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shifting from academic 'brain drain' to 'brain gain' in europe

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Abstract

Many researchers trained in Europe leave to work abroad, particularly in the USA. This brain drain phenomenon is the result of a lack of openness and competition in European academic systems. Some changes relating to the mobility of academic careers could make a difference in attracting – and maintaining – researchers, apart from serious structural reform. Performance-related salary policies, as well as proper working conditions, are key incentives to attract researchers. To some extent, efficient post-doctoral programmes and gender-equity policies should be considered too.

Keywords academic careers; university reform; European research area; bologna declaration

INTRODUCTION

The debate on the brain drain from Europe to other areas of the world is a hot but still relatively unclear one. In 2003, a study by Wendy Hansen from the Maastricht Economic Research Institute on Innovation and Technology (MERIT) found that the US, Canada and Australia continue to draw talent from the European Research Area (ERA). The study made headlines by reporting that 400,000 European science and technology graduates live and work in the US, with stories of European bureaucratic institutions oppressing researchers and forcing them to seek jobs and research

opportunities elsewhere. These findings were picked up by the weekly *Time* and other media, and were received with alarm by Odile Quintin, Director General at the DG of Education and Culture of the European Commission. Quintin was concerned in particular that of these 400,000 people only 13 per cent intend to return.

However, some commentators have cast doubts on the actual scale of the brain drain phenomenon. The DG Research warned that the figure presented by the MERIT report also included managers and computer programmers (probably the majority), not necessarily just pure researchers. In fact, a spokesman

for the DG even argued that Europe may be benefiting from a brain gain (European Voice, 2004). The fact remains that in early 2008, the 400,000 'Europeans with scientific and technical education' were still being debated, in addition to the fact that almost 10 per cent of Ph.D. holders in the US were departed Europeans (European University/Business Forum, 2008).

Regardless of the numbers involved, what is clear is the saliency of the issue of the brain drain and the attention paid to it by the European Commission. Committed to the establishment of the ERA, the Commission appears to be seriously concerned about the state, performance and competitiveness of European universities. Assuming that the mission of a university is not only to produce and share knowledge with its society, but also to train, maintain and attract researchers (European Commission, 2007a), the Commission has suggested strategies and concrete solutions both to convince its younger cohorts of researchers to stay in the Old Continent and, at the same time, attract the best minds from outside Europe. By jumping into the Bologna Process, the Commission has tried to take the lead on the reform of national higher education systems and the modernization of European universities. By promoting the European Charter for Researchers, it has suggested ways in which member states should adjust their regulations in order to secure researchers the best living and working conditions.

This article aims to enter the debate on the brain drain by highlighting some of what we consider to be the crucial issues related to making Europe an attractive place to do research, such as the openness of national academic systems, salaries, postdoctoral research and gender. We believe that, if these questions were adequately tackled and solved, Europe could move to the construction of an open, integrated and competitive ERA

'the Commission has tried to take the lead on the reform of national higher education systems and the modernization of European universities'.

(Marimon and de Graça Carvalho, 2008). This contribution focuses heavily on the social sciences and humanities (SSH) and it is informed by reflections and findings matured within the project of the Academic Careers Observatory (ACO) of the Max Weber Programme (MWP). The MWP is the largest postdoctoral programme in the SSH worldwide. The ACO has been monitoring developments in SSH academic careers for the last three years. It is a project funded by the European Commission, which has begun to pay considerable political and financial attention to the SSH as part of the broader Lisbon strategy. Disciplines such as economics, history, law and the social and political sciences extrapolate and analyse important features of European societies of today, helping policy-makers at every level of government to take the appropriate steps towards the construction of the Europe of the future.

In the following we will proceed, first, by tracing the main features of the different academic systems in Europe and examining their level of openness, with an emphasis on their accessibility to foreign researchers. Then, we will focus on more specific issues, beginning with the importance of salary levels in attracting qualified researchers. We will continue by arguing that it is important for Europe to offer comprehensive postdoctoral programmes to young academics in order to keep them within the EU when they start publishing, and at the same time training them in different aspects of



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current academic practice. The last question we will raise is that of gender-based disparities and inequality, which need to be addressed so that the EU can count on the crucial input of research work by women. In our conclusion we will discuss how the findings of the article can be used to design a sound policy against brain drain and to promote brain gain.

