

## Triggering Skilled Migration: Factors Influencing the Mobility of Early Career Scientists to Germany

The debate surrounding the need for highly-skilled personnel in Germany, and in Europe in general, is often carried out in the media and in public discussion. The competition for well-qualified staff has long been discussed in terms of “brain gain” and “brain drain,” in other words the impact on sending and receiving regions. This policy brief aims to add a new perspective by introducing the views of one specific group of the highly-skilled: early career and doctoral<sup>1</sup> scientists. It draws on recent research on Polish and Bulgarian natural scientists based in Germany, the UK and their home countries.<sup>2</sup>

While it is clearly important for the EU and the individual member states to consider mobility in terms of attracting highly-skilled researchers and increasing competitiveness, mobility cannot occur in a “science bubble”, detached from an individual’s experiences and surroundings. What is missing from the discussions at national and supranational level is an examination of the experience of those who have been mobile and who have sought research opportunities abroad. Scientists clearly have an understanding of the importance of mobility to science as a whole, but their own mobility is much more likely to be shaped by considerations related to their ability to work effectively and successfully in their chosen field, as well as by their familial and personal contexts. The traditional cost/benefit approach to migration and mobility theory has to be challenged and mobility “triggers” examined. Mobility triggers refer to impetuses, events, persons or contexts that make mobility a workable possibility and a reality for a particular scientist.

These triggers as well as the legal frameworks influencing the competition for talent, or rather the players within that competition, provide the focus for this policy brief. After an outline of the rationale for scientific mobility at the European, national and individual levels, the brief considers the legal frameworks designed to attract foreign scientists to the EU and Germany, highlighting the difficulties in quantifying the flows of these scientists. The brief then examines the factors affecting the mobility of early career scientists. It looks first at the effects of national and European law and policy and then moves on to an examination of some common mobility triggers, such as networks, undergraduate mobility and family contexts. Finally, the policy brief offers some suggestions on how knowledge of these triggers could help Germany increase its inflow of highly-skilled people such as early career scientists.

### Why is everyone talking about mobility?

According to the European Commission, “human resources are, to a large extent, the key of research efforts, excellence and performances. The number of researchers and their mobility are two important aspects of this issue.”<sup>3</sup> The European Commission’s focus has mostly been on the need to increase Europe’s competitiveness and the creation of a European Research Area that could establish itself as a global player in scientific research.

Germany echoes those sentiments in the context of its own position within the global marketplace: “International cooperation in research and academia means an increase in the visibility and desirability of Germany as a location for world-class research.”<sup>4</sup> Whereas European-level debates have given little consideration to the benefits of mobility to the individual scientists, Germany phrases its recruitment strategies much more in terms of what mobility – and of course the country – can offer scientists. Germany presents itself as a country offering a high quality of life, excellent conditions for research and good career opportunities. In other words: “Just the right combination for bright minds.”<sup>5</sup>

Scientists generally regard mobility in a positive light and accept the likelihood that it will be a part of their career trajectory. The exchange of scientific ideas, sharing knowledge and benefiting from other approaches to “doing science” were amongst the most cited reasons why scientists value mobility in the context of their work. “Soft skills” gained through working in a different cultural context include improved language skills, increased ability to work independently and a greater sense of confidence in one’s own abilities, whether scientific or personal. Here the scientists seem to confirm the policy rationale of the European Commission, which promotes mobility because it is a “well-known and effective way of training skilled workers and disseminating knowledge” and “permits the creation and operation of multi-national teams and networks of researchers, which enhance Europe’s competitiveness and prospective exploitation of results.”<sup>6</sup>

However, there is some evidence to suggest that mobility is not always viewed so positively by the individuals involved. While the scientific benefits are generally agreed upon, the personal cost of mobility can be high. Mobile early career scientists often work extremely long hours and, more often than not,

live their lives more or less within the research institute rather than integrating into the wider host society. The science community offers a sort of safety net, which supports foreign scientists but which also, indirectly at least, discourages integration outside the institute and encourages long working hours. From a personal point of view, therefore, mobility in the scientific field can be extremely challenging.

