU-25 countries, and 7.1% (1382) were from elsewhere in the world. There was a steady increase over time across all nationalities and institution types.

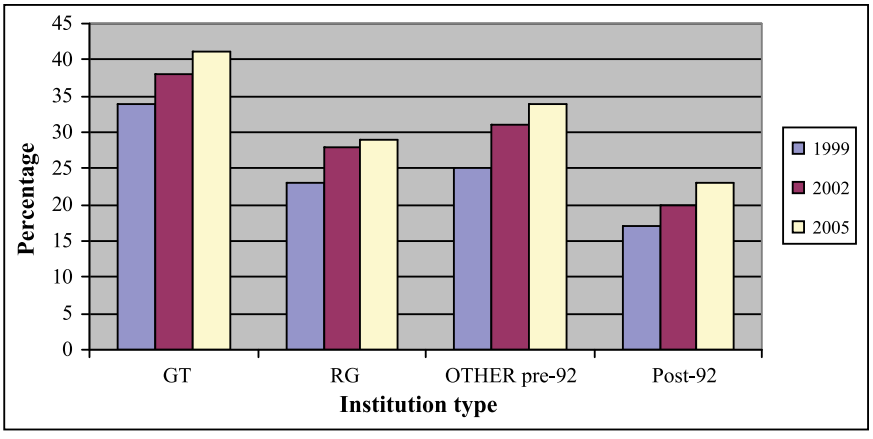

Figure 2. Percentage of non-UK staff by year and institution type: research only staff.

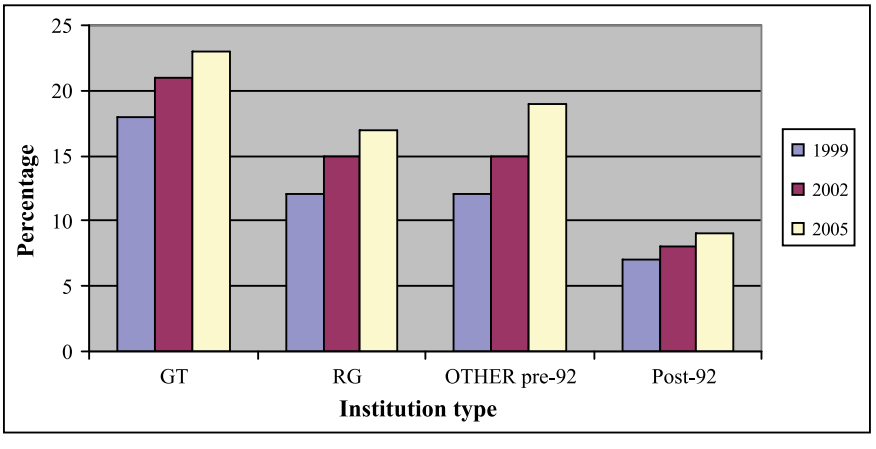

Figure 3. Percentage of non-UK staff by year and institution type: teaching and research staff.

Not only is it true that in both TR and RO the other pre-92 have slightly more non-UK staff than RG, but if we look at the RO staff by cost centre then it is also very clear that the other pre-92 institutions are more global, in terms of their proportion of non-UK staff, than those in the Russell Group (see section on cost centre below). However, those universities that recruit the majority of RO staff from overseas are still the big GT universities, who far outstrip both other pre-92 and RG in these terms. These data indicate that whilst there is a clear GT effect, the RG–GT is no more global, in terms of its proportion of non-UK staff, than the other pre-92 institutions. Indeed, the RG–GT category is in fact less global than the other pre-92 institutions in these terms. The question then becomes how we explain this non-UK presence. Here, staff proportions become more important. Because the GT institutions have such a relatively high proportion of non-UK staff (33%), this suggests there is something about the GT institutions that attracts or seeks or just gets non-UK staff; and it is that which we are interested in.

We know that some institutions have a high proportion of non-UK staff (in some cases one in four staff are non-UK). This means that every fourth time these institutions recruit a member of staff it is, in theory, a member of staff with non-UK nationality. In practice these odds must in fact be higher because a lot of the UK staff have been in post a long time and were not recruited recently (the white – and male – staff are, for example, much older than others). Indeed the chances are very strong that non-UK staff have been recruited much more recently. This would mean that, given their proportions in the total, the chances, per new post, of hiring a non-UK person, must now be very high, especially in some institutions. Age can help us reveal this, although RO staff are young because of constant replenishment. Analysis shows that while only 64% of UK staff in RO posts are in the age group of 26- to 40-years-old, the proportion amongst non-UK RO staff is 80%. In TR the percentage of staff in the younger age groups from the UK was 26%, compared to 48% non-UK.

