Support for continued data collection and analysis concerning mobility patterns and career paths of researchers

Deliverable 6 – Extra-EU mobility survey

(Indicator report)

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EXECUTIVE SUMMARY

The underlying MORE2 Extra-EU mobility report reflects the results of a large scale survey of researchers currently working outside the EU[1]. The survey was carried out in the summer of 2012.

A large number of questions related to the career paths of researchers, working conditions, research collaboration and international mobility (pattern, motives, barriers…) were answered by over 7,000 researchers. In total, 4,090 European researchers who were working outside the EU (at the time of the survey) have been reached. The majority of the researchers represented in these samples (about 87%) were associated with a University or a Higher Education Institute.[2]

The sample includes all kinds of citizens. North, Central, and South American researchers (by citizenship) represent about 49.2% of the sample, followed by Asian and European researchers, representing respectively 17.7% and 15.6%. About 44% of the researchers are US citizens and 7% of are Australian citizens, whereas Chinese, Indian and Japanese researchers represent about 4% of the sample. This distribution can in no way be considered representative of the real proportions of the researcher populations outside the EU. This is due to the largely exploratory nature of this work, which is based on 'convenience sampling' (in the absence of a reliable sampling framework).

In order to streamline the analysis, four groups of researchers have been distinguished on the basis of their citizenship:

1) EU researchers currently working outside the EU
2) Non-EU researchers who have previously worked in the EU
3) Non-EU researchers who have never worked in the EU but who have worked in non-EU countries
4) Non-EU researchers who have never been internationally mobile.

In what follows, we present an overall summary of the key findings, thereby comparing (where possible) the four subgroups of researchers on relevant aspects such as mobility experiences, motives, barriers and effects.

Characteristics of researchers working outside Europe

More men than women, seniority prevails

About 66% of European researchers currently working outside the EU are male; 40% of these researchers are aged between 35 and 44. Similar percentages apply to the sample of non-European researchers who had worked previously in the EU or in non-EU countries. Among the non-mobile researchers, male researchers account for over 60%. In terms of family status, it seems that EU researchers working outside the EU less often have children, compared to non-EU researchers (42% versus 57%).

[1] 27 EU Member States and Associated countries (Norway, Switzerland, Iceland and Liechtenstein)

[2] This high response of researchers employed at a university or HEI is mainly due to the sampling approach. A web-based method was used in order to collect a large sample of the URLs of academics' home pages. In addition, responses were obtained via snowballing and the EURAXESS website. For an overview of the sampling approach see section 3.2.1 and Annex 1.

The majority of EU researchers currently working abroad are German citizens, while the majority of mobile non-EU researchers originate from the US

More than a third of the sample of (reached) European researchers currently working outside the EU originate from Germany (36%), followed by the UK (16%), Italy (9%), France (8%), The Netherlands (5%) and Austria (5%).

The majority of the sample of non-European researchers originate from the US (52%), followed by Australia (8%), Turkey (8%), Brazil (4%), Russia (3%), Israel (2%), Mexico (2%), China (1%) and Japan (0.5%). It is almost impossible to judge whether these shares are truly representative or not. What can be said is that these are the researchers who could be reached through the channels used underlying this study.

Career stage: low numbers of R1 and R2 researchers

Following the career stages defined in the European Framework for Research Careers (European Commission, 2011), researchers were asked to select their current career stage from the following possibilities:

- R1: First Stage Researcher (up to the point of PhD)
- R2: Recognized Researcher (PhD holders or equivalent who are not yet fully independent, for example post-docs)
- R3: Established Researcher (researchers who have developed a level of independence) and
- R4: Leading Researcher (researchers leading their research area or field).

The proportion of first stage researchers in the total sample of researchers currently working abroad amounted to 8%. Most of the R1 researchers were working on a PhD and enrolled in a doctoral program (in their second or third year of training). The proportion of recognized researchers (R2) is 14%. Comparing non-EU and EU researchers (currently working abroad), we observe that among the non-EU researchers the number of recognized researchers (R2) is rather low (approx. 11%) compared to the 29% of EU researchers at the same career stage. This may suggest that in relative terms, there are more European than non-European R2 researchers currently working outside Europe.

The proportion of first stage researchers and second stage researchers in the total sample of researchers currently working in EU27 '(MORE2 EU Higher Education Survey (2012))'[3] is higher; respectively 18% are R1 and 21% are R2 researchers.

Dual position: University is often the primary employer

The proportion of researchers in the sample who had a dual position, being employed both at a university and in another (non-academic) sector, varied between 6% for the European researchers currently working abroad and 12% for the non-EU researchers. This suggests that non-EU researchers more often occupy a dual position (double affiliation). For most of those who held dual positions, the university was the primary employer (employment position).

[3] IDEA Consult et al, 2013. MORE2 - Support for continued data collection and analysis concerning mobility patterns and career paths of researchers, Report on survey of researchers in EU HEI (WP1). European Commission, DG Research and Innovation

Contractual situation: Permanent and fixed term contracts of 2-4 years are most common

40% of the EU researchers currently working outside the EU had a permanent contract, whereas 60% mainly had fixed term contracts. For the sample of non-EU participants, the proportion of researchers holding permanent contracts was higher, ranging between 71% for those who had worked previously in the EU and 62%-66% for those who had never worked in the EU. Without a doubt, differences in institutional policies and academic culture play a role here.

Satisfaction with current position: EU researchers working abroad are satisfied with the intrinsic aspects of their work

A large proportion of the sample of EU researchers currently working outside the EU are satisfied with the academic aspects of their work such as intellectual challenge (89%); reputation of the employer (89%); degree of independence (88%); level of responsibility (85%); and the dynamism in their work (83%). Slightly less satisfying were factors such as benefits (72%); mobility perspectives (68%); salary (66%) and job security (57%).

The sample of researchers currently working in EU27 '(MORE2 EU Higher Education Survey (2012))' are also particularly satisfied with academic factors such as intellectual challenge (93%); level of responsibility (89%); reputation of the employer (88%); and independence (87%).

Interesting to note is that recognized researchers (R2), made up largely of post-docs, were dissatisfied with job security (75% indicated that they were dissatisfied with their job security). First stage researchers (R1) were mainly dissatisfied about their salary (58%) and benefits (59%).

Confidence about future career: Higher degrees of confidence among non-EU than EU researchers

65% of EU researchers currently working outside the EU felt confident to very confident about their future careers prospects. EU researchers working in the US and Australia were the most positive compared to Europeans working elsewhere. The degree of confidence among the sample of non-European researchers was (72%-77%) and thus higher than that of EU researchers.

In terms of differing career stages, leading EU researchers (R4) currently abroad are the most optimistic about their future prospects (81% are confident to very confident), although this is to be expected as they are more likely to have a permanent position. The recognized EU researchers (R2) are less confident (46% are confident to very confident),reflecting their current uncertain employment (and contractual) position.

Findings for the EU27 research population '(MORE2 EU Higher Education Survey (2012)) are very similar. R4 researchers stand out as being (very) confident (41% very confident and 43% somewhat confident). R2 researchers are more often lacking in confidence about their future prospects (23% lack confidence and 7% very much lack confidence).

Mobility flows and career progression

Mobility flow: the US is the most popular destination for EU researchers as well as for non-EU researchers; Germany is the most popular EU destination for non-EU researchers

The most popular non-EU destinations for EU researchers currently mobile outside the EU are: the US (53%) followed by Australia (15%), Canada (6%), Japan (5%), China (4%) and Singapore (3%). When comparing regions, North America (59%), Asia (19%) and Oceania (17%) are the most attractive. When we look at where the researchers come from, we find that Western and Southern European countries top the list. Germany is the main 'departure' country (35%) followed by France (9%), Italy (8%), The Netherlands (6%), Austria (5%), Belgium (5%), Spain (4%) and Ireland (3%).

The same destination countries were also observed for non-EU researchers who had never been to the EU but who had worked in other non-EU countries: 33% went to the US, 9% went to Australia, 6% to Canada and 5% to Japan. Comparing regions, North America comprises 40% of moves, followed by Asia with 28%. Oceania accounts for 11%, Africa for 9%, Central America for 6%, South America for 5% and the rest of Europe for 2%. When looking at countries of 'departure', we find that US researchers account for 49% of the mobility towards non-EU countries (10% of the moves are US citizens returning to the US) followed by Australia (17%), Turkey (8%) and Israel (7%).

The most popular destinations in Europe for the sample of non-EU researchers were Germany (20%), France (16%) and the UK (16%). This is in line with the findings of the MORE2 EU Higher Education Survey (2012): the main EU destinations of post-PhD career stage researchers are the UK, Germany and France. These observations are also in line with some of the findings on destinations in the Careers of Doctorate Holders (CDH) survey 2009 (OECD, 2012)[4]. Looking at the origins of this mobility, we observe that 54% of inward EU mobility stems from the US, 9% from Australia, 5% from Russia, 4% from Brazil, India and Turkey and 3% from Mexico.

Mobility and employer change: EU researchers moving outside the EU are very likely to change employer

About 90% of EU researchers currently working outside the EU have changed employer (at least once) when moving abroad (for 3 months or more in the last ten years). The remaining researchers are still employed by their home institution while residing abroad. This evidence might suggest that when EU researchers move outside the EU, they are much more likely to change employer and stay for longer.

Half of non-EU researchers who had been internationally mobile have changed employer (at least once) when moving abroad (for 3 months or more in the last ten years). Focusing on those researchers who have moved to the EU, this percentage drops to 38%. This last observation is largely supported by the finding that 60% of the non-EU researchers left the EU because they never intended to stay in the first place, and subsequently, more frequently remained employed at home while relocating internationally.

[4] CDH survey, Auriol L., B. Felix, M. Schaaper (2010) Mapping careers and mobility of doctorate holders: draft guidelines, model questionnaire and indicators – second edition – the OECD/UNESCO institute for statistics/Eurostat careers of doctorate holders project, STI working paper 2010/1.

Of the sample of mobile researchers currently working in EU27 '(MORE2 EU Higher Education Survey (2012))' about 40% have engaged in employer mobility. This is in line with the share of mobile non-EU researchers currently working outside the EU (40-50%).

Duration of mobility: Half of EU researchers currently working outside the EU have lived there for over 3 years

EU researchers have largely experienced mobility stays lasting more than 3 years (53%). Mobility of 3 to 6 months occurred in 16% of the moves, while mobility of 6 to 12 months, 1 to 2 years and 2 to 3 years each accounted for 10% of moves.

Non-EU researchers most frequently stayed in the EU for 3 to 6 months (62%). 21% of these visits had a length of 6 to 12 months; 8% had a length of 1 to 2 years; 4% lasted for 2 to 3 years; and 6% remained for over 3 years or more. This suggests that non-EU researchers largely work in the EU for shorter periods. This also applies to non-EU researchers moving to non-EU destinations.

Frequency of mobility: 60% of EU researchers moved to a non-EU destination only once in the last 10 years; 40% have moved more than once

60% of the EU researchers moved to a non-EU destination only once in the last 10 years, 28% moved twice, 8% moved three times, 2% moved four times and 2% moved five times or more. The average number of moves to non-EU destinations in the last 10 years is 1.6. The frequency of mobility is quite similar for the sample of non-EU researchers.

Career progression coincides with mobility outside the EU for 37% of EU researchers

EU researchers currently abroad had been given a 'promotion' (e.g. in moving from an R2 to an R3) in 37% of their non-EU moves. Promotion took place for 22% of the moves where non-EU researchers moved to non-EU countries and for 14% of the moves where non-EU researchers moved to the EU. This provides some evidence that EU researchers consider a move outside Europe when this benefits their immediate career progression.

Motives, barriers and effects

Mobility Motives: Career progression is the most important motive for mobility for all researchers

All researchers (EU and non-EU) indicate that career progression was the most important motive for mobility. 94% of EU researchers who move outside the EU think that career progression is an important motive for non-EU mobility, followed by research funding (80%) and facilities and equipment (75%).

When looking at some country differences, we observe that the option to obtain research funding is important for Italian (94%), Austrian (87%), French (87%), German (78%), and UK researchers (74%). The availability of facilities and equipment is frequently a motive for moving beyond the EU (56%) for Italian (78%), Austrian (77%), French (76%), German (76%), and UK researchers (70%). Job security is generally ranked quite low as a reason for moving outside the EU (44%), although there are exceptions: 61% of the UK researchers indicated that it was an important motive for their mobility outside the EU.

Non-EU researchers are driven by the same motives as EU researchers

A large share of non-EU researchers indicated career progression (87%), working with experts (80%) and researcher funding (80%) as important motives for moving to the EU. This is in line with the observations above (for the EU researchers who move outside the EU). Career progression was the most important motive to move to the EU for Australian, Brazilian, Russian, Turkish and US researchers, although for US researchers, the importance of this motive was slightly lower (81% for US researchers versus 89-96%) than for the other countries. The political situation in the home country is generally ranked as the least important reason for moving to the EU.

Finally, non-EU researchers who had moved to non-EU countries indicated that career progression (92%), working with experts (83%) and research autonomy (81%) were the three most important motives for them. Job security is a less important reason, but this might be because they know the move is temporary, so this not an issue. Job security was relatively more important for EU researchers currently working abroad (44%) and for non-EU researchers currently working in non-EU countries (40%) than for the non-EU researchers who had been to the EU in the past (25%).

Comparative perspective: Remuneration and career progress are perceived as better in non-EU countries while quality of life is perceived as better in the EU

EU researchers abroad were asked to compare their experience of working outside the EU with working in it. 11 factors were presented to evaluate the systems, and researchers could indicate whether they perceived these factors to be better/similar or worse in their current (non-EU) location. For example, 70% of the EU researchers indicated that career progression is better abroad than in the EU; 23% indicated that it was similar; and 6% indicted that it was worse. 65% of the EU researchers think that remuneration is better abroad; 25% think it is similar, and 10% think that it is worse. Personal and family life was perceived as being worse outside the EU than in the EU by 33% of the EU researchers; similar by 35%; and better by 38%. Job security was rated as better outside the EU than in the EU by 25% of the EU researchers; similar by 50%; and worse by 25%.

A similar comparative question was asked of non-EU researchers who had been to the EU in the past. They were asked to compare working in Europe with working abroad. The same 11 factors were used for evaluation of the systems where researchers could indicate worse, similar or better. 54% of the sample of non-EU researchers who compared the EU with non-EU countries indicated that quality of life was better in the EU than abroad; 35% indicated that the quality was similar; and 11% that the quality was worse. Remuneration, on the other hand, was perceived as worse in the EU than abroad by 35% of the non-EU researchers with EU experience; as similar by 38%; and as better by 27% of the non-EU researchers.

When looking at the US researchers in detail, we observe that US researchers compared to other non-EU researchers indicate less frequently that they consider the EU to be better than their home country (US). Particularly concerning remuneration, 9% of researchers indicate that the EU is better than the US; 49% think that it is similar; and 43% take the view that remuneration is worse in the EU. The quality of life is valued as better by the same share of researchers (55%) in the EU than abroad.

Non-EU researchers experience positive effects after their move to the EU

Non-EU researchers could assess 12 possible effects of their stay in Europe and indicate how each of these effects was influenced: strongly decreased, decreased, remained unchanged, increased, strongly increased. The majority of non-EU researchers (92%) indicated that their stay in Europe had increased their recognition in the research community. A general observation for the different factors is that virtually no factors decreased. More than half of the sample of non-EU researchers indicated that the following factors (strongly) increased as a result of their stay in Europe: contact and networks (92%); recognition in the research community (80%); overall career progression (73%); advanced researcher skills (73%); number of co-authored publications (64%); quality of life for their family (60%); citation impact of their publications (53%); and the ability to obtain research funding (50%).

Return mobility of EU researchers: finding a suitable position is a major challenge

23% of the EU researchers currently abroad consider returning back to the EU and approximately 75% of them have actually taken concrete steps to do this. Finding a suitable research position is, for 72% of EU researchers abroad, a difficulty they faced when taking steps to return. Other important barriers are maintaining their current level of remuneration (56%); obtaining research funding (53%); and finding a job for their spouse (50%). Fewer EU researchers consider the transfer of pension and social security rights (26%); access to facilities and equipment (22%); finding suitable child care and schooling for children (18%); adequate accommodation (17%); and transfer of research funding (14%) as difficulties faced in their efforts to return.

These results correspond with the difficulties that EU researchers who did not take any concrete steps (yet) expect to face when they return. Finding a suitable research position is indicated by almost all EU researchers abroad as a difficulty they expect to face when returning to the EU (97%).

Barriers to mobility: Language and visa permits frequently perceived as barriers to EU entrance

About 29% of non-EU researchers have indicated that language was a difficulty faced when moving to the EU. A similar share of researchers faced difficulties with respect to obtaining a visa or work permit (30%); finding adequate accommodation (29%); and to a lesser extent, finding a job for their spouse (24%); and maintaining their current level of remuneration (22%). For Turkish researchers, the most frequently occurring difficulty was obtaining a visa or work permit (45% of the Turkish researchers). For US and Australian researchers, language is the most frequently occurring difficulty (29% resp. 37%). A large share of Brazilian researchers also considers language to be a barrier to EU mobility (34%) as well as finding adequate accommodation (34%). For Russian researchers the most frequently faced difficulty faced was finding adequate accommodation (40%).

Of the sample of non-EU researchers who had been internationally mobile to another non-EU country but did not move to the EU, 61% thinks that language is easy to deal with when moving to the EU. 66% also considers obtaining access to facility and equipment as being easy. Factors that are perceived as being difficult when working in the EU are: finding a suitable research position (51%); obtaining funding for research (52%); and finding a job for their spouse (64%). US researchers less frequently expect to have difficulties when moving to the EU than do other non-EU researchers. Only maintaining the current level of remuneration is more frequently expected to be a difficulty for US researchers (45%) than for non-US researchers (38%).

How to overcome barriers to mobility: Academic institutions in the EU have been more engaged in "guidance" of researchers and their mobility than non-EU institutions

Home and/or host institutions as well as family and friends can help to overcome difficulties associated with mobility. The challenges faced by non-EU researchers coming to the EU were eased by the host institution (41%), by friends (31%) and to a lesser extent by the home institution (15%). It is worth noting that host institutions in non-EU countries have apparently been of less support (32%).

Network and collaboration

Network: Vast majority of non-EU researchers continue to maintain connections with Europe after leaving the EU

91% of EU researchers working abroad maintained connections with their fellow researchers in Europe mainly through informal networks (91%) and by participating in conferences organized in Europe (74%). A large proportion collaborates with researchers from universities and research institutions in Europe (91%). The further researchers advance in their career, the more they tend to collaborate with EU universities or research institutes. There appears to be relatively low research collaboration with partners in private industry in Europe (9%).

Among the non-EU researchers who had worked previously in the EU, 94% continued to maintain connections with research institutions and researchers in Europe, most frequently through informal networks (91%) and conferences organized in Europe (77%). They were also actively engaged in research collaborations both with researchers in their country of employment (84%) and researchers affiliated with institutions in Europe (79%). Similar to the sample of EU researchers abroad, there appears to be relatively low research collaboration with partners in private industry in Europe (9%).

Research collaboration is often triggered by mobility

Research collaboration is an important outcome of mobility. In fact, 72% of the European researchers currently working outside the EU state that some form of research collaboration that took place in the last year can be attributed to their prior mobility experience. The research collaboration generated by prior mobility experience mainly occurs in universities/public research institutes (67%), and the non-academic sector (66%) in the country of the employer. 55% indicated that prior mobility experience increased collaboration with EU private industry and 48% with EU universities/research institutes. The collaboration effects are less pronounced for collaboration with non-EU private industry other than country of employer (64%), EU private industry (55%) and EU universities/research institutes (48%). A similar outcome applies to the non-European researchers who had previously worked in the EU.

Web-based or virtual technology is important but face-to-face contact remains highly valued

Email was indicated as an (very) important means of interaction by 99% of European researchers currently working outside the EU. Face-to-face contact was also indicated as an (very) important means of interaction by 86% of the researchers followed by videoconferencing/skype (67%) and telephone (46%). Virtual technology did not really affect the mobility behaviour of the majority of

EU researchers (52%), but it did help to reduce (or even replace) their short term visits of less than three months (41%).

The sample of non-EU researchers who have been to the EU afford a similar pattern of importance to web-based/virtual technology: email (96%) as well as face-to-face contact (87%) are (very) important means of interaction. For the majority of the non-EU researchers who had worked previously in the EU, virtual technology did not affect their mobility behaviour at all (57%).

Retention and return potential

Retention of non-EU researchers in the EU is greater than in non-EU countries

72% of the non-EU researchers who had been to the EU in the past would have liked to stay in Europe. The main reason for leaving the EU was, paradoxically, that they never intended to stay longer. However, career opportunities and personal/family life were also important motives for leaving the EU. 93% would recommend other colleagues to work in Europe as researchers, which suggests that they have really valued their stay in the EU.

Return potential: 23% of the EU researchers currently abroad consider returning to the EU

23% of the EU researchers currently working outside the EU are considering moving back in the coming 12 months. Of this 23%, around 4 out of 5 had taken concrete steps to 'return'. The main difficulties faced when returning to the EU were finding a suitable research position (72%), maintaining their current level of remuneration (56%), obtaining funding (53%), and finding a job for one's spouse (50%).

Mobility perspectives of non-EU researchers: Major interest in the EU

In general, non-EU researchers who had never worked in the EU before are seriously interested (approx. 90%) in moving to the EU. More than half of the sample of non-EU researchers who had never been to the EU had already investigated the possibility of doing so. However, one has to bear in mind that this result might be biased, as respondents might be more open minded and/or more interested in research outside their own country. Although the interest in EU mobility is high, some barriers are still expected: finding a job for one's spouse (64%); finding a suitable research position (53%); and funding for research (51%) are clear examples.

Awareness of EU support instruments

EURAXESS platforms and services were known to 25% of the researchers currently working outside the EU

A quarter of European researchers currently working outside the EU were aware of EURAXESS services. Of the non-European researchers who had worked previously in the EU, 9% were aware of them.

Marie Curie Actions were known to 50% of the EU researchers abroad and to 33% of the non-EU researchers

The Marie Curie Actions were known to half of the European researchers currently working outside the EU, compared with about a third for the non-EU researcher.

1 INTRODUCTION

1.1 The MORE2 project

As Cañibano et al. (2008)[5] state, "despite numerous recent attempts to measure and assess researcher mobility, there seems to be agreement among scholars and policy makers that the lack of progress in developing innovative empirical approaches is due to inadequate or lack of data".

The study "support for continued data collection and analysis concerning mobility patterns and career paths of researchers" (MORE2), as foreseen under the 2010 People Work Programme of the 7th Framework Programme[6], therefore has the objective:

"To provide internationally comparable data, indicators and analysis in order to support further evidence-based policy development on the research profession at European and national level."

In order to realise this overall objective, the project is set up around the following work packages:

I. Survey of researchers currently working in Europe in higher education institutions (HEI) regarding their mobility patterns, career paths and working conditions (WP1);

II. Survey of researchers currently working outside Europe regarding their mobility patterns, career paths and working conditions (WP2);

III. Case study on the working conditions and career paths of early career researchers in selected countries (WP3);

IV. Case study on the remuneration of researchers in selected countries (WP4);

V. Development of a set of internationally-comparable indicators on stocks, flows, working conditions and career paths of European researchers (WP5); and;

VI. Final report that provides a comparative, policy-relevant analysis of the mobility patterns, working conditions and career paths of European researchers (WP6).

1.2 The extra-EU mobility study

The Extra-EU survey (WP2) aims to survey and analyse the mobility patterns, career paths and working conditions of researchers currently working outside Europe and those of non-EU researchers who have worked in Europe during their career. It will also address researchers who have no experience of working in Europe, but perhaps have experience in other parts of the world. The focus in the second work package shifts from an intra-EU perspective to an extra EU-perspective.

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5 Cañibano C., F. Javier Otamendi and F. Solís (2011):International temporary mobility of researchers: cross-discipline study. Scientometrics, 89, 653-675.

6 http://cordis.europa.eu/fp7/wp-2010_en.html#people

The main policy relevant questions to be addressed are:

- Why do European researchers decide to work outside Europe? To which countries do they go and for how long do they stay? Which factors influence their decision to remain or return to Europe? How do the research environment and working conditions in other countries compare with those in Europe? Which contacts do they maintain with the European research community when working outside Europe and what contacts do they have with the non-European research community when they return to Europe?

- Why do researchers decide to come (or not to come) to Europe? What factors influence the attractiveness of Europe for researchers? To which countries do they go and for how long do they stay? What factors influence their decision to stay or leave? When they leave Europe, to which countries do they go? What problems do they experience in coming to Europe and in working as researchers in Europe? How do the research environment and working conditions in Europe compare with those in other countries? What kind of links do researchers maintain with Europe after they leave?

In order to respond to these research questions, a clear distinction is made between EU researchers and non-EU researchers (on the basis of nationality). For the purposes of the analysis we furthermore distinguish among the following groups of researchers (on the basis of their nationality combined with their mobility behaviour):

1) EU researchers currently working outside the EU
2) Non-EU researchers who have worked in the EU in the past
3) Non-EU researchers who have not worked in the EU but who have worked in non-EU countries
4) Non-EU researchers who have not been mobile at all

1.3 Guide to the reader

The following chapter presents the most important insights on global mobility, i.e. mobility patterns, motives and barriers that researchers face when moving to other parts of the world (than Europe).

Chapter 3 subsequently addresses the methodological background to this specific study. Key concepts and definitions are explained in detail. Information on the survey design, implementation and response rate is provided, as well as information on the composed indicators.

Chapter 4 is the core chapter of this report as it lists all indicators that were constructed from the extra-EU survey among researchers currently working outside the EU[7]. The discussion of the indicators is structured thematically around four types of researchers. For each type (subgroup), the following topics are discussed:

[7] EU27 + Associated countries (Norway, Switzerland, Iceland and Liechtenstein)

- Profile characteristics (socio-demographic description and current employment)
- Mobility experience
- Motives, barriers and effects of mobility
- Network and research collaboration
- Return potential and attractiveness of the EU

Chapter 5 provides a comparative perspective on EU versus non-EU attractiveness for research careers and other important factors related to mobility.

This report also contains three annexes. Annex 1 provides detailed information on the survey implementation. Annex 2 provides detailed information about the awareness and use of both EURAXESS and Marie Curie Actions. Annex 3 contains the full questionnaire.

2 EXISTING INSIGHTS ON GLOBAL MOBILITY

Since launching the European Commission's initiative for the development of the European Research Area in 2000, the mobility of researchers has become a main component of many EU policy initiatives. It is also fundamental to the EU's Growth and Jobs Strategy and Vision for 2020, which aims to improve the dynamism and competitiveness of the EU economy. Reference to several policy documents that appeared over the years were made in the first part of this MORE-Il study.

This chapter discusses some documents that relate to the topic of extra-EU mobility, followed by an overview of policies and some data on the mobility of researchers, particularly in the BRIC countries and the US. We will start with a brief overview of the main findings from the MORE–I study and some selective policy studies.

2.1 MORE-I and other studies

The MORE-I study included an extra-EU study aiming to investigate the driving forces for EU researchers moving to the US and the reasons why they returned (or not) to Europe, as well as US researchers who moved to Europe[8]. This was prompted by the view that EU-US mobility is mainly unidirectional, whereas the EU is a net provider of human resources to the US. "Brain drain" is observed at all levels of research - PhD students, postdocs, and other academic and industry research personnel. For policies to attract researchers (back) to Europe it is important to understand the motivations and facilitating/hampering factors underlying EU-US mobility.

The study revealed that researchers who are or have moved from the EU to the US have stronger professional motivations compared to those moving in the other direction, while researchers who move from the US to the EU have stronger personal or cultural motivations than those moving from the EU to the US. For the recent cohort of EU27 migrants to the US, the top three most important reasons for going to the US were: (1) job or economic opportunities, (2) educational opportunities, and (3) the scientific or professional infrastructure. The same reasons were also mentioned as the second most important reasons for moving to the US. Not being able to obtain funding appears as an important hampering factor which affects mobility. Conversely, US-based researchers attach more value to personal factors and getting acquainted with the culture in a EU country when they consider moving to the EU.

The study also discussed the perceived effects of mobility, the motivations of return mobility and more generally, the comparison between EU and non-EU countries as a research environment. Positive effects were found regarding (1) publication or patent output, access to infrastructure, and (2) network effects such as access to an international network of professionals and general recognition in the research community. Comparing the two groups of researchers, the mobility effects on these aspects are most positive for EU researchers who move to the US, while the perceived effects appear lower for the US researchers

[8] IDEA Consult et al. (2010) Study on mobility patterns and career paths of EU researchers (MORE). Report 3: Extra-EU mobility pilot study.

who move to the EU. It is suggested that EU researchers are inspired more by career and professionally related motivations, while US researchers are influenced more by personal and biographical reasons.

Professional reasons such as career progression seem to be important to motivate researchers to stay in the US, while return mobility to the EU is largely influenced by personal motivations.

When comparing the research environments of EU and non-EU countries, the EU scores, on average, lower than the US. According to the views of respondents, the US has the most attractive research environment in terms of the prospects for a scientific career and collaboration with top-class researchers. It should be added that this view is based both on the experiences of researchers who have actually worked in the EU/US as well as those who have not: it is a collection of opinions based on past experiences but also on perceptions. Salary and other financial incentives do not seem to be important as drivers of mobility (or non-mobility) for academic researchers.

The attractiveness of the EU for top scientists is the central theme of a study requested by the European Parliament's Committee on Industry, Research and Energy (ITRE). The study 'The Attractiveness of the EU for Top Scientists' (2012) focuses both on the current policy regime at the national level and the prospects for the future in relation to the attraction of top international scientists to the EU and the retention of home-grown academic talent.[9] Questions raised are: how attractive is the EU for top scientists compared to selected competitors in both a range of emerging economies and in those with the most dynamic research environments (e.g. US, China and Switzerland); and how the EU and its member states can improve their performance in this area. One of the aims was to determine the main factors which influence top scientists when it comes to selecting their place of work and to examine how such factors are addressed by current policies and strategies at both the EU and the national level. Top scientists (in this MORE-II survey R3 and particularly R4 researchers) are primarily attracted by knowledge-stimulating research environments, research institutions which can compete at a global level and opportunities to raise considerable funding for cutting-edge research. Attractive research environments include the focus of research, funding for long-term and high-risk research, fewer administrative burdens, flexibility in terms of hiring highly-qualified and promising researchers and attractive remuneration packages.