## What legal framework is in place in Germany to attract highly-skilled workers?

The legal framework affecting the movement of highly-skilled workers to Germany is comprised of legislation at both the EU and national level. At the EU level, Regulation 1612/68 on the Freedom of Movement of Workers within the Community<sup>7</sup> gives individuals the right to take up employment in another member state under the same conditions afforded nationals of that member state. The free movement of workers was one of the most controversial aspects of the 2004 EU enlargement.<sup>8</sup> As a result, the Accession Treaty of April 2003 introduced a transitional period during which the EU15<sup>9</sup> countries are permitted to derogate from Articles 1-6 of Regulation 1612/68 for a maximum of 7 years.<sup>10</sup> Apart from the UK, Sweden and Ireland, the EU15 states initially decided to impose transitional restrictions for citizens of eight of the new member states (EU8)<sup>11</sup> for the first two years. In 2006 Finland, Italy, Greece, Portugal and Spain also opened their labour markets for EU8 citizens. Seven countries, including Germany, continue to keep the restrictions in effect. As a result, the Polish and Bulgarian scientists who are the subjects of the research presented here were in the same position when seeking to work in Germany, even though Poland was an EU member and Bulgaria was not at the time the research was conducted. Due to Germany's implementation of the transitional measures, the Polish and now also the Bulgarian scientists are subject to the same national immigration laws as third country nationals, despite being citizens of the European Union.

Scientists from outside the EU15 wishing to work in Germany are subject to the regulations concerning work permits set out in national legislation. Work permits are issued under the Residence Act, which states: "The admission of foreign employees shall be geared to the requirements of the German economy, according due consideration to the situation on the labour market and the need to combat unemployment effectively."<sup>12</sup> A work permit is only issued if there is a concrete job offer and if there are no job seekers available who would take precedent (i.e. German or EU15 nationals).<sup>13</sup> However, under Section 19 of that Act, a settlement permit which is not tied to a specific job offer can be granted to highly-qualified foreigners, allowing them to settle anywhere in Germany and automatically awarding them and accompanying family members<sup>14</sup> the right to work. The term "highly-skilled" is de-

finied rather vaguely in Section 19 (2) of the Act, referring to "scientists with special technical knowledge," "scientific personnel in prominent positions" and "specialists with special professional experience who receive a salary corresponding to at least twice the earnings ceiling of the statutory health insurance scheme."<sup>15</sup> Given this wording, Section 19 appears to be aimed at established senior scientists or senior executives and managers rather than scientists who are at the beginning of their careers. In fact, none of the early career respondents in the present study and only one senior scientist interviewed in the course of the research had benefited from it. The Residence Act is currently under review and, when revised, is likely to implement two recent EU directives dealing with the admission of students and researchers from third countries.<sup>16</sup>

## Who is coming to Germany? The data issue

Together with France and the UK, Germany employed 54% of all full time research and development workers in the EU25 in 2003.<sup>17</sup> Germany is attractive to foreign researchers and was chosen as one of the top destinations for scientists taking part in the European Marie Curie Fellowship programme.<sup>18</sup> Figure 1 shows the ten quantitatively most important countries of origin for foreign researchers in Germany. However, these figures should be viewed with caution as they include only those researchers/academics who were individually funded by a German funding organisation. Those who were employed through large grants, who were employed directly by the university, or who were funded by organisations abroad will not necessarily be represented.<sup>19</sup>

While these figures provide some insight into the make-up of the population of foreign researchers, they can do no more

**Figure 1: The Top 10 Countries of Origin of Foreign Researchers in Germany, 2004**

Ranking	Country of Origin	Number	% of all Individually Funded Researchers
1	Russian Federation	2,221	10.8
2	China	1,338	6.5
3	USA	1,095	5.3
4	India	1,084	5.3
5	Poland	711	3.4
6	Ukraine	425	2.1
7	Italy	410	2.0
8	Brazil	405	2.0
9	Romania	383	1.9
10	France	378	1.8

Source: DAAD (2006)

than give a general impression. The lack of availability of reliable and complete data on foreign scientists in Germany is the main problem in trying to quantify flows. For example, the nationality of university staff is not recorded in the national statistics, and foreign early stage researchers not directly funded through individual grants will not be captured in the funding organisations' figures. It is therefore virtually impossible to get an accurate impression of the number of foreign scientists, researchers and academics in Germany at any one time. Without a significant increase in financial and human resources it is unlikely that this gap in the data can be filled.