To re-cap, thus far we have shown that globalisation, measured in terms of proportions of non-UK staff, is concentrated to a far greater extent in the research intensive GT institutions. We suggest that this is the case for three main reasons. Firstly, the elite GT universities have been elevated into global rankings such that they attract a high share of overseas staff. Indeed, these institutions have been referred to as both 'magnets' (Mahroum 1999c; see also 1999a) and 'world-class' universities (Altbach and Balan 2007; Mohrman et al. 2008). Related to this, these institutions attract a huge and disproportionate share of funding – especially in research fields such as medicine, science and engineering (see below). Thirdly, in institutions which attract a large share of funding in select research areas, a large market for contract researchers is created. In expensive research areas, only one centre is funded viz. one nuclear research centre, one Jodrell Bank[5]. Such departments and research groups are international, and increasingly so.

In relation to funding, a central consequence of encouraging markets within the HE sector has been the concentration of research funding, and indeed of overseas academics, in key institutions. This has confirmed significant structural differences between pre- and post-1992 institutions. For instance it is only the elite, large institutions (such as UCL) that have specialist space science laboratories (the Mullard Space Science Laboratory, for instance, part of the UCL Department of Space and Climate Physics).

Table 2 illustrates those universities with the greatest research funding received from HEFCE (for universities in England) in 2008–2009. Total research funding differs from total teaching funding, and additional funding is also given to support very high-cost and vulnerable science subjects (physics, chemistry, chemical engineering, and mineral, metallurgy and materials engineering).

All of these institutions are Russell Group universities. The LSE (£18,306,000) was the only GT institution that failed to make it into the top 10, given its predominantly social science based research work.

As part of HEFCE's funding package for universities and colleges in England for 2008–2009, 47 out of the 130 English institutions received additional funding. Of the £24,724,000 in additional funding given to HEIs, just four GT universities together secured a large proportion – almost one fifth of the total (£4,271,000). The concentration of funding, including the degree of funding, is therefore confined to certain institutions. As we have demonstrated, these are also the universities with the highest numbers of non-UK staff.

Table 2. Higher education research funding for England (2008–2009).

	University	Research funding (£,000)
01	University of Cambridge	111,559
02	University of Oxford	110,134
03	University College London	104,114
04	Imperial College London	97,702
05	University of Manchester	81,867
06	King's College London	59,987
07	University of Leeds	48,831
08	University of Southampton	47,618
09	University of Sheffield	44,735
10	University of Bristol	44,582

Cost centre and academic employment function

We look now at the presence of overseas academic staff in different cost centres within the elite GT institutions where we know that overseas staff are concentrated. In the GT institutions the presence of non-UK staff varies greatly by cost centre, sometimes being high, sometimes quite low. Within cost centres, some particular subjects have yet higher proportions of non-UK staff. In Table 3 we compare a selection of cost centres over time.

For all these cost centres the non-UK presence is high and growing, except for chemical engineering where there was a decline in the non-UK presence over this period. In these cost centres in these elite institutions between 36% and 50%, or almost one in two staff, were non-UK nationals in 2004–2005. Over the long term there has therefore been concentration in these departments: this is a very high proportion of non-UK staff, and compares with 33% non-UK staff, overall in these institutions. In one of our interviewees' research groups (theoretical physics) there were no staff at all from the UK, and in several other research groups UK staff were in a minority. This evidence suggests that subjects are absolutely critical to analysis. Indeed, the empirical actualisation of theoretical arguments about resourcing put forward above is that it is those groups of subjects that attract large research funding and overseas staff. The figures in Table 3 are all slightly higher than the figures for RG and pre-92 universities, which broadly stand together. Figures for the post-92 universities are a lot lower. According to this measure there is a growing trend: not only is the degree of

Table 3. Percentage of all non-UK staff by cost centre (1998–1999, 2001–2002 and 2004–2005): golden triangle universities only.