The study shows that while Europe has a strong scientific and research base, the European research sector does not currently represent an attractive enough proposition for top researchers. The field is clearly on the move and the report points to trends suggesting that the global research geography will be significantly altered in the future. In countries such as Brazil, China and India, the most striking feature of the new geography of science is the sheer scale of investment and the mobilization of people behind the innovation.

To effectively address this problem policies must be developed which focus specifically on the quality of the research environment while also creating the conditions that can best promote and reward scientific excellence. European research Framework Programmes have this objective, as does Horizon 2020, the EU's new programme for research and innovation that contributes to raising the attractiveness of the EU to top researchers. In particular, reference can be made to the Marie Curie Actions on the integration of researchers and ERC grants for creating and confirming research excellence in Europe through leading research

[9] European Parliament's Committee on Industry, Research and Energy (ITRE), Directorate General for Internal Policies. Policy Department A: Economic and Scientific Policy (2012).

at the frontiers of knowledge. The proposal to the European Commission by the ITRE committee of the European Parliament for the foundation of cutting-edge research centres in structurally weak regions is also relevant in this context.[10] This idea has been included in Horizon 2010 to address regional disparities across Europe in research and innovation performance.

The Mapping University Mobility project (MAUNIMO) explores the impact of policy pressures on European university mobility strategies and actions (EUA 2012).[11] It presents a university perspective on mobility and collects relevant data. For that purpose, an institutional self-assessment survey tool was developed, the Mobility Mapping Tool. The content of the MMT ranged from questions on the importance of different type of mobility to others concerned with awareness of different mobility programmes, mobility data collection methods and strategies for mobility. One of the conclusions reached is that although institutions may have strategies regarding mobility, many academic staff are not aware either that they exist or how they can be accessed.

Strategies, programmes and national action plans to ensure that leading researchers reside and work in Europe are central to the 2012 Researchers' report prepared by Deloitte Consulting for the European Commission.[12] The report focuses specifically on indicators such as research training and employment conditions, removal of obstacles to mobility and cross-border cooperation, and attracting a sufficient number of highly-skilled third country nationals to stay in Europe. The report supports the general view that US public research institutions appear more attractive for a number of indicators which are meaningful to researchers. For example, the US outranks the EU in terms of number of scientific publications and co-publications. The report underlines the general view that in comparison with the EU, the US provides overall better opportunities to collaborate with top-class researchers; better funding opportunities; more attractive remuneration packages and employment conditions; and more collaboration between academia and industry. It should be noted, however, that such generalizations require some qualification since there is quite considerable diversity across Europe on these aspects, and regions differ considerably regarding their attractiveness for foreign researchers.[13] This might also vary depending upon researchers' varying career stages.

Many publications refer to various barriers to mobility. These range from administrative procedures to a recruitment system which is insufficiently transparent, open and merit-based, and the fact that grants are often not portable across frontiers. Many initiatives have been taken by the European Commission in cooperation with Member States to facilitate researcher mobility. These include measures to facilitate access to information on mobility (via the EURAXESS portals (Researchers in Motion); a "Scientific Visa" package facilitating administrative procedures for third country researchers entering the European community; the adoption of the European Charter and the Code of Conduct for the Recruitment of Researchers; the European partnership for researchers to realize a single labour market for researchers and the aforementioned Europe 2020 Innovation Union initiative to remove obstacles to researchers' mobility.

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10 European Parliament resolution of 27 Sept.2011 on the Green Paper: From challenges to opportunities: towards a common strategic framework for EU research and innovation funding (2011/2107(INI). www.europarl.europa.eu/oeil/file.jsp?id=5918652.

11 European University Association (EUA) (2012) Mobility: closing the gap between policy and practice. Brussels: EUA.

12 Researchers' Report 2012, Deloitte Consulting for the European Commission, DG for Research and Innovation

13 The MORE-I also differentiates between European geographic regions (e.g. EU15,EU12, other).

There is still much that remains unknown about the mechanisms and effect of these initiatives on actual motives for mobility. Most of them focus on establishing a framework which fosters researcher mobility. For example, the EURAXESS services Network and EURAXESS Jobs Portal aim to improve information dissemination to researchers such as publishing research job vacancies. It has been stated that these services are not sufficiently popular in the research community and there is a need for increased efforts to effectively promote the availability of such support tools.[14] As the aforementioned MAUNIMO project suggests, awareness about the existence of these services seems low among researchers. Presumably, researchers are relying more on their own scientific communities and international contacts which are organically evolving between individuals and institutions. More insight in the actual working of these tools and to what extent these are actually used by researchers in their different career stages would be useful.

2.2 Developments outside Europe

The US is still the dominant country attracting researchers from all over the world, including Europe, because it provides the conditions for leading research to be conducted with a strong focus on quality. Other countries, mainly BRIC countries like Brazil, Russia, India and China are active in their headhunting activities. They are developing national strategies to create research environments which would attract researchers from all continents. A short overview of mobility policies in these countries[15] and the US is presented below.

- Brazil

An increasing focus has been placed on developing a world-class research infrastructure with increased funding and support for national research institutes, as well as improving high-speed networks for research purposes. International collaboration is highly visible and special programmes have been developed to foster international cooperation, notably with the EU countries and the US.

Specifically, the National Council for Scientific and Technological Development has entered into several bilateral agreements with many foreign organizations in EU countries. Most of them are umbrella scientific cooperation agreements with national research agencies often covering the exchange of personnel and joint scientific research projects with their counterparts in the EU countries.

The 2012-2015 strategy for science, technology and innovation addresses the need to attract young researchers and internationally recognized research leaders to Brazil and grants have been introduced for this purpose.

Several programmes are currently in place both for sending researchers abroad to gain experience as well as for inviting researchers to come for a short (or long) stay in Brazil.

These programmes are both on the Federal and State level and are mainly focused on S&T subject fields:

14 European Career for Researchers. FP7-People-2007-5-3-ERA-MORE.

15 The information about Brazil, Russia and India were mainly drawn from the respective ERAWATCH country reports. See also European Parliament's Committee on Industry, Research and Energy (ITRE), Directorate General for Internal Policies. Policy Department A: Economic and Scientific Policy (2012).

- For the relevant Federal agency for S&T support (CNPq) see: http://www.cnpq.br/web/guest/apresentacao13
- For the Federal agency in charge of graduate education (master's and doctoral programs – CAPES): http://www.capes.gov.br/bolsas/bolsas-no-exterior
- On the State level see for example the S&T agency (FAPESP): http://www.fapesp.br/bolsas/bepe/
- For specific research-project related scholarships: http://www.fapesp.br/2429

The scholarships offered by FAPESP tend to have more favourable conditions than those offered by the Federal agencies. In addition, several institutions have launched programmes to stimulate international mobility, such as the University of Sao Paulo.

Apart from these programmes there is the well-known "Science without borders" Programme which is more directed to students, both at undergraduate and graduate level.

- Russia

Brain drain is high on the agenda and considerable attention is given to attracting leading scientists, mainly from abroad, to Russian universities. Two support schemes are notable in this context. The first scheme aimed at Russian scientists who work abroad (the scientific diaspora) encourages them to work in cooperation with Russian research groups.

The second scheme aims at encouraging leading scientists from Russia, and especially from abroad (irrespective of whether they belong to the Russian scientific diaspora), to establish research groups at Russian universities. A requirement is that half of the researchers in a team must be foreign nationals. This scheme requires the chosen scientists to spend at least four months per year in Russia to be eligible for support. One example is the establishment of the Skolkovo Institute of Science and Technology which is a collaborative effort between Skolkovo Foundation, SkTech, and MIT. The aim of this institute is 1) to bring together Russian, US and global research and technology and 2) to integrate education, research, innovation and entrepreneurship (MIT News, 2011).[16]

The most relevant cooperation framework regarding research between the EU and Russia is the concept of the four common spaces, one of which is research and education. This involves, for example, identifying thematic priorities for cooperation and facilitating the participation of Russian teams in the 7th EU Framework Programme for Research and Development.

In addition, Russia has a number of bilateral Science and Technology agreements with several countries in the EU, as well as in associated countries, ranging from mobility schemes to funding of joint research projects and co-funding of joint laboratories.

- India

Research collaboration with Europe takes place in the context of a number of collaborative efforts and programmes with which India is involved. One example is the Euro-India ICT co-operation initiative (EuroIndia SPIRIT), a two-year EU-funded project aimed to address strategic goals to identify and sustain EU and Indian Research & Technology Development potential. The key objectives of the initiative include mapping ICT research and innovation activities across India.

[16] http://web.mit.edu/newsoffice/2011/skolkovo-agreement-1026.html

India has also signed a cooperation contract with the EU to participate in a research project (FAIR) aimed at understanding the tiniest particles in the universe.

Indian S&T international cooperation has a budget of over 48 million Euros. A considerable share of this budget is being spent on EU-related programmes in Science and Technology.

- US

American policies to increase public support for research have been reinforced by the re-authorization of the America COMPETES Act (2011). These support policies emphasize quality and competition, and focus on highly-ranked American universities and having good access to world-class research infrastructure. Policy instruments have been targeted to areas of particular interest, such as energy research.

At the heart of the US's National Science Foundation strategy (NSF) is the intention to build a diverse, globally-oriented and internationally-competitive science and engineering workforce through programs which make international research experiences available to students and researchers from the US early in their careers. For example, NSF awardees, via grants and cooperative agreements, can request support for participation to the European Commission's programme of international training-through-research. This involves grant-supplement requests proposed in partnership with European teams that have requested support from the Research Training Network body (RTN). Support is provided to facilitate pre-doctoral or post-doctoral mobility as well as short term exchanges of senior researchers.

The mobility of researchers coming from EU countries is encouraged through several agreements and programmes. Most noteworthy are the so-called "umbrella agreements" on Science and Technology between the US and some of the EU Member States (Bulgaria, Croatia, Finland, Greece, Italy, Romania, Slovakia, Slovenia, and Spain) aiming at S&T cooperation, intellectual property protection, research access and related topics. These bilateral agreements foster joint activities at the European level. Additional agreements allow a broader framework for collaboration in a number of scientific areas and also support international exchanges between Europe and the US. Another initiative is the Scientific and Technological Co-operation Agreement between the EU and the US, signed in 1998 and renewed in 2004, allowing US researchers to participate in proposals for the Community's research programmes. Additionally, bilateral exchange programs with most EU countries exist under the US-Department of State Fulbright Scholarships program as well as under the EU Marie Curie Outstanding International Fellowships program, among others. It is interesting to note that during the FP6 programme period, three out of four of the 303 European researchers who benefited from Marie Curie Outgoing International Fellowships (OIF) went to the US.[17]

As the US is the most frequent location for foreign graduate students, some figures will be presented on doctoral candidates coming to the US. This is based on the assumption that a relationship exists between the mobility of PhD students and the mobility of other types of researchers in our MORE study. Researchers who have worked overseas during the early stage of their career may also tend to be more mobile in the later stages, compared to those researchers who did not work abroad during their PhD.

[17] European Parliament's Committee on Industry, Research and Energy (ITRE), Directorate General for Internal Policies. Policy Department A: Economic and Scientific Policy (2012), p.65.

According to the NSF, based on data from the Survey of Earned Doctorates (SED), between 2006 and 2009 there were nearly 545,000 S&E doctorate recipients from abroad, representing more than 20% of the US' doctoral recipients. 13% of them, or 70,850, came from an EU country.[18,19]

More importantly, most of these graduates plan to stay in the US. In fact, at the time of the SED survey, 73% of the European respondents had plans to stay, and 52% had already a job offer in the country. Furthermore, the share of foreign-born postdoctoral students is even higher (nearly 60%).

According to the NSF, based on data from the US Department of Homeland Security, in 2010 the US issued more than 118,000 H-1B temporary work visas. This visa is issued to individuals who seek temporary entry into the US in a specialty occupation which requires the skills of a professional. It is issued for up to three years with the possibility of an extension to 6 years. In 2009, 13% of such visas were granted to doctorate holders, of which 15% were granted to citizens from the EU27.

According to the NSF, in 2008 there were more than two million foreign-born individuals with highest degree in S&E living in the United States. 15% came from one of the EU27+3 countries (including Norway, Switzerland and Turkey), of which 24% came from UK (representing 4% of total foreign-born with S&E degree), and 21% came from Germany (representing 3% of total). The EU share dropped by 3 percentage points compared to 2003. In 2008, 64% of the European immigrants with a S&E degree obtained their highest S&E degree in the US. In 2003, 55% obtained their highest degree in the US (NSB 2012).[20]

When considering these figures, it should be noted that some of the foreign-born immigrants in the US may have come to the US as children, so this is not an issue of mobility for their scientific careers. SESTAT surveys only include individuals who were counted in the most recent Decennial Censuses or who received a US S&E degree, thereby excluding recently arrived foreign-born and foreign-educated scientists and engineers (after April 2000). "The potential for an undercount of the foreign born is smallest in the earliest portion of the decade—the closer in time to the Decennial Census—and increases over the course of the decade"[21]. Given this clarification, the figures provide an order of magnitude of the immigration patterns into the US from European countries and their corresponding relative weight in the US S&E system.

1,593 EU-respondents received their doctorate degree in physical/earth, atmospheric, and ocean sciences (22%); 1,298 in biological/agricultural sciences (18%); 171 in health sciences (2%); 1,107 in mathematics/computer sciences (16%); 1,607 in social/behavioural sciences (23%); and 1,306 in engineering (18%).

However, the volume of new foreign workers entering US and having S&E occupations has shown signs of decline during the recent economic downturn[22] (NSB 2012). In addition, concerns raised after the 9/11 terrorist attacks, in terms

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18 See http://www.nsf.gov/statistics/seind12/c3/c3s4.htm Accessed on January 21st, 2013.

19 See: IDEA Consult et al, 2013. MORE2 - Support for continued data collection and analysis concerning mobility patterns and career paths of researchers, Data and indicators (WP5). European Commission, DG Research and Innovation.

20 Indicators are collected from population data from the US Census Bureau and visa data from the US Citizenship and Immigration Service, as well as S&E workforce data from the NSF SESTAT data system.

21 NSB (2012)

22 NSB (2012). Science and Engineering Indicators 2012. Arlington VA, National Science Board. National Science Foundation. (NSB 12-01)

of national security, and claims about the economic consequences for local S&E hosting a large number of foreign scientists are still relatively high in the US.[23]

- China

China's efforts to develop world-class research institutes relate to both improving infrastructure and quality as well as attracting high level researchers from around the world. China has an explicit policy to expand international cooperation and exchange, to reform and develop education and research, to promote collaboration and exchanges at multiple level and with a broad scope. Programmes such as the 'Hired Foreign Research Fellows" and the "Youth Foreign Scientist Project" aim to recruit foreign associate professors and newly graduated PhDs, respectively, to work in China.

Moreover, several bilateral and multilateral cooperative agreements and programmes with scientifically advanced economies have been set up to stimulate knowledge transfer across national borders.

One of the most important Chinese agencies for international mobility is the China Scholarship Council (CSC), established in 1996, with the aim of developing China's exchanges with other countries in the field of education, science and technology. CSC is responsible for the organization, management and provision of financial resources to Chinese citizens studying and working abroad and to international students and scholars working in China. Long term collaborative platforms have been established for international cooperation and progress has been made to train senior specialists in innovative thinking and a sense of internationalization to meet the needs of national economic development. CSC sponsors fellows to study in different countries and invites high-level professionals and academic teams from overseas to China under the Chinese Government Scholarship Programs. Some of the key programs of the CSC are:

- Postgraduate Study Abroad Program: Through this program students are recruited to study overseas, among half are PhD candidates and others will be joint PhD's. This program follows the principle of "sending top students to top international universities and under the supervision of top professors"
- Postgraduate Study abroad program with special design
- Visiting scholars and senior research scholars (post-doc researchers)
- Bilateral exchange programs stipulated in the bilateral agreements on culture and education exchange and cooperation; Fulbright program (exchange program with the US).

International students studying in China[24]

As an important component of international exchanges and cooperation, international students' education has afforded major importance by the Chinese government. An international students administration system, with distinct Chinese characteristics, has been constructed to attract a number of talents in the fields of science, technology, education, diplomacy, management, etc. from many countries. This plays an active role in enhancing the political, diplomatic and economic ties between China and other countries as well as promoting the exchange of culture, education and personnel.

By the end of 2000, the total number of international students in China has increased to 407,000 (undergraduate, graduate and PhD students). They are

[23] See Congressional Research Service prepared for Congress, 2010 at http://www.fas.org/sgp/crs/misc/97-746.pdf

[24] http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/s3917/201007/91575.html

from more than 160 different countries. Among them, Chinese Government Scholarship students numbered 88,000, whereas self-financed students reached 317,000.

Since 1997, the Chinese Scholarships Council (CSC) has been entrusted, by the Ministry of Education, with the enrolment, management and administration of daily operations concerning international students in China sponsored by Chinese Government Scholarships. Between 2004 and 2007, students were accepted from 175 countries by 353 Chinese higher education institutions. International students from Asia still top the list of all, totalling 63,672, accounting for 82%, while 6,462 students are from Europe, accounting for 8%; 4,703 from America, accounting for 6%; 1,793 from Africa, accounting for 2%, and 1085 from Oceania, accounting for 1%. South Korea, Japan, the United States, Vietnam and Indonesia are the top five countries that have the largest numbers of international students in China, numbering 35,353 - 12,765 - 3,693 - 3,478 - 2,563 respectively. Other countries, which have over 1,000 students in China, are Thailand (1,554), Germany (1,280), Russia (1,224), Nepal (1,199) and Mongolia (1,060). There are indications that about 60% of the foreign students in China are undergraduate students, 30% Masters and about 10% are PhD students. The current policy is to raise the level of scholarship which will likely lead to an increase of the number of PhD students.

According to agreements signed by Chinese government and the governments of other countries, as well as international organizations, China's Ministry of Education offered Chinese Government Scholarships to 163 countries in 2003. 6,153 foreign students were enrolled: the number of Asian students amounted to 3,076 (50%), European students 1,442 (23%), African students 1,244 (20%), American students 305 (5%), and 86 (1.4%) students from Oceania. With the principle of raising the number of scholarship students, PhD students increased to 609, Master Degree students totalled 1,350, and undergraduate students 1,754. In addition, 123 students benefited from the other scholarships provided by Chinese Government, including the Great Wall Scholarship, the Excellent Student Scholarship, the HSK Winner Scholarship, the short term program for foreign teachers of Chinese and the Chinese culture research program. As for the self-financed students, enrolment has expanded to 71,562, among them 13,202 short term students (who studied for less than 6 months), and 58,360 long term students who studied in China for 6 months or more.

Outgoing scholars

Table 1 provides an overview of the number of scholars supported by the CSC for some primary destinations such as the United States, Australia, Britain, Germany, France, Netherlands and Belgium. The data focus on the researcher level: PhD candidates, post-docs and visiting scholars (students are excluded).

Table 1: The number of students supported by CSC in 2010, 2011, 2012

year / country / identity		USA	Australia	Britain	Germany	France	Netherlands	Belgium
	PhD	412	186	307	429	253	128	40
	Post-docs	165	8	20	9	19	1	1
2010	Visiting scholar	2911	271	812	100	100	49	17
	Total	***3488***	***465***	***1139***	***538***	***372***	***178***	***58***
	PhD	436	215	352	549	309	213	46
	Post-docs	142	8	19	8	7	3	0
2011	Visiting scholar	3176	296	675	103	94	56	19
	Total	***3754***	***519***	***1046***	***660***	***410***	***272***	***65***
	PhD	300	250	329	461	303	256	52
	Post-docs	152	11	17	5	18	1	0
2012	Visiting scholar	2833	302	604	72	79	24	11
	Total	***3285***	***563***	***950***	***538***	***400***	***281***	***63***

Sources: China Scholarship Council, Annual reports and "China Scholars abroad"[25]

In 2010, the CSC conducted a research study to determine the reasons why Chinese scholars chose a particular country. They found that Chinese scholars regard the US as the first option to go abroad because of the:[26]

- high-level quality of education
- diversity and flexibility of the educational system
- being competitive in finding jobs
- decrease in currency exchange rate, thus reducing the cost of studying in the US

For many years, China experienced serious brain drain, as increasing numbers of doctoral students went to study in foreign universities. The "sending out, attracting back policy" has its limitations, since the majority of these researchers stayed in the host country or move to another country for better employment, and only about a third returned permanently. US, Canada, Australia and the UK are the favourite destinations[27] (Ma, 2011). Due to the international situation and economic progress in China, many overseas students choose to return after they receive their doctoral degrees and the country can now be said to experience brain circulation rather than brain drain. There is also an active national strategy to attract foreign students and foreign experts to come to Chine through:

- "The Well-known Scholar Plan": financial support for foreign experts to teach and conduct research in China. This program provides full travel expenses for international scholars to visit Chinese universities for short term spells (mostly 2-4 weeks).
- The Changjiang Scholar Program: to attract foreign experts (mainly in science and technology) for longer term periods of research. Changjiang professors can have a three-year appointment or lifelong appointment.

25 http://news.sciencenet.cn/htmlnews/2012/10/271119.shtm

26 This is based on internal (not official) information.

27 Ma Wanhua (2011) Contributions of Foreign Experts to Chinese Academic Development: A case study of Peking University. Center for International Higher Education, Peking University.

- "The 111 Plan": aiming at attracting top scientists to work at top level research universities who establish innovation centers and gathering groups of top researchers around the world. This plan provides very attractive working conditions, high additional financial rewards on top of the basic salary and guaranteed long term research grants, research facilities and staff support.

In addition to these initiatives there exist other schemes to encourage international mobility, such as the Research Fund for Returned Overseas Chinese Scholars. Another is the "One Thousand Talents Scheme", a nation=wide programme with the goal of bringing academics back to China over the next 5-10 years. Critics have argued that generally these schemes tend to favour overseas Chinese scholars who have ties with China and less with foreign nationals in general[28].

But such programs may potentially strengthen the ties between research centers internationally, international cooperative research projects and joint publication activity and facilitate knowledge circulation between China and the rest of the world.

[28] Ma Wanhua (2011), ibid.

3 METHODOLOGICAL BACKGROUND

3.1 Key concepts and definitions

3.1.1 Researcher

The main definitions of "researchers" currently in use derive from the Canberra Manual, covering HRST and from the Frascati Manual, covering Research and experimental development and R&D personnel. These definitions are generally accepted and widely applied, e.g. in the MORE1 study by the European Commission.[29] The same definition is also applied in the HEI study of the first work package.

Definitions from the Frascati Manual[30]:

- Research and experimental development (R&D):
  - "Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications."
- R&D personnel:
  - "All persons employed directly on R&D should be counted, as well as those providing direct services such as R&D managers, administrators, and clerical staff."

To define a researcher, the survey contains the following self-selection paragraph in the introduction:

> We specifically target "researchers" within this survey, including people:
>
> - carrying out research OR
> - supervising research OR
> - improving or developing new products/processes/services OR
> - supervising the improvement or development of new products/processes/services.
>
> If you consider yourself to fall into one or more of the above categories, we kindly ask you to complete the questionnaire.

[29] IDEA Consult et al. (2010) Study on mobility patterns and career paths of EU researchers. FINAL REPORT (deliverable 7).

[30] OECD (2002), Frascati Manual: Proposed Standard Practice for Surveys on Research and Experimental Development, OECD, Paris. (Section 2.1 and 5.2.1).

3.1.2 Types of mobility

Below we list a number of key definitions that will be further used in the indicator descriptions:

- EU researchers:
  EU Researchers are researchers who have the citizenship of EU27 or EFTA countries (Switzerland, Norway, Iceland and Liechtenstein). Researchers who do not have EU27 or EFTA citizenship are labelled non-EU researchers
- Long term mobility (which will be referred to as "Mobility" further on):
  Mobility to another country than the country of citizenship for 3 months or more in the last 10 years[31]
- Short term mobility:
  Mobility to another country than the country of citizenship with duration of less than 3 months in the last 10 years
- Past mobility:
  Mobility to another country than the country of citizenship but more than 10 years ago
- Non-mobility:
  Researchers who have never been mobile to another country than their country of citizenship
- Employer mobility versus temporary mobility:
  Mobility including a change of employer versus mobility while remaining employed by the same institution
- Virtual mobility:
  The use of web-based or virtual technology to collaborate internationally

Definition of the four types of researchers (subgroups):

- EU researchers currently working outside the EU:
  European researchers, by citizenship, who are CURRENTLY mobile (and thus working) outside Europe (i.e. the last international long term move was outside EU).
- Non-EU researchers who have previously worked in the EU:
  Non-European researchers, by citizenship, who in the PAST have worked in Europe (i.e. the last international long term move was outside the EU but there was an international move in the past which was in the EU).
- Non-EU researchers who have never worked in the EU but who have worked in non-EU countries:
  Non-European researchers, by citizenship, who have NEVER worked in Europe but who have worked in non-European countries.

[31] Inzelt A., Analysis of Researchers' Mobility in the Context of the European Reseach Area, Evaluation FP7 as supporting expert.
Foreign students (or foreign researchers) belong to an old statistical classification. […], it includes all non-citizens who are studying or doing research in the country. They may have arrived in the country earlier with other intention as studying or doing research activities […]

- Non-EU researchers who have never been internationally mobile:
  Non-European researchers, by citizenship, who have NEVER worked in Europe and who are non-mobile in general.

3.1.3 Career stages

In order to allow for country comparisons in terms of functions and experience levels, the concept of specific career stages was introduced according to the four career stages outlined and defined in the European Commission's communication "Towards a European Framework for Research Careers" (European Commission 2011, p. 2)[32].

These four career stages are:

- R1: First Stage Researcher (up to the point of PhD),
- R2: Recognized Researcher (PhD holders or equivalent who are not yet fully independent),
- R3: Established Researcher (researchers who have developed a level of independence) and
- R4: Leading Researcher (researchers leading their research area or field).

According to the definitions given in the EC's communication the different stages are characterized as follows:

A first stage researcher (R1) will:

- "Carry out research under supervision;
- Have the ambition to develop knowledge of research methodologies and discipline;
- Have demonstrated a good understanding of a field of study;
- Have demonstrated the ability to produce data under supervision;
- Be capable of critical analysis, evaluation and synthesis of new and complex ideas and
- Be able to explain the outcome of research and value thereof to research colleagues."

(see European Commission 2011, p. 7)

Recognized researchers (R2) are PhD holders or researchers with an equivalent level of experience and competence who have not yet established a significant level of independence. In addition to the characteristics assigned to the profile of a first stage researcher a recognized researcher:

- "Has demonstrated a systematic understanding of a field of study and mastery of research associated with that field.
- Has demonstrated the ability to conceive, design, implement and adapt a substantial program of research with integrity.
- Has made a contribution through original research that extends the frontier of knowledge by developing a substantial body of work, innovation or application. This could merit national or international refereed publication or patent.

[32] Towards a European Framework for research careers (2011). Director General for research and innovation: http://ec.europa.eu/euraxess/pdf/research_policies/Towards_a_European_Framework_for_Research_Careers_final.pdf

- Demonstrates critical analysis, evaluation and synthesis of new and complex ideas.
- Can communicate with his peers - be able to explain the outcome of his research and value thereof to the research community.
- Takes ownership for and manages own career progression, sets realistic and achievable career goals, identifies and develops ways to improve employability.
- Co-authors papers at workshop and conferences."

(see European Commission 2011, p. 8)

An established Researcher (R3) has developed a level of independence and, in addition to the characteristics assigned to the profile of a recognized researcher:

- "Has an established reputation based on research excellence in his field;
- Makes a positive contribution to the development of knowledge, research and development through co-operations and collaborations;
- Identifies research problems and opportunities within his area of expertise Identifies appropriate research methodologies and approaches;
- Conducts research independently which advances a research agenda;
- Can take the lead in executing collaborative research projects in cooperation with colleagues and project partners;
- Publishes papers as lead author, organizes workshops or conference sessions."

(see European Commission 2011, p. 10)

A leading researcher (R4) manages research in his area or field. He or she leads a team or a research group or is head of an industry R&D laboratory. "In particular disciplines as an exception, leading researchers may include individuals who operate as lone researchers." (European Commission 2011, p. 11). A leading researcher, in addition to the characteristics assigned to the profile of an established researcher:

- "Has an international reputation based on research excellence in their field;
- Demonstrates critical judgment in the identification and execution of research activities;
- Makes a substantial contribution (breakthroughs) to their research field or spanning multiple areas;
- Develops a strategic vision on the future of the research field;
- Recognizes the broader implications and applications of their research;
- Publishes and presents influential papers and books, serves on workshop and conference organizing committees and delivers invited talks."

(see European Commission 2011, p. 11)

Researchers in the MORE2 Extra-EU survey were asked to self-select into one of these four stages.

3.2 Sampling, survey implementation, response rate and sample composition

3.2.1 'Convenience' sampling

The entire sampling approach can be characterised as 'convenience' sampling. In order to collect as large a sample of researchers' emails as possible, a web-based method was used. In the first step of this method, a large sample of the URLs of academics' home pages was collected. As a second step, all the home pages and CVs identified from this search were automatically downloaded and email addresses were automatically extracted from them. Subsequently, the method above was used to search for academics' CVs from the web sites of universities in order to identify emails for the four subgroups (EU researchers currently working outside the EU, non-EU researchers who have worked in the EU in the past, non-EU researchers who have never been to the EU but who have been to non-EU countries, and non-mobile non-EU researchers). This sampling approach thus focused on researchers in the higher education sector. Responses obtained via email addresses collected are 'panel responses'. In addition to this contact generation approach, researchers were also made aware of the survey through various means:

- We added an information section about the survey and its objectives on the EURAXESS website, with a link to the online survey.
- We announced the survey through the various networks of EU researchers abroad, such as those which can be accessed through the EU centres of excellence around the world.