## How is the mobility of early career scientists affected by national legislation and EU enlargement?

### Legislation in Germany

Legal provisions affecting access to labour markets and social security provisions as well as administrative procedures for taking up employment seem to play a relatively significant role in scientists' choice of destination. This is not due to their effect on the scientists themselves, but rather due to their impact upon partners and family members. For example, Alicja<sup>20</sup> was a doctoral candidate in Germany and was looking for a post-doctoral position in the UK. She explained why: *"This is the advantage: that we are in the new European Union and [my partner] can work [in the UK]. [...] We decided that for me moving here [to Germany] it would be very difficult for him to find work because he's not very highly-educated, so it wouldn't be like he would apply to some company to work and, of course, you have to know the language [...] I know some Polish people who are here, mostly girls, and their husbands or boyfriends, they [tried] to find a job here but they didn't find one."*

The German government has recognised the importance of spousal rights in attracting highly-skilled personnel to the country. In the Residence Act, the spouse of a highly-skilled worker being granted a settlement permit is also allowed to work in Germany without having to apply for a work permit. However, this only applies to the highly-skilled under Section 19 of the Act and, as was argued earlier, seems to have been of little benefit to early career scientists.

Social security and benefits can also be deciding factors, as Alexander's<sup>21</sup> case highlights. Alexander was a post-doctoral researcher in Germany who then secured a position at a prestigious institution in the UK. His wife was expecting their first child. He returned to Germany after only one week in his new job. He explained why: *"Although we pay as much national insurance and tax as any British person of similar income (in fact more tax, because we are not entitled to any tax credits, such as working tax credit or council tax benefit), we do not have the right to any social benefits, including any form of child support, such as child benefit or child tax credit [...]. At the same time living in Germany on my salary alone we will be, if not too comfortable, than at least decent. Also, in Germany we do get the social benefits related to child support, even though we could have managed without them."*

The two examples highlight that the attractiveness of a destination country can vary according to the scientists' personal

context: The legal provisions in place will affect not only the scientist but accompanying family members as well, and this may have a significant impact on the decision to move.

### EU enlargement

It is difficult to accurately define the way in which EU enlargement and the subsequent opening of borders has affected scientific migration. Data suggest that the impact of EU enlargement on scientific migration is complex. The international scientific community exists independent of national borders, and international mobility has long been a feature of this community, although the most popular destinations have been subject to change in line with historical and political developments. EU enlargement would appear to strengthen the relations between the new and old member states. However, data<sup>22</sup> show that scientific mobility between Eastern and Western Europe predates EU enlargement and has not increased dramatically since then, suggesting that the opening of borders and easier access to science labour markets have not had a marked effect.

One clear effect of the EU enlargement has been the advent of cheap travel, which seems to encourage mobility in all areas and also affects scientists.<sup>23</sup> One researcher described the phenomenon thus: "Head-spinning fares are uniting East and West as the founding fathers of the European Union would never have imagined [...] Once a largely theoretical possibility, that sort of labor mobility becomes a practical option when flights cost less than a day's wages and no more than a bus ride."<sup>24</sup> Being able to get home quickly and cheaply is likely to make becoming mobile a viable option for some scientists who previously would not have considered going abroad. For others, it makes mobility easier in terms of both personal ties and professional networks and collaborations.