	1998–1999		2001–2002		2004–2005	
Cost centre	n	%	n	%	n	%
Chemical engineering	128	60	133	59	71	50
Electrical engineering	117	39	187	46	162	47
Chemistry	258	36	338	44	241	42
Maths	190	36	218	41	206	41
Social studies	434	33	562	37	578	40
Physics	325	32	425	37	363	36

globalisation (measured in terms of the proportions of non-UK staff) within the elite institutions growing, but so too is the gap between the GT and post-92 institutions.

We look now at the importance of academic function when considering the overseas presence in particular cost centres in these institutions. If we look just at the GT universities, as the big magnets for overseas staff, then the cost centre distributions are very different by function. Taking research only staff, of all staff the percentage of non-UK nationals was 41%. In medicine and dentistry 38% were non-UK, in science 42%, engineering and technology 57%, social science 39% and arts 33%. For TR staff, of all staff the percentage of non-UK nationals was 23%. For medicine and dentistry 16% were non-UK, for science 19%, engineering and technology 25%, social science 32% and arts 23%.

To re-cap, this cost centre split reveals two main things. First, that non-UK staff are concentrated in RO posts in these institutions. Of course, these non-UK staff in RO posts must be going to places where there are posts. Further, the proportion of overseas RO staff in posts differs according to cost centre. There are some cost centres with very high percentages of non-UK nationals in the RO staff. We also see the relatively low presence of overseas teaching and research staff. In all cases the percentage of non-UK nationals is smaller for TR staff. In 'hard' subjects, e.g. engineering and maths, the ratio of RO to TR is higher. Take engineering and technology for instance, with almost 60% of these non-UK staff at RO level. This figure drops to a quarter in TR positions. Social studies on the other hand stands out for remaining broadly similar in its numbers of overseas staff in each of these employment functions. This suggests that in these elite universities the social sciences are in the market for international staff where employment involves both teaching and research. Whereas in chemical engineering, when you see overseas staff quite well represented in teaching and research posts, this may be more likely to highlight a lack of supply in this particular field, and the consequent need for overseas people for this kind of position.

It is not surprising that, in the elite GT institutions especially, there are very high percentages of non-UK staff in RO posts. For this type of research work, the UK knowledge economy at the highest level depends very much on overseas staff. It is however notable that in TR posts the percentages of non-UK staff are lower – in some cases quite significantly.

Employment function is critical. We now bring this together with cost centre and institution type in order to consider the academic function effect on the presence of overseas staff in RO and TR by cost centre in the different types of institution. What we are looking at here is whether the numbers of RO staff are bigger than those of TR. In the biosciences for example, 47% (569) of RO staff were non-UK nationals in 2004–2005. This compared to 16.5% (72) in TR posts. In the other pre-92 universities the figures were 39% (599) and 14% (163). In chemistry 56.1% (217) of RO staff were non-UK nationals in this year, compared to just 12.6% (23) in TR positions. In the other pre-92 universities the comparable figures were 46.2% (199) and 11.7% (48).

It is very clear, from our analysis, that it is the GT universities that really stand out, particularly in terms of the percentage of overseas RO staff in these cost centres. It is also interesting that the other pre-92 institutions are more globalised than the Russell Group universities in these terms. It is also clear that cost centre is critical to analysis, since in these particular cost centres differences between other pre-92 and RG are quite large, even though overall the difference is not great.

We now examine further the presence of non-UK staff in different employment functions across the different types of institution that we are interested in. We know

that all four types of university have some non-UK staff. The post-1992 institutions still have over 4000 overseas staff. Hence, our focus here is on what they do. In order to address this question we need to look at the relative concentration of non-UK staff into RO or TR posts.

The data in Table 4 show us that within the more elite institutional categories (GT, RG), more non-UK staff are concentrated in RO posts. Within the other pre-1992 and post-1992 institutions on the other hand, more non-UK staff are concentrated in TR posts. Post-1992 universities have 4188 non-UK staff. As we see below, 70% of them are in TR posts. This is a very different picture from the RO imports in the science/engineering oriented GT universities (the latter of which have only 30% of their overseas staff in TR posts).

The question then becomes what these overseas academics, working in the post-1992 universities, teach. The following cost centres accounted for more than half of all post-1992 non-UK TR staff in 2004–2005: nursing, IT, business, social studies, design and creative arts, modern languages. These are areas that overall we would not expect. Business and IT alone accounted for 25% of non-UK TR staff in post-1992 universities. What is clear is that although GT universities attract international actors, they attract large numbers of people in RO posts. Post-1992 institutions on the other hand have very few overseas staff in RO posts but 71% of them are in TR.