This approach is opposed to the contact generation approach and is not limited to researchers in the higher education sector: researchers from research institutions and industry were also reached through these announcements (and associated snowballing). The survey was thus open to all researchers but those in the higher education sector are well represented in the sample. Responses obtained via these means are 'non-panel responses'. A detailed overview of the sampling process is provided in Annex 1.

One important remark to note is that this extra-EU mobility survey does not provide representative data at the level of the countries covered. As there are no weights applied, this means that the dataset does not provide representative data on the number of researchers and their mobility patterns per specific countries. This sample does not reflect the proportion of researchers currently working outside the EU within the overall population of researchers currently working outside the EU. Therefore, results need to be interpreted with care and no generalisations/extrapolations can be made in this regard.

3.2.2 Survey implementation

After the data collection process described above, the email addresses were inputted into the online survey tool. The survey was launched on the 3th of July 2012 and was available for 117 days until the 29th of October. The survey was composed of 93 questions and was available in English and Spanish. The average time needed to complete the survey was 15 minutes and 11 seconds.

"Snowballing" was also used as an additional source to increase the survey sample. All respondents to the survey had the opportunity to forward the survey link to people potentially interested in it (these units are included in the non-panel responses).

The sampling method generated far more emails than was necessary. However, a large sample set was required in order to balance the size of the populations we were interested in, and to have a 'reserve' in case the response rates were not as we expected. A more detailed overview of the survey implementation is provided in Annex 1.

3.2.3 Response rate

The entire panel size (collected e-mail addresses) consists of 275,441 people identified by the aforementioned sampling method. We found that:

- 7.3% of the emails bounced
- 0.6% of the emails were refused
- 17% opened the invitation email
- 0.4% only responded partially and were reminded to complete the survey after two days.

The survey has a total response of 10,393 of which 6,067 were obtained from panel and 4,326 from non-panel responses. Compared to the initial panel size of 275,441 people (of which 46,274 opened their email), this is a low response rate.

Of the 10,393 responses, 74% were completed, 29% were only partially completed and 6% responded to refuse participation. The result is a total sample size of 7,706 complete responses (see Table 2).

Table 2: Survey response rate

	Total	Panel	Non-panel
Invited	-	275,441	-
Answered	**10,393**	6,067	4,326
(Complete)	**7,706**	4,840	2,866
(Incomplete)	**2,214**	1,044	1,170
(refused – no researcher)	**473**	183	290

Source: MORE2 Extra-EU Survey (2012)

A number of responses came from researchers currently working in the EU. However, the focus of this Extra-EU survey is on researchers currently working outside Europe, so the relevant sample is further narrowed down to 4,090 researchers.[33]

Next, researchers were ex post classified in four subgroups in accordance with the information provided in the questionnaire (see 3.1.2). For an overview of the response rate per type of researcher/subgroups see Table 3.

[33] 3,616 responses were dropped because they were not the target population of this survey. 3,109 responses came from EU researchers (non-mobile or last move was the EU). 514 were non-EU researchers. Of these 514 researchers, 213 are currently still mobile towards the EU. The other 294 responses are non-EU researchers who are non-mobile and did not answer the main questions of the survey concerning their non-mobility.

Table 3: Survey response rate per subgroup (for the completed answers)

Subgroups	Total	
EU researchers currently working outside EU	16%	n=641
Non-EU researchers having worked previously in the EU	19%	n=778
Non-EU researchers who has never worked in the EU but have worked in non-EU countries	8%	n=335
Non-EU researchers who have never worked in the EU and have not been mobile at all	57%	n=2,336
Total	100%	n=4,090

Source: MORE2 Extra-EU Survey (2012)

3.2.4 Descriptive information on sample composition

- Overlap between countries of reference

In the sample of the MORE2 Extra-EU data, the researchers were asked to indicate their country of citizenship, residence, current employment and highest education. These potential countries of reference show a high percentage of overlap (Table 4). As we do not expect large differences in the indicators based on these different definitions, we limit the indicator development to citizenship and country of highest education. We thus do not further distinguish between country of residence, country of current employment and country of PhD.

Table 4: Overlap between countries of reference in the MORE2 Extra-EU survey

	Equal to citizenship	Equal to highest education	Equal to residence	Equal to current employment
Country of highest education	82.05%			
Country of residence	76.45%	68.66%		
Country of current employment	75.84%	68.85%	96.16%	
Country of PhD	80.17%	86.48%	61.39%	61.71%

Source: MORE2 Extra-EU Survey (2012)

- Country of citizenship

It is important to note that the sample comprises a very uneven distribution of responses by country of citizenship. Countries like Germany, the United Kingdom, Australia and the United States constitute a large part of the sample. For an overview see Table 5[34].

[34] The countries of citizenship with responses lower than 30 observations are not reported in this table and therefore do not add up to the total sample size reported at the bottom of the table (see section Part 13.3.2).

Table 5: Countries of citizenship by type of researcher (subgroup)

Citizenship	EU researchers currently working outside EU	Non-EU researchers who have previously worked in the EU	Non-EU researchers who have never worked in the EU but who have worked in EU countries	Non-EU researchers who have never worked in the EU and have not been mobile at all
Austria	32			
Australia		63	46	179
Brazil		38		104
Canada				37
Croatia				34
France	48			
Germany	231			
India				65
Israel				38
Italy	55			
Netherlands	34			
Mexico				45
Norway				34
Russia		30		62
Switzerland				37
Turkey		42	34	196
United Kingdom	102			
United States		427	141	1,222
Total	641	778	335	2,336

Source: MORE2 Extra-EU Survey (2012)

- Long term, short term, past and non-mobility

In section 3.1 we defined the different types of mobility and their duration: long, short, past or non-mobile. Each researcher was asked to typify their international mobility experience. The selection of researchers in the first three subgroups (EU researchers currently working outside the EU, non-EU researchers who have worked the EU in the past and non-EU researchers who have never worked in the EU but who have worked in non-EU countries) is based on their long term mobility pattern. Only those researchers who are selected in the fourth subgroup of non-mobile non-EU researchers do not meet this condition. This fourth subgroup consists of non-EU researchers who have been mobile for a short time, who have been mobile more than 10 years ago and who have never been mobile.

- Career stages and gender by type of researcher (subgroups)

The response per career stage is very skewed. Overall, the leading researchers (R4) constitute the largest group. Together with the established researchers (R3), they represent about 80% of the respondents. First stage (R1) and recognized (R2) researchers only constitute a small part of the sample (Table 6).

Looking at the career stages per type of researcher, it is observed that the skewed nature of the data varies by career stage. More than half of the responses from non-EU researchers who had been to the EU in the past and non-mobile non-EU researchers, come from leading researchers (R4). The response of the recognized researchers (R2) is relatively the highest for the EU researchers currently working abroad, whereas for the other subgroups responses from the recognized researchers (R2) are lower (10-12%). Overall responses of first stage researchers (R1) are low in the four subgroups (5-10%).

Table 6: Career stage by type of researcher (subgroups)

Career stage	R1	R2	R3	R4	*Total*
EU researchers currently working abroad	5.0%	28.7%	35.3%	31.0%	*100%*
Non-EU researchers who have been to the EU in the past	4.8%	11.3%	28.9%	55.0%	*100%*
Non-EU researchers who have never been to the EU but who have been to non-EU countries	7.5%	12.2%	37.0%	43.3%	*100%*
Non-mobile non-EU researchers	9.8%	10.2%	27.8%	52.1%	*100%*
Total	7.9%	13.5%	29.9%	48.7%	*100%*

Source: MORE2 Extra-EU Survey (2012)

Note: With R1 (doctoral or equivalent), R2 (post-doctoral or equivalent), R3 (established) or R4 (leading) researchers (n=4,090).

Table 7 gives an overview of the distribution by gender over the four subgroups. Overall, female researchers account for 36% of the responses. The distribution over the four subgroups does not vary considerably (34-37%).

Table 7: Gender by type of researcher (subgroup)

Gender	Female	Male	Total
EU researchers currently working abroad	35.4%	64.6%	*100%*
Non-EU researchers who have been to the EU in the past	34.3%	65.7%	*100%*
Non-EU researchers who have never been to the EU but who have been to non-EU countries	34.6%	65.4%	*100%*
Non-mobile non-EU researchers	37.0%	63.0%	*100%*
Total	36.0%	64.0%	*100%*

Source: MORE2 Extra-EU Survey (2012)

Note: (n=4,090)

- Career stages and gender by distribution channel (non-panel and panel responses)

A possible limitation of our dataset is that there might be a difference in response behaviour depending on the distribution channel: panel (e-mail) versus non-panel (weblink). One type of bias that could occur is self-selection through the weblink: when a particular subgroup is more inclined to provide their opinion they will access a 'general' link more quickly than other subgroups. Direct emailing mitigates this self-selection bias to some extent as researchers of all subgroups feel addressed personally.

To provide some insights into this type of process, we compare non-panel and panel responses per subgroup of researchers, career stage and age.

Table 8 provides an overview. For EU researchers currently working abroad, the difference between panel and non-panel response is limited (54% versus 46%). Of the other subgroups only 17% responded via the weblink (non-panel). The majority of responses (83%) were obtained by direct email (panel).[35]

[35] One needs to be careful when interpreting this information as it does not take into account the proportion of researchers approached via email (panel) by subgroup. Researchers in certain subgroups were easier to identify ex ante, and were therefore more frequently approached via email.

Table 8: Panel and non-panel responses by type of researcher (subgroups)

	Non-panel responses		Panel responses		Total	
EU researchers currently working abroad	53.7%	*n=344*	46.3%	n=297	*100%*	*n=641*
Non-EU researchers who had been to the EU in the past	16.2%	*n=126*	83.8%	n=652	*100%*	*n=778*
Non-EU researchers who had never been to the EU but who had been to non-EU countries	17%	*n=57*	83.0%	n=278	*100%*	*n=335*
Non-mobile non-EU researchers	16.6%	*n=387*	83.4%	n=1,949	*100%*	*n=2,336*
Total	22.3%	*n=914*	77.7%	n=3,176	*100%*	*n=4,090*

Source: MORE2 Extra-EU Survey (2012)

Table 9 provides information on panel and non-panel responses by career stage. First stage (R1) and recognized (R2) researchers responded 50/50 via email (panel) and weblink (non-panel). Panel responses were more common amongst recognized researchers (R3) (77%) and to an even larger extent amongst leading researchers (R4) (91%). One needs to be careful in interpreting this information as this information does not take into account the proportion of researchers approached via email (panel) by career stage.

Table 9: Panel and non-panel responses by career stage

	Non-panel responses		Panel responses		Total	
R1	48.5%	n=157	51.3%	n=167	*100%*	*n=324*
R2	53.3%	n=294	46.7%	n=258	*100%*	*n=552*
R3	22.6%	n=277	77.4%	n=947	*100%*	*n=1,224*
R4	9.3%	n=186	90.7%	n=1,804	*100%*	*n=1,990*
Total	22.3%	n=914	77.7%	n=3,176	*100%*	*n=4,090*

Source: MORE2 Extra-EU Survey (2012)

Table 10 provides an overview of the panel and non-panel responses per gender. Differences are limited, although panel responses are slightly more common amongst male (80%) than amongst female researchers (73%). Again, one needs to take care when interpreting this information as this information does not take into account the proportion of male and female researchers approached via email (panel).

Table 10: Panel and non-panel responses by gender

	Non-panel responses		Panel responses		Total	
Female	26.6%	n=392	73.4%	n=1,082	*100%*	*n=1,474*
Male	20.0%	n=522	80.0%	n=2,094	*100%*	*n=2,161*
Total	22.3%	n=914	77.7%	n=3,176	*100%*	*n=4,090*

Source: MORE2 Extra-EU Survey (2012)

3.3 Composed indicators

In chapter 4, a selection of indicators derived from the "Extra-EU mobility survey" will be presented. In this section we will explain how these indicators were composed.

3.3.1 Background

The selection and grouping of indicators is determined by:

- On-going policy initiatives and strategies regarding researchers' mobility and career paths
- Recent academic literature on researchers' mobility and career paths, particularly the main topics, research questions and findings therein
- Previous surveys/studies on researchers' mobility and career paths, particularly indicator definitions therein (e.g. MORE1, MORE2 (WP1) Eurostat/OECD Careers of Doctorate Holders – CDH project; EURODOC survey on Doctoral Candidates; Erawatch IPTS survey etc.)
- Compatibility with previous MORE1, MORE2 (WP1) indicators and IISER indicators.

By taking the findings from these sources into account, the selected indicators are intended to provide topical and policy relevant statistics on several themes of current interest. To the extent that this is possible, the indicator definitions strive for comparability with previous work.

3.3.2 Relevant topics

As indicated above, the indicators were developed for the 4 types of researchers (subgroups). The following topics are reflected in the indicator development:

- Profile characteristics
- Mobility experience
- Motives, barriers and effects of mobility
- Network and research collaboration effects
- Return potential and attractiveness of the EU
- Awareness of EU policy

These topics are used as the main framework for the indicator development. For an overview, see Table 11.

Table 11: Framework for indicator development

MORE2 survey structure (WP2)	Type of Indicator
1. Background information	*Human resources of researchers*
• Socio-demographics	• 'Stocks' of researchers
	• Career stage (R1-R4)
• Current employment and working conditions	*Working conditions of researchers*
	• Characteristics of employment contract (type, duration of contract, full-/part-time)
	• Position/status of the researcher
	• Contractual status
2. Geographical mobility experience as a researcher:	*Mobility of researchers*

	• Flows of mobility • Frequency and duration of mobility • Conditions of mobility
3.Motives, barriers and effects of mobility experience as a researcher:	*Quantification of movements* • Motivations for mobility • Influencing factors of mobility • Barrier of mobility • Effects of mobility
4.Network and research collaboration effects:	• Remained connections due to mobility • Collaboration
5. Attractiveness and retention effects	• Comparison of the EU research environment with the non-EU research environment • Attractiveness of the EU for researchers • Return mobility to the EU of EU researchers abroad
6. Awareness of EU policy	• European Research environment as an attractiveness factor for researchers • Work satisfaction in terms of different aspects of researchers' career

The indicators which are calculated around these topics (see the chapters below) will be broken down according to the following characteristics:

- Gender
- Career stage
- Country of citizenship/residence/employer

Furthermore, where relevant, the report focuses on the results separately for these subgroups.

It must be noted that in the process of developing the indicators, only indicators for which the sample size exceeds 30 cases are considered. This is the threshold between large and small sample theories also applied in the MORE2 EU Higher Education Survey (2012).[36]

[36] See: IDEA Consult et al, 2013. MORE2 - Support for continued data collection and analysis concerning mobility patterns and career paths of researchers, Report on survey of researchers in EU HEI (WP1). European Commission, DG Research and Innovation.

4 ANALYSIS BY TYPE OF RESEARCHER

This is the core chapter which lists all indicators which were calculated using the MORE2 Extra-EU survey of researchers currently working outside the EU. The discussion of the indicators is structured thematically around the four subgroups:

1) European researchers currently mobile outside the EU
2) Non-EU researchers who have worked in the EU in the past
3) Non-EU researchers who have not worked in the EU but who have worked in non-EU countries
4) Non-EU researchers who have not worked in the EU and who are non-mobile in general

4.1 European researchers currently working outside the EU

This section presents the indicators for EU researchers (according to citizenship) who are currently working outside the EU (for a period of more than 3 months). When referring to researchers in this section, bear in mind that this concerns this specific type of researcher. The sample size for this group is 641.

First, some profile characteristics are sketched out. Next, a short overview of their mobility patterns towards non-EU countries is provided. In the third section we discuss the mobility motives of EU researchers related to their last non-EU move. The network and collaboration effects of mobility are then discussed in section four. Subsequently, we assess the return potential of EU researchers currently located abroad.

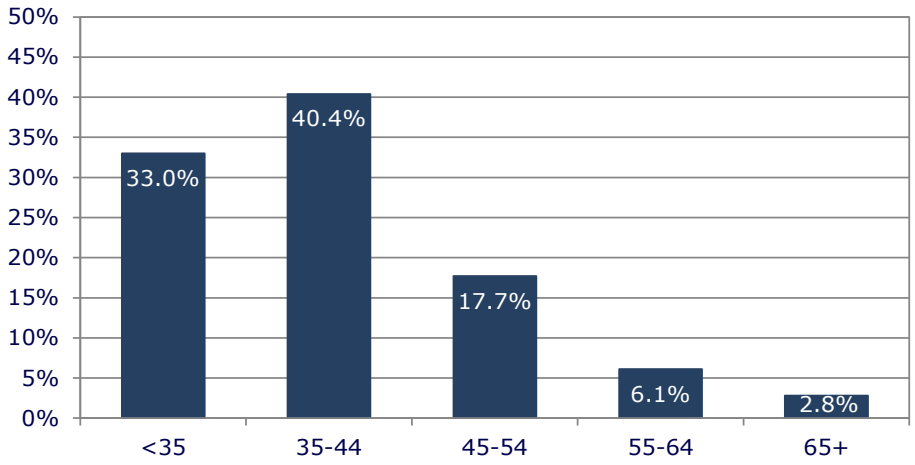
4.1.1 Profile characteristics: Who are they?

This section presents the profile characteristics. The first part describes the socio-demographic characteristics of European researchers currently working outside the EU. The second part describes the current employment status of these researchers. By 'employment' we mean all researchers, including those doing a PhD at the time of the survey, whether or not they are employees, civil servants, students etc. Subsequently we focus on career stage, PhD coverage, sector of employment and whether researchers hold dual positions employed both at a university and in another employment sector), the type of employment contract held, employment status, satisfaction with their working conditions and their future prospects.

4.1.1.1 Socio-demographics

Of the total sample of EU researchers currently abroad, the share of researchers is 35% female and 65% male. About a third of the researchers are younger than 35, whereas 40% are between 35 and 44 years. Only a few are over 55. Figure 1 shows the age distribution of the sample.

Figure 1: EU researchers abroad by age group



Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently mobile outside the EU per age group (n=641)

Looking at the country of citizenship, it appears that more than a third of all EU researchers abroad come from Germany (36%), followed by those from the UK (16%). Italy, France, the Netherlands and Austria still record low shares, (between 5-8%), while other countries are marginal. The EU-15 countries in the sample thus comprise a large share of the non-EU mobility.

Table 12: EU researchers abroad by country of citizenship

Country of citizenship	N	Percentage
Germany	231	36.0%
United Kingdom	102	15.9%
Italy	55	8.6%
France	48	7.5%
Netherlands	34	5.3%
Austria	32	5.0%

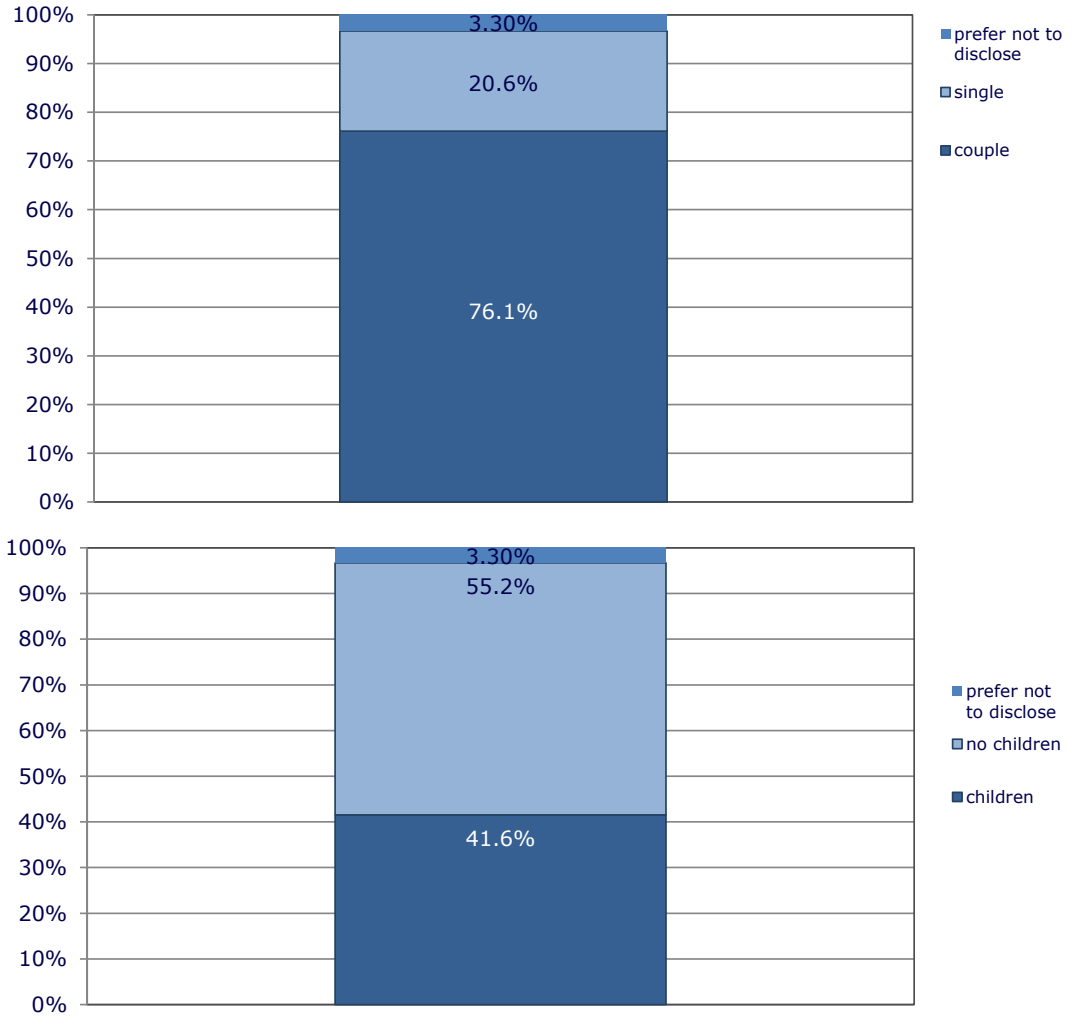
Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU per citizenship (for n>30).

Among the countries of residence, the United States and Canada are the most popular (57% together) followed by Australia and New Zealand (20%). Japan (5%), and China and Singapore (each 3%) have a total of 67 respondents in this sample.

Figure 2 shows that 76% of the researchers are married or cohabiting and 21% are single. 42% of the EU researchers abroad have children.

Figure 2: EU researchers abroad by marital and family status



Source: MORE2 Extra-EU Mobility Survey (2012)

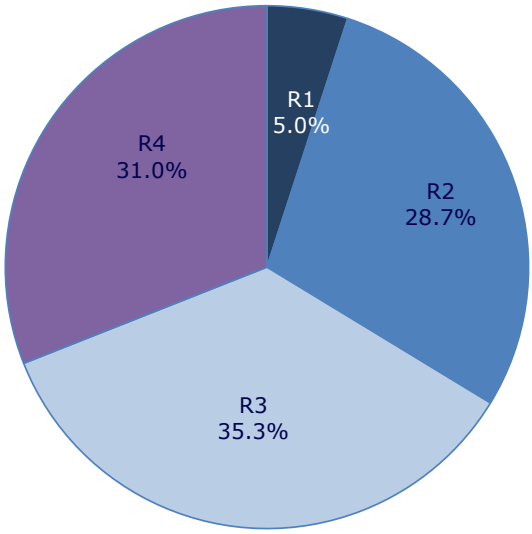
Note: Share of EU researchers currently working outside the EU who are single or in a couple, who have children, no children or who do not disclose their family status (n=641)

4.1.1.2 Current employment as a researcher

Researchers were asked to indicate in which career stage they would currently situate themselves, according to the four stage model used in our study: First Stage researcher (R1), Recognized Researcher (R2), Established Researcher (R3) and Leading Researcher (R4).

Figure 3 shows that for the European researchers currently working outside the EU, the proportion of first stage researchers (R1) is relatively low (5%), whereas the other categories are equally distributed in the sample.

Figure 3: EU researchers abroad by career stage



Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU according to the R1,R2,R3 and R4 career stages (n=641)

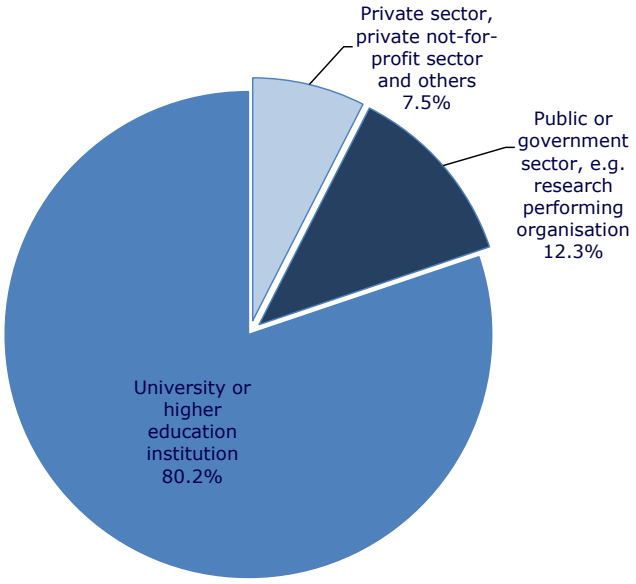
- PhD coverage

Those who indicated that they are first stage researchers (R1) were asked whether they are currently working on a PhD or enrolled in a doctoral program. The group is relatively small, with 29 respondents out of a total of 32 first stage researchers indicating that they are indeed working on a PhD (91%). Most of them are in their second year or third year of study.

- Sector of employment

Looking at the distribution of EU researchers abroad by sector of employment, we observe that 80% is employed at a university or higher education institution and 12% in the public/government sector. About 8% works in the private sector.

Figure 4: EU researchers abroad by sector of employment



Source: MORE2 Extra-EU Mobility Survey (2012)

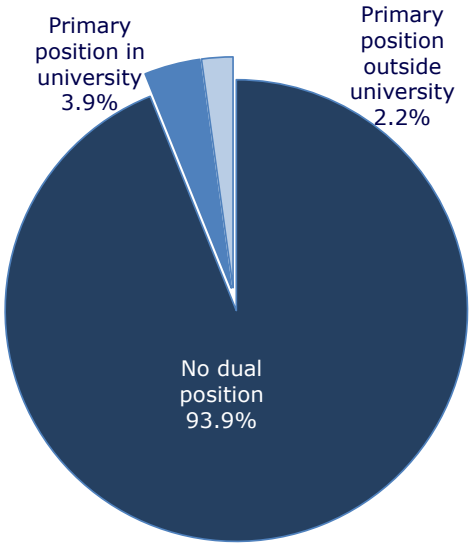
Note: Share of EU researchers currently working outside the EU and by sector of employment (n=641)

- Dual position

Respondents were asked whether they have a so-called "dual position" whereby they are employed both at a university (or generally, a higher education institution) and at another sector, for example the private (profit) sector or the public or non-profit sector (Figure 5).

A small proportion of all the European researchers currently working outside the EU have a dual position (6%). For 25 of these 39 researchers the university is their primary employer and 14 researchers are primarily employed outside the university.

Figure 5: EU researchers abroad by dual positions



Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU which are currently in a "dual position" whereby they are employed both at a university (or generally higher education institution) and in another sector (n=641)

The proportion of researchers with dual positions in Japan and the United States is 7% for both countries, while for Australia it is 3% (based on country of current employer). A comparison with other countries is not meaningful given the small number of observations.

- Working conditions

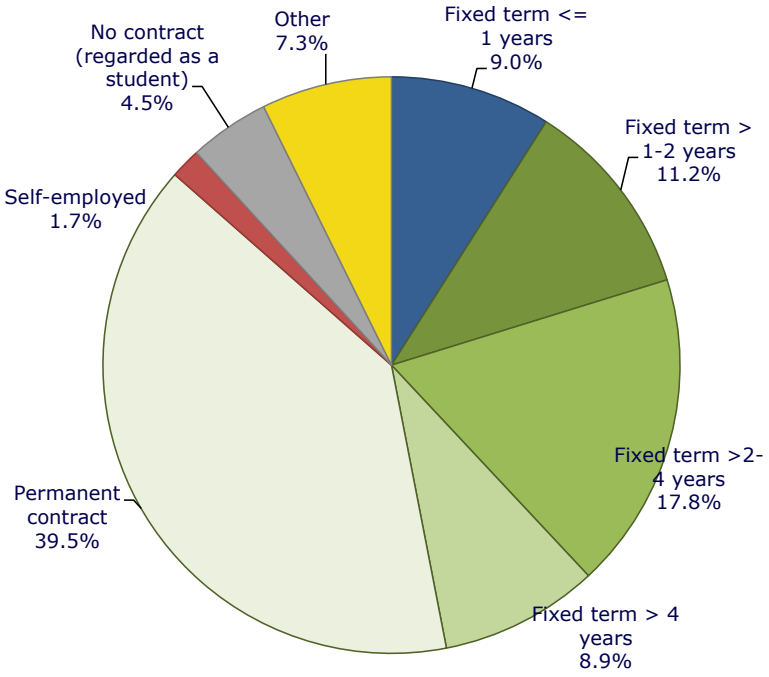
Working conditions refer to the current duration of employment, type of employment contract (fixed term or permanent), type of position (fulltime or part-time) and employment status (civil servant or employee status).

The type of contract is presented in Figure 6. The largest percentage of these researchers have a permanent contract, suggesting that they will be able to stay for a longer time abroad. This large percentage of permanent contracts is most likely related to the large share of R3 and R4 researchers in the sample.[37] Looking at the fixed-term appointments, we notice that the 2-4 years contracts are the

[37] As this survey is not representative, we cannot know if the large representation of R3 and R4 researchers is typical for EU researchers abroad.

most prevalent, followed by the 1-2 years contract. If all the fixed term contracts are taken together they total 47%. Those without a contract can be regarded as (PhD) students, but PhD candidates may also have a fixed-term contract for the duration of their doctoral education.