It has been argued that the effect of EU enlargement is related less to specific rights and more to the symbolic meaning of EU membership and open borders.<sup>25</sup> Membership has given new member states a certain amount of status in the eyes of Western countries. Without pointing to a specific right or entitlement, movement towards Western Europe becomes something normal and encouraged rather than something which has to be justified or explained. In addition, both home and host countries have a greater awareness of the other region and the challenges and advantages associated with them. Nonetheless, the transitional arrangements in particular prevent Eastern European scientists from seeing themselves as equal in status to nationals of the EU15; rather, they see themselves as having moved from third to second class citizens. As one interviewee put it: *"You're still a Polish person in England and there are all these limitations on labour movement and whatever benefits, so there's a lot of limitations. You know you're a second class citizen. It's not exactly like being first class like everybody else."*<sup>26</sup>

## Other factors influencing the mobility of scientists and their choice of destination: mobility triggers

Traditional migration literature tends to view the motivation for moving and the choice of destination country in terms of push and pull factors. Basic economic migration models emphasise the role of wage differentials as reasons for migrating and for choosing a particular destination. Research also points to financial security and working conditions. While some commentators take wider factors into account, migration literature generally assumes some sort of cost-benefit analysis on the part of the potential mover. It has been suggested that “migration starts with imaging the new destination, continues with balancing benefits and costs, and ends with an actual move.”<sup>27</sup> In the literature on highly-skilled migrants and on scientists in particular, improved working conditions, pay and opportunities for scientific work are among the main drivers discussed, with only a few commentators highlighting the influence of more personal factors.

While push and pull factors may influence the migration of the highly-skilled, mobility and choice of location amongst early career scientists is also linked to certain mobility triggers, which are neglected in most literature and will therefore be considered here. Mobility triggers include impetuses, events, persons or contexts that make mobility a workable possibility and a reality for a particular scientist. Mobility triggers act in a way which is not necessarily planned or controllable by the scientists and which adds considerably to a chance element in scientific mobility. This is not to say that it is beyond the power of a state to influence the mobility of scientists; rather, as will be argued in the conclusion, states may need to look beyond issues such as working conditions, pay and legislation in seeking to increase the inflow of such highly-skilled people. The triggers discussed here are networks, undergraduate exchange programmes, fellowship opportunities as well as family and partners.

### Networks

While it has been claimed that “it can be safely said that networks rank among the most important explanatory factors of migration,”<sup>28</sup> some researchers point out that the role of “ad hoc” networks in scientific mobility has been downplayed in favour of a focus on mobility through transnational companies and “organizational channels.”<sup>29</sup> However, scientists generally

move with little corporate support, so scientific mobility “rather takes place through networks, individual motivation and risk.”<sup>30</sup> It therefore seems necessary to direct more attention toward the way in which “ad hoc” scientific networks emerge and function, in order to understand and promote the patterns of mobility that derive from them.

Scientific networks often emerge as the result of international collaboration. Project partners go to partner institutions for short visits or longer research stays. Established professors send younger colleagues to learn new techniques or ways of working; in turn, more senior scientists are invited to lend their expertise and share their knowledge. Thus scientific networks are formed and expanded every step of the way. These collaborations and international settings often lead to scientists being “socialised to the idea of migration”<sup>31</sup> and to the expectation of mobility being reinforced. The role of networks in scientific mobility cannot be underestimated, and almost every scientist will make use of professional contacts or wider networks in order to advance their work or their career at some point. The earlier these networks can be established, the more scope there is for scientists to draw on them. Increased international science funding that fosters collaborations between countries and brings together multi-national research teams can be a powerful tool in establishing networks and thus in promoting mobility.

### Undergraduate exchange programmes

Research has found that a high proportion of mobile scientists have some experience of mobility at the undergraduate level, and that students who had spent some time abroad display a higher propensity to move in the future.<sup>32</sup> Mobility at the undergraduate level provides students with a snapshot of what scientific work abroad might be like. It offers insight into the working conditions, work ethic and everyday life in the host country. As such it can prompt the desire to move abroad at a later stage. Additionally, it allows the student to learn about the science landscape, including scholarship opportunities and application procedures at first hand. Further, a move at the undergraduate level sets the foundation for building networks and can provide the contacts that may prove helpful to the student in the future. Through networks and contacts, as well as simply being abroad, many students are able to take advantage of arising opportunities of which they otherwise would not have been aware.

