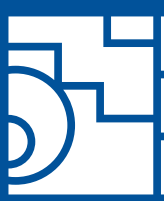
Research report

Researcher mobility in the European Research Area: barriers and incentives



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Research reports

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Researcher mobility in the European Research Area: barriers and incentives

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Summary

In 2000, the European Commission highlighted the need for greater mobility, particularly of researchers, between the member states of the European Union (EU). These mobile researchers and academics would be highly skilled, aware of differences of approach across Europe, and become true European citizens. This agenda has been given a renewed emphasis within the context of discussions on the future direction of the European Research Area and the creation of a European Higher Education Area.

This report examines the reasons for increased mobility and looks specifically at the incentives for individual researchers and for higher education institutions; it considers the barriers to that mobility; and suggests future research and actions that would help to overcome these barriers. Whilst increased mobility can be seen simply as a beneficial outcome in itself, it also has a major role in establishing networks of researchers across the EU that will have a continuing benefit.

Enhanced researcher mobility allows for new ways of thinking to develop, and supports the academy in its pursuit of greater knowledge and new discoveries. Institutions benefit from students and staff who approach issues differently, and who are committed to greater collaboration with colleagues in other countries and thereby add value to research teams. Individuals benefit from new experiences, learning different ways of designing research projects, and gaining access to new kinds of research equipment and different opportunities. Networks created through researcher mobility can sustain the development of new disciplines and aid research and institutional links.

Despite these significant advantages, there are still a number of significant barriers to greater mobility in Europe. These include transferability of pensions, a difficult question which has recently been reviewed by the European Commission although a viable solution has not yet been found. There are also the problems that mobility raises for the careers of female scientific researchers, particularly amongst those who are partnered with other mobile researchers, which have not yet been addressed by policy-makers within the EU. The creation of more research networks would help to facilitate greater researcher mobility in Europe but higher priority needs to be given to establishing and maintaining them. There is a need to assess how well established these networks are and to identify and promote good practice in the higher education sector.

1 Background

1.1 The European policy framework

The European Research Area (ERA) was established by the European Commission in January 2000, and provides the main framework and context for EU policy on mobility. Member states agreed at the Lisbon Summit in 2000 that Europe was to become the 'most dynamic and competitive knowledge based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010'[1]. The new research area included a strong focus on researcher mobility, including a mobility strategy, which aimed to improve the movement of researchers between member states[2].

The development of the European Research Area was evaluated by the Commission in 2007 and the resulting green paper suggested that an adequate flow of competent and mobile researchers should continue to be a key focus, though renewed efforts were required to achieve this objective. This briefing will focus on this dimension of European Research Area policy.

The European Commission believes that an integrated Europe should include a European Research Area within which researchers, particularly scientific and post-doctoral researchers, should move frequently between member states working in different higher education institutions, public research institutions, and business and industry. These mobile researchers should facilitate knowledge exchange through personal contacts and through the posts they hold in institutions in different countries. These principles have been expounded in the European Researcher's Charter, which was published as a Commission recommendation in 2005[3].

The focus on mobility as a policy is therefore driven largely by economic considerations, which relate to the future development of the workforce and the aim of preventing skills shortages, and enhancing the international competitiveness of Europe in comparison with the United States, Japan, and other competitors.

The growing need for increased mobility also responds to concerns of member states about the declining number of researchers, as a result of ageing populations, and the failure fully to use the potential of certain groups within academia, particularly women.

Wider policy developments have supported this objective. In 2003, in supporting the Lisbon agenda, the Barcelona European Council set a target of increasing European research and development expenditure from 1.9 per cent of GDP to 3 per cent by 2010. If the target were achieved it was estimated that this would equate to the recruitment of between 600,000 and 700,000 new researchers in Europe and would help to ensure that the profession was a more attractive prospect[4].

1.2 What is meant by mobility

The European Commission's strategy focuses on the importance of mobility in terms of researchers 'flowing' around the EU rather than simply migrating from one member state to another. The main purpose of this kind of mobility is to create more avenues for knowledge exchange but there is a longer term aim as well. The hope is that it will also lead to the creation of fully-fledged European citizens who have an understanding and appreciation of working and living in several different member states.

The Commission currently identifies two major types of researcher mobility. The first is the kind of very short-term mobility achieved by attendance at conferences and workshops that attract participants from across Europe for a period of a few days. The second type of mobility is the recruitment of researchers through fixed-term contracts, which involve an individual moving to a different institution in another European country for a period normally extending to between one and three years. For senior lecturers and professors, attendance at conferences and workshops abroad is likely to be a normal and accepted part of their academic role, but they are much less likely to undertake a fixed term appointment overseas, as discussed below.