Figure 6: EU researchers abroad by type of contract

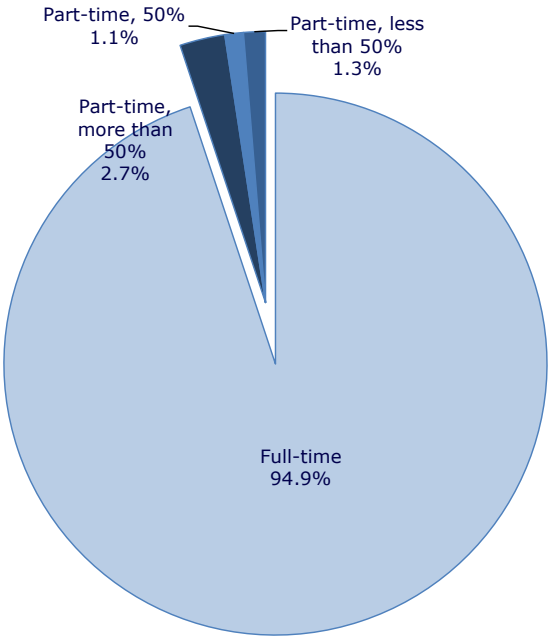


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU by type of contract (no contract is regarded as student) (n=641)

The type of position is differentiated by the proportion of researchers who are working part-time or full-time and is presented in Figure 7. The majority of researchers have a full-time position.

Figure 7: EU researchers abroad by type of position, full- time and part-time

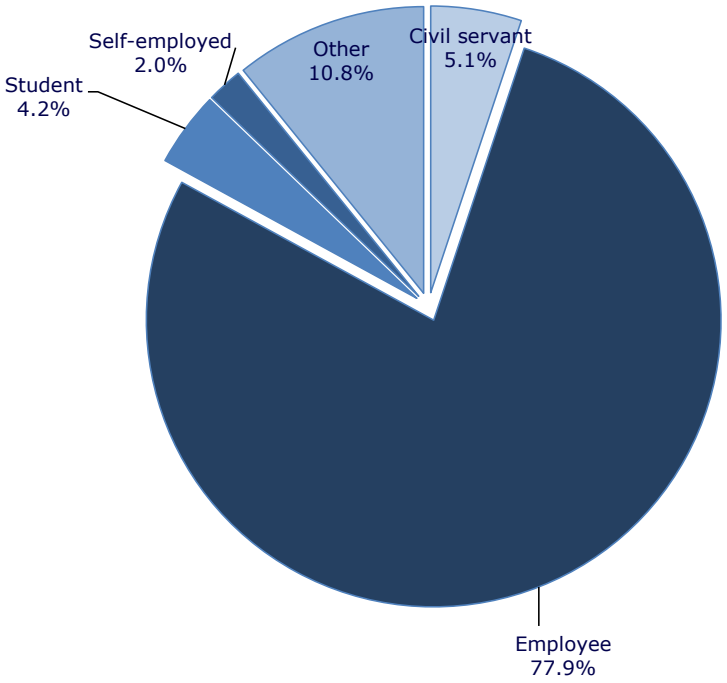


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU by type of position (n=639)

Finally, employment status is presented in Figure 8. The majority of researchers are classified as employees, reflecting the fact the countries where most of the researchers are employed do not have civil service positions (for example, Australia, United States, Canada as well as China and Japan).

Figure 8: EU researchers abroad by employment status



Source: MORE2 Extra-EU Mobility Survey (2012)

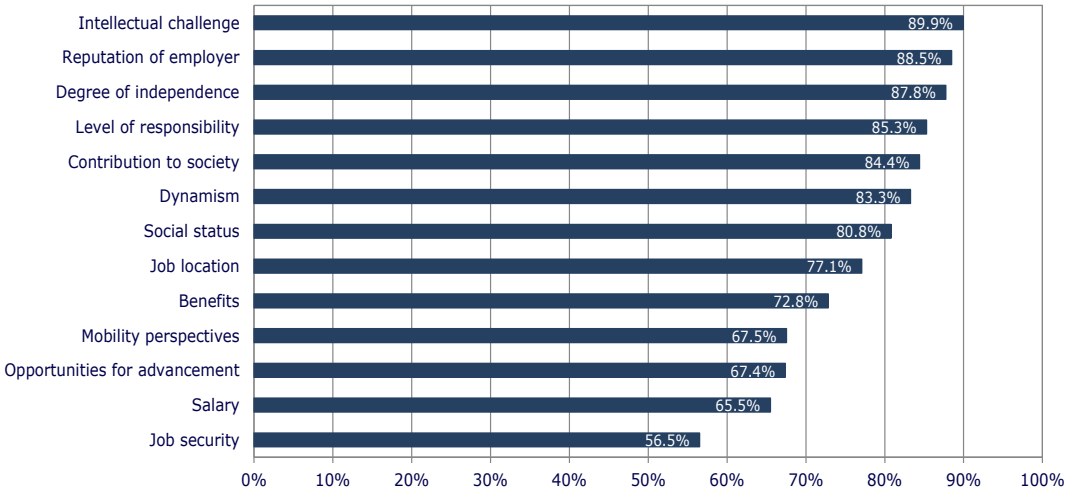
Note: Share EU researchers currently working outside the EU by employment status (n= 641)

- EU researchers' satisfaction with their current position abroad

In order to assess researchers' satisfaction with their current position, a number of factors were presented to them in order for them to indicate whether they were satisfied or dissatisfied. Figure 9 presents an overview of these findings.

It appears that EU researchers who are currently working abroad are quite satisfied with the intrinsic aspects of their position. More than 80% are satisfied with the intellectual challenge it gives them; the reputation of their employer; their degree of independence; their level of responsibility; their contribution to society; the post's dynamism; and their social status. Researchers are less satisfied with some of the more extrinsic aspects of their positions such as benefits, mobility perspectives, salary, and job security (Figure 9).

Figure 9: Degree of satisfaction of EU researchers abroad with different aspects of their current academic position

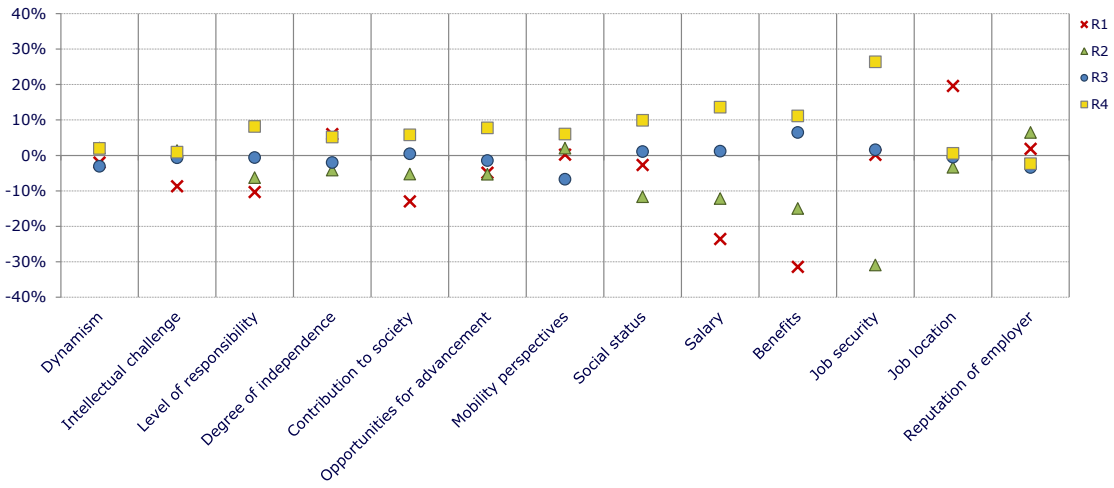


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU that are satisfied with the different aspects of the current academic position (as compare to the researchers answering either satisfied or dissatisfied)(n=626)

There is some difference in satisfaction between researchers at different career stages (Figure 10), mainly concerning salary, benefits and job security. First stage (R1) and recognized (R2) researchers are less satisfied than established (R3) and leading (R4) researchers when it comes to salary and benefits. R4 researchers are the most satisfied with job security. Recognized researchers (R2), on the other hand, are the least satisfied with job security.

Figure 10: Difference in degree of satisfaction of EU researchers abroad with different aspects of their current career stage[38]



	R1	R2	R3	R4	*Total*
Dynamism	81.3%	85.4%	80.2%	85.3%	*83.3%*
Intellectual challenge	81.3%	91.3%	89.3%	90.9%	*89.9%*
Level of responsibility	75.0%	79.0%	84.7%	93.4%	*85.3%*
Degree of independence	93.8%	83.6%	85.7%	92.9%	*87.8%*
Contribution to society	71.4%	79.1%	84.9%	90.2%	*84.4%*
Opportunities for advancement	62.5%	62.1%	65.9%	75.1%	*67.4%*
Mobility perspectives	67.7%	69.6%	60.8%	73.6%	*67.5%*
Social status	78.1%	69.1%	81.9%	90.7%	*80.8%*
Salary	41.9%	53.3%	66.7%	79.1%	*65.5%*
Benefits	41.4%	57.9%	79.3%	83.9%	*72.8%*
Job security	56.7%	25.6%	58.1%	82.9%	*56.5%*
Job location	96.7%	73.7%	76.6%	77.7%	*77.1%*
Reputation of employer	90.3%	95.0%	85.1%	86.2%	*88.5%*

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Difference in degree of satisfaction of EU researchers currently working outside the EU (as compare to the researchers answering either satisfied or dissatisfied) by career stage and the percentage of total satisfaction (n=626)* [39]

We can only make a limited comparison between countries. The satisfaction of researchers employed in the US, Australia and Japan is quite similar in terms of their job location and the reputation of their employer. Furthermore, we observe that researchers employed in Australia and the US are also quite satisfied except for their degree of independence (researchers employed in the US are more satisfied); their opportunities for advancement (researchers employed in the US are more satisfied); and salary (researchers employed in Australia are more satisfied). Researchers employed in Japan are less satisfied with their

[38] The scaling of Figure 11 is different than for the other figures concerning career stage.

[39] Reading note for this type of tables and figures: The share of EU researchers currently mobile outside the EU who are in their doctoral candidate phase or equivalent (R1 researchers) who are satisfied with their salary is less than the total share of researchers who are satisfied about their salary by 23.6 percentage points (pp). The total share is 65.5% whereas the share for R1 researchers is 41.9%

opportunities for advancement, job security, benefits and their mobility perspectives but are more satisfied about their degree of independence and their contribution to society (Table 13).

Table 13: Degree of satisfaction of EU researchers abroad with different aspects of their current academic position by country of current employer

	Australia	Japan	United States	*Total*
Dynamism	80.8%	61.5%	87.8%	*83.3%*
Intellectual challenge	89.3%	76.7%	93.5%	*89.9%*
Level of responsibility	81.7%	65.5%	88.9%	*85.3%*
Degree of independence	77.9%	96.7%	88.9%	*87.8%*
Contribution to society	82.9%	90.0%	83.8%	*84.4%*
Opportunities for advancement	65.5%	40.7%	72.5%	*67.4%*
Mobility perspectives	64.3%	44.4%	70.7%	*67.5%*
Social status	81.4%	75.9%	81.7%	*80.8%*
Salary	82.6%	70.0%	58.6%	*65.5%*
Benefits	80.0%	51.9%	74.2%	*72.8%*
Job security	56.2%	46.7%	57.7%	*56.5%*
Job location	78.5%	79.3%	75.5%	*77.1%*
Reputation of employer	88.3%	89.7%	88.8%	*88.5%*
N =	120	30	369	641

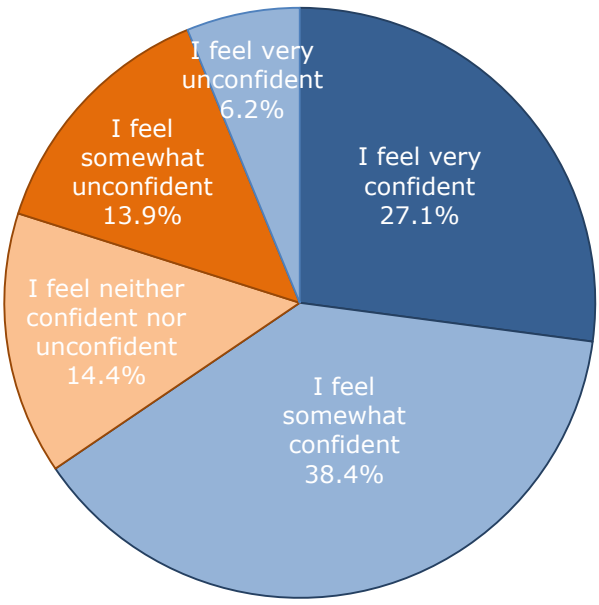
Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers currently working outside the EU who are satisfied with the different aspects of their current academic position (as compare to the researchers answering either satisfied or dissatisfied) by country of current employer (for countries with a response > 30)

- Degree of confidence about future prospects

Asked about their future prospects, Figure 11 illustrates how confident or unconfident researchers feel about their research career. More than 65% say they are confident or very confident about their career as a researcher.

Figure 11: Degree of confidence of EU researchers abroad about future prospects

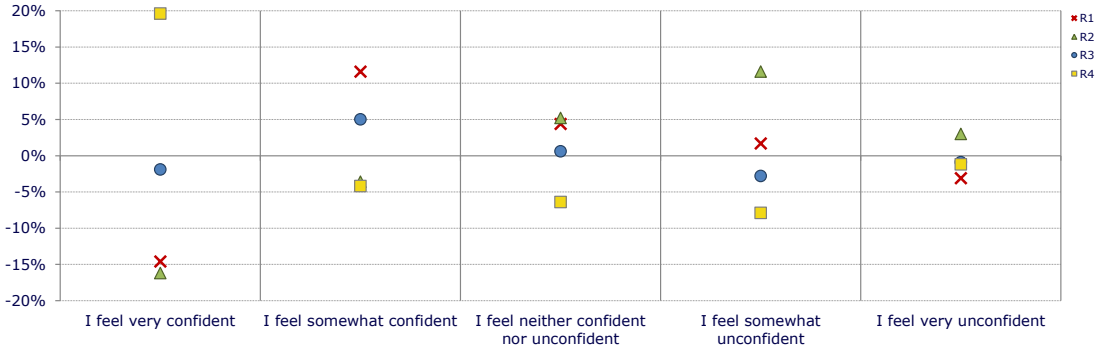


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of EU researchers currently working outside the EU about their future prospects for their research career (n= 641)

Figure 12 illustrates the degree of researcher confidence by career stage. The leading researchers most frequently indicate that they are very confident (48%) or somewhat confident (34%), clearly reflecting their established status in the academic environment. For the R3 researchers the percentages are respectively 25% and 43% and for the first stage researchers (R1) 13% and 50%. The recognized researchers (R2), however, show a much lower level of confidence than the other types of researchers, with 9% feeling very unconfident and 25.5% indicating that they are somewhat unconfident. These researchers are in a position where their future prospects appear to be less certain.

Figure 12: Difference in degree of confidence of EU researchers abroad by career stage



	R1	R2	R3	R4	*Total*
I feel very confident	12.5%	10.9%	25.2%	46.7%	*27.1%*
I feel somewhat confident	50%	34.8%	43.4%	34.2%	*38.4%*
I feel neither confident nor unconfident	18.8%	19.6%	15%	8%	*14.4%*
I feel somewhat unconfident	15.6%	25.5%	11.1%	6%	*13.9%*
I feel very unconfident	3.1%	9.2%	5.3%	5%	*6.2%*

Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Difference in degree of confidence of EU researchers currently working outside the EU about the future prospects by research career and the total degree of confidence (n=641)

If we consider countries outside the EU (n> 30) where European researchers are currently employed, it appears that 65% of the researchers in Australia are somewhat or very confident, 40% in Japan and 68% in the US (Table 14).

Table 14: Degree of confidence of EU researchers abroad by country of current employer

	Australia	Japan	United States	*Total*
I feel very confident	23.8%	13.3%	29.1%	*27.1%*
I feel somewhat confident	41.0%	26.7%	38.3%	*38.4%*
I feel neither confident nor unconfident	16.4%	13.3%	14.0%	*14.4%*
I feel somewhat unconfident	11.5%	40.0%	12.1%	*13.9%*
I feel very unconfident	7.4%	6.7%	6.5%	*6.2%*
N =	122	30	371	641

Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of EU researchers currently working outside the EU about the future prospects for their research career by country of current employer (for countries with a response > 30)

4.1.1.3 Comparing profile characteristics of EU researchers working abroad with researchers working in the EU

In this section, we briefly compare the profile characteristics of EU researchers abroad with those of researchers currently working in the EU (MORE2 EU Higher Education Survey, 2012). These results are informative and need to be carefully interpreted as they concern a different type of researcher. Moreover, this MORE2 Extra-EU Mobility Survey (2012) is not a representative sample of the research population working outside the EU, whereas the MORE2 EU Higher Education Survey (2012) *is* a representative sample of the EU researchers working in the EU.

The two types of researchers were quite similar in terms of some characteristics such as gender, career stage and working conditions:

- 38% of the researchers in the EU are female while about 35% of the EU researchers abroad are female;
- Both have an underrepresentation of first stage (R1) researchers. Most response was obtained from established researchers (R3);
- Permanent contracts, full-time employment and researchers with an employee status occur most often.

The two types of researchers differ when it comes to their family status, age distribution, dual position and levels of satisfaction:

- 10% more EU researchers abroad live as a couple than do researchers in the EU but EU researchers abroad have children less frequently;
- When comparing the age distribution of EU researchers abroad with the age distribution of the researcher working in the EU, we observe that about 73% of EU researchers abroad are under 45 years old whereas this is only 55% for the researcher working in the EU;
- EU researchers abroad less frequently have a dual position (6%) than do researchers in the EU (13%). This difference is mainly attributable to a larger share of researchers in the EU who have a dual position with primary position in university (versus outside university);
- Comparing the degree of satisfaction of researchers working outside the EU with that of those working in the EU, we observe that the EU researchers outside the EU are on average more satisfied with their salary and the benefits received. Researchers working in the EU are on average more satisfied with the job location and job security.

4.1.2 Mobility experience: What are the preferred non-EU destinations of EU researchers abroad?

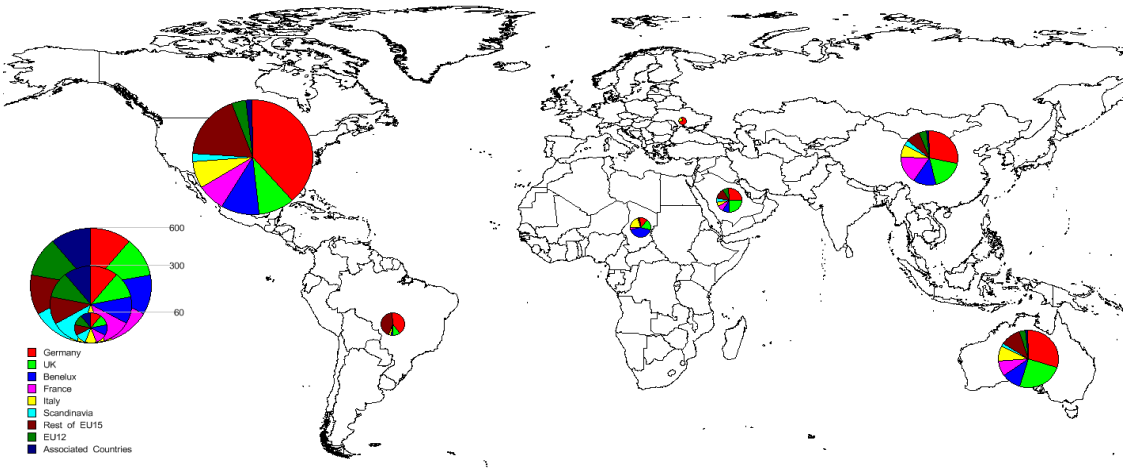
This section presents the mobility experience of EU researchers currently working outside the EU. The indicators are based on non-EU moves and not on the individual researchers. As one researcher can have multiple mobility moves, the number of moves is larger than the number of researchers.

This section covers information on the destination country of mobility, the number of moves with employer change, frequency, duration of contract, type of contract, destination sector and career progression of EU researchers concerning their moves to non-EU destinations.

4.1.2.1 Mobility flow of EU researchers towards non-EU destinations

In total, 1,020 moves to non-EU destinations are registered for 641 EU researchers who are currently working outside the EU. Figure 13 illustrates the main flows of mobility undertaken by EU researchers in terms of individual moves outside the EU.

Figure 13: Map of mobility flows from the EU to other continents



Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Counts of moves from the EU towards non-EU countries of EU researchers currently working outside the EU (n=1,020)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*
- *With country of departure equal to country of citizenship*
- *The size of the circles is proportional to the number of moves*
- *Only flows of 3 moves or more are presented*

Some interesting observations from the mobility flows outside the EU can also be made:

- About 60% of moves outside the EU are towards the US (53%) and Canada (7%).
- Australia (15%) (and New Zealand) also account for a large share of extra-EU mobility
- Japan (5%), China (4%) and Singapore (3%) are the most popular destinations in Asia.
- Comparing regions: North America (59%), Asia (19%), Oceania 17%) account for much outward mobility while mobility towards Central America (1%), South-America (2%) and Africa (3%) is more limited.
- Extra-EU mobility more frequently originates from West and Southern European countries than from Central and Eastern European countries. Germany is most often the country of departure (35%), followed by France (9%), Italy (8%), The Netherlands (6%), Austria (5%), Belgium (5%) and Ireland (3%).

However, these results need to be interpreted with caution. As the results are not based on a representative sample, we do not know whether this large response from the US is due to the large numbers of EU researchers in the US or due to higher levels of willingness to participate to the survey.

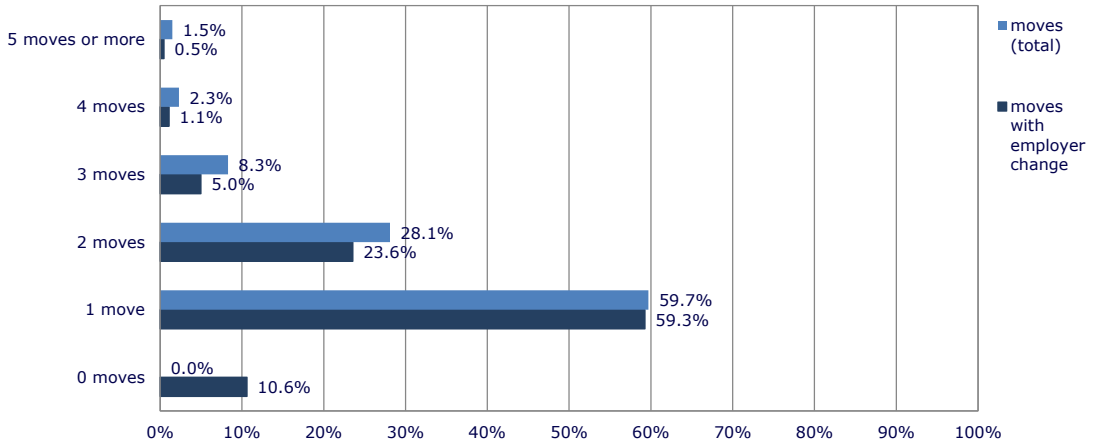
- Frequency of mobility

As indicated in Figure 14, 60% of the EU researchers currently mobile outside the EU have moved abroad only once. 2% of the EU researchers currently mobile outside the EU have moved 5 times or more to non-EU countries.

The average number of moves to non-EU destinations in the last ten years per EU researcher currently working outside the EU is 1.6 moves.

90% of the EU researchers currently working outside the EU indicate that they changed employer for at least one of their moves; 90% had experienced employer mobility at least once during the last 10 years. At the level of the moves, this means that 80% of non-EU moves by EU researchers currently mobile outside the EU are accompanied by a change in employer.

Figure 14: Number of non-EU moves of EU researchers (total and with employer change alone)



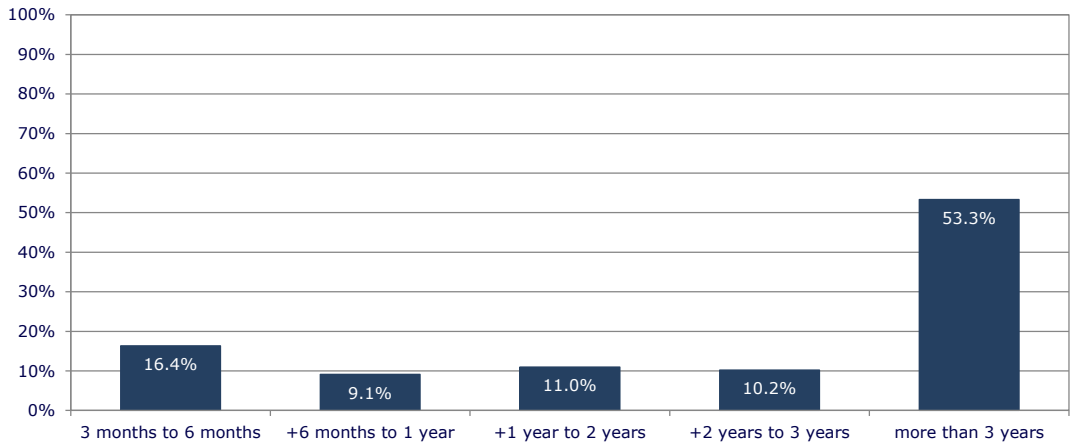
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Distribution of non-EU moves of EU researchers currently working outside the EU; with employer change (n=1,020)*
- *With "moves" defined as moves of three months or more in the last ten years to a country other than the country of citizenship of the researcher*

- Duration of mobility

53% of non-EU moves took place for more than 3 years (Figure 15). 16% of moves lasted less than 6 months.

Figure 15: Duration of non-EU moves by EU researchers



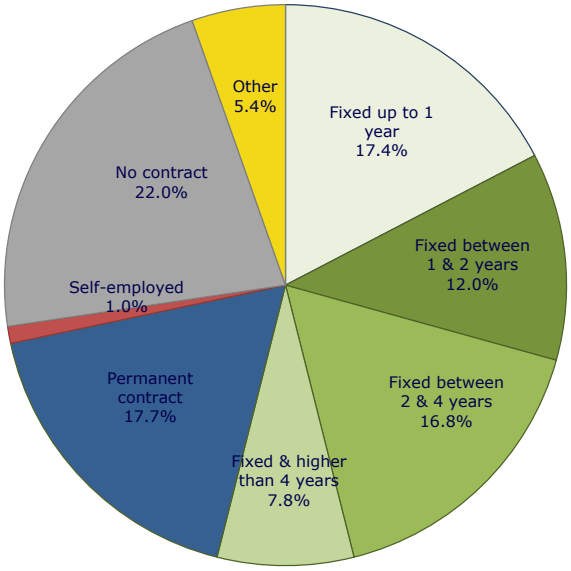
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Distribution of non-EU moves by EU researchers currently working outside the EU over duration categories (n=1,020)*
- *With "moves" defined as moves of three months or more in the last ten years to a country other than the country of citizenship of the researcher*

- Contract type

54% of non-EU moves were undertaken with a fixed contract and 17% with a permanent contract (Figure 16). 22% of the moves took place without a contract.

Figure 16: Contract type for non-EU moves of EU researchers



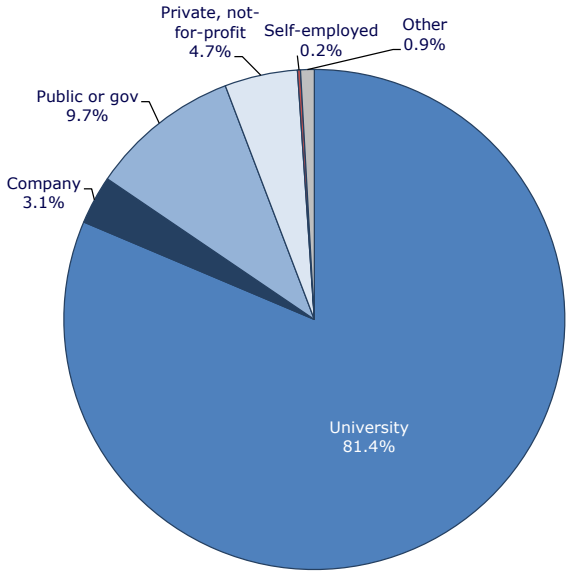
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Distribution of non-EU moves by EU researchers currently working outside the EU over contract type (no contract is regarded as student) (n=1,020)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Destination sector of mobility

81% of non-EU moves by EU researchers are to another university. 10% of moves were to public institutions or government and 3% to companies.

Figure 17: Destination sector for non-EU moves of EU researchers



Source: MORE2 Extra-EU Mobility Survey (2012)

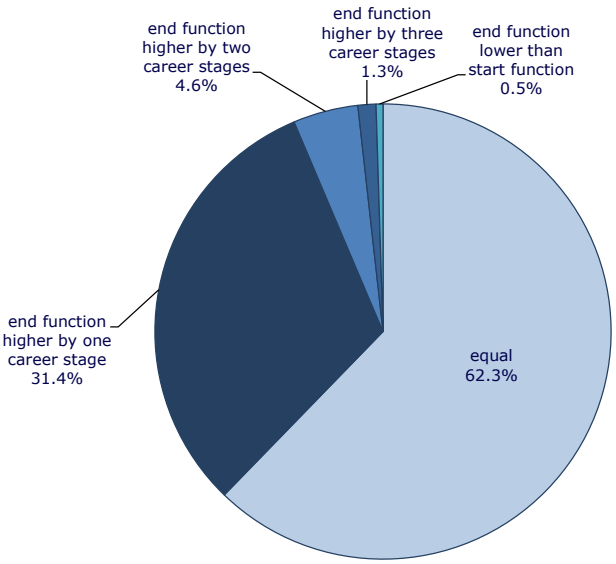
Note:

- *Distribution of non-EU moves of EU researchers that are currently working outside the EU over destination sector (n=1,020)*
- *With moves defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Career progression

In 62% of non-EU moves, no career progression takes place as the end function equals the start function (Figure 18). In 31% of moves, career progression with one step is achieved, 5% with two steps and even 1% of moves leads to career progression from R1 to R4 researcher. Less than 1% of moves lead to a regression of the career with an end function lower than the start function.