OPENING UP ACADEMIC SYSTEMS IN EUROPE

If the EU is not to lose its researchers and is to attract new ones from beyond Europe, its academic system and market – meaning, ultimately, the systems and markets of its member states – has to be open and attractive. In this respect, however, European states present various differences. To capture these differences while at the same time making sense of them within a broader theoretical framework, four academic system models can be identified: (1) the Anglo-Saxon, (2) the Continental, (3) the Nordic or

Scandinavian, and (4) the Central and Eastern European models. In the following sections it will soon become clear that these systems offer different degrees of accessibility to non-national researchers. In order to show these differences, we will refer in particular to the recruitment procedure and the use of English *within* the systems as indicators of accessibility to the systems.

Two of these models present the sharpest differences: the Anglo-Saxon and the Continental. The Anglo-Saxon model, inspired by the UK system but also comprising countries such as Ireland and the Netherlands, offers the highest degree of accessibility to external researchers as a consequence of the primary attention paid by these systems to quality and merit in research. The government supports universities and departments financially according, among other things, to their academic performance as assessed by the Research Assessment Exercise (RAE), now to be replaced by the Research Excellence

Framework (REF). It thus introduces 'objective' standards into the allocation of funds, which translates into clear incentives for universities to hire the best researchers – regardless of their nationality – in order to rank highly in the RAE. Furthermore, the use of English is widespread in both research and teaching, not only in the UK and Ireland but nowadays in the Netherlands too.

The Continental European model departs from the Anglo-Saxon one in many respects. In principle, the academic structures of countries falling within this model tend to be rigid, highly centralized and regulated, while at the same time dominated by informal rules that tend to exclude outsiders – including foreigners – and favour insiders, namely internal staff and candidates. As departmental funding does not usually depend on academic productivity, incentives for universities to recruit the best candidates are minimal. Furthermore, the use of English within these systems appears to be very limited. Job offers are rarely – if ever – advertised internationally or posted in English, virtually eliminating any possibility of attracting applications from abroad. Countries such as Italy, France, Spain and Germany can be said, to varying degrees, to belong to the Continental model.

The other two models tend to combine elements of the Anglo-Saxon and Continental models. Academic systems in the Scandinavian model – namely those of Sweden, Norway and Denmark – tend to be open and competitive with a focus on merit, which in principle translates into higher accessibility. Furthermore, positions are advertised internationally in English and on university websites: Denmark advertises widely on different websites, while Sweden centralises advertising in single university portals. Moreover, the Scandinavian academic context offers advantages related to productive research environments as well as a complete and efficient welfare system

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(although taxes are high for senior positions). Nevertheless, these systems still tend to be dominated in practice by informal rules and agreements: universities often recruit people they already know and vacant posts often go to people already working at the university. As for non-nationals, universities rarely recruit people who do not have personal contacts with their faculty and are not already in the country. Access to the system may still be limited by language barriers, especially in the area of legal studies. Many positions – including tenured contracts – are temporary.

The fourth and final model is the Central-Eastern European (CEE) model. This model comprises countries that are in the process of moving away from the centralised Soviet type of academic structure to embrace principles of flexibility and market liberalisation, largely inspired by the US system. CEE countries have suffered from the brain drain more than other EU countries; in fact, the latter (besides the US) have also been recipients of CEE researchers. As a result, CEE countries have tried to make their systems more dynamic and competitive. The main reforms that have taken place include: changing the curricula to meet the highest academic standards while adapting national university structures to the new system; starting broad co-operation with leading European universities, particularly through the TEMPUS programme; reducing the numbers of both administrative and teaching staff;

and promoting institutional attention to quality and good practice. One of the significant peculiarities of these transitional systems is the rise of private higher education institutions, a trend much less marked in Western Europe.