1.3 Benefits of mobility

There are a number of potential benefits stemming from increasing researcher mobility. Benefits noted by the Commission[5] focus largely on knowledge exchange, and on gains from the sharing of teaching and learning expertise. Although European and national research centres may be an obvious place for mobile researchers, it is important to recognise that mobility should mean researchers moving around to a number of diverse universities and research institutions, so that knowledge transfer can be more effective. While there is an assumption that it is necessarily the best researchers who migrate, there is evidence to suggest that this is not always the case[6].

Institutions gain from having mobile staff as they reap the benefits of new scientific discoveries, the establishment of new disciplines and different approaches to research. These benefits can be short-term unless research networks are maintained on a continuing basis.

1.4 EU initiatives

European initiatives that seek to encourage mobility focus mainly on the movement of students, with the Erasmus programme being the main channel of funding. The Marie Curie Fellowship scheme, within the Framework Programme, is the main source of EU level funding supporting the Commission aim of increasing researcher mobility. The new Framework Programme 7 has seen a greater focus and increased budget for Marie Curie and it has a number of different strands, with most being aimed at post-doctoral researchers who form the basis of the model of mobility that the Commission has adopted. These initiatives mainly focus on student mobility (from undergraduates to doctoral researchers) or on post-doctoral researcher mobility, rather than on the movement of more senior staff. This funding is therefore unlikely to support the creation of new research networks in the short to medium term, which are generally initiated by established academic staff.

1.5 UK approach

There is little doubt that UK undergraduate students, postdoctoral candidates and academic staff are less mobile than their counterparts in other EU countries, and there is a raft of evidence to support this assessment[7]. However, the conclusions of the final report of the operation of the Marie Curie Fellowship Scheme in Framework Programme 5, which ended in 2002[8], suggests that although UK researchers are less inclined to work in other countries than those in France, Germany and Spain, the UK is an attractive and sought-after destination for other EU nationals. UK academic staff and students are likely to benefit from an international academic experience simply by remaining at home, and this may be one of the reasons that explains their reluctance to work abroad.

There are two distinct patterns of migration identified by different international bodies. The 'south to north' migration pattern highlighted by the World Bank, stresses the economic causes behind migration. The European Commission's view of academic migration is one of 'mobility' and 'circulation'. Although the World Bank analysis relates to all kinds of migrants, particularly economic and skilled migrants, and the Commission's vision of an European Research Area is designed predominantly for academic researchers, there are some conclusions to be drawn from a comparison of the different patterns of migration.

2.1 Global trends

A recent World Bank report on immigration and brain drain shows that immigrants to the 'OECD [Organisation of Economic Co-operation and Development] are more skilled than individuals in the OECD that are native born'[9]. The figures show that within the EU in 2000, 23.1 per cent of immigrants were educated to tertiary level, compared with 18.6 per cent of the resident population. For the OECD countries these figures were 35.4 per cent and 27.6 per cent respectively. It is clear from these figures that in general the OECD countries have more educated populations than the EU member states, and that individuals in poorer countries with high levels of education are more likely to migrate than their peers in OECD countries. Given the 'ladder' model seen in the World Bank report, the most educated strata of poorer countries are more likely to leave that country to begin a life in a richer country.

A chapter in this report focusing on innovation in the United States argues that the more restrictive immigration policies imposed after 11 September 2001 have resulted in a reduced potential for innovation. The number of international students is shown to have increased steadily since 1990, reaching a peak in 2001 and then falling in 2002 and 2003. More recent figures from the Institute of International Education record that the largest fall in annual enrolments was 2.4 per cent in 2003/04. However, the number of international students going to the United States did not pick up again until 2006/07 when they increased by 3.2 percent, and returned to 2001/02 levels[10].

This same chapter on innovation includes information on the changes in skilled immigration to the United States and here the picture is very different. There were frequent fluctuations in the amount of skilled immigration, with peaks in 1993, 1996 and 2001-02, and troughs in 1991, 1999 and 2003 (the most recently recorded date in the report). This volatility may be a result of economic as well as policy cycles, as it is clear that the impact of 9/11 is not the only cause.