Figure 18: Career progression of EU researchers when moving abroad



Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Distribution of non-EU moves by EU researchers currently working outside the EU over shifts in career stage (n=1,020)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

4.1.3 Motives for mobility: What drives EU researchers to non-EU destinations?

This section discusses how EU researchers perceived their motivation for their LAST MOVE OUTSIDE the EU.

A list of 11 motives for mobility was presented to the researcher. Here, a distinction can be made between intrinsic motives (e.g. the desire to perform an activity because of its inherent interest) and extrinsic motives (such as financial or employment benefits). Personal motives are taken as a separate category.

- Intrinsic motives
  - Career progression (positive impact on your future career)
  - Facilities and equipment for your research
  - Working with leading experts (star scientists)
  - Research autonomy
  - Bringing your research to market

- Extrinsic motives
  - Availability of research funding
  - Remuneration (salary, other financial incentives etc.)
  - Job security
  - Working conditions

- Personal motives
  - Personal or family reasons
  - Quality of life

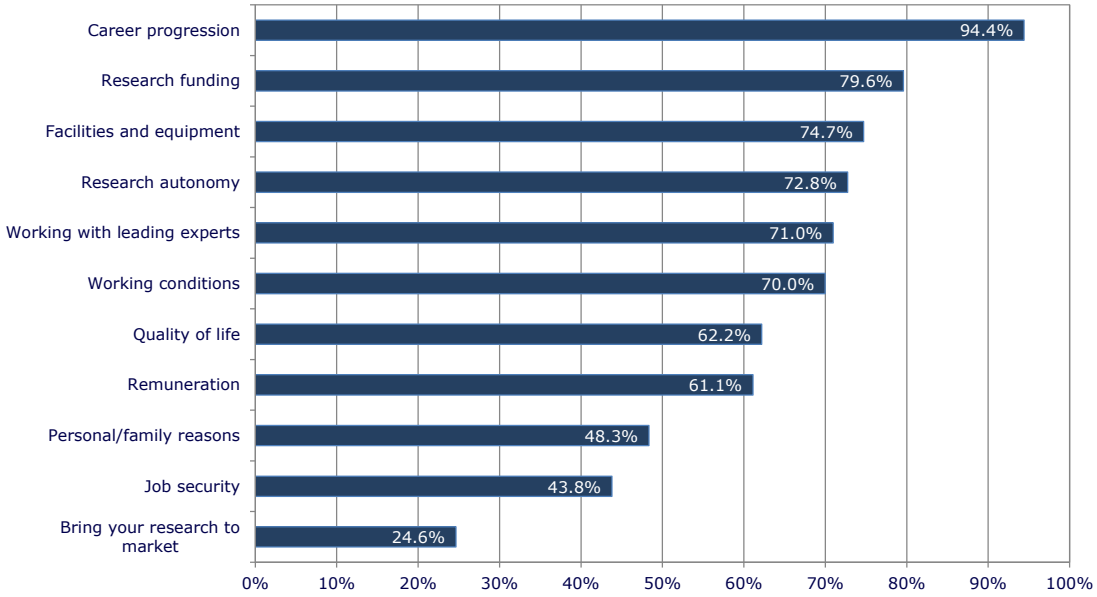
These are no exclusive or counter motives: most frequently the intrinsic motivations need to be externally and financially generated in order to persuade researchers to be internationally mobile. Yet such a broad division can be helpful to unearth a general pattern.

In addition to analysing the main motives for mobility, this section also discusses some comparative perspectives held by EU researchers currently working outside the EU about the EU and beyond.

- Motives for mobility

This section discusses the question: which motives drives EU researchers to work outside the EU? Figure 19 summarizes the results: 94% of EU researchers indicate that career progression was an important motive for mobility outside the EU. The other intrinsic motives are also ranked highly. The extrinsic factors are considered less important for working outside the EU, with the exception of the availability of researcher funding, which 80% of researchers consider to be important. In contrast to the high share of researchers who consider career progression important, we find a low proportion of researchers who indicate that job security and the opportunity to bring research to the market are important motives for mobility.

Figure 19: Motives of EU researchers for moving abroad



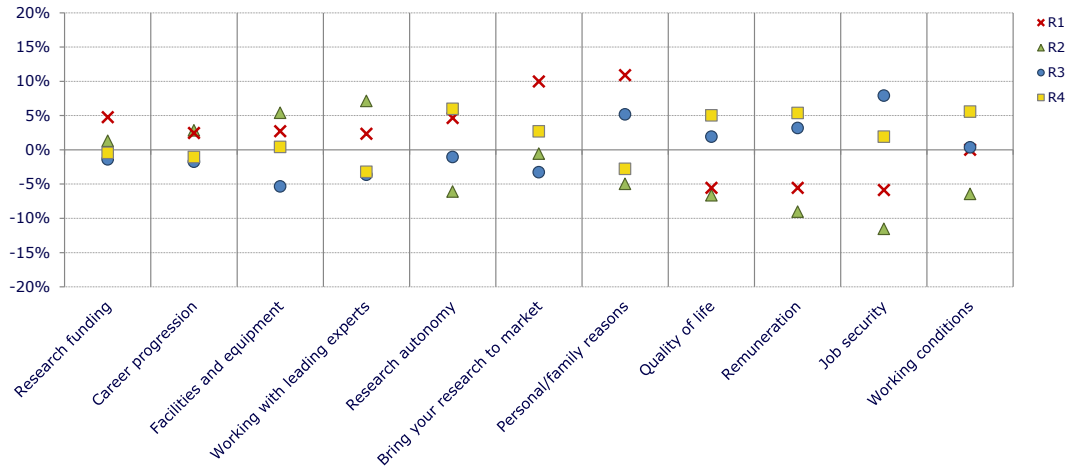
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Share of EU researchers currently working outside the EU who find certain motives important (as compared to researchers answering either important and unimportant) for their most recent non-EU move (n=625)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

When looking at the motives for mobility outside the EU by career stage, it can be observed that first stage (R1) researchers indicate the possibility of bringing research to market and quality of life more frequently as important motives for moving then do R2-R4 researchers. Quality of life, remuneration and job security are valued as being more important for R3 and R4 researchers than for R2 and R1 researchers (Figure 20).

Figure 20: Difference in motives of EU researchers for moving abroad by career stage



	R1	R2	R3	R4	*Total*
Research funding	84.4%	80.9%	78.2%	79.2%	*79.6%*
Career progression	96.9%	97.2%	92.7%	93.3%	*94.4%*
Facilities and equipment	77.4%	80.1%	69.4%	75.1%	*74.7%*
Working with leading experts	73.3%	78.1%	67.3%	67.8%	*71.0%*
Research autonomy	77.4%	66.7%	71.7%	78.7%	*72.8%*
Bring your research to market	34.6%	24.1%	21.4%	27.3%	*24.6%*
Personal/family reasons	59.3%	43.4%	53.5%	45.6%	*48.3%*
Quality of life	56.7%	55.6%	64.1%	67.2%	*62.2%*
Remuneration	55.6%	52.1%	64.3%	66.5%	*61.1%*
Job security	37.9%	32.3%	51.7%	45.7%	*43.8%*
Working conditions	70.0%	63.5%	70.3%	75.5%	*70.0%*

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Difference between share of EU researchers currently working outside the EU per career stage who find certain motives important (as compared to researchers answering either important or unimportant) for their most recent non-EU move and the total share of EU researcher currently mobile outside the EU that find certain motives important (as compared to important or unimportant) (n=608)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers.*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Bringing research to the market, research autonomy, job security and working conditions are more important motives for the mobility of females than of male researchers, but the difference is only marginal.

As the number of respondents only exceeds 30 for France, Germany, Austria, the Netherlands, Italy and the UK, we will only compare the motives for mobility for the researchers originating from these countries. For EU researchers from these countries, career progression is the main motive for mobility. When looking at the opportunity to obtain research funding, this appears to be important for Italian (94%), Austrian (87%), French (87%), German (78%), and UK researchers (74%). A large proportion of the Italian (78%), Austrian (77%), French (76%), German (76%), and UK researchers (70%) consider the availability of facilities and equipment important. Job security is generally ranked as fairly low as a reason for non-EU mobility (44%) but 61% of UK researchers indicated that it was an important motive for their move beyond the EU.

Table 15: Motives of EU researchers for moving abroad by citizenship

	Austria	France	Germany	Italy	Netherlands	United Kingdom	*Total*
Research funding	87.1%	87.2%	78.1%	94.2%	62.5%	73.7%	*79.6%*
Career progression	87.5%	97.8%	96.9%	98.2%	90.9%	89.8%	*94.4%*
Facilities and equipment	77.4%	75.6%	75.7%	78.2%	56.3%	69.9%	*74.7%*
Working with experts	78.1%	76.1%	74.2%	74.5%	57.6%	58.1%	*71.0%*
Research autonomy	66.7%	80.9%	72.2%	77.4%	68.8%	70.5%	*72.8%*
Bring your research to market	10.7%	30.2%	25.1%	23.4%	17.9%	16.9%	*24.6%*
Personal/family reasons	32.1%	57.8%	43.3%	45.8%	45.2%	68.5%	*48.3%*
Quality of life	60.0%	65.2%	58.7%	55.8%	53.3%	80.4%	*62.2%*
Remuneration	50.0%	68.9%	52.6%	78.2%	56.7%	61.3%	*61.1%*
Job security	37.0%	47.5%	41.5%	32.7%	20.0%	61.3%	*43.8%*
Working conditions	76.7%	77.8%	71.6%	72.2%	56.7%	68.1%	*70.0%*
N =	32	47	228	55	33	98	625

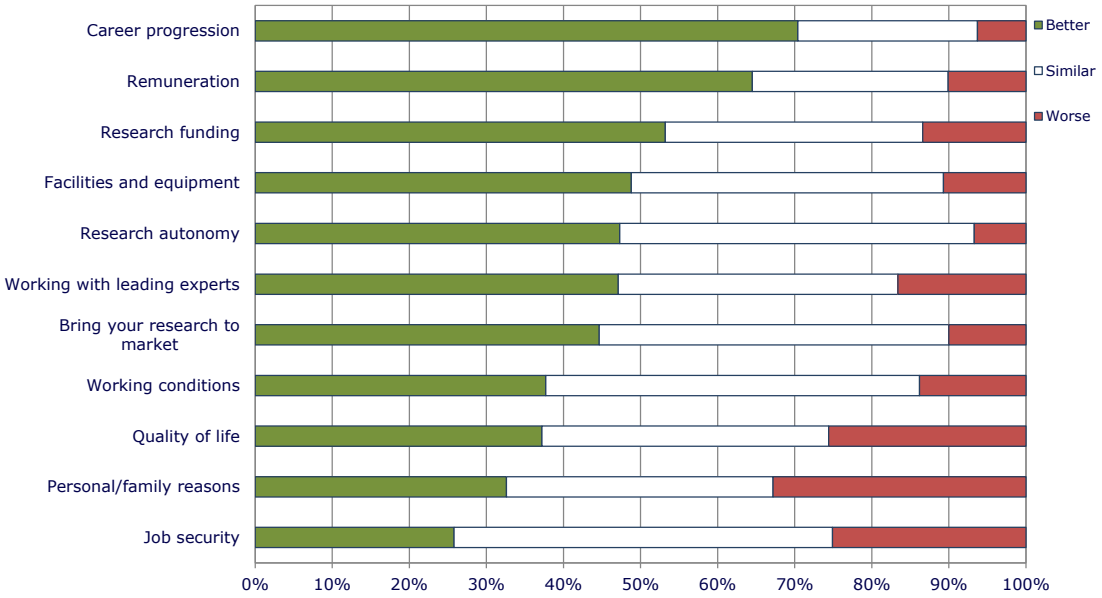
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researcher currently working outside the EU who find certain motives important (as compared to researchers answering important and unimportant) for their most recent non-EU move, by country of citizenship (n=625)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Comparative perspective between EU and non-EU

In order to be able to compare some information related to mobility, researchers were asked to indicate whether certain factors are worse, similar or better in non-EU countries compared to the EU. For example, career progression was indicated by 70% of the EU researchers as being better in the EU than abroad, by 23% as being similar and by 6% as being worse. Remuneration is perceived to be better abroad by 65% of the EU researchers, as similar by 25% and worse by 10% (Figure 21). Therefore, a large share of EU researchers abroad thinks that career progression and remuneration are better in non-EU countries relative to the EU. Concerning personal/family life and job security, a similar percentage of researchers indicated that these factors are better respectively worse in non-EU countries than in the EU.

Figure 21: The extent to which working in the EU compares to working outside the EU



	Better	Similar	Worse
Research funding	53.2%	33.4%	13.4%
Career progression	70.4%	23.3%	6.3%
Facilities and equipment	48.8%	40.5%	10.7%
Working with experts	47.1%	36.3%	16.6%
Research autonomy	47.3%	46.0%	6.7%
Bring your research to market	44.6%	45.3%	10.0%
Personal/family reasons	32.6%	34.6%	32.8%
Quality of life	37.2%	37.2%	25.6%
Remuneration	64.5%	25.4%	10.1%
Job security	25.8%	49.1%	25.1%
Working conditions	37.7%	48.5%	13.8%

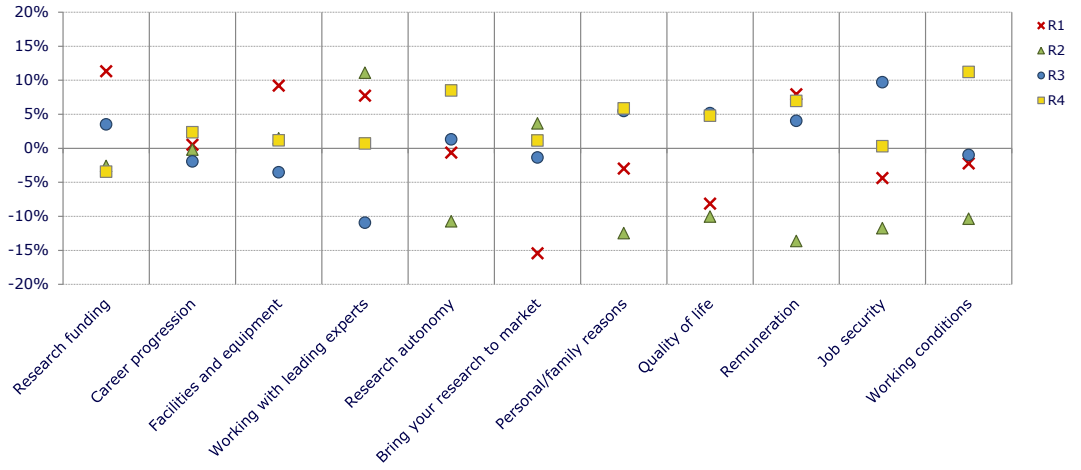
Source: MORE2 Extra-EU Survey (2012)

Note:
- *Factors of importance for mobility which are better (as compared to researchers answering better, similar or worse) for non-EU countries than for EU countries (n=615)* [40]
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

There is some difference in perception in terms of the career stage. Personal/family life, quality of life and job security are perceived more frequently as better in non-EU countries than in the EU by established (R3) and leading (R4) researchers than for first stage (R1) and recognized (R2) researchers (Figure 22).

[40] Reading note for this type of tables and figures: 53.20% of EU researchers that are currently mobile towards non-EU country find research funding better in non-EU country than in the EU. 33.40% value research funding similar between non-EU and EU and 13.40% indicate that research funding is worse in non-EU countries than in the EU.

Figure 22: Difference in the extent to which working in the EU is comparable to working outside the EU by career stage



	R1	R2	R3	R4	*Total*
Research funding	64.5%	50.6%	56.7%	49.7%	*53.2%*
Career progression	71.0%	70.2%	68.5%	72.8%	*70.4%*
Facilities and equipment	58.1%	50.3%	45.3%	50.0%	*48.8%*
Working with leading experts	54.8%	58.2%	36.2%	47.8%	*47.1%*
Research autonomy	46.7%	36.6%	48.6%	55.8%	*47.3%*
Bring your research to market	29.2%	48.2%	43.3%	45.7%	*44.6%*
Personal/family reasons	29.6%	20.1%	38.1%	38.5%	*32.6%*
Quality of life	29.0%	27.1%	42.3%	42.0%	*37.2%*
Remuneration	72.4%	50.8%	68.5%	71.4%	*64.5%*
Job security	21.4%	14.0%	35.5%	26.1%	*25.8%*
Working conditions	35.5%	27.4%	36.7%	48.9%	*37.7%*

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Factors of importance for mobility that are better (as compared to researchers answering better, similar or worse) for non-EU countries than for EU countries per career stage (n=619)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

There are also some small differences in perception in terms of the researcher's gender. Working with experts is perceived as better outside the EU than in the EU for female researchers. Personal/family life is better in non-EU countries relative to the EU for male researchers than for their female counterparts.

Again, only responses from researchers from France, Germany, Austria, Italy, the Netherlands and the UK can be compared (n>30) (Table 16). Generally, 65% of the EU researchers who moved to non-EU countries indicated that remuneration is better abroad. Of the French and Italian researchers abroad, 84% indicated that their remuneration is better than in the EU. For German researchers abroad, the percentage who consider their remuneration abroad to be better is lower (56%) than for French and Italian researchers. Career progression is indicated as better abroad than in the EU by 70% of EU researchers. For UK researchers, 60% consider career progression opportunities outside the EU as being better. 63% of the UK researchers also indicate that quality of life is better abroad than in the EU, which is rather high compared to EU researchers from Austria (16%), the Netherlands (27%), France (34%), Germany (31%) and Italy (40%). A

comparison with other countries is not meaningful given the small number of observations.

Table 16: Differences between working in Europe compared to working outside of Europe by country of citizenship

	Austria	France	Germany	Italy	Netherlands	United Kingdom	*Total*
Research funding	69.0%	77.8%	38.6%	80.0%	40.6%	51.0%	*53.2%*
Career progression	75.9%	73.9%	70.4%	81.5%	71.0%	60.0%	*70.4%*
Facilities and equipment	62.1%	56.5%	42.9%	70.4%	30.0%	42.3%	*48.8%*
Working with experts	51.7%	44.4%	55.0%	39.6%	35.5%	25.0%	*47.1%*
Research autonomy	55.2%	58.7%	47.5%	51.9%	37.5%	41.4%	*47.3%*
Bring your research to market	57.9%	34.5%	43.9%	61.1%	36.8%	29.2%	*44.6%*
Personal/family reasons	19.2%	27.9%	22.1%	30.4%	30.8%	57.6%	*32.6%*
Quality of life	16.7%	34.8%	31.6%	40.7%	26.7%	63.6%	*37.2%*
Remuneration	66.7%	84.8%	56.9%	83.6%	61.3%	61.6%	*64.5%*
Job security	20.7%	10.9%	26.8%	20.0%	25.8%	36.8%	*25.8%*
Working conditions	46.7%	46.7%	33.3%	57.4%	26.7%	38.4%	*37.7%*
N =	30	46	226	55	32	100	619

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Factors of importance for mobility that are better (as compared to researchers answering better, similar or worse) for non-EU countries than for EU countries by country of citizenship (for countries with a response > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

4.1.4 Network and collaboration: Does non-EU mobility encourage research collaboration?

In this section we focus on the collaborative behaviour of EU researchers currently working abroad. In particular, we look at their current research connections to the EU; the type of research collaboration in which they are involved; the effects of their mobility experience on such , and the influence of virtual technologies on both their collaboration and mobility patterns.

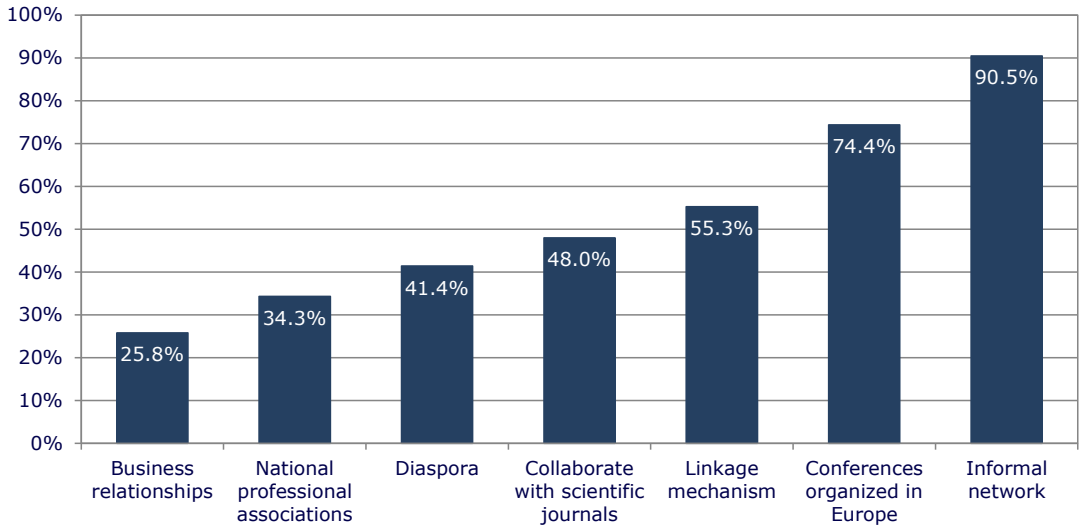
4.1.4.1 Network effects

European researchers working abroad like to keep 'connections' with European research or researchers. In fact, 91% of the respondents maintain collaborative activities via official "diaspora" networks (i.e. networks of nationals from their country/Europe of origin living abroad); informal networks formed by friends, acquaintances or colleagues from their country of origin or Europe; linkage mechanisms such as research visits, training, joint projects, mentoring, or fundraising; business relationships with their country of origin or Europe; national professional associations in their country of origin or Europe; scientific journals; and/or in conferences organized in Europe.

Figure 23 shows the distribution of such connections by type. Unsurprisingly, the most popular way European researchers abroad keep connected to Europe is via informal networks (91%). Attending conferences organized in Europe is the second most common way to be connected with European research or their European colleagues (74% of respondents). 55% maintain their connection with European researchers via linkage mechanisms such as those listed above. Nearly half of the respondents connected report collaboration via scientific journals from

their country or Europe (48%). A large number of EU researchers working abroad keep their contact with Europe thanks to official "diaspora" networks (41%), while their connections via national professional associations (34%) or business relationships (26%) are less frequent.

Figure 23: Type of EU connections of EU researchers abroad



Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researchers currently working outside the EU who indicate that they maintain current connections with the EU via specific types of connection (n=577)*
- *Multiple connection types per respondent are possible*

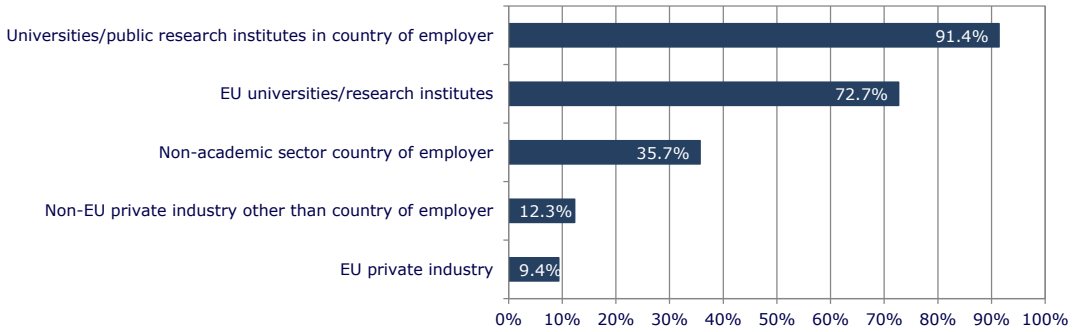
4.1.4.2 Collaboration effects

- Types of research collaboration

European researchers working abroad are active collaborators; indeed, 95% of them worked together in the last 12 months. Furthermore, while in the past 12 months, 16% collaborated with a single partner, 46% and 24% report that they have worked with two and three partners respectively.

Figure 24 shows the distribution over sectors of collaboration. As one would expect, European researchers working abroad most frequently collaborate with researchers at a local university or public research institute (91%). However, a large proportion of the respondents working abroad who collaborate reported that this takes place with researchers from EU universities or research institutes (73%). This proportion is double the size of those reporting collaboration with partners affiliated with non-academic institutes located in their country of employment (35%). 12% reported collaboration with partners from private industry from a third country, while 9% worked with partners from EU private industry.

Figure 24: Sectors of collaboration of EU researchers abroad

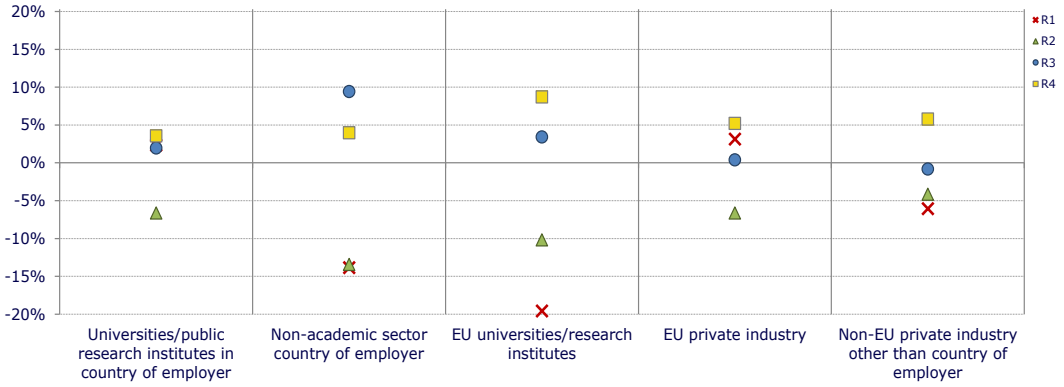


Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researchers currently working outside the EU who indicate that they have collaborated with specific sectors in the previous 12 months (n=641)*
- *Multiple collaboration types per respondent are possible*

Collaboration patterns change depending on the stage of the researcher's career. As suggested in Figure 25, the more advanced their career, the more a researcher values their collaboration with EU universities or research institutes. The same pattern is true regarding research collaboration with non-EU private industry from other than country of employer. Although collaboration with private industry, be it EU or non-EU, is relatively low amongst all the researchers surveyed, interestingly, first stage researchers (R1) appear more likely to collaborate with EU private industry than with non-EU private industry from a third country (12% versus 6% respectively). However, this trend reverses with career progression.

Figure 25: Difference in sectors of collaboration for EU researchers abroad by career stage



	R1	R2	R3	R4	*Total*
Universities/public research institutes in country of employer	93.8%	84.8%	93.4%	95.0%	*91.4%*
Non-academic sector country of employer	21.9%	22.3%	45.1%	39.7%	*35.7%*
EU universities/research institutes	53.1%	62.5%	76.1%	81.4%	*72.7%*
EU private industry	12.5%	2.7%	9.7%	14.6%	*9.4%*
Non-EU private industry other than country of employer	6.3%	8.2%	11.5%	18.1%	*12.3%*

Source: MORE2 Extra-EU Mobility Survey (2012)

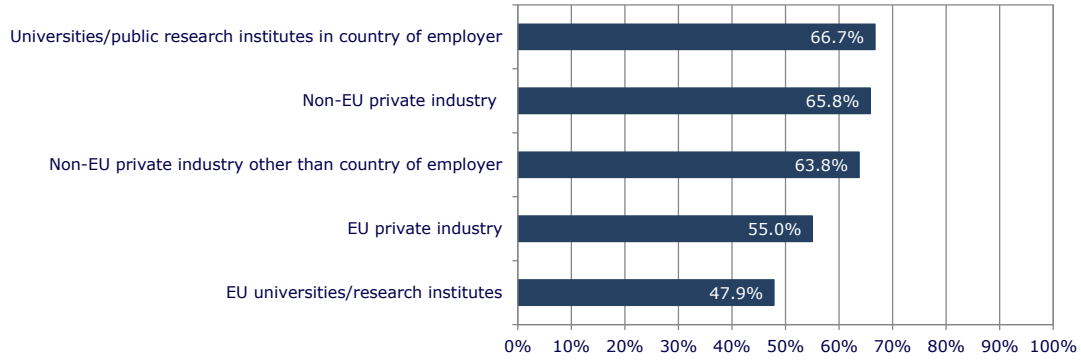
Note:

- *Difference between share of EU researchers currently working outside the EU who indicate that they collaborate with each sector per current career stage and total share of all career stages (n=641)*
- *Multiple collaboration types per respondent are possible*

- Research collaboration as a result of mobility experience

Research collaboration appears to be an important outcome of mobility. In fact, 72% of the respondents claim that research collaboration which took place in the past 12 months was thanks to a previous mobility experience. As shown in Figure 26, less than half of the respondents who worked with EU universities claim that their collaboration resulted from a prior mobility experience, and nearly half of the respondents who worked with EU private industry indicate that their collaboration resulted from a previous mobility experience. In contrast, more than half of the respondents who collaborated with the other types of partners indicate that such research took place thanks to prior mobility. More research on this topic would be necessary to understand this pattern as no conclusive differences can be drawn from the data available at this time.