There is little doubt that, from the viewpoint of mobility and the challenge of brain gain, the Anglo-Saxon model presents several advantages. This is confirmed by statistics, such as those on the presence in the country of foreign researchers. The UK has by far the highest rate of non-national academic staff: at present, about 25 per cent of the academic staff in the UK are non-UK citizens. The LSE even reached 46 per cent of non-UK academic staff in 2007 (Max Weber Programme Academic Careers Observatory, 2008). While the use of English as a *lingua franca* certainly favours the UK, it seems that other factors account for the success of the country. Remuneration is not necessarily one of them, as we will see in the next section: academics in the UK do not get much higher salaries (in real terms) than in other countries. Besides, a relatively high number of these academics

are employed in temporary, non-tenure positions, as opposed to the relatively high number of researchers permanently employed as civil servants in countries within the Continental model. In fact, the attraction exercised by the UK depends on a mix of factors including healthy competition between universities and decent career prospects, in exchange for hard work, high levels of mobility and openness to non-nationals, all of which create a more vibrant academic community. The UK and other states belonging to the Anglo-Saxon model view foreign scholars at all levels, from the doctorate to the visiting professor, as key elements in encouraging a dynamic culture within their national higher education institutions.

In the final analysis, what is most important from the viewpoint of brain gain is that these countries not only have foreign researchers but that these researchers are academically well-prepared, and thus contribute to the overall performance of universities in the system: the UK is fourth at world level and first in the EU in the Shanghai Ranking of World Universities (Figure 1).

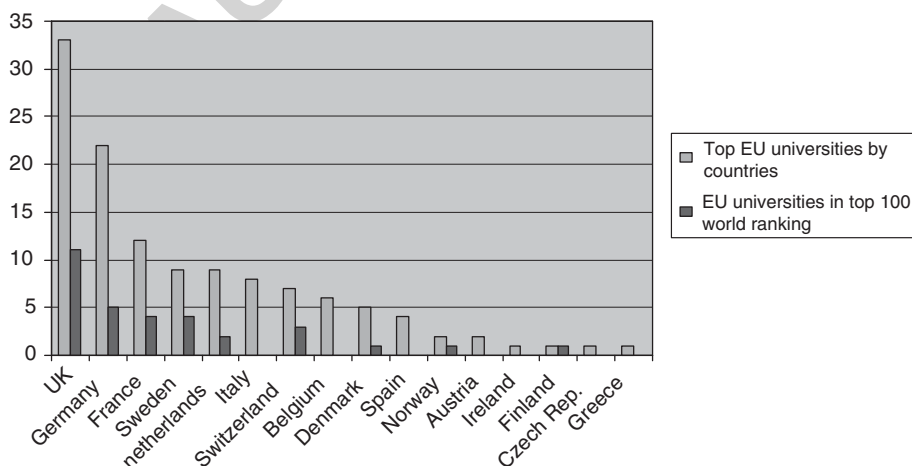


Figure 1 Ranking of EU universities based on their performance.

Source: adapted from the 2007 Academic Ranking of World Universities published by the Institute of Higher Education, Shanghai Jiao Tong University.

It is interesting to note that some Continental countries appear to be moving towards the Anglo-Saxon model, or at least adopting some of its features. In particular, Spain and Germany have started to open up their academic systems. Some Spanish departments and research institutions have begun to internationalise. Programmes like the *Juan de la Cierva* and the *Ramón y Cajal* have been designed with an eye to attracting both Spanish and non-Spanish qualified researchers at different levels of their careers. Germany has greatly expanded the number of programmes – from the postdoctoral to the senior researcher level – which are open to non-Germans. However, this opening up has taken place in a selective way and the transition is far from complete. In Spain, departments that have internationalised operate in isolation with respect to the wider Spanish ‘closed’ research environment, still dominated by informal rules. Without a more comprehensive redefinition of national laws and regulations – a process that started precisely to allow the establishment of the *Ramón y Cajal* – the transition is unlikely to be completed, and researchers attracted to the system risk finding themselves with limited mobility and career opportunities.

SALARIES MATTER

Arguably, if Europe wants to gain brains it will also have to be attractive in terms of remuneration. It should be clear from the outset that net salaries do not necessarily represent the real ‘wealth’ provided to researchers within a system: all countries provide academic staff with some social benefits (social security, family allowance etc.). It should also be noted that in each country there are various options for topping up salaries with bonuses and other sources of income. A relevant example is the case of Spain, where, at first sight, salaries seem very low in

‘even salaries in the very high remuneration level cannot compete with those paid in the US’.

comparison to some other EU member-states. However, the actual salary can be much higher depending on an individual’s productivity and outside activities.