**Figure 2: Foreign Scientists in Germany by Level of Seniority and Funding Body, 2003**

Graduates		Post Docs		Academic Staff	
Funding body	Number	Funding body	Number	Funding body	Number
DAAD	5,845	Max Planck	1,569	DFG	1,409
DFG	1,558	Helmholtz	669	DAAD	1,225
Max Planck	1,383	Humboldt	581	Humboldt	1,168

Source: DAAD (2006)



## Fellowship opportunities

Opportunities such as individual fellowship schemes provide a relatively risk-free way to make mobility happen, especially in cases where a position at home can be kept. The type of fellowship and the ease with which it can be administered are important factors in determining whether or not they trigger mobility. Germany boasts a host of funding organisations that award individual fellowships at all levels. Table 2 shows that the German Academic Exchange Service (*Deutscher Akademischer Austauschdienst*, DAAD), the German Research Foundation (*Deutsche Forschungsgemeinschaft*, DFG), the Max Planck Society and the Alexander von Humboldt Foundation are the four most important providers of individual funding.

While fellowships are undoubtedly important in bringing foreign researchers to Germany, they become even more influential if used as the basis for establishing networks (see beginning of this section). Some schemes such as the German Alexander von Humboldt Foundation or the European Marie Curie Fellowship Schemes recognise this and have established strong associations of former and current fellows.

## Family contexts

In addition to professional networks, undergraduate studies and fellowship schemes, family and partnering issues play a very significant role in inducing mobility or making it a viable option. Literature on the migration of the highly-skilled has only recently turned its attention to the non-economic issues which shape mobility decisions and experiences. Even where family relationships are acknowledged as factors to be taken into account, they have mostly been talked about in terms of limiting mobility or tying scientists to a particular place. However, family can make significant contributions to the context that prompts a scientist to move. Families provide emotional support and encouragement in addition to needed assistance in day-to-day life. Krystina<sup>33</sup> explains this in the context of childcare: *"I have [a] very supportive mother in law [...]. She can be retired if she wants, she doesn't want to stay at home and she said if we have a baby and, even if it's abroad, she will come and help us; it's great."* Conversely, Krystof<sup>34</sup> explains what happens when family issues cannot be resolved: *"I think that people sometimes cannot arrange the personal affairs to go abroad ... There was a PhD student who [...] wanted to apply but in the end he couldn't arrange his personal affairs – family."* Family members who are already abroad can trigger the migration of children or siblings, and some scientists move to gain better access to educational opportunities for their children.

Another dimension is added when a scientist's partner is also employed in the science field (dual science career couples). Researchers have analysed issues arising from this arrangement, including its impact on both family life and career progression. Either partner in a dual science career couple can also act as a significant mobility trigger, as the couple tries to minimise the time spent apart. In the first instance one partner's move can act as a strong incentive for the other partner to move in order to be in the same place. However, one partner's move can also imbue the other partner with a sense of confidence in being able to live and work in a foreign country. Especially at the early stage of a scientific career, a partner already working abroad or going at the same time provides a safety net as the scientist does not have to go it alone. Even where dual sci-

ence career couples do not secure positions in the same city, they can take advantage of the fact that they have someone within a manageable distance who is facing similar issues and on whose support they can count. Additionally, partners can facilitate access to important contacts and information about opportunities, application procedures and the way of life in the host country. Only in the rarest of cases do both partners move together to positions they have already secured. Often one partner will secure a position and the other will move at the same time and then attempt to find something once in the host country. This was the case with Justyna<sup>35</sup>: *"I came here to join my husband; it wasn't my wish to come to this country; it just happened that I found myself here and decided that I needed to do something with my degree and my future career."* More often still, one partner is already in the host country, either a national of that country or through mobility, and the trailing partner joins them in the host country at a later stage. In the course of their careers, the partners may alternate in their roles as initial movers and followers when it comes to international mobility.