Figure 26: Share of EU researchers abroad who indicate that collaboration is a direct result of a prior mobility experience



Source: MORE2 Extra-EU Mobility Survey (2012)

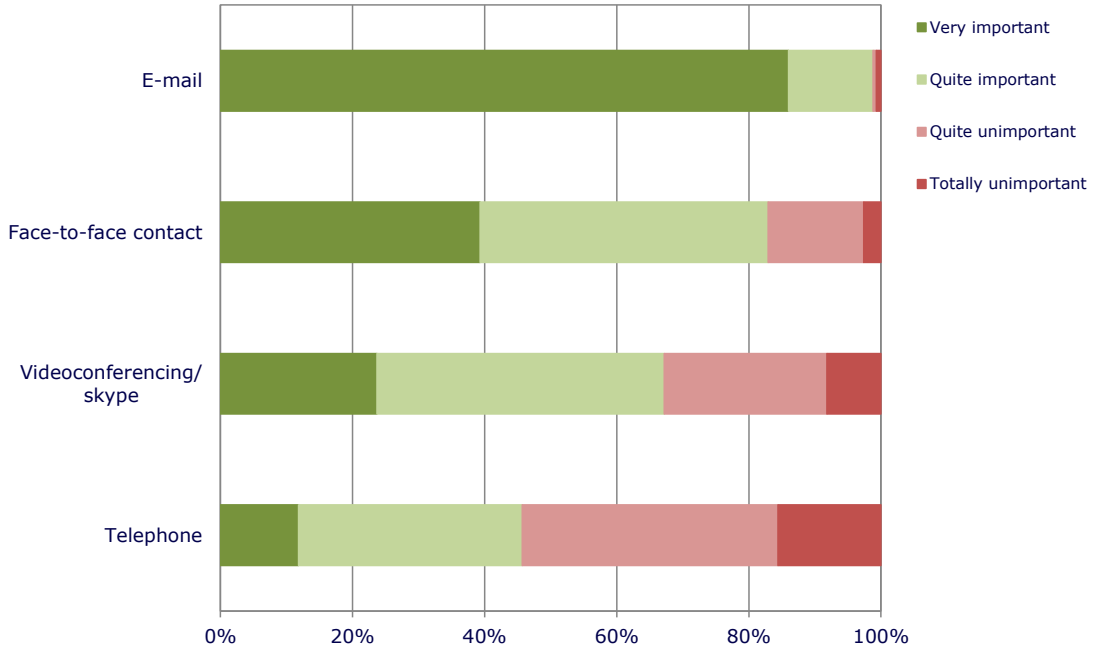
Note:

- *Share of EU researchers currently working outside the EU who indicate that they have collaborated in the previous 12 months with specific sectors as a result of mobility experience (n=641)*
- *Multiple collaboration types per respondent are possible*

- Influence of virtual technology

European researchers working abroad value the effect of virtual technologies on research in different ways. While most of them indicate that e-mail is quite important or very important, the majority think that telephone interaction is either quite unimportant or totally unimportant. Moreover, face-to-face interaction is still judged to be more important than telephone interaction and videoconferencing/skype. Based on the survey, and as Figure 27 shows, the most important interaction means for researchers is E-mail, followed by face-to-face contact, videoconferencing/skype and at last, by telephone.

Figure 27: The importance of interaction via web-based or virtual technology for collaboration of EU researchers abroad



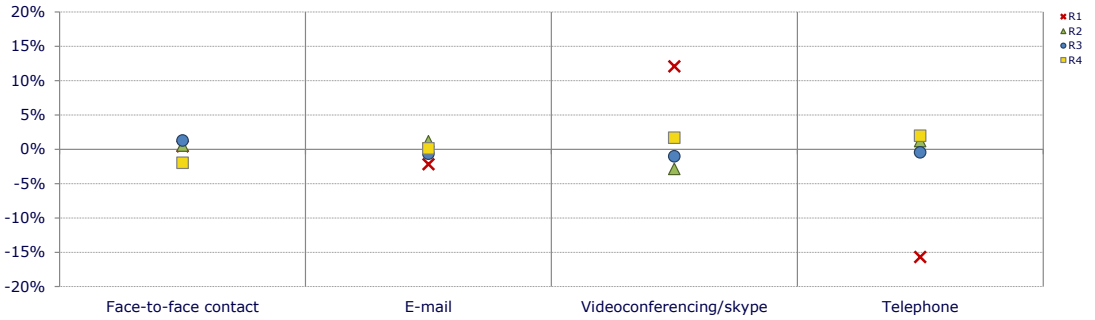
	Very important	Quite important	Quite unimportant	Totally unimportant
Face-to-face contact	39.3%	43.6%	14.5%	2.6%
E-mail	86.0%	12.8%	0.5%	0.7%
Videoconferencing/skype	23.7%	43.5%	24.6%	8.2%
Telephone	11.8%	33.9%	38.7%	15.6%

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researchers currently working outside the EU who indicate level of importance of web-based or virtual technology on research (n=641)*
- *Multiple interaction types per respondent are possible*

There seems to be a different pattern of technology use by career stage. As Figure 28 shows, while first stage researchers (R1) are more likely to use videoconference than do other researchers, they are less likely to use telephone than researchers during later career stages.

Figure 28: Distribution of the importance of interaction via web-based or virtual technology for collaboration by EU researchers abroad by career stage



	R1	R2	R3	R4	*Total*
Face-to-face contact	83.3%	83.4%	84.2%	80.9%	*82.9%*
E-mail	96.7%	100.0%	98.2%	99.0%	*98.9%*
Videoconferencing/Skype	79.3%	64.4%	66.2%	68.9%	*67.2%*
Telephone	30.0%	46.9%	45.2%	47.7%	*45.7%*

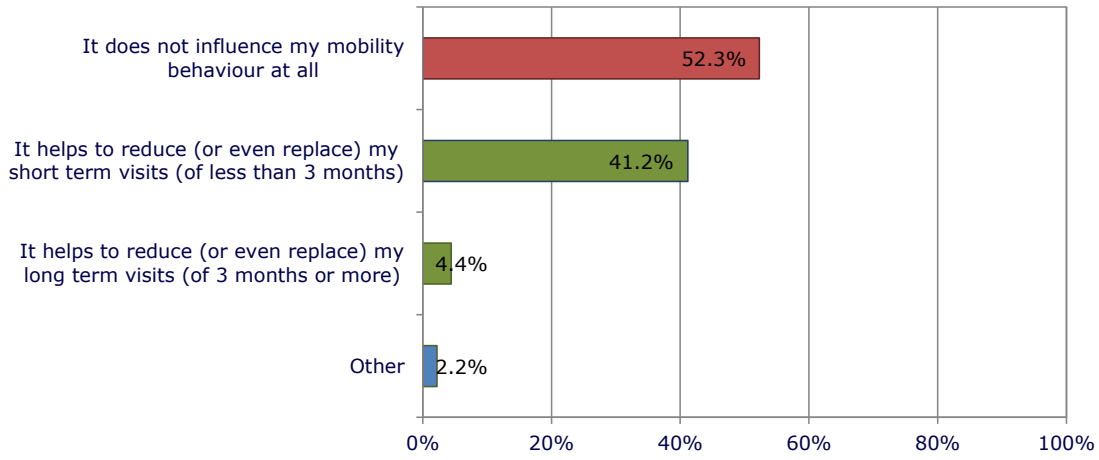
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Difference between share of EU researchers currently working outside the EU who indicated that virtual technology supporting their collaboration activities as being (very) important (as compared to researchers indicating (very)important or (very)unimportant) by current career stage and total share of all career stages (n=641)*
- *Multiple collaboration types per respondent are possible*

- Virtual mobility

The use of web-based or virtual technology in collaboration influences somewhat the mobility behaviour and decisions made by European researchers working abroad. In particular, their effects depend on the duration of the period overseas. Thus, as Figure 29 shows, while the majority of EU researchers working abroad think that the use of web-based or virtual technology does not influence their mobility behaviour or decisions at all (52%), 41% indicate that it helps to reduce (or even replace) their short term visits (of less than 3 months), and only 4% indicate that it helps to reduce (or even replace) their long term visits (of more than 3 months).

Figure 29: EU researchers abroad indicating reduction of visits due to web-based or virtual technology

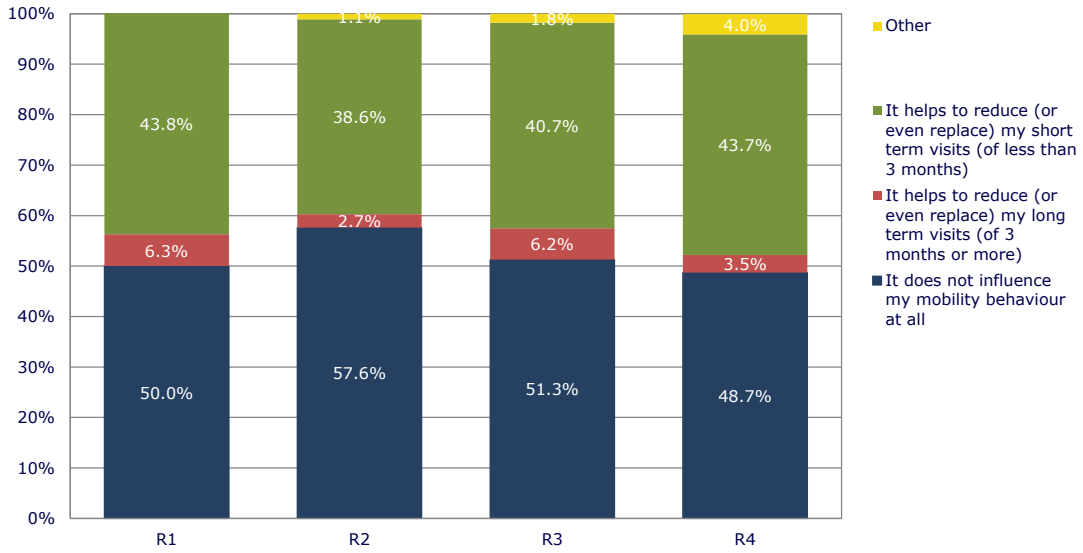


Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researchers currently working outside the EU who indicate the effect of web-based or virtual technology on their mobility behaviour or decision (n=641)*
- *Multiple interaction types per respondent are possible*

The effect of web-based or virtual technology on mobility behaviour or decisions varies slightly by career stage. Figure 30 shows that although it has no effect on the majority of researchers overall, it tends to help reduce (or even replace) mobility (short and long term) more amongst R1 researchers than among researchers at other career stages.

Figure 30: Share of researchers indicating reduction of visits due to web-based or virtual technology by career stage



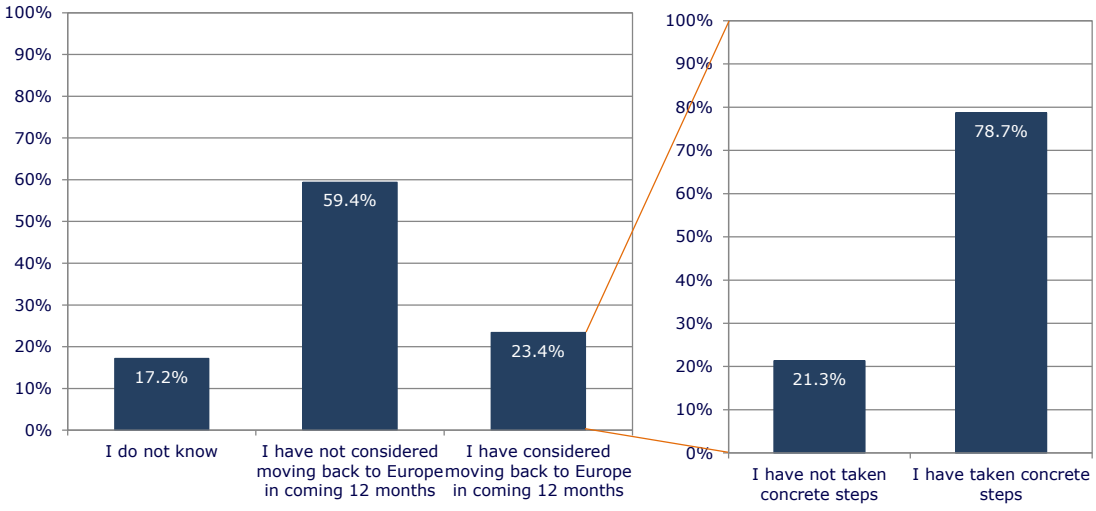
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of EU researchers currently working outside the EU who indicate the effect of web-based or virtual technology on their mobility behaviour or decision per career stage (n=641).*
- *Multiple effects per respondent are possible.*

4.1.5 Return potential of EU researchers

This section discusses the return potential of EU researchers currently mobile outside the EU. We specifically queried to what extent EU researchers consider moving back to the EU in the coming 12 months. Figure 31 shows that 23% of EU researchers currently abroad considered moving back to Europe in the coming 12 months. Further important information is that 87% of the EU researchers actually changed employer when moving abroad. This means that a high percentage of EU researchers engage in employee mobility when moving abroad.

Figure 31: Return potential prospects of EU researchers abroad



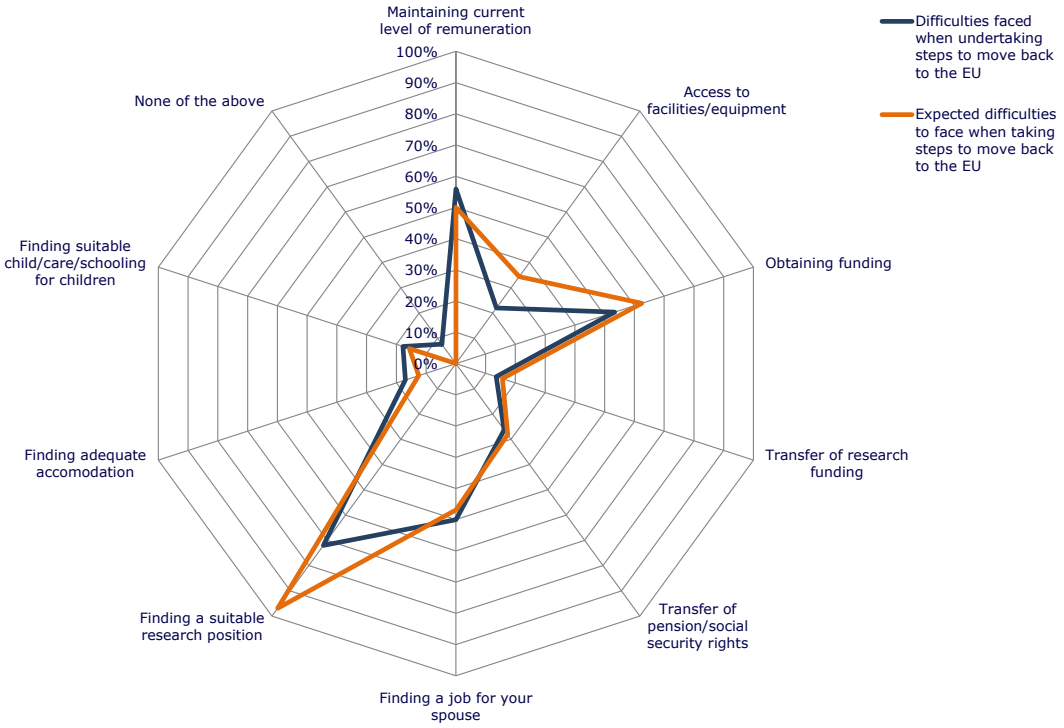
Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researcher currently working outside the EU who indicated that they have considered moving back to Europe in the coming 12 months (n=641) AND when they considered moving back to Europe if they had already taken concrete steps or not (n=150)

When comparing the return potential of EU researchers by country of citizenship, we note that researchers from the UK less frequently considered moving back to the EU (9%) than did Italian (20%), Dutch (21%), Austrian (28%), German (31%) and French (31%) researchers.

When comparing the difficulties faced by researchers who have taken concrete steps to return to the EU (79%) and the difficulties that are expected to arise for researchers who have not taken any concrete steps to return yet (21%) (Figure 32), we observe that finding a suitable research position is, in both cases, perceived as being difficult by most of the researchers, though even more so by researchers who have not taken any steps to return yet. The top four difficulties likely to be faced by returnees is actually the same for those who have already taken concrete steps to return and those who have not; finding a suitable research position, maintaining current levels of remuneration, obtaining funding and one's spouse finding employment.

Figure 32: Difficulties and expected difficulties faced by EU researchers abroad when moving back to Europe



	Difficulties faced when undertaking steps to move back to the EU	Expected difficulties to face when taking steps to move back to the EU
Maintaining current level of remuneration	55.9%	50.0%
Access to facilities/equipment	22.0%	34.4%
Obtaining funding	53.4%	62.5%
Transfer of research funding	13.6%	15.6%
Transfer of pension/social security rights	26.3%	28.1%
Finding a job for your spouse	50.0%	46.9%
Finding a suitable research position	72.0%	96.9%
Finding adequate accomodation	16.9%	12.5%
Finding suitable child/care/schooling for children	17.8%	15.6%

Source: MORE2 Extra-EU Mobility Survey (2012)

Note: The difficulties faced by EU researchers currently working outside the EU when undertaking steps to return to the EU (n=118) versus the difficulties that EU researchers currently abroad expect to face when undertaking steps to return to the EU(n=32) (n total=150)

4.2 Non-EU researchers who have worked in the EU in the past

This section presents the indicators for non-EU researchers (according to citizenship) who have worked in the EU in the past for more than 3 months. The main characteristic of these researchers is that they had moved to the EU in the PAST and thus are currently not living in the EU. The sample size of this group is 778 researchers.

First, we sketch the profile characteristics of this group of non-EU researchers who have moved to the EU in the past. Next, an overview of their mobility pattern towards the EU is presented. In the third section we discuss the motives, effects and barriers that are associated with their move to the EU. Here we focus on the last EU move of non-EU researchers at the level of the individual researcher. The network and collaboration effects of mobility are discussed in section four. Subsequently the issues of retention and drivers to leave the EU are analysed.

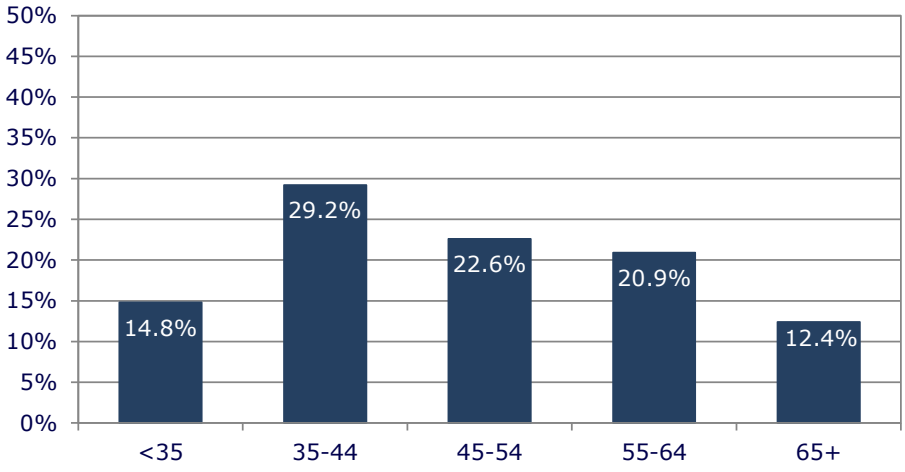
4.2.1 Profile characteristics: Who are they?

This section presents the profile characteristics of non-EU researchers who have worked in the EU in the past. The first part describes their socio-demographic characteristics. The second part describes the current employment situation of these researchers. Subsequently, we focus on the career stages of this group of researchers, their PhD coverage, their employment sector, whether they held a dual position, the type of employment contract held, employment status, and their satisfaction with their working conditions and future prospects.

4.2.1.1 Socio-demographics

Of the total number of non-EU researchers who have worked in the EU in the past, 66% are male while 34% are female. The largest share (29%) is between 35-44 years, and only 15% are younger than 35 years of age. One third of the researchers are over 55. Figure 33 shows the age distribution of this sample.

Figure 33: Non-EU researchers who have previously worked in the EU by age group



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU, per age group (n=778)

Concerning citizenship (Table 17), more than the majority of researchers come from the United States and Canada (56%), followed by Australia (8%), Turkey (5%), Brazil (5%) and Russia (4%).

As the sample is not representative, we are not aware whether this large response from the US is due to the large inflows of US researchers in the EU or to the higher willingness of US researchers to respond to the questionnaire. There might thus be a sample bias towards US researchers. The 'other' category includes a total of 34 countries each with 1-4 respondents. North American researchers thus take up the larger share of the sample (56%), followed by Asia (20% with India (3%) and China (2%)), Oceania 10%), South-America (6%), rest of Europe (3%), Central-America (3%) and Africa (2%).

Table 17: Non-EU researchers who have previously worked in the EU by country of citizenship

Country of citizenship	N	Percentage
Australia	63	8.1%
Brazil	38	4.9%
Russia	30	3.9%
Turkey	42	5.4%
United States	427	54.9%

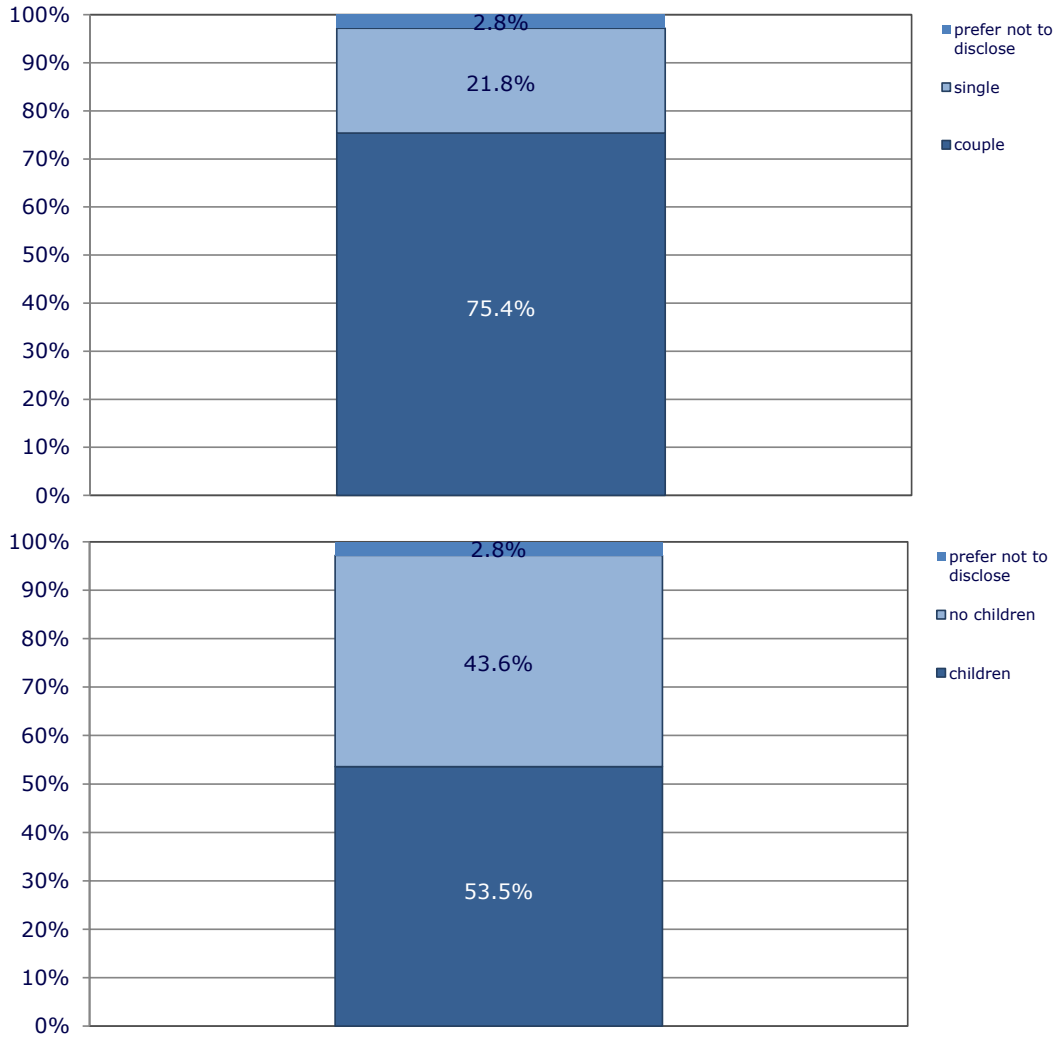
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU in the past per citizenship (for countries with a response > 30)

Regarding the country of residence, the United States is also by far the most common, accounting for the largest number of the researchers (56%, including a small number for Canada). 14% are from Asian countries (in absolute numbers, 18 are from India, 10 from China, 5 from Japan and the rest 75). Among the Latin American countries is Mexico the most popular country of residence.

Looking at marital status, our results indicate that 75% are married or cohabiting while 22% are single. 54% of all respondents have children (Figure 34).

Figure 34: Non-EU researchers who have previously worked in the EU by marital and family status



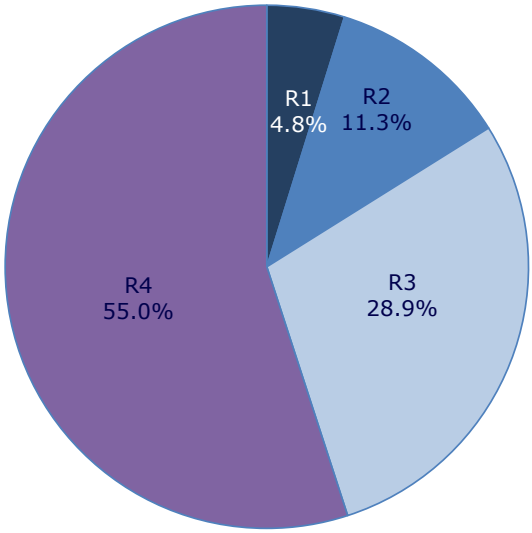
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU who are single or in a couple, who have children, no children or who do not disclose their family status (n=778)

4.2.1.2 Current employment as a researcher

Of all the non-European researchers who have worked previously in the EU, 55% are at the R4 level of leading researchers. The proportion decreases with career stage, with less than 5% at the first stage (doctoral) researchers (Figure 35).

Figure 35: Non-EU researchers who have previously worked in the EU by career stage



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of the non-EU European researchers who have worked previously in the EU per current career stage (n=778)

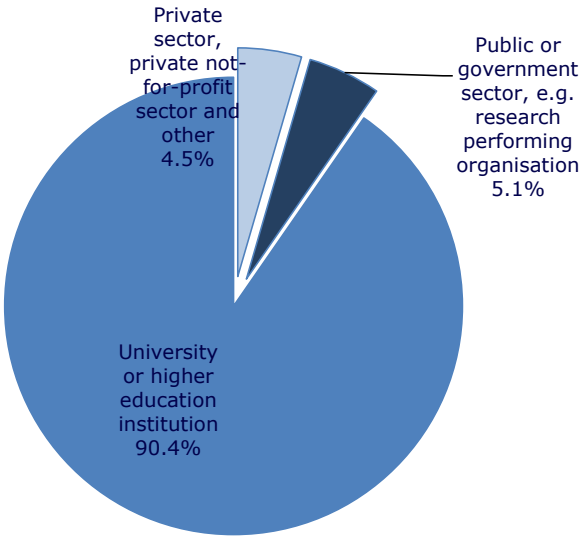
- PhD coverage

Those who indicated that they belong to the R1 category of researchers were asked whether they are currently working on a PhD or enrolled in a doctoral program. Of the total group of 37 respondents, 28 indicated that they are indeed working on a PhD. Most of them are in their second or third year (43% together), 25% are in their 4th year whereas 21% are in their 5th year or more.

- Sector of employment

Looking at the distribution of EU researchers abroad by sector of employment, we observe that 90% are employed at a university or higher education institution and 5% are working in the public/government sector. About 5% of researchers work in the private sector.

Figure 36: Non-EU researchers who previously worked in EU by sector of employment



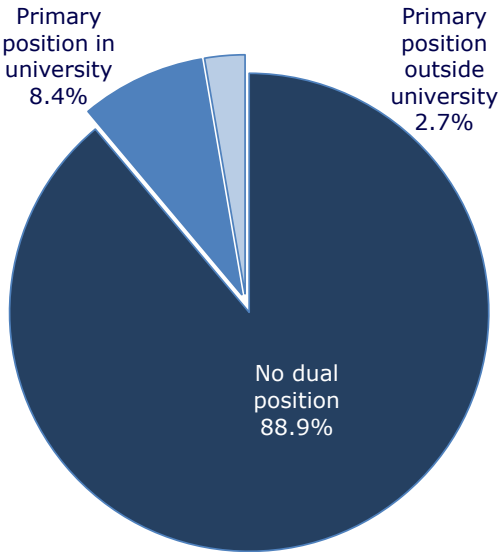
Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU and their sector of employment (n=778)

- Dual position

A small proportion of all non-EU researchers who had worked previously in the EU hold a dual position (11%) and the majority of them stated that the university was their primary employment.

Figure 37: Non-EU researchers who have previously worked in the EU by dual position



Source: MORE 2 Extra-EU Mobility Survey (2012)

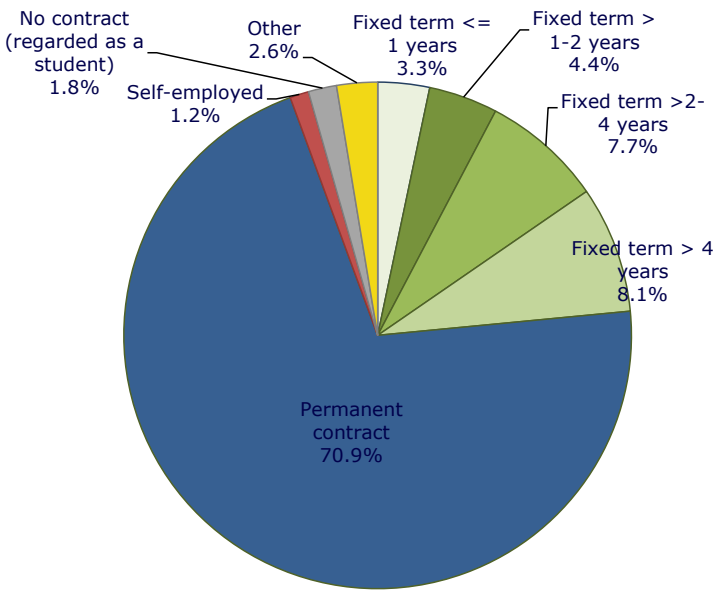
Note: Share of non-EU researchers currently in a "dual position", where they are employed both at a university (or generally higher education institution) and in at another sector (n=778)

The proportion of dual positions in countries with more than 30 observations relate to: Australia (8%), Brazil (27%), Turkey (18%) and the United States (6%).