Having specified that, it is clear that there are relevant wage differences in different European countries. On a scale of four salary levels – low, medium, high and very high – the Human Resource Directorate of the European Commission found that Eastern Europe and the Mediterranean countries (except France) are dominant in the low and medium remuneration levels while high and very high remuneration levels correspond to Nordic countries (plus France and Switzerland).

Nevertheless, even salaries in the very high remuneration level cannot compete with those paid in the US. As Figure 2 shows, different sets of data reveal that researcher salaries in Europe are often only equal to or lower than the GDP per capita, while the US and Japan definitely pay more than the average. Besides, in the US for starting academic positions in Economics the salary is, in most research-oriented universities, above 75,000 US dollars a year, and the figure can even rise above 120,000 dollars a year. These salary figures, together with proper working conditions, are obviously very attractive to motivated junior researchers. And this is not only true for recent Ph.D.s but also for academic salaries in general. For instance, the average after-tax wage in Europe for a researcher is about 40,126 euros whereas it is about 62,793 euros in the USA, meaning a difference of 37 per cent. Only Austria

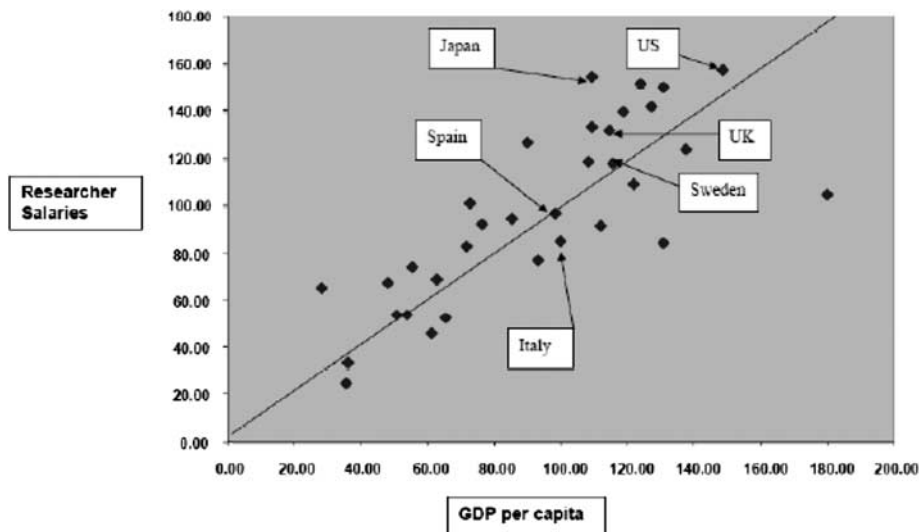


Figure 2 Researcher salaries versus GDP per capita in 2006 (PPP, EU25 = 100).
Source: adapted from Marimon (2007).

(60,530 euros), The Netherlands (56,721 euros), Switzerland (59,902 euros) and Luxembourg (56,268 euros) can compete after the cost of living is considered in each country. The UK too (52,776 euros) is well above the EU average, which, combined with the openness and merit-based standards that characterise the UK system, certainly make it a better place to do research compared to other countries. Nevertheless, the average in the UK is still far behind the USA as Figure 2 shows.

Furthermore, if we look at the way in which salary increases along the academic career path, we see that the US again offers better conditions in terms of competing in the academic market. A comparison between Italy and the US shows two ways of considering and calculating salary levels. In Italy, they largely depend on seniority, so that, at the professorial level, in 80 per cent of cases salaries are higher there than in the USA (Gagliarducci *et al*, 2005). Despite this, the incentives to perform better in Italy are few, whereas in the US researchers know that an increase in

quality publications will lead to a better salary (and eventually to a better salary than Italian ones). If one looks at the EU-27 with regard to the growth in remuneration during a researcher's career, there are again important differences among countries: in the UK potential growth represents an increment of about 235 per cent, whereas it is only 90 per cent in Denmark. Finally, it is also relevant to stress that salary figures are higher for men than for women in most countries, as research by the EU Commission reveals (2007b: 47) (Figure 3).