Although these figures show that immigration to the United States remains high, including the flow of skilled migrants, there are differing views as to whether this represents a brain drain or brain gain for the developing countries. For those countries at the bottom of this ladder model of immigration, the brain gain theory suggests that responsible governments will see the level of skilled emigration as a warning of further losses, and increase education spending to ensure that the country's economy can function and grow. This will then, over time, lead to a brain gain for the country, particularly if they are also successful in encouraging skilled emigrants to return. The problem here is clearly the time lag between increases in migration and greater levels of education provision compensating for that emigration. The issue of brain waste is also relevant here, where skilled immigrants to the United States may be working in jobs for which they are over-qualified.

2.2 The EU and UK position

Although there are proposals for the collection of data on the destinations of postgraduate students and researchers, there is currently little quantitative data available about the extent of researcher mobility within the EU beyond that collected by EU-funded programmes. Nevertheless, it is possible to create a picture of inward migration patterns to the UK from the qualitative studies undertaken by Professor Louise Ackers and the Higher Education Statistics Agency's (HESA) data on postgraduate students and alumni.

Although it is difficult to use HESA data to determine the extent of mobility it does provide information about the previous employment of current UK academic staff. For the year 2005/06 it shows that of the 8 per cent of academic staff who came from overseas to work in the UK, 34 per cent had EU (non-UK) nationalities, 30 per cent were non-EU and only 32 per cent were UK nationals. When compared with those who were previously resident in the UK, only 8 per cent were EU (non-UK) nationals, 8 per cent non-EU and 81 per cent were UK nationals[11]. The Higher Education Policy Institute (HEPI) has used previous HESA data from 2002/03 to suggest that in the past UK nationals had been more likely to seek academic posts in the United States, but they were increasingly looking towards the EU as the preferred destination for overseas research placements.

In common with the figures in the World Bank report on innovation in the United States, the HESA data shows an increase in the number of academic researchers coming to the UK between 1995/96 and 2002/03, with a trough in 1996/97 and a peak in 2000/01. In the UK, this peak and decline is more likely to be due to changes in immigration policy, than terrorist attacks. It will remain to be seen what the impact of recent terrorist activity in London and the new points-based immigration system[12] may be on the number of academics coming to the UK in future. Emigration figures for researchers through the period are much steadier, increasing almost year on year between 1995/96 and 2002/03.

The distinction between the two models of migration may well be a result of the different foci of the reports from the World Bank and the European Commission, but this distinction falls away when the motives of researchers from the poorer parts of the EU are considered. A report on the migration of researchers from Bulgaria and Poland to the UK and Germany[13] suggested that their propensity to return to Eastern Europe was influenced partly by personal factors, specifically family commitments and expectations, and partly by the networks they were associated with. A major reason was of course professional factors, including financial benefits.

The study by Professor Ackers, which focuses specifically on economic migrants, argues that Bulgarian and Polish 'scientists are generally more 'pushed' by economic necessity than 'pulled' by the 'lure' of knowledge per se'[14]. In countries where scientific funding is limited, researchers consider migrating to countries with better facilities and funding if they wish to advance their career prospects. In Bulgaria in particular, the research showed that some laboratories lacked even basic chemicals and equipment and as a result there was a significant 'push' factor for researchers wanting to conduct original research.

The experience of Bulgarian and Polish research migrants to the UK suggests that migration to more developed EU countries, particularly when coupled with a lack of familial ties with the home country, may lead to brain drain:

> The sending countries have experienced a significant decline in scientific potential and the mid-career generation is often thin on the ground with important implications for future capacity. There is also a sense that migration is selective in its effects resulting in the losses of many high quality and enthusiastic researchers often in specific disciplines and sub-disciplines.[15]

The report also discusses the presence of researcher migrants in Poland who have arrived from poorer countries outside of the EU. Other work suggests that there is a similar situation in Estonia.[16] This 'ladder' of migration could signal problems for the EU's 'circulation' model as researchers from Poland working in another member state might find it difficult to return home unless the non-EU migrants in Poland also returned to their countries of origin. However, if these EU researchers only moved initially to conduct research that was impossible in their home country, then it is unclear what would persuade them to make a further move to a third country.

Researchers from more established EU countries seemingly have more opportunities to move to institutions in other EU countries, and being generally wealthier than their Eastern European colleagues, they have greater opportunities to move abroad several times. In continental Europe, many postgraduate students and researchers see movement around the EU as the logical next step in their careers. While moving abroad is still a significant decision for early-career researchers and postgraduate students, it could be argued that the benefits are greater than the obstacles. There is an expectation that successful scientific researchers will have been employed in several different institutions in a number of different countries before finally settling down in one place. In many cases, the concept of settling down for an extended period of time is rejected altogether, and a fully mobile career is considered to be a realistic option.