- Working conditions

Figure 64 illustrates the type of contract held by these researchers. The majority have a permanent contract. This high share of permanent contracts might be due to the large share of R3 and R4 responses in the sample. As we are not aware whether this large share is due to the large representation of R3 and R4 non-EU researchers moving to the EU or due to their greater willingness to respond, we need to be cautions when interpreting this information. About 24% have a fixed term contract.

Figure 38: Non-EU researchers who have previously worked in the EU by contract type

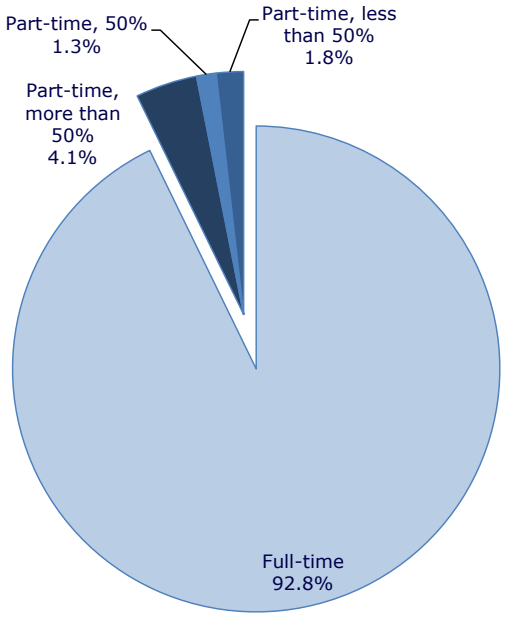


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers having worked previously in the EU by types of employment contract. "No contract" is regarded as applying to students (n=778)

Figure 39 indicates that the majority of researchers have a full-time position although 7% are working part-time.

Figure 39: Non-EU researchers who have previously worked in the EU by position

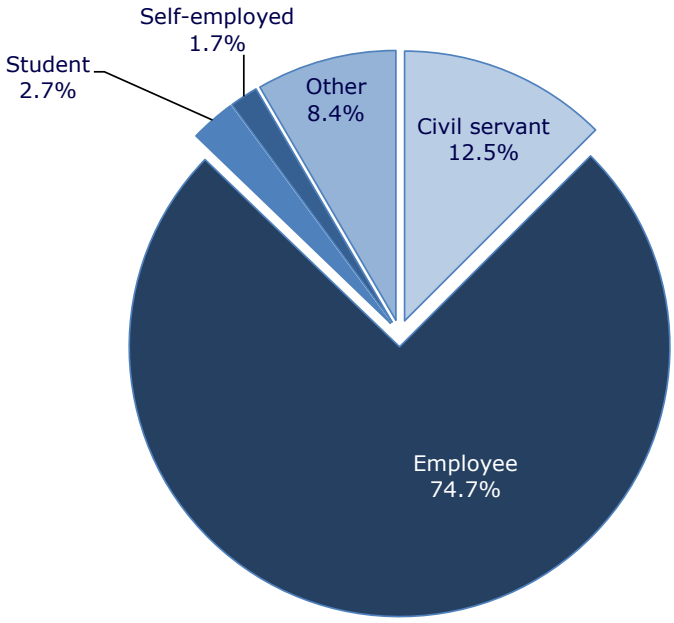


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-European researchers who previously worked in the EU by type of position, permanent and part-time for (n=777)

As Figure 40 shows, the majority of researchers are employees and a low percentage of them are civil servants (13%).

Figure 40: Non-EU researchers who have previously worked in the EU by employment position



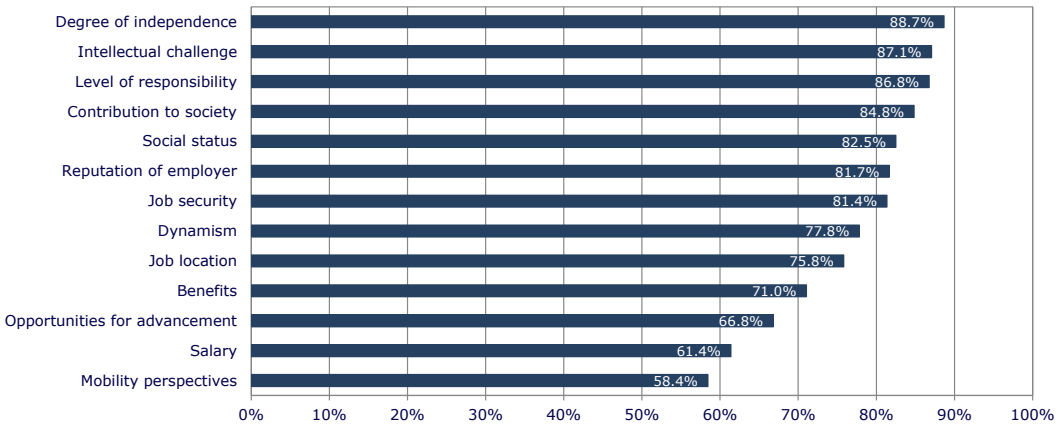
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU, by employment status (n=778)

- Degree of satisfaction with current position

This group of non-EU researchers who had worked previously in the EU are quite satisfied with the intrinsic aspects of their positions. More than 85% are satisfied with their degree of independence, intellectual challenge, level of responsibility and their contribution to society. On the other hand, they are relatively less satisfied with the extrinsic aspects of their positions such as salary and benefits. In this regard they have a similar view to those of EU researchers currently working outside the EU.

Figure 41: Degree of satisfaction of non-EU researchers with their current position

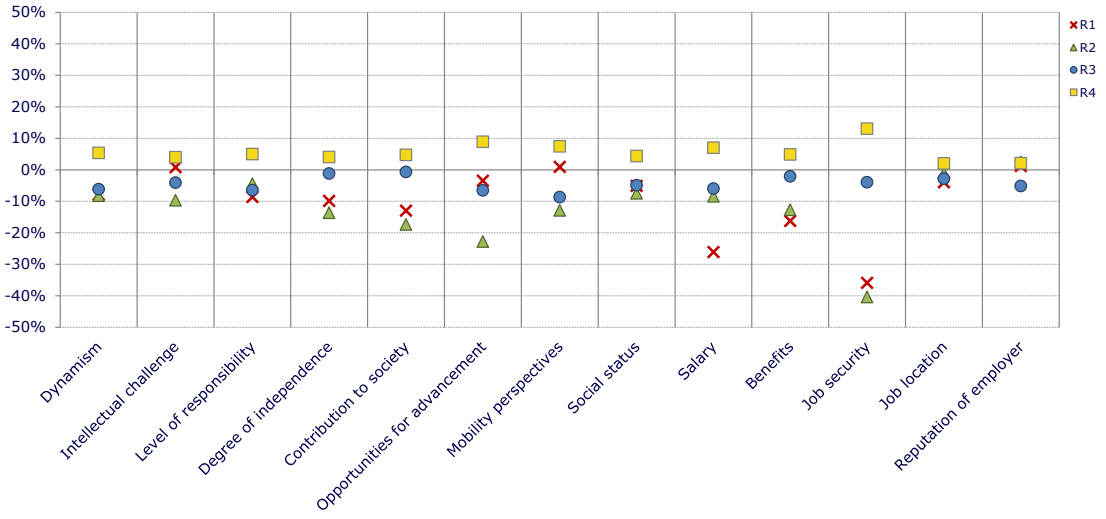


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU who are satisfied with their current academic position (as compared to the researchers who answered satisfied or dissatisfied) (n=765)

When comparing the four categories of researchers, it appears that the two top levels of researchers (R3 and R4) are most satisfied with most aspects of their research post (Figure 42). Major differences are found for the first stage researchers (R1) who, not surprisingly, are less satisfied with their job security, salary and benefits relative to R2, R3 and R4 researchers. And, relative to the researchers at different career stages, recognized researchers (R2) are the least satisfied with their job security, opportunities for advancement, contribution to society and degree of independence. Leading researchers (R4) are more confident about their opportunities for advancement than other researchers.

Figure 42: Difference in degree of satisfaction of non-EU researchers with their current position, by career stage



	R1	R2	R3	R4	*Total*
Dynamism	70.0%	69.6%	71.7%	83.2%	*77.8%*
Intellectual challenge	87.9%	77.4%	83.0%	91.1%	*87.1%*
Level of responsibility	78.1%	82.4%	80.3%	91.7%	*86.8%*
Degree of independence	78.8%	75.0%	87.5%	92.7%	*88.7%*
Contribution to society	71.9%	67.5%	84.2%	89.6%	*84.8%*
Opportunities for advancement	63.3%	44.0%	60.3%	75.7%	*66.8%*
Mobility perspectives	59.4%	45.6%	49.8%	65.9%	*58.4%*
Social status	77.4%	75.0%	77.6%	86.9%	*82.5%*
Salary	35.3%	52.9%	55.4%	68.4%	*61.4%*
Benefits	54.8%	58.3%	69.0%	75.9%	*71.0%*
Job security	45.5%	41.0%	77.4%	94.4%	*81.4%*
Job location	71.9%	74.7%	73.0%	77.8%	*75.8%*
Reputation of employer	82.9%	84.1%	76.5%	83.8%	*81.7%*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Difference between the degree of satisfaction (as compared to the researchers answering either satisfied or dissatisfied) by career stage and the total percentage of satisfaction (n=765)

Researchers in Turkey appear to be less satisfied than researchers in Australia, Brazil and the US, except concerning their degree of independence, their job security and their location. Comparing the US with Australia, we observe the

biggest differences in degree of satisfaction when it comes to the opportunities for advancement and job security, both which are more satisfactory for researchers in the US. Researchers in Brazil are more satisfied with their level of responsibility and the reputation of their employer than are researchers in Australia, Turkey and the US. A comparison with other countries is not possible as the sample size is smaller than 30.

Table 18: Degree of satisfaction of non-EU researchers with their current position, by country of employment

	Australia	Brazil	Turkey	United States	*Total*
Dynamism	74.0%	72.7%	62.2%	84.0%	77.8%
Intellectual challenge	85.9%	84.8%	69.2%	91.5%	87.1%
Level of responsibility	80.8%	93.9%	79.5%	89.7%	86.8%
Degree of independence	85.9%	69.7%	72.5%	94.6%	88.7%
Contribution to society	88.2%	84.8%	45.9%	92.0%	84.8%
Opportunities for advancement	58.8%	65.6%	50.0%	71.2%	66.8%
Mobility perspectives	60.3%	53.1%	34.2%	61.7%	58.4%
Social status	84.7%	84.8%	72.5%	85.7%	82.5%
Salary	72.7%	42.4%	20.5%	69.0%	61.4%
Benefits	76.6%	51.5%	34.2%	81.9%	71.0%
Job security	65.3%	68.8%	70.0%	88.7%	81.4%
Job location	73.1%	66.7%	77.5%	76.0%	75.8%
Reputation of employer	76.6%	94.1%	56.8%	84.0%	81.7%
N =	78	34	40	446	768

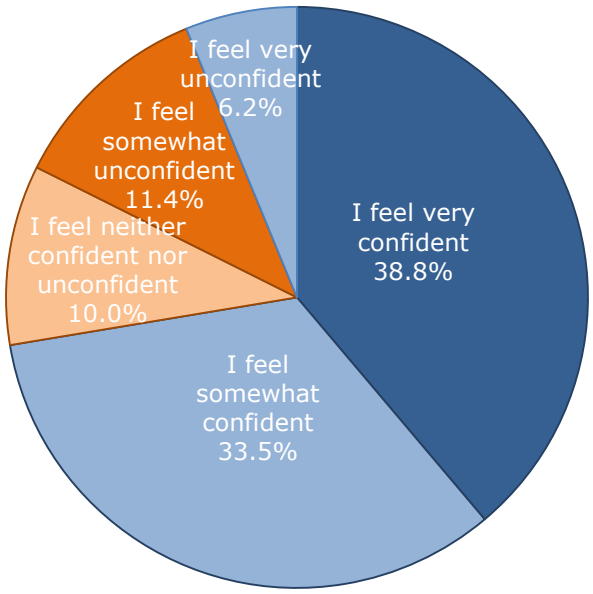
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU who are satisfied about their current academic position (as compared to the researchers answering satisfied or dissatisfied) by country of current employment (for countries with response > 30)

- Confidence about future prospects

In terms of future prospects, Figure 43 illustrates how confident or unconfident researchers feel about their research careers. More than 72% say they are confident or very confident about their career as a researcher while 18% report they are very confident or only somewhat confident.

Figure 43: Degree of confidence of non-EU researchers who have previously worked in the EU about their future prospects

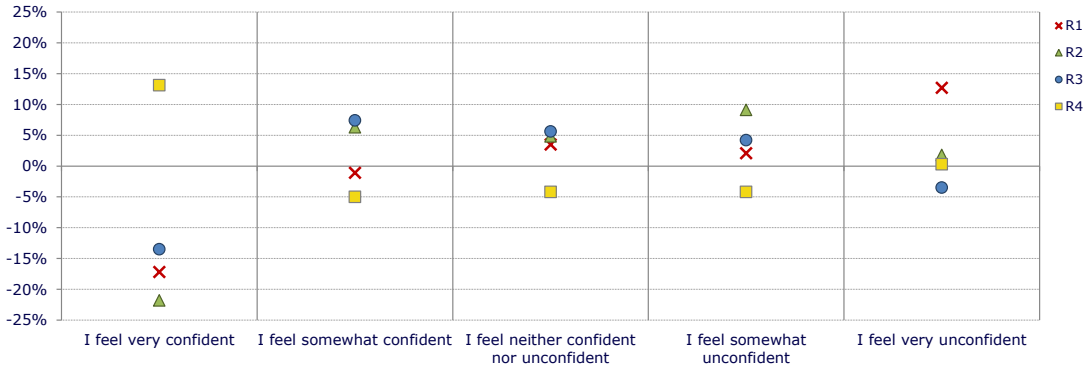


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of non-EU researchers who have previously worked in the EU (n=778)

Figure 44 presents degree of researcher confidence by career stage. More than half of the leading researchers (R4) say that they feel very confident (52%) or somewhat confident (29%), clearly reflecting their secure position in the academic environment. For the established researchers (R3) the percentages are, respectively, 25% and 41% and for the first stage researchers (R1) 22% and 32%. The recognized researchers (R2), however, indicate lower levels of confidence than do other types of researchers, with 17% feeling very confident and 40% somewhat unconfident.

Figure 44: Difference in degree of confidence of non-EU researchers who have previously worked in the EU about their future prospects, by career stage



	R1	R2	R3	R4	*Total*
I feel very confident	21.6%	17%	25.3%	51.9%	*38.8%*
I feel somewhat confident	32.4%	39.8%	40.9%	28.5%	*33.5%*
I feel neither confident nor unconfident	13.5%	14.8%	15.6%	5.8%	*10%*
I feel somewhat unconfident	13.5%	20.5%	15.6%	7.2%	*11.4%*
I feel very unconfident	18.9%	8%	2.7%	6.5%	*6.20%*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: *Difference in the degree of confidence about future prospects by career stage and the total (n=778)*

The degree of confidence about future prospects is highest in the US, with 80% of researchers indicating that they are very or somewhat confident, followed by Brazil (71%), Australia (63%) and Turkey (60%). A comparison with other countries cannot be made as the sample size is smaller than 30.

Table 19: Degree of confidence of non-EU researchers who had been to the EU about future prospects, by country of employment

	Australia	Brazil	Turkey	United States	*Total*
I feel very confident	26.9%	38.2%	22.5%	46.3%	38.8%
I feel somewhat confident	35.9%	32.4%	37.5%	33.4%	33.5%
I feel neither confident nor unconfident	7.7%	11.8%	20.0%	7.1%	10.0%
I feel somewhat unconfident	26.9%	8.8%	17.5%	7.6%	11.4%
I feel very unconfident	2.6%	8.8%	2.5%	5.6%	6.2%
N =	78	34	40	449	*778*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of non-EU researchers who have previously worked in the EU, by country of current employment (for countries with response > 30)

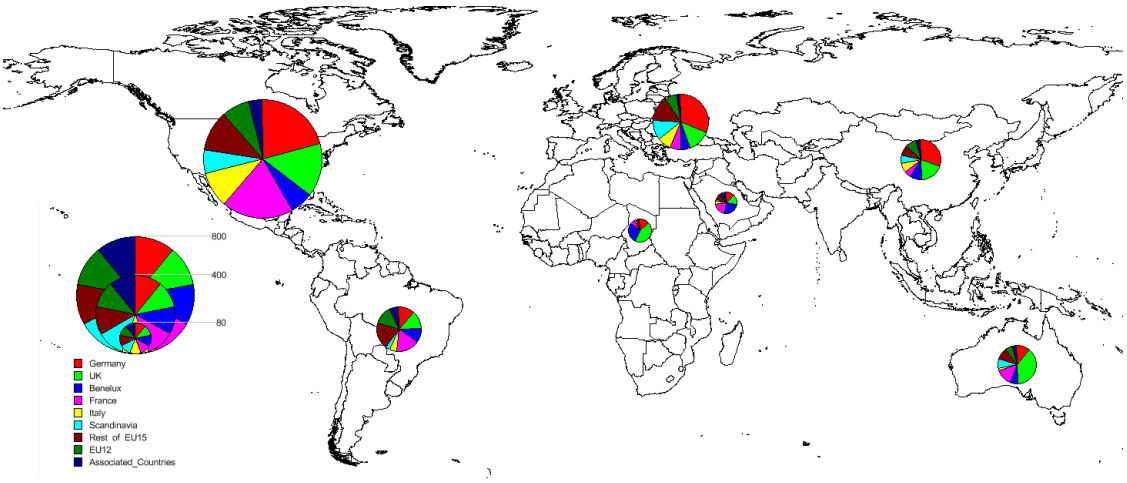
4.2.2 Mobility experience: What are the preferred EU destinations for non-EU researchers?

This section presents the mobility experience of non-EU researchers moving to the EU. Most indicators are based on the moves and not on the individual researchers. As one researcher can have multiple mobility moves, the number of moves is larger than the number of researchers. The first part describes the mobility flows - including the number of EU moves - and mobility patterns outside the EU. Furthermore, the frequency and length of the research period abroad is discussed taking into account moves with employer change. Subsequently, we focus on mobility conditions such as contract type, destination sector and career progress for moves to the EU.

4.2.2.1 Mobility flow

In total, 1,466 EU moves are registered for 778 non-EU researchers. Figure 45 illustrates the main flows of mobility of non-EU researchers to the EU.

Figure 45: Map of mobility flows from Non-EU countries towards the EU



Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Counts of moves from non-EU countries to the EU by EU researchers who have previously worked in the EU (n=1,466)*
- *With "moves" defined as moves of three months or more during the last ten years to another country than the country of citizenship of the researcher*
- *With country of departure equal to country of citizenship*
- *The size of the circle is proportional to the number of moves*
- *Only flows of 3 moves or more are presented*

Some interesting observations about mobility flows from non-EU countries towards the EU can be made:

- The US is an important country of origin for mobility; 54% of inwards EU mobility occurs from the US. Another large region from which mobility towards the EU takes place is Eastern Europe, from countries such as Ukraine and Croatia.
- Germany is a popular EU destination in general; 21% of the moves towards the EU from non-EU countries are to Germany. France and the UK also take up about 16% of the moves each. EU-12 countries are generally less a destination country for mobility originating outside the EU.
- The main inflows in Germany from non-EU countries originate from the United States and from Russia, followed by India, Turkey and Australia.

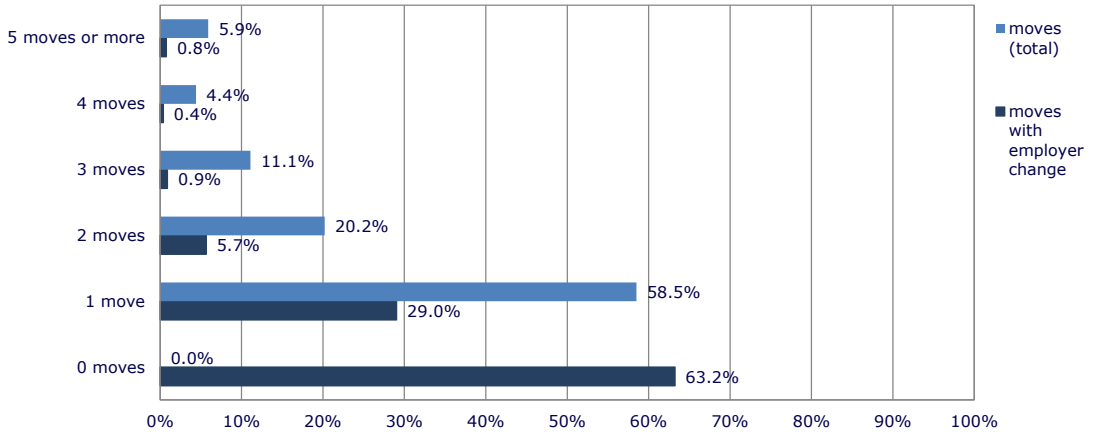
These results need to be interpreted with caution, however. As the results are not based on a representative sample, we do not know whether this large response from the US is due to the large number of EU researchers in the US or due to higher levels of willingness to participate in the survey. The same reasoning also applies to other countries.

- Frequency of mobility

As indicated in Figure 46, 59% of the non-EU researchers who moved to the EU in the past did so once. 6% moved 5 times or more. The average number of moves in the last ten years is 1.9 moves.

37% of non-EU researchers who have moved to the EU have changed employer for at least one of their moves. This also corresponds to 27% of all moves which are accompanied by a change in employer.

Figure 46: Number of EU moves by non-EU researchers



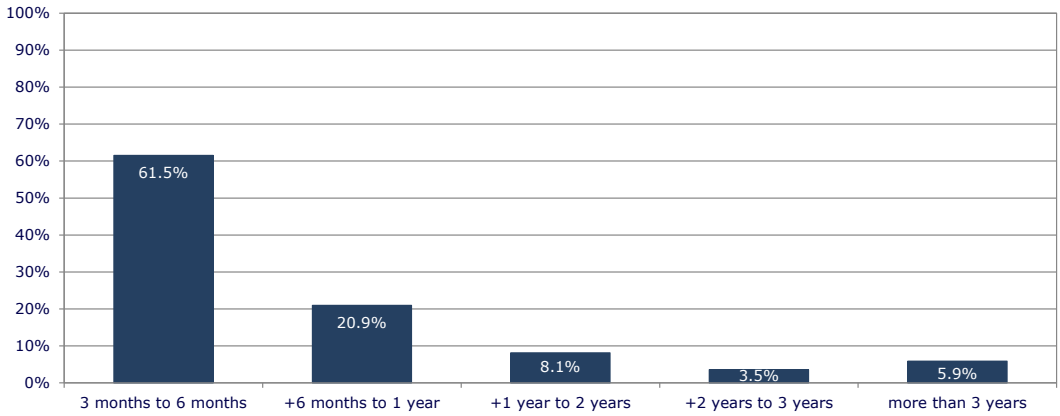
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution of EU moves by non-EU researchers who have previously worked in the EU (n=1,466)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Duration of mobility

62% of EU moves by non-EU researchers are for 3 to 6 months (Figure 47). Mobility of a shorter length occurs more frequently than mobility of a longer duration. Important here is that we do not consider "mobility" to be less than 3 months. Only 18% of moves to the EU last longer than one year.

Figure 47: Contract duration of EU moves by non-EU researchers



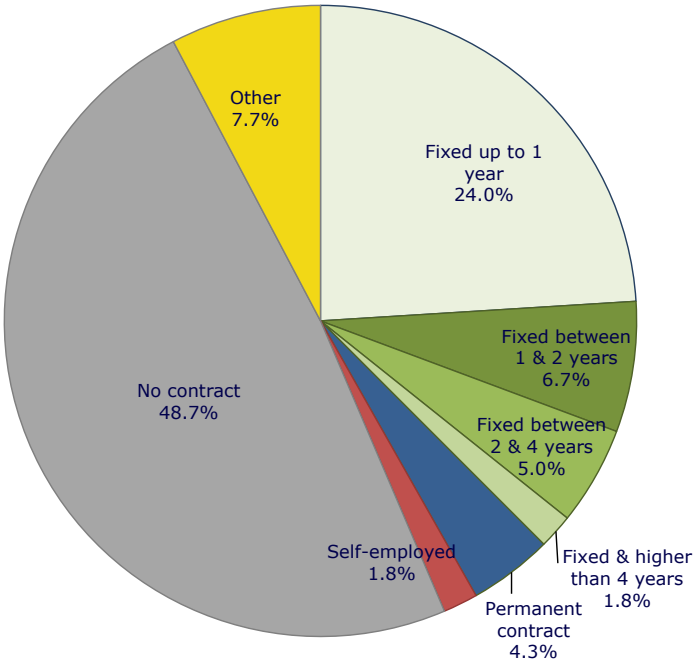
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution EU moves by non-EU researchers who have previously worked in the EU by contract duration (n=1,466)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Contract

38% of EU moves were undertaken with a fixed contract and 9% with a permanent contract (Figure 48). 45% of moves went ahead without a contract.

Figure 48: Contract type for EU moves by non-EU researchers



Source: MORE2 Extra-EU mobility survey (2012)

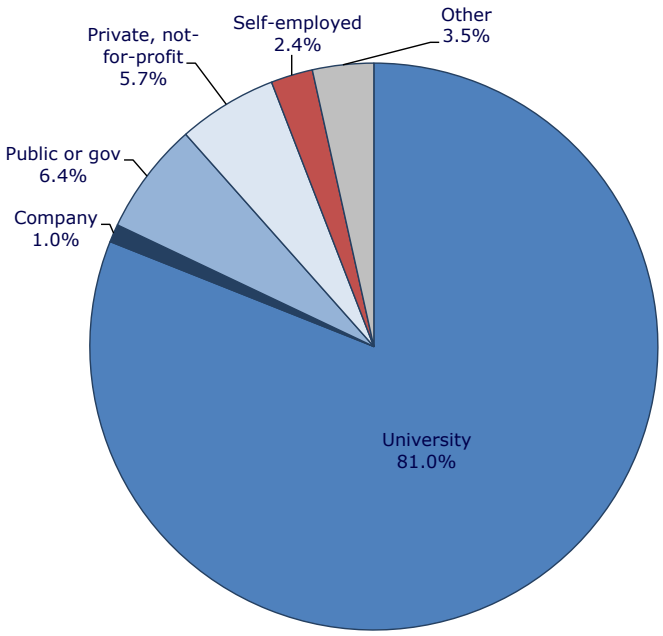
Note:

- *Distribution of EU moves by non-EU researchers who have previously worked in the EU, by contract type (n=1,466)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Destination sector of mobility

The destination sector of 81% of all the moves of non-EU researchers to the EU was to universities (Figure 49). 7% of the moves were to the public or government sector and 6% to the private, not-for-profit sector (e.g. research foundations).

Figure 49: Destination sector for EU moves by non-EU researchers



Source: MORE2 Extra-EU mobility survey (2012)

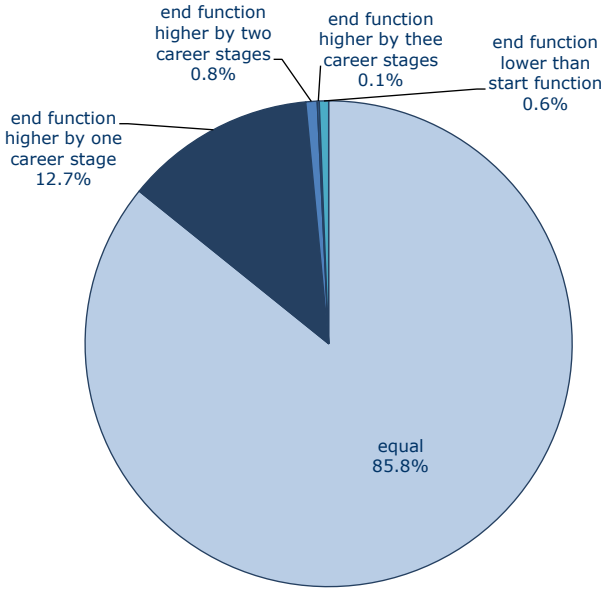
Note:

- *Distribution of moves by non-EU researchers who have previously worked in the EU, by destination sector (n=1,466)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Career progression

In 86% of EU moves, no career progression occurs, as the end function equals the start function. In 14% of moves, career progression is achieved. About 1% of the moves lead to a downgrading of the researcher's career status.