## Conclusions

The preceding points have highlighted the subtle and complex nature of the factors that shape and influence the mobility of early career scientists. A better understanding of the issues faced by these scientists can be a useful tool in shaping policy decisions and gaining an advantage in the ongoing skills war. Here attention needs to be drawn to both legislative frameworks and mobility triggers such as the presence of networks, undergraduate studies abroad, fellowship schemes and family.

In terms of the legislative framework in place in Germany, the impact of Section 19 of the Residence Act in attracting highly-skilled workers has so far been relatively limited. Following a review of the law, it has been suggested that the salary level named in Section 19 – one of the criteria for defining who qualifies as a highly-skilled worker – be lowered for people below a certain age limit. Whether or not a lowering of this salary level would allow more young scientists to take advantage of this section of the Residence Act is hard to say and would probably depend on the new salary level. Nevertheless, such a change would not address another problematic aspect of the law, namely the vague definition of "special skills and knowledge." The law is currently phrased in such a way as to suggest a focus on established senior scientists rather than the up-and-coming research stars. Accordingly, any reform should examine whether only *senior* scientists are the ones who can make a valuable contribution to Germany's scientific field.

Research has shown that, beyond the legal framework, attention needs to be paid to mobility triggers, in other words, to the factors that induce mobility. Given the mobility triggers outlined in this policy brief, it seems clear that support for networks and the international collaborations they often emerge from as well as investment in mobility schemes from the undergraduate level upwards would strengthen the organisational channels through which scientists can move. Policies involving the introduction of courses taught in English and the ongoing reform of higher education resulting from the Bologna Process<sup>36</sup> are already increasing Germany's competitiveness in the undergraduate market. Further investment in fellowship sche-

mes and increased marketing of mobility and funding schemes at the national and European levels should also be high on the policy agenda. Finally, personal triggers cannot be ignored, and the impact of dual-career partnerships on mobility must be considered in policy making. First steps have been taken by the DFG, which held a conference on dual career couples in 2003. The conference recognised that no university in Germany currently has an official policy dealing with dual-career couples and considered possible solutions based on international examples, such as spousal hiring policies at US institutions and the Swiss Federal Institute of Technology, which has a Dual-Career Advice Centre.<sup>37</sup> While some of these issues are now being debated in Germany, concrete policy recommendations are still lacking. Initiatives such as dual-career advice centres at universities or research institutes and funding for both partners in dual-career fellowships should be explored further.

More research is needed to really understand how scientists and their families make and implement mobility decisions. Clearly the process is complex, and scientists will often be triggered to go somewhere rather than actively choose a destination. In order to move ahead in the skills war and attract early career scientists, Germany has to pursue a policy that manages those triggers, both the scientific and the personal ones, to its advantage.