Musselin (2004) mentions in passing (but without discussion as this was not a feature of her study), that academic 'stars' (circulating elites with international reputations in their subject fields) are a feature of the international dimension. We can confirm this in relation to our study, but highlight its significant scale in certain institutions and subjects in the UK.

In relation to globalisation (understood essentially as the idea of global connectedness, alongside the technologies which make connectedness more possible), one of the debates in globalisation theory is the extent to which globalisation produces more 'sameness' (e.g., debates about the 'MacDonaldisation' of culture, social life or education) or produces more difference (see Pieterse 1996) – in that the technologies of connectedness allow for the easier, faster and wider spread of more different ideas and practices. A further dimension is that globalisation is 'willed', i.e., it does not just happen but people do things to make it happen. For example, global changes are promoted by economic and political elites (e.g., trade globalisation is promoted through the WTO, and American and EU trade areas). Debates in globalisation theory also recognise that globalisation is 'unequal' – i.e., the multiple exchanges and transfers that occur are on an unequal basis with global winners and losers.

Table 4. How non-UK staff are distributed through academic functions (non-UK staff only): by institution type (2004–2005).

	RO	TR
All non-UK	%	%
GT	67	30
RG	52	41
Other pre-92	41	48
Post-92	16	71

Note: Row totals do not add up to 100% because teaching only and other are not shown.

All of these points are relevant to our paper. Firstly, academic transfers (of people and knowledge) depend to a considerable extent on 'sameness'; the universality of scientific and engineering knowledge systems makes transfers more readily possible (higher maths, for instance, is pretty much the same game wherever you are). Mobile researchers must provide a reasonably ready-made fit to the work that they take up in the host country.

Second, people move partly because they are able to move and this means that their governments are willing to allow them, or indeed encourage them, to move. This is clearly the case with the mass movement of Chinese scholars who were previously confined to China but are now spread around the globe (or at least the rich parts of it) to help China benefit from Western knowledge or vice-versa. Post-1989 a lot of new movements of academics became possible and occurred in large numbers (see Alpion 2008). There are 'artificial' restrictions on these kinds of movements, for example the US makes it quite difficult for foreign trained medics and lawyers to work there, with national and state registration systems acting as protectionisms for local professionals (Cheng and Yang 1998). The global exchanges reflect, and by and large reinforce rather than break, global inequalities. Rich countries are big gainers in the importation of both high skilled and lower skill labour.

Conclusions

The paper has shown that by and large, for every year that passes the percentage of overseas staff in all types of institution, in all cost centres and in all employment functions has increased. However, in terms of where this globalisation is taking place we have identified the dominance of GT institutions. We have shown that the research rich GT institutions are significantly different from other institutions, with a much greater intensity of non-UK staff. The other pre-92 and RG institutions were not so different in structure and the data presented suggested that when they do have posts then they will attract, and employ, some staff from overseas.

Musselin (2004) mentioned that in the recruitment of overseas researchers in her three countries she found no preference for Europeans (and so no sign of an emergence of a European academic labour market). While this was not a focus of our study, a focus on indices of the internationality of UK institutions and cost centres in our study clearly suggested that some institutions and cost centres were significantly more implicated in global labour exchanges than others. We argued that these two factors were closely linked in that those institutions which are most global (the elite GT universities) are also typically those with large departments and faculties in the more globalised cost centres (e.g., engineering, medicine).

We suggested that there are a certain number of factors that influence where non-UK staff go. One is that overseas staff are attracted to high prestige institutions and that these are seen as somehow world class. Accordingly, we would have expected to see more overseas staff in the top six GT institutions – and the data presented in the paper showed that this was indeed the case. Our qualitative interviews with overseas staff also revealed how many high quality TR academics saw themselves as circulating among the top world-stage institutions.

We also argued that prestige HEIs that have significantly sized physics, maths, chemistry and engineering departments will attract high research funding. Subject areas that have large funding in turn imply large numbers of RO staff. These tend to be younger overseas staff that intend to develop their careers in the UK. If these staff

were attracted to well-funded departments in elite high research HEIs then we would have expected to see a concentration of overseas staff in RO positions. Again, the data presented showed that this was indeed the case. However, certain subjects attract applicants from overseas regardless of university type. If these institutions have less research funding, overseas academics are found in TR posts.