THE POST-DOCTORAL CAREER STEP

If Europe wants to keep and attract good researchers it has to invest in good postdoctoral programmes which will help it to keep them in Europe during the key process of publishing their first works and establishing their academic reputations. In this respect, the good news is that postdoctoral programmes have mushroomed across Europe, including in the SSH. In fact, beginning with the UK,

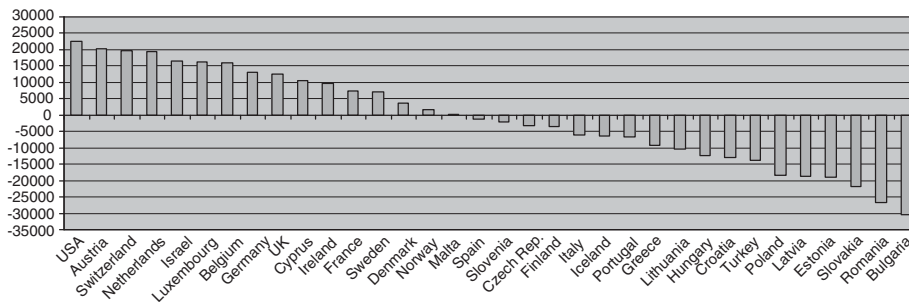


Figure 3 Average faculty annual salaries adjusted to cost of living in Euro. Based on EU average.
Source: adapted from European Commission (2007b: 45).

doing a post-doc after a Ph.D. has become a common step for many junior researchers. The perspective is that, once one or two years of postdoctoral studies are completed and after the publication of his/her Ph.D. thesis, a researcher will be ready to compete in the academic job market. In the UK, publishing, especially in peer-reviewed journals, is highly valued by employing universities, not least because it helps them to obtain a higher rank in the RAE. As academic markets become increasingly internationalised, one notices that the internationalisation of academic careers is most advanced precisely at the postdoctoral stage. In fact, the number of international grant programmes has significantly increased over the past decade. Overall, a 'post-doc' is seen as a way to add value to a CV and become more competitive in an open and trans-national academic job market, and not merely the antechamber of a lectureship.

This picture, however, needs to be adjusted in the light of the evolving conditions on the ground for young researchers. There is one major explanation for the growth of postdoctoral programmes: the lack of immediate career opportunities after doctoral studies, due to the lack of absorption of Ph.D.s by universities and research institutions. In several academic systems, the post-doctoral phase has become the bottle-

neck of the academic career. The EU has invested much in the training of doctoral students and the production of Ph.D.s. According to the National Science Board (2008), there were 8,887 social science doctoral degrees earned in the EU in 2004. That is about 15 per cent more output compared to the 7,467 doctoral degrees in the USA. Moreover, this output has been growing much faster in the EU over the last twenty years: comparing 1985 and 2005, the increase in Ph.D. output in Germany is about 170 per cent, whereas it is only 17 per cent in the USA. Yet, because of the bottleneck, between 10 and 15 per cent of EU doctorate holders are unemployed, or employed in a job below their qualification level or unrelated to their doctoral degree (Eurostat, 2007). This being the case, there is a real risk that Ph.D. holders will find themselves trapped in temporary post-doctoral research or teaching positions for many years. In Belgium for instance, one can hold a postdoctoral position for up to six years.

What post-doc programmes need to provide is adequate training for researchers in order to make them fit for the diversified job profiles of the academic market, something that should clearly target both European and non-European researchers. Adequate postdoctoral programmes should allow young Ph.D. holders not

simply to publish and develop their research potential, but also to be trained in a wider range of academic activities, such as teaching undergraduates and graduates, supervising research, drafting a research proposal, applying for grants, networking, project management and academic administration. As stressed by Odile Quintin, postdoctoral schools should foster 'a concrete link to the professorial labour market' (Quintin, 2006).

Post-doctoral programmes have recently begun to adjust to this new evolution in the academic career pattern. Among them, a good example is precisely the MWP. This programme does not simply focus on research and publishing, but also trains young researchers in today's academic activities. The Programme's objective is to support Ph.D.s in their transition towards one of the different career patterns available on the academic market (Figure 4).

CLOSING THE GENDER GAP

As women make up a large proportion of researchers – especially in the SSH – gender issues related to research need to be tackled by Europe if it wants to

compete for the best minds. It is crucial that European states develop academic models which in particular are fair to women.