In this respect most UK researchers' behaviour is altogether different as they tend to move less frequently than their colleagues in the rest of Europe. However, the in-flow to the UK from the rest of the EU is high and UK researchers will therefore come into contact with researchers from other countries on a regular basis. As a result of these two factors, in the UK there is less expectation that a researcher, as part of the development of a scientific research career, will need to be mobile. If UK researchers do make a move abroad, they are likely to be drawn to the United States rather than Europe for language reasons, and there is evidence of an increase in US-UK collaborations[17], although established joint arrangements such as the MIT-Cambridge partnership also play a part. The increasingly popularity of large European research collaborations suggest that more UK researchers may look to Europe. However, as mentioned above, the data available on these mobile researchers is limited.

The UK is an attractive place for researchers from other European countries to work, partly because universities fill job opportunities on an open and transparent basis, and the fixed-term nature of some employment contracts attracts itinerant EU scientific researchers who are seeking short term employment opportunities. The pay and conditions of researcher positions in the UK are comparable to those in continental Europe and are better than those in Eastern Europe. Language barriers are less of a problem for such migrants because English is widely taught in European schools and UK universities make provision for further learning in language and writing for researchers once they are in post, as well as support for transferable skills and training.

Despite the contrasting patterns of migration of UK researchers and those from the rest of Europe it is clear that the mobility pattern of the future is the one that researchers in continental Europe have adopted. Increasing prosperity and continuing links with home countries can help to increase the propensity of Eastern Europeans moving around the EU in the knowledge that they will be able to return to their home countries when they choose to do so. Many Eastern European universities ensure that their researchers hold an unpaid or honorary position with them while they are away, which services as a guaranteed post upon return to the home country.

The tendency to see increased researcher mobility as a necessary stage in the development of a scientific career rather than a rare exception may in time produce an increase in the mobility of UK researchers to other EU countries. Policy changes that encompass support for doctoral students within initiatives to encourage mobility may also help to boost the movement of UK researchers.

The opportunity to conduct research in another EU member state as part of a successful research career raises a number of issues for the individuals concerned. Existing European laws on the movement and employment of EU citizens within member states have eased some of the constraints on mobility, as has the reform of administration processes in national funding agencies (for example, introducing greater portability of grants), but the experiences of mobile researchers have thrown up other problems that need to be resolved. The European charter and code for researchers, addresses some of these, but others remain.

Two major factors that affect the willingness of academics to work in other member states are social security provisions and funding incentives. The combined effect of these two influences can deter the mobility of certain groups of academics. In 2005/06, the largest group of overseas academic staff in the UK by grade was at researcher level. Whereas at professorial level, 86 per cent of staff were from the UK, at researcher level the equivalent figure was only 60 per cent[18]. The proportion of staff coming to the UK from EU and non-EU countries was fairly even at 17 per cent and 18 per cent respectively at researcher level and 6 per cent and 7 per cent at professorial level. Although this data only covers academic staff serving at UK institutions, it can be seen as indicative of the position across Europe, where the majority of mobility occurs at researcher level.

3.1 Incentives

Most initiatives to encourage mobility focus on early-career researchers; for example, the Marie Curie Fellowship Scheme, Erasmus, the European Mobility Scheme for Physics Students, Erasmus Mundus, Ploteus, and ERACareers are all aimed at students (both undergraduate and postgraduate) and early-career researchers. Several Marie Curie programmes are closed to researchers with more than ten years' experience. There are some initiatives for more established researchers: the Marie Curie development scheme and the Marie Curie industry-academia strategic partnership both aim to improve knowledge exchange as a result of mobility. For these programmes, the fellowships last between two months and two years and fellows are recruited only after funding for the proposal has been provided. The most recent Framework Programme (FP7) will provide support for international doctoral programmes rather than shift the focus towards more experienced researchers.

Targeting early career researchers with the aim of increasing their mobility has been successful in the sense that this group constitutes the academic grade that is most likely to be mobile. Now that early career researchers are well-catered for in terms of incentives, the focus should be on how to increase senior academic-level mobility.

In order to encourage greater mobility amongst more senior academics, one possible solution might be offering new opportunities for just a few months' of employment overseas. This could involve the senior academic co-leading a project for a few months to understand how research is undertaken in a host institution, or doing some research or teaching there.