Third, we referred to shortages. These indicate the ways in which the UK system is not meeting demand, and the attractions of careers in the commercial world. The data presented in the paper showed the presence of more overseas staff in areas where staff in the UK are generally under-supplied (e.g., certain sub-fields of engineering). Here, a model of elite labour markets in higher education was used to account for the presence of overseas TR staff in GT institutions. A replacement labour model was used to account for those overseas TR staff in HEIs outside the GT/RG, or for those working in under-supplied areas.

Some tentative conclusions on the impact of academic mobility on the UK can be drawn. In overall terms the UK seems to be a net beneficiary of brain circulation, with some highly rated 'magnets' that draw in overseas scholars, probably because of a combination of perceived 'reputation' or 'excellence' as well as broader cultural and social attractions. Specialised immigration schemes, research policies designed to concentrate investment on disciplines and centres of excellence, and systems that provide markers of quality (e.g., the RAE) are likely to be positive influences in this respect.

The findings of our study confirm the findings of Musselin (2004) in certain ways, but disconfirm them in bigger ways. In relation to the UK in the years of our data, we can confirm that the majority of overseas staff are fixed term post-docs. However, the scale is much bigger than Musselin (2004) suggests. There is also significant differentiation between institutions and subjects.

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Notes

1. http://www.guardian.co.uk/education/2003/jun/03/highereducation.research.
2. The Russell Group is an association of 20 major research-intensive universities of the United Kingdom. These are: Birmingham, Bristol, Cambridge, Cardiff, Edinburgh, Glasgow, Imperial College London, Kings College London, Leeds, Liverpool, LSE, Manchester, Newcastle, Nottingham, Queen's University Belfast, Oxford, Sheffield, Southampton, UCL and Warwick.
3. The Higher Education Statistics Agency is the official agency for the collection, analysis and dissemination of quantitative information about higher education in the UK. The agency collect data on the characteristics of members of academic staff employed under a contract of employment by a HEI in the UK and include information on, for instance, mode of employment, terms of employment, grade and employment function. Within our sample academic staff are defined as academic professionals who are responsible for planning, directing and undertaking academic teaching and research within HE institutions. They also include vice-chancellors, medical practitioners, dentists, veterinarians and other health care professionals who undertake lecturing or research activities. Atypical staff contracts are not counted in our population. Academic staff with less than 25% full-time equivalent have also been excluded from the population. For 2004–2005, when changes were made to

the staff record, multiple contracts were reduced to the one with the most senior grade group (or the highest FTE if two or more contracts were at the same grade level).

4. The academic employment function of a member of staff relates to the contract of employment and not the actual work undertaken. HESA also use the groups 'teaching only' and 'neither teaching nor research'.
5. The Jodrell Bank Centre for Astrophysics comprises the research activities in astronomy and astrophysics at the University of Manchester, the world leading facilities of the Jodrell Bank Observatory and MERLIN/VLBI National Facility and public outreach via the Jodrell Bank Visitor Centre.

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References

Ackers, L. 2005. Moving people and knowledge: Scientific mobility in the European Union. *International Migration* 43, no. 5: 99–131.

Ackers, L., and B. Gill. 2005. Attracting and retaining 'early career' researchers in English higher education institutions. *Innovation: The European Journal of Social Science Research* 18, no. 3: 277–99.

Adams, M. 2006. Industry facing critical shortage of engineers, other professionals. *Oil and Gas Financial Journal* 3, no. 1: 1–7.

Alpion, G. 2008. Brain down the drain – an exposé of social closure in Western academia. In *Encounters with civilizations: From Alexander the Great to Mother Teresa,* ed. G. Alpion, 181–204. India: Meteor Books.

Altbach, P. 2004. Globalisation and the university: Myths and realities in an unequal world. *Tertiary Education and Management* 10, no. 1: 3–25.

Altbach, P., and J. Balan. 2007. *World class worldwide: Transforming research universities in Asia and Latin America.* Baltimore, MD: Johns Hopkins University Press.

Association of University Teachers (AUT). 2005. The 'brain drain': Academic and skilled migration to the UK and its impacts on Africa. Report to the AUT and NATFHE. http://www.ucu.org.uk/media/pdf/3/4/thebraindrain.pdf.

Balakrishnan, A. 2007. CBI seeks bursaries to boost science and engineering studies. *The Guardian,* August 13. http://www.guardian.co.uk/business/2007/aug/13/highereducation.education.