There are several problems that need to be tackled. First, despite the progress made in the last decade, women's representation within the academic profession is still low and uneven. In academia, as in other fields, women often have to choose between investing in their family life or in their professional life. To combine both can become extremely difficult. Broadly speaking, one can certainly see an increasing presence of women in EU universities, especially in the area of SSH. However, great disparities persist. The share of female professors in EU countries amounts to only 26 per cent of total academic staff. It is particularly low in Germany (9 per cent), Ireland (12 per cent), Belgium (14 per cent) and the Netherlands (15 per cent), while the highest shares were recorded in two Scandinavian countries – Finland (36 per cent) and Sweden (33 per cent) (Gruenberg, 2001). Besides, most women in academia usually occupy junior entry positions. In the UK, 40 per cent of lecturers are women

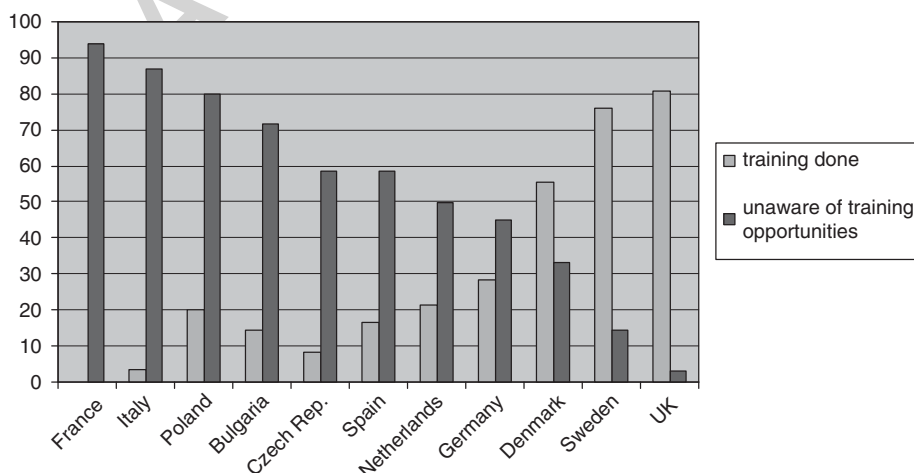


Figure 4 Training on teaching skills for doctorate students in political sciences.
Source: adapted from Pleschová and Simon (2008).

but this percentage drops to 20 per cent for women professors (*Times Higher Education*, April 2008). The same trend can also be seen in Poland, where the proportion of women assistants and associate professors accounts for about 50 per cent of the staff, but then drops to 22 per cent at full professor level (UNESCO, 2004). This tendency seems to be true in most other countries, where universities rarely offer full gender equality (Miriou, 2003) (Figure 5).

Second, there remain persistent differences in salaries. On average, the difference is about 25-30 per cent across the EU. At the country level, gaps range from 10 per cent (Denmark) to 47 per cent (Estonia), with the exception of Malta, where women receive a higher salary.

It is interesting to note that there appears to be no direct correlation between the academic structure of a country – and in particular its degree of openness – and the access of women to the academic profession. In fact, one sees that more open systems are not necessarily more favourable to women. For example, in Portugal – which in many respects is a closed Continental system – there is a higher number of women working in academia compared to the

'more open systems are not necessarily more favourable to women'.

UK. In fact, the highly competitive UK system can hinder the career advancement of women, especially in the early stage of their career at the age of 30–40. This is the life stage at which *all* researchers are expected to invest a good deal in their academic career and publications and *women* usually decide to have a baby.

The solution to this 'dilemma' and other problems – namely, the fact that women still bear the burden of most family duties – is the enactment of social policies that aim to distribute family duties equally between women and men, starting with parental leave regulations. Equality legislation – as in the UK – can certainly help to grant equal pay to women and to support women's access to universities and their promotion to higher positions. Undertaking these actions is crucial if Europe wants to benefit from women's potential contribution to research and to attract qualified researchers.

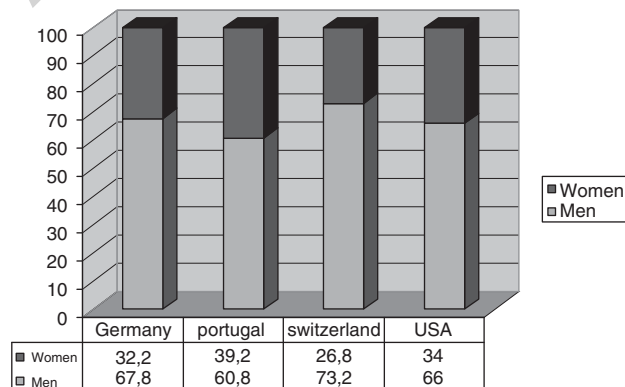


Figure 5 Gender breakdown of doctorate holders.
Source: Auriol (2007) and OECD (2007).