For example, the new Marie Curie scheme, the International Research Staff Exchange Scheme,[19] will facilitate shorter periods of mobility, where it would be beneficial to a research project. To anyone unable to make a longer term commitment, this would be a good way of gaining experience and building networks.

There is no doubt that shorter periods of mobility could benefit both the individual and the home and host institutions, particularly in the arts and humanities, as these are disciplines which have not traditionally been targeted as part of mobility programmes. For example, professors or senior researchers undertaking research in a foreign country could provide lectures at a university local to the area where their research takes them. This would necessitate a sabbatical from their home institution, but if the academic were teaching in a different European university then it could be regarded as a secondment.

3.2 Social security constraints

Differences in national systems of social security across Europe, particularly in the provision of supplementary pensions and in provision of childcare, act as a barrier to researchers and academics, particularly those with children. Differences in childcare provision are likely to be a barrier to mobility for female researchers disproportionately and so are likely to be a barrier to mobility for this group.

The need to transfer from one pension scheme to another as a researcher moves to employment in another member state is a significant disincentive, particularly for more established staff. There are many reports of transfers being slow and there is the possibility of financial loss as a result of the move. There are also issues of information provision about pensions for researchers as they move from one country to another.

The European Commission is currently investigating the social security barriers to mobility and considering the possibility of creating a pan-European academic pension scheme although there are likely to be significant financial and regulatory barriers to overcome. There is a real danger of adding another layer of complexity and making the situation worse. More practical and immediate actions, advocated by Universities UK and others, might be to improve the dissemination of information and to ensure that the transferable skills training of researchers encourages a greater awareness of pension rights and systems so they are empowered to manage their financial affairs more proactively.

In the UK, through changes to the tax laws affecting pension arrangements from April 2006, schemes such as the Universities Superannuation Scheme (USS) are now able to allow internationally-based employers a right to participate. However, the internationalisation of pension schemes also requires such schemes to be financed so that they are 'fully-funded at all times', a requirement of EU Directive 2004/41/EC (known as the 'IORP' directive) where they operate on an EU cross-border basis. These stringent funding rules for cross-border schemes are incompatible with the general funding approach adopted by UK pension schemes, and present significant problems for any defined benefit scheme seeking to operate across EU member states.

While USS has been working for the portability or extension of a researcher's pension, and does pay out retirement pensions accrued in the UK across the world, it can only work within the limitations of relevant EU legislation (and the IORP directive will be the subject of a consultative review in the coming year or so). The lack of equivalent supplementary schemes across Europe further complicates proposals for a policy solution. However, discussions on a system for researchers to accrue a pension whilst working across Europe are likely to continue.

Most senior academics are on a permanent contract and are unlikely to want to exchange it for a fixed-term contract in another country, particularly if this damages their pension provision. Higher education institutions will need to consider offering more opportunities for leave of absence or sabbaticals spent in other institutions if mobility is to be possible for this group of staff.

3.3 The gender dimension

Evidence[20] has been presented that shows women, and particularly partnered women with children, face the greatest obstacles to their mobility in pursuing a career in scientific research. It established that when a couple were faced with an international move, women were more likely to defer to their partners' career interests, whereas men in a similar situation were less likely to do this. These cultural pressures on women result in a major loss to the science profession.

Ackers' various projects show that the majority of women scientists are partnered with a male scientist, although the proportions are not as high for men, as there are fewer female scientists[21]. As both partners are highly skilled, usually with doctorates, these couples represent a significant proportion of the talent pool for scientific research. Due to the high level of overall mobility of scientists in Europe, many of these couples are also international in their focus. Most scientific researchers begin to move around Europe at the doctoral or post-doctoral level, usually around their mid- to late-twenties.

Despite the time and effort involved in studying for a doctorate and developing a scientific research career, the research shows that in the main, at a certain point in their careers, women in these double scientific career couples put their own career development on hold and follow their partner[22]. They may look for jobs in the new country, but unless they are based near a relevant research cluster, they are unlikely to find a position in a university or research institution. Many women use the opportunity for a career break, in particular to have children, but they may find it difficult to secure a new job in scientific research when they wish to resume full or part time employment. Often, the woman has to settle for any position that she can find, effectively de-skilling herself and removing a highly skilled scientist from the research labour market[23].

A respondent from Ackers' research summarised the position:

> *I had a professor who used to say that 'when there is a man and a woman, and they marry together, Science gains a researcher, the man, but loses another one, the woman'*[24].

Once women have children and take a career break, they become dependent upon their male partner's employment, and lose their place in research. Whatever a woman's academic qualifications, societal and cultural pressures often restrict her ability to work in a way that will further her career[25].