Bond, J. 2007. UK skills gap continues to deteriorate warns IET. http://www.theiet.org/about/media-centre/press-releases/20070709_2.cfm

Casey, T., S. Mahroum, K. Ducatel, and R. Barre. 2001. *The mobility of academic researchers: Academic careers and recruitment in ICT and biotechnology*. Seville: Joint Research Centre, Institute for Prospective Technological Studies.
Cheng, L., and P.Q. Yang. 1998. Global interaction, global inequality, and migration of the highly trained to the United States. *International Migration Review* 32, no. 3: 626–53.
Deem, R. 2001. Globalisation, new managerialism, academic capitalism and entrepreneurialism in universities: Is the local dimension still important? *Comparative Education* 37, no. 1: 7–20.
Fazackerley, A. 2004. Desperate for a spark to ignite student interest. *Times Higher Education,* December 3.
Gaillard, J., and A.M. Gaillard. 1998. The international circulation of scientists and technologists: A win–lose or win–win situation? *Science Communication* 20, no. 1: 106–15.
Ghosh, P. 2006. Computer industry 'faces crisis'. *BBC News,* November 17. http://news.bbc.co.uk/1/hi/technology/6155998.stm.
Higher Education Funding Council for England (HEFCE). 2005. *Staff employed at HEFCE funded HEIs: Trends, profiles and projections,* 2005/23. London: HEFCE.
Higher Education Statistics Agency (HESA). 1999. *HESA staff record for the academic year 1998–1999.* Cheltenham: HESA.
Higher Education Statistics Agency (HESA). 2002. *HESA staff record for the academic year 2001–2002.* Cheltenham: HESA.
Higher Education Statistics Agency (HESA). 2005. *HESA staff record for the academic year 2004–2005.* Cheltenham: HESA.
Johnson, J.M., and M. Regets. 1998. International mobility of scientists and engineers to the US – brain drain or brain circulation? *National Science Foundation Issue Brief 98,* June 22, p. 316.
Mahroum, S. 1998. *Europe and the challenge of brain drain*. IPTS report, no. 29. Seville: Institute for Prospective Technological Studies.
Mahroum, S. 1999a. Global magnets: Science and technology disciplines and departments in the United Kingdom. *Minerva* 37, no. 4: 379–90.
Mahroum, S. 1999b. Patterns of academic inflow into the higher education system of the United Kingdom. *Higher Education in Europe* 24, no. 1: 119–29.
Mahroum, S. 1999c. *UK global magnets of excellence.* JRC Publications Bulletin, no. 20. Brussels: Joint Research Centre.
Merrick, B. 2004. *Broadening our horizons: International students in UK universities and colleges.* London: UKCOSA, The Council for International Education.
Merriman, J. 2008. Shortage of engineers plagues oil industry. *International Herald Tribune,* June 3. http://www.nytimes.com/2008/06/03/business/worldbusiness/03iht3rtroilskills.13427817.html.
Mohrman, K., W. Ma, and D.P. Baker. 2008. The research university in transition: The emerging global model. *Higher Education Policy* 21, no. 1: 5–27.
Morano-Foadi, S. 2005. Scientific mobility, career progression, and excellence in the European research area. *International Migration* 43, no. 5: 133–62.
Musselin, C. 2004. Towards a European academic labour market? Some lessons drawn from empirical studies on academic mobility. *Higher Education* 48, no. 1: 55–78.
Naidoo, R. 2003. Repositioning higher education as a global commodity: Opportunities and challenges for future sociology of education work. *British Journal of Sociology of Education* 24, no. 2: 249–59.
Pieterse, J.N. 1996. Globalisation and culture: Three paradigms. *Economic and Political Weekly* 31, no. 23: 1389–93.
Roberts, G. 2002. *SET for success: The supply of people with science, technology, engineering and mathematics skills.* London: HM Treasury.
Sanders, C. 2004. Lack of medical lecturers threatens NHS salvation. *Times Higher Education,* January 16.
Sastry, T. 2005. *Migration of academic staff to and from the UK – an analysis of the HESA data.* London: Higher Education Policy Institute.
Scott, P. 2000. Globalisation and higher education: Challenges for the twenty-first century. *Journal of Studies in International Education* 4, no. 1: 3–10.
Teichler, U. 2004. The changing debate on internationalisation of higher education. *Higher Education* 48, no. 1: 5–26.