CONCLUSION

If Europe wants to avoid the phenomenon of brain drain and benefit from brain gain – whatever the scale of these inter-related phenomena – it will need to implement adequate policies that create the conditions whereby the best European researchers are not tempted to leave, and the best non-European minds are persuaded to come and stay. In this respect, this article has touched upon what we consider some important factors to be taken into account in the definition of both national and overarching EU strategies. Each level will have to act according to its own competences, but also in a coordinated way in order to send a clear and consistent message to researchers. To conclude, we briefly provide suggestions for policies, drawing on the issues that we have dealt with in this article.

As a premise for any kind of reform, we suggest that European national academic structures will have to become more open and internationalised. In the long term, this will lead states to embrace some specific features of the Anglo-Saxon model, such as the openness of the system and the use of merit criteria in the selection and promotion of researchers. We have seen that countries like Spain and Germany have begun to move in this direction. A balance must be struck between the cultural and linguistic pluralism of Europe – which certainly constitutes added value from the viewpoint of the richness and diversity of research – and the adoption of English as a *lingua franca* allowing different systems and researchers to communicate and network, especially in terms of benefiting from EU funds. At the end of the process, while national languages will arguably remain dominant within each system, the use of English will become common at the moment of advertising positions and guaranteeing an adequate environment to foreign researchers.

'the more general problem is one of brain-misuse'.

Part of this transformation will also imply offering adequate salaries which can compete with US research remuneration. Salary may not always be the reason why researchers decide to move to a country, but evidence shown in this article suggests that it matters. The question becomes particularly crucial when it comes to competition for the best researchers, as arguably these will be attracted, at least at some point in their career, by the prospect of high remuneration. The example of the UK suggests that offering researchers a career pattern which is rewarding from both the professional and financial viewpoints really does attract brains.

National academic systems will also have to invest in adequate post-doctoral programmes that attract promising young researchers and train them in the different activities that characterise the academic professions of today. These programmes should target both European and non-European researchers with the aim of keeping them or attracting them to the continent. Yet, it is clear that this aim will not be achieved without the establishment of a clear and, as far as possible, international academic career pattern that avoids Ph.D.s remaining trapped in post-doctoral studies. The postdoctoral step should favour the transition of young researchers to a promising and clear career pattern. Post-doctoral studies should also allow researchers to decide which of the options open to them would be preferable. What is clear is that post-doctoral programmes should put the best researchers in a position to publish and become known, be trained in academic practice and be ready for a fair and remunerative career.

Last but not least, gender disparities in academia will have to be taken care of if Europe wants to avoid losing some of its best researchers, or only benefiting from them in a limited way. For us, focusing on the SSH, where a number of committed women do valuable research, we think that this question is particularly crucial. Gender equality must become a concern for the EU and nation states at all levels and phases of the definition and implementation of academic policies. As a theme that cuts across those mentioned above, gender concerns should be 'mainstreamed' so as to guarantee that women have access to national systems, adequate remuneration and proper training in the academic profession at the post-doctoral level, on an equal footing with men. As mentioned above, this must imply the enactment of sound social and family-friendly policies, including paternal leave and equality legislation. These policies need to target the specific problems that affect women in academia, especially in the early stages of their career, so that the dynamics of competition do not end up damaging them on the academic market.

Although we have concentrated on the so-called brain drain problem, the more general problem is one of brain-misuse. That is, brain drain is often a manifestation of the more general problem of the lack of a proper research and academic environment to attract young people and, in particular, fully develop their research capacities. Below the tip of the brain drain 'iceberg' lies a large mass of unused or misused research and academic potential. To confront this problem we suggest that the above list of policies will help, although more also needs to be done to create a proper research and academic environment, where research, teaching and other social responsibilities are properly balanced and rewarded, where centres and networks have the capacity to involve researchers in the fruitful exchanges of ideas, where research funding is adequate and invested in people and in their research and not in side-activities (red tape, shallow conferences, etc.). In short, having an open, competitive and professionally run research and academic environment based on trust is essential.

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