The impact of children on a woman's working potential is exacerbated by the pressures to be mobile. Mobility means that support from extended family networks will be missing and access to affordable childcare may be restricted. Without suitable childcare arrangements, having children can restrict both current employment and future career aspirations for women. Some women may consciously choose not to have children in order to avoid damaging their careers.

Initiatives to promote the role of women in science has been important in helping women break into scientific careers in the UK. The Athena SWAN Charter and the UK Resource Centre for Women in Science, Engineering and Technology, among others, seek to promote women in scientific careers. The obstacles faced by women as they move within the EU need to be tackled to avoid losing a large number of talented, highly skilled scientific researchers, resulting in a significant loss of potential in scientific research and the accumulation of knowledge.

4
Research networks

The creation of research networks is an important aspect of academic mobility within the EU. Networks allow an individual to make contact directly with a fellow researcher in an institution relevant to their research, and are an efficient means of exchanging knowledge and developing collaborative projects.

Ackers and others have researched the impact of more and less senior researchers in building networks by being mobile. They state that:

> *'the first aspect of the migration/knowledge exchange process concerns the contribution of networks to the physical movement of scientists, both in terms of outward and return flows'.*[26]

Senior academic staff tend to create more effective networks than their more junior colleagues as the contacts that they make at a project leader or director level enable the entire project team to gain access to the information. Where researchers form networks, links can be more difficult to sustain; they tend to fall apart when the researchers themselves move on to other institutions. In particular, early career researchers may form links that do not provide any real benefit in the short to medium term, but may be useful later on in their careers. Senior staff are more likely to make immediate links through attending meetings and conferences than through working in different countries.

Another factor affecting the development of networks is the varying attitude to returning academics in different European countries. A common way of encouraging the return of mobile scientific researchers to Eastern Europe is the use of unpaid and honorary positions in an institution. Some universities in Eastern Europe maintain links with their researchers working in other parts of Europe through this unpaid position scheme. For some researchers these positions simply mean an affiliation in name; for others, they can be paid and involve spending weeks at a time in the institution in their home country to help with research and conferences[27].

Although there are clearly advantages in maintaining such links in terms of exchanging knowledge and developing networks, it is difficult to see how unpaid 'held' permanent positions will be regarded in terms of transparency of recruitment.

Scientific researchers sometimes link up with others from their own country whom they meet whilst working abroad. This can be useful, but should be balanced with the objective of the European Research Area to create scientific researchers who are 'European citizens'. We need to find out more about the factors that help and hinder the creation of networks and knowledge, and see what action may support early-career researchers and more senior staff. Further research might look at how formal and informal networks are established and maintained. If one of the objectives of encouraging mobility is to create stronger links and networks, then we need to focus more on the extent to which they are being established, rather than simply on the level of mobility that is being achieved.

5
Conclusions and next steps

Academic mobility can result in the creation of networks between relevant research projects, through improved individual contact. It can provide greater life experience and self-development for individuals who move from institution to institution. Despite the objective of securing wider research benefits, which underlie the policies that encourage mobility, evaluations have focused more on the advantages for the individual rather than the gains for research, and we need to know more about the latter. Despite the priority which the Commission has given to increased mobility, the barriers are still significant and will affect future progress. The development of different and more accessible ways of being mobile would benefit researchers who are unable to move to a different country.

Further work is needed on the portability of pensions, and the barriers facing women researchers. Progress on pensions will require further action in Europe, involving UK providers and their counterparts, in order to find solutions to the issues raised. In the UK this will require a coordinated approach by Universities UK, the relevant pension providers and government departments.

Ackers and her colleagues have thoroughly researched the impact of gender on mobility within the EU. The issue now is how the international market for scientific researchers is developed as a more equal place. Policy-makers will need to review the remaining barriers and develop solutions in conjunction with the higher education sector, with the aim of supporting female researchers in their pursuit of mobile scientific careers.

This report has also identified a need for a closer look at networks and knowledge transfer. Understanding how institutions create networks, the different kinds of networks and their benefits and how their role might be developed would be particularly useful. As a starting point it is suggested that a survey of institutions to increase understanding of their role might be undertaken. From this survey, case study institutions could be selected as a basis for identifying advice and guidance on how best to foster and maintain links with researchers as they develop their academic careers. This information could be usefully built into the implementation of the concordat to support the career development of researchers in the UK, being taken forward by Universities UK and Research Councils UK (RCUK)[28].

Notes

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