## Endnotes

- <sup>1</sup> Many doctoral candidates in science are also employed researchers and they will therefore be considered here in the context of their employment.
- <sup>2</sup> The Science in Society Programme of the UK Economic and Social Research Council (RES-151-25-00) and the Anglo-German Foundation (1468) co-funded the project 'Mobility and Excellence in the European Research Area,' directed by Professor Louise Ackers.
- <sup>3</sup> See European Commission (2003).
- <sup>4</sup> See DAAD (2002).
- <sup>5</sup> See DAAD (2002).
- <sup>6</sup> See European Commission (2001).
- <sup>7</sup> Official Journal of the European Communities; O.J.SP.Ed 1968, no. L257/2, p.475.
- <sup>8</sup> In 2004 ten countries joined the European Union: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Malta and Cyprus.
- <sup>9</sup> The EU15 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Portugal, Spain, Sweden the Netherlands and the UK.
- <sup>10</sup> For a clear and useful analysis of the transitional measures with special reference to Germany and the UK see Focus Migration Policy Brief No. 4 (see Heinen and Pegels 2006).
- <sup>11</sup> Citizens of Cyprus and Malta are not affected by the restrictions.
- <sup>12</sup> Residence Act (30 June 2004), last amended by Article 2 of the Law Adapting Federal Statutory Provisions as a Result of the Accession of the Republic of Bulgaria and Romania to the European Union from 07.12.2006 (*Gesetz zur Anpassung von Rechtsvorschriften des Bundes infolge des Beitritts der Republik Bulgarien und Rumäniens zur Europäischen Union vom 07.12.2006, BGBl.I.S.2814*) (hereafter Residence Act).
- <sup>13</sup> Section 5 of the Employment Regulations does stipulate that a limited residence permit can be issued to scientific and academic personnel of universities and research institutions without prior approval from the Federal Employment Agency (Bundesagentur für Arbeit, BA).
- <sup>14</sup> Residence Act, Section 29.
- <sup>15</sup> Usually the earnings ceiling of the statutory health insurance scheme is adjusted slightly each year. At the time of writing, twice the earnings ceiling amounts to approximately EUR 85,500.
- <sup>16</sup> This refers to Directives 2004/114/EC and 2005/71/EC respectively. Neither of these directives will be dealt with here any further, as they were of no relevance to the respondents taking part in this particular study. Also, it is too early to be able to assess the potential impact of these Directives on scientific mobility.
- <sup>17</sup> See Gotzfried (2005).
- <sup>18</sup> See Van de Sande et al 2005.
- <sup>19</sup> For more information on the methods of data collection and scope of the data contained in Wissenschaft Weltoffen (DAAD 2006), please see the website at <http://www.wissenschaft-weltoffen.de>.
- <sup>20</sup> Polish doctoral candidate in Germany. All names have been changed in order to protect the respondents' anonymity.
- <sup>21</sup> Bulgarian post-doctoral researcher in Germany.
- <sup>22</sup> See Van de Sande et al (2005).
- <sup>23</sup> EU-level deregulation of the aviation business and the Open Skies Agreement make cheap travel possible.
- <sup>24</sup> See Underhill (2006).
- <sup>25</sup> See Guth (2006) and Stalford (2003).
- <sup>26</sup> Polish mid-career professional in the UK.
- <sup>27</sup> See Hadler (2006).
- <sup>28</sup> See Arango (2000).
- <sup>29</sup> "Organisational channels" refer to formal mechanisms which are in place to facilitate mobility such as transfers between different offices of the same company etc. See Arango (2000) and Williams et al (2004).
- <sup>30</sup> See Ackers (2005a).
- <sup>31</sup> See Ferro (2006).
- <sup>32</sup> See Ackers (2001) and King and Ruiz-Gelices (2003).
- <sup>33</sup> Polish scientist in the UK.
- <sup>34</sup> Polish post doc in the UK.
- <sup>35</sup> Polish scientist in the UK.
- <sup>36</sup> The Bologna Process is an intergovernmental initiative which aims to create a European Higher Education Area (EHEA) by 2010. It has 45 signatory countries and is conducted outside the formal decision-making framework of the European Union. Decision-making within the Process rests on the consent of all the participating countries. More information and the specific actions lines can be found at <http://www.dfes.gov.uk/bologna/>.
- <sup>37</sup> See the Dual Career Advice page offered on the website of the Swiss Federal Institute of Technology, Zurich: <http://www.dca.ethz.ch/>.

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Publisher: Hamburg Institute of International Economics (HWWI), Neuer Jungfernstieg 21, 20354 Hamburg, Tel.: +49 (0)40 34 05 76-0, Fax: +49 (0)40 34 05 76-76, E-Mail: [info@hwwi.org](mailto:info@hwwi.org)  
In cooperation with: The German Federal Agency for Civic Education (bpj) and Network Migration in Europe e.V.

Editorial staff: Jennifer Elrick (head), Tanja El-Cherkeh, Gunnar Geyer, Rainer Münz, Antje Scheidler (Network Migration in Europe e.V.), Jan Schneider (on behalf of the bpj)

Focus Migration country profiles and policy briefs are published with the support of the German Federal Agency for Civic Education (bpj).

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