Figure 50: Career progression for EU moves for non-EU researchers



Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution of EU moves of Non-EU researchers who have previously worked in the EU over shifts in career stage (n=1,466)*
- *With moves defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

4.2.3 Motives, effects and barriers for mobility: What drives non-EU researchers to the EU?

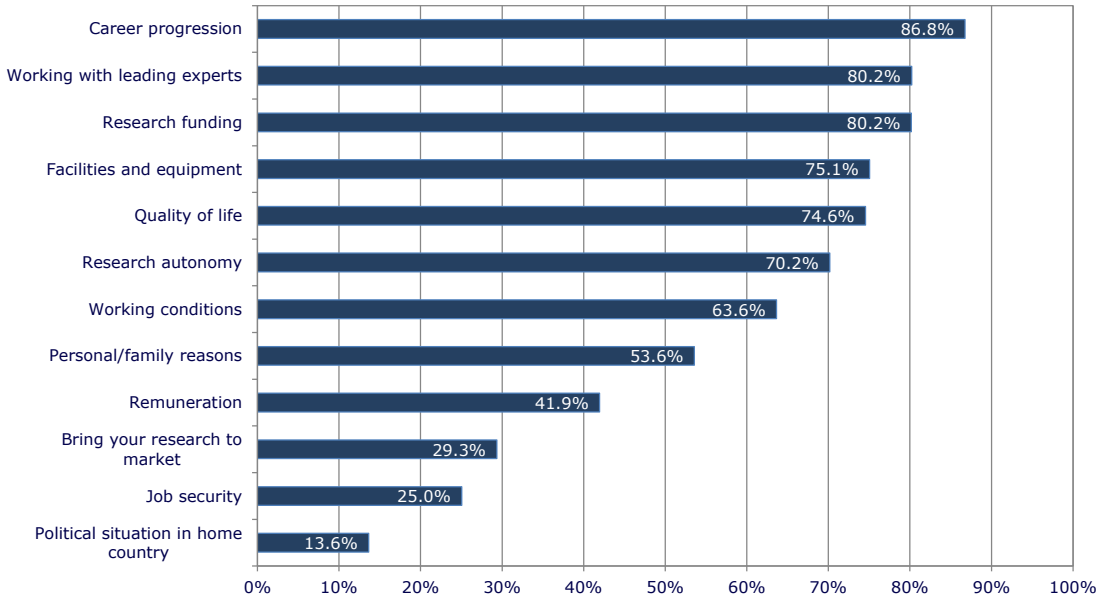
This section discusses how non-EU researchers come to perceive their motivation for their past move TO the EU.

Once again, a list of 11 factors was presented to the respondent. These include what are generally viewed as intrinsic motives (e.g. the desire to undertake an activity because of inherent interest and the desire to move) or as extrinsic ones (especially financially or to be employed). Personal reasons are treated as a separate category.

- Motives for EU mobility

This section discusses which motives drive non-EU researchers to move to the EU. Figure 51 summarizes the results. 87% of non-EU researchers indicated that career progression was an important motive for moving, closely followed by the option to work with experts and the availability of research funding. The extrinsic factors were considered less important factors for these researchers.

Figure 51: Non-EU researchers' motives for moving to the EU



Source: MORE2 Extra-EU mobility survey (2012)

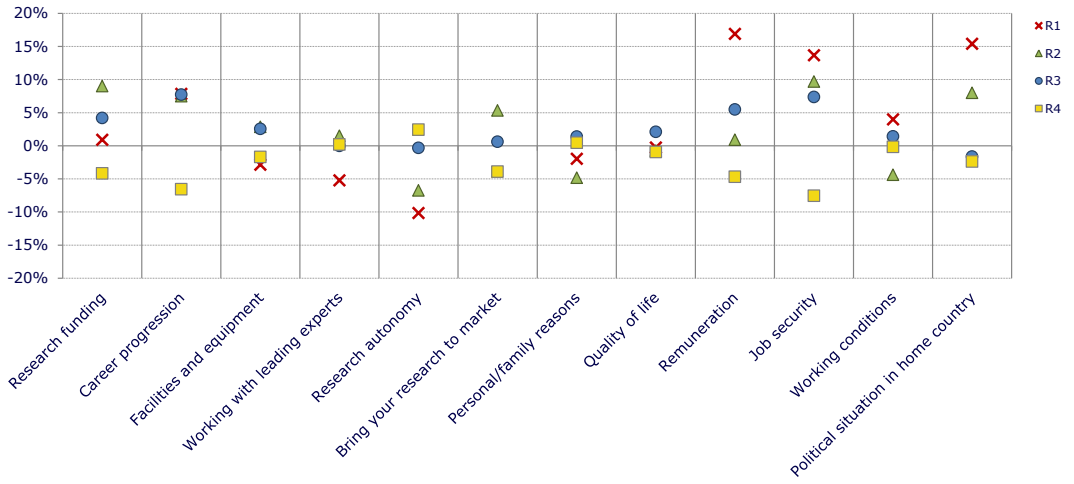
Note:

- *Share of non-EU researchers who have previously worked in the EU who find certain motives important (as compared to researchers answering either important or unimportant) for their EU move (n=738)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

There are also some differences in reasons for moving to the EU in terms of career stage. Remuneration, job security and the political situation at home were

more important motives for first stage (R1) non-EU researchers in their decision to move to the EU relative than for researchers at other career stages. The availability of researcher funding, career progression, remuneration and job security were perceived as being less important reasons for moving for leading researchers (R4) (Figure 52).

Figure 52: Differences in non-EU researchers' motives for EU mobility by career stage



	R1	R2	R3	R4	*Total*
Research funding	81.1%	89.2%	84.4%	76.0%	*80.2%*
Career progression	94.6%	94.3%	94.5%	80.2%	*86.8%*
Facilities and equipment	72.2%	77.9%	77.6%	73.4%	*75.1%*
Working with leading experts	75.0%	81.7%	80.2%	80.4%	*80.2%*
Research autonomy	60.0%	63.4%	69.8%	72.6%	*70.2%*
Bring your research to market	56.3%	34.7%	29.9%	25.4%	*29.3%*
Personal/family reasons	51.6%	48.8%	55.0%	54.0%	*53.6%*
Quality of life	74.3%	73.8%	76.7%	73.6%	*74.6%*
Remuneration	58.8%	42.9%	47.4%	37.3%	*41.9%*
Job security	38.7%	34.7%	32.4%	17.5%	*25.0%*
Working conditions	67.6%	59.3%	65.0%	63.5%	*63.6%*
Political situation in home country	29.0%	21.6%	12.0%	11.2%	*13.6%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Difference between share of non-EU researchers who have previously worked in the EU per career stage who find certain motives important (as compared to researchers who answered either important or unimportant) for their move to the EU and the total share of non-EU researchers who have moved to the EU in the past who find certain motives important (versus not important) (n=738)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Due to the low number of responses for most countries, we can only compare the differences in motives between Australia, Brazil, Russia, Turkey and the US (n>30). Career progression was the most important motive to move to the EU for Australian, Brazilian, Russian, Turkish and US researchers, although for the US, the importance of this reason was slightly lower (81%) (versus 89-96%) than for the other countries. The option to work with experts was indicated as an

important motive for EU mobility by 96% of the Russian researchers but only for 74% of the US researchers. Obtaining research funding appears to be a reason for EU mobility for Russian (97%) and Turkish (93%) researchers than for Australian (79%), US (75%) and Brazilian (78%) researchers. The political situation at home is generally ranked as being the least important motive for EU mobility. Comparing the different countries indicates that the researcher's political home context was still an important motive for 25% of Brazilians, 30% of Russians and 32% of Turkish researchers, although only for 4% of US and 6% of Australian researchers.

Table 20: Motives for EU mobility of non-EU researchers by citizenship

	Australia	Brazil	Russia	Turkey	United States	*Total*
Research funding	78.9%	78.4%	96.7%	92.5%	75.3%	*80.2%*
Career progression	89.3%	94.7%	89.7%	95.0%	82.0%	*86.8%*
Facilities and equipment	73.7%	71.1%	93.1%	97.6%	70.5%	*75.1%*
Working with leading experts	85.0%	86.8%	96.7%	85.4%	74.3%	*80.2%*
Research autonomy	64.8%	69.4%	67.9%	79.5%	71.0%	*70.2%*
Bring your research to market	28.8%	39.4%	50.0%	69.2%	18.1%	*29.3%*
Personal/family reasons	45.1%	47.1%	42.9%	45.0%	58.6%	*53.6%*
Quality of life	60.0%	67.6%	76.7%	65.9%	78.4%	*74.6%*
Remuneration	36.0%	48.6%	71.4%	64.3%	32.3%	*41.9%*
Job security	27.1%	28.1%	44.4%	57.5%	14.4%	*25.0%*
Working conditions	50.9%	70.3%	86.7%	85.7%	58.3%	*63.6%*
Political situation in home country	6.7%	25.0%	29.6%	32.5%	4.6%	*13.6%*

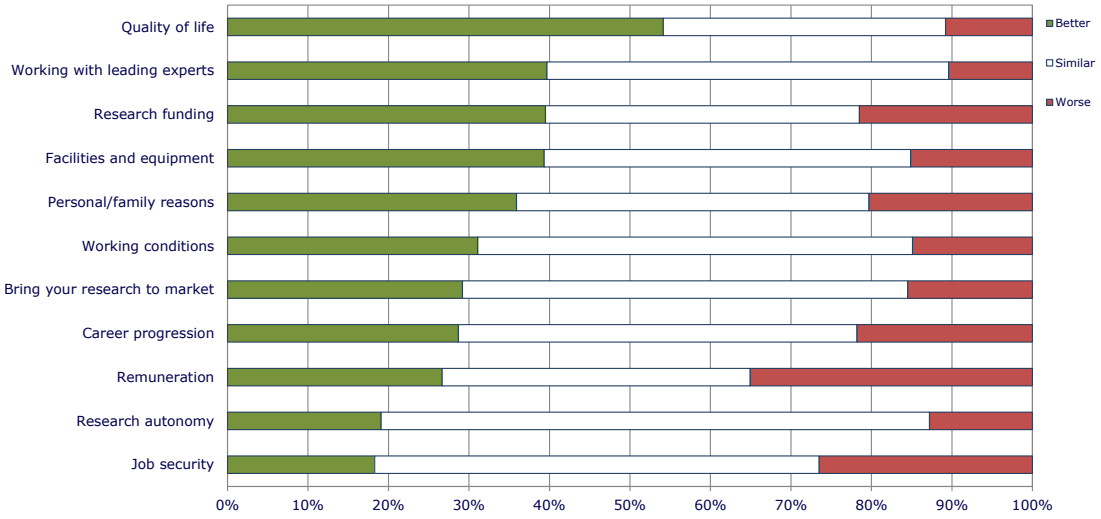
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU and who find certain motives important (as compared to researchers answering either important or unimportant) for their EU move by country of citizenship (for countries with responses > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Comparative perspectives about moving to EU versus non-EU countries

In order to be able to compare some information related to mobility, researchers were asked to indicate whether certain factors are better, similar or worse in EU countries compared with non-EU countries. 54% of non-EU researchers who compared the EU with non-EU countries think that the quality of life is better in the EU than elsewhere; 35% think that quality was similar; and 11% think that quality of life is worse. Remuneration, on the other hand, was perceived as worse in the EU than abroad by 35% and as better by 27% of the non-EU researchers (Figure 53).

Figure 53: The extent to which working outside the EU compares to working in the EU



	Better	Similar	Worse
Research funding	39.5%	39.0%	21.5%
Career progression	28.7%	49.5%	21.8%
Facilities and equipment	39.3%	45.5%	15.1%
Working with experts	39.7%	49.9%	10.4%
Research autonomy	19.1%	68.1%	12.8%
Bring your research to market	29.2%	55.3%	15.5%
Personal/family reasons	35.9%	43.8%	20.3%
Quality of life	54.2%	35.1%	10.8%
Remuneration	26.7%	38.3%	35.1%
Job security	18.3%	55.2%	26.5%
Working conditions	31.1%	54.0%	14.9%

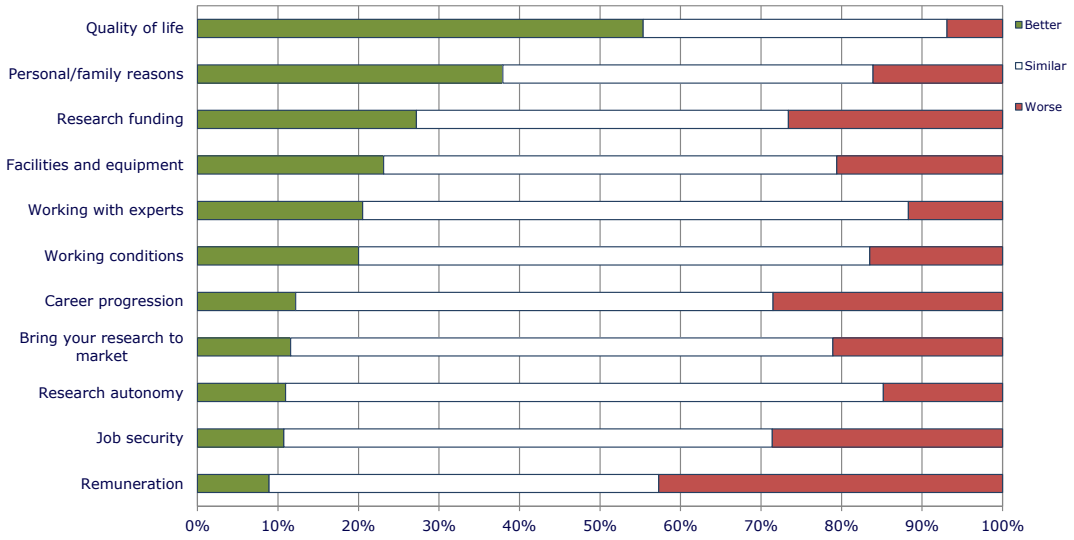
Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU and who find certain factors better, similar or worse in the EU as opposed to elsewhere (n=727)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Figure 54 displays the same type of information as above, but only for US researchers. US researchers, compared to other non-EU researchers, generally indicate less frequently that they consider the EU to be better than their home country (US). Especially concerning remuneration: 9% indicate that the EU is better than the US, 49% indicates that it is similar and 43% that it is worse in the EU. The quality of life is valued as being better (55%) in the EU than abroad by the same proportion of researchers.

Figure 54: The extent to which working outside the EU compares to working in the EU for US researchers only



	Better	Similar	Worse
Research funding	27.2%	46.2%	26.6%
Career progression	12.2%	59.3%	28.5%
Facilities and equipment	23.1%	56.3%	20.6%
Working with experts	20.5%	67.8%	11.7%
Research autonomy	10.9%	74.3%	14.8%
Bring your research to market	11.6%	67.4%	21.1%
Personal/family reasons	37.9%	46.0%	16.1%
Quality of life	55.3%	37.7%	6.9%
Remuneration	8.9%	48.4%	42.7%
Job security	10.7%	60.7%	28.6%
Working conditions	20.0%	63.5%	16.5%

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU and who find certain factors better, similar or worse in the EU versus non-EU countries (n=727)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

In terms of the overall perception of the EU when compared to the home country: it is rated more highly by Russian and Turkish researchers than by Australian and US researchers. The quality of life in the EU is perceived as being better in the EU than at home by Russian (90%) and Brazilian (65%) researchers. In contrast, 15% of Australian researchers perceived EU quality of life to be better than at home. 90% of the Russian and 62% of the Turkish researchers consider the remuneration to be better in the EU, while only a small share of the Australian and US researchers think so (approx. 10%). A comparison with other countries is not meaningful given the small number of respondents from these countries (n<30).

Table 21: The extent to which working outside the EU compares to working in the EU by country of citizenship

	Australia	Brazil	Russia	Turkey	United States
Research funding	39.7%	42.9%	85.7%	56.1%	27.2%

Career progression	33.9%	51.4%	69.2%	58.5%	12.2%
Facilities and equipment	37.7%	59.5%	90.0%	64.3%	23.1%
Working with experts	62.3%	59.5%	70.0%	57.5%	20.5%
Research autonomy	20.7%	27.8%	53.3%	41.5%	10.9%
Bring your research to market	25.0%	51.7%	80.0%	48.7%	11.6%
Personal/family reasons	25.5%	32.1%	72.7%	35.1%	37.9%
Quality of life	14.8%	64.9%	89.7%	57.1%	55.3%
Remuneration	10.5%	39.4%	89.3%	61.5%	8.9%
Job security	11.3%	22.6%	76.0%	37.5%	10.7%
Working conditions	13.3%	41.7%	86.2%	65.0%	20.0%

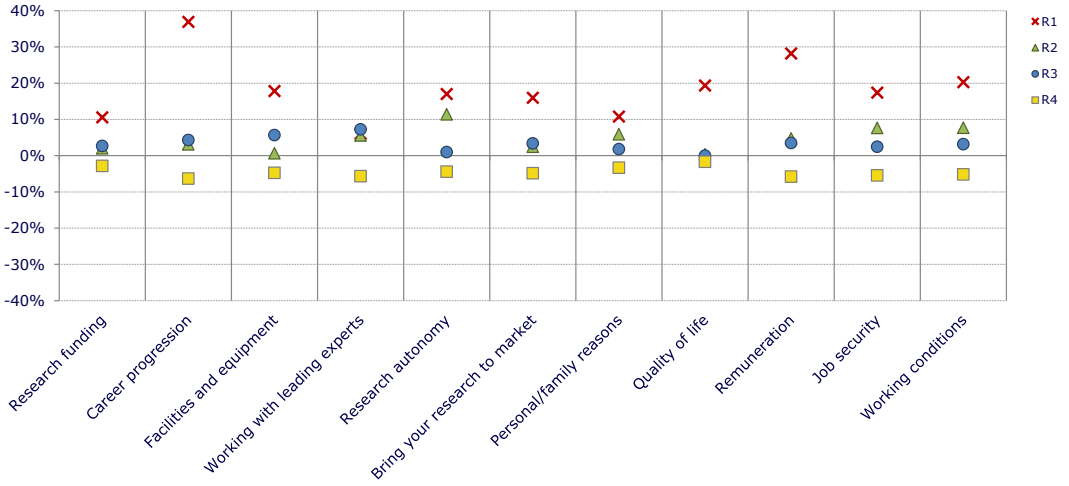
Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU and who find certain factors better, similar or worse in the EU compared to non-EU by country of citizenship (for countries with a response > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

There are some differences in perception according to the researcher's career stage, however. The opinions of first stage researchers (R1) often deviate from those at other career stages (Figure 55). For R1 researchers, the EU is perceived as being better than non-EU countries, especially in terms of career progression, remuneration and quality of life. Leading researchers (R4) generally perceive EU conditions as worse than do the researchers at other career stages.

Figure 55: Differences in the extent to which working outside the EU compares to working in the EU [41]



	R1	R2	R3	R4	*Total*
Research funding	50.0%	41.5%	42.1%	36.6%	*39.5%*
Career progression	65.6%	31.8%	33.0%	22.4%	*28.7%*
Facilities and equipment	57.1%	40.0%	45.0%	34.6%	*39.3%*
Working with leading experts	45.7%	45.2%	46.9%	34.0%	*39.7%*
Research autonomy	36.1%	30.5%	20.1%	14.7%	*19.1%*

[41] The scaling of Figure 55 is different than for the other figures concerning career stages.

Bring your research to market	45.2%	31.7%	32.6%	24.3%	*29.2%*
Personal/family reasons	46.7%	41.8%	37.6%	32.5%	*35.9%*
Quality of life	73.5%	54.5%	54.2%	52.5%	*54.2%*
Remuneration	54.8%	31.4%	30.2%	20.9%	*26.7%*
Job security	35.7%	26.0%	20.8%	12.9%	*18.3%*
Working conditions	51.4%	38.8%	34.3%	26.0%	*31.1%*

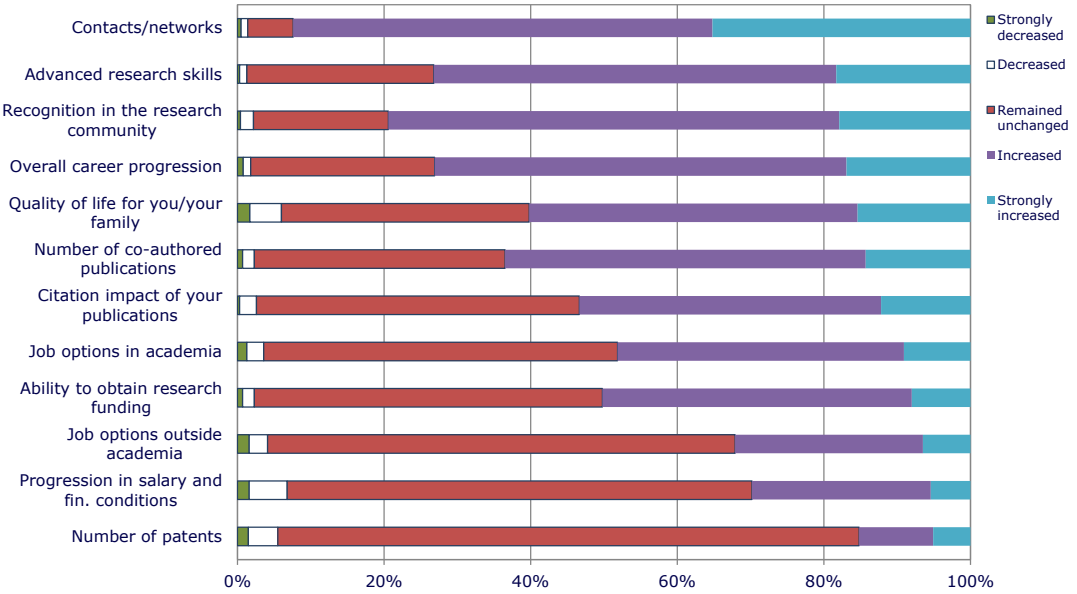
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Factors of importance for mobility which are better (versus similar and worse) for EU countries than for non-EU countries according to non-EU researchers who have previously worked in the EU by career stage (n=744).*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers.*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Effect of mobility for non-EU researchers moving to the EU

To be able to evaluate mobility towards the EU by non-EU researchers, non-EU researchers were asked to indicate how their stay in the EU has influenced a host of factors. Figure 56 gives an overview of the effects of mobility for non-EU researchers moving to the EU. Most factors appeared to increase (strongly) by their research period abroad. The most positive impact occurred in regard to contacts/networks; recognition in the research community; advanced researcher skills; and overall career progression. The number of patents, job options outside academia and the progression in salary and financial conditions were largely perceived as remaining unchanged when moving to the EU.

Figure 56: Effects of EU mobility experience on non-EU researchers



	Strongly decreased	Decreased	Remained unchanged	Increased	Strongly increased
Number of co-authored publications	0.7%	1.6%	34.2%	49.2%	14.3%
Citation impact of your publications	0.3%	2.3%	44.1%	41.2%	12.2%
Number of patents	1.5%	4.0%	79.3%	10.1%	5.1%
Advanced research skills	0.3%	1.0%	25.5%	54.9%	18.3%
Contacts/networks	0.5%	0.9%	6.2%	57.2%	35.2%
Ability to obtain research funding	0.7%	1.6%	47.5%	42.2%	8.0%

Recognition in the research community	0.4%	1.8%	18.4%	61.5%	17.9%
Job options in academia	1.3%	2.3%	48.3%	39.1%	9.1%
Job options outside academia	1.6%	2.5%	63.8%	25.6%	6.5%
Overall career progression	0.8%	1.0%	25.1%	56.2%	16.9%
Progression in salary and fin. conditions	1.6%	5.2%	63.4%	24.4%	5.4%
Quality of life for you/your family	1.7%	4.3%	33.8%	44.8%	15.4%

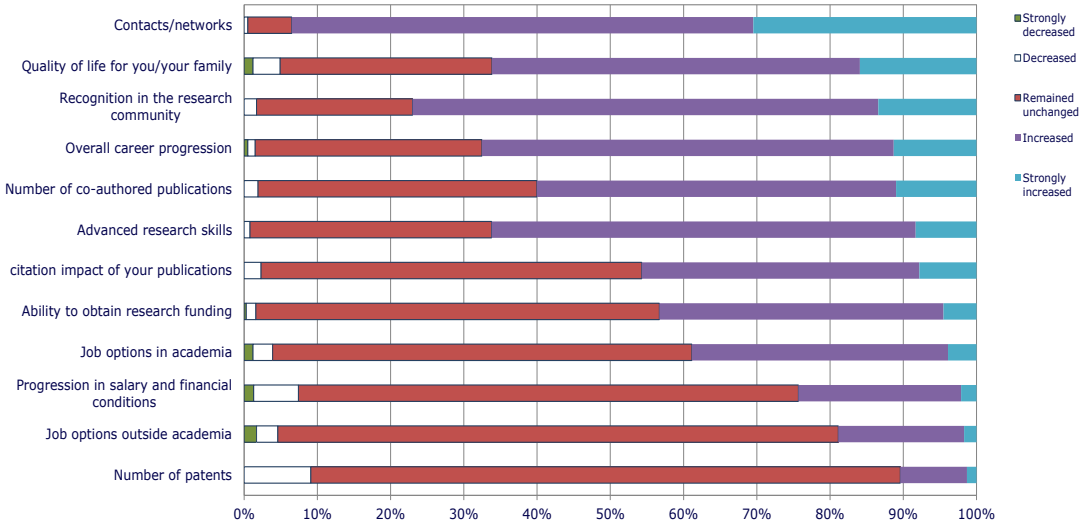
Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU who indicate the effect on a specific aspect of their career to have (strongly) increased, (strongly) decreased or remain unchanged due to their past stay in the EU (n=759)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Figure 57 displays the same information as the above figure, and then for US researchers alone. The effects of EU mobility appear to be similar for US researchers.

Figure 57: Effects of EU mobility experience on US researchers



	Strongly decreased	Decreased	Remained unchanged	Increased	Strongly increased
Number of co-authored publications	0.0%	1.9%	38.1%	49.1%	11.0%
citation impact of your publications	0.0%	2.3%	52.0%	37.9%	7.8%
Number of patents	0.0%	9.1%	80.5%	9.1%	1.3%
Advanced research skills	0.0%	0.8%	33.0%	57.9%	8.3%
Contacts/networks	0.0%	0.5%	6.0%	63.1%	30.5%
Ability to obtain research funding	0.3%	1.3%	55.1%	38.8%	4.5%
Recognition in the research community	0.0%	1.7%	21.3%	63.6%	13.4%
Job options in academia	1.2%	2.7%	57.3%	35.0%	3.9%
Job options outside academia	1.7%	2.9%	76.6%	17.2%	1.7%
Overall career progression	0.5%	1.0%	31.0%	56.3%	11.3%
Progression in salary and financial conditions	1.3%	6.1%	68.2%	22.2%	2.1%
Quality of life for you/your family	1.2%	3.7%	28.9%	50.2%	15.9%

Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU who indicate the effect on a specific aspect of their career to have (strongly) increased, (strongly) decreased or remained unchanged due to their past stay in the EU (n=417)*
- *With mobility defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

When comparing the effects of EU mobility for different nationalities, we observe that the EU mobility experience has had, on average, the largest effect on Brazilian researchers. They experience a (strongly) increased effect of moving to the EU in terms of research skills, recognition in the research community, job options in academe as well as outside academia and career progression. Turkish researchers experience a (strongly) increased effect on network, job security and career progression. A comparison with other countries is not meaningful given the small number of observations (n<30).

Table 22: Difference in effects of EU mobility experience by country of citizenship

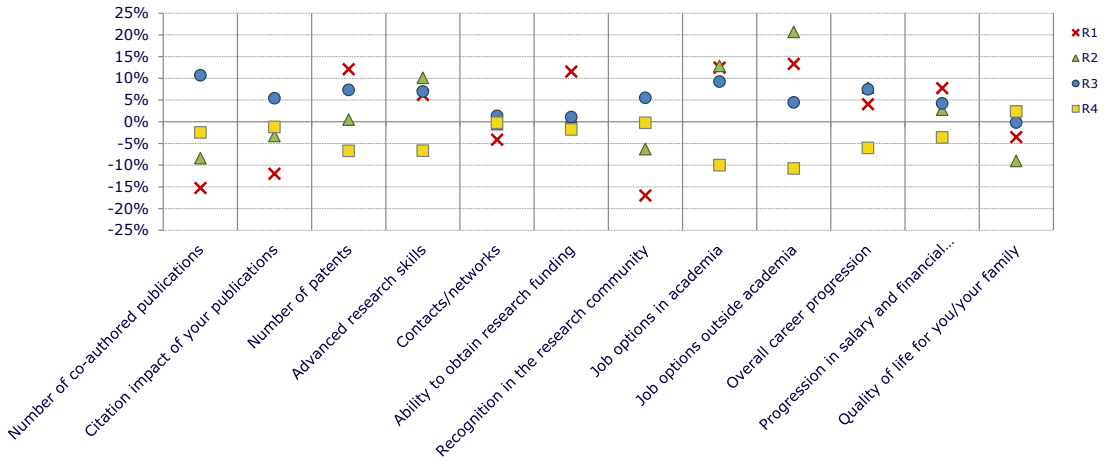
	Australia	Brazil	Turkey	United States	*Total*
Number of co-authored publications	67.8%	72.7%	65.0%	60.1%	*63.5%*
Citation impact of your publications	54.4%	73.5%	62.5%	45.7%	*53.3%*
Number of patents	13.3%	9.1%	11.1%	10.4%	*15.2%*
Advanced research skills	73.7%	91.2%	78.0%	66.2%	*73.2%*
Contacts/networks	95.1%	91.7%	81.0%	93.5%	*92.4%*
Ability to obtain research funding	49.1%	66.7%	47.2%	43.3%	*50.2%*
Recognition in the research community	78.3%	97.2%	77.5%	77.0%	*79.5%*
Job options in academia	63.6%	67.6%	65.8%	38.9%	*48.1%*
Job options outside academia	43.5%	60.7%	38.9%	18.8%	*32.1%*
Overall career progression	74.6%	91.7%	82.9%	67.5%	*73.1%*
Progression in salary and financial conditions	30.9%	34.3%	35.0%	24.3%	*29.8%*
Quality of life for you/your family	31.6%	57.6%	51.2%	66.2%	*60.2%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU who indicate the effect on a specific aspect of their career to have (strongly) increased, (strongly) decreased or remained unchanged due to their past stay in the EU by country of citizenship (for countries with response > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Figure 58 gives an overview of effects, illustrating how most effects are perceived very differently depending on the researcher's career stage, number of co-authored publications, citation impact of publications, number of patents, recognition in the research community and job options inside as well as outside academia. Networks/contacts, progression in salary and financial benefits and quality of life do not differ considerably across career stage.

Figure 58: Difference in effects of EU mobility experience by career stage[42]



[42] The scaling of Figure 58 is different than for the other figures concerning career stages.

	R1	R2	R3	R4	*Total*
Number of co-authored publications	48.3%	55.1%	74.2%	61.1%	*63.5%*
Citation impact of your publications	41.4%	50.0%	58.7%	52.1%	*53.3%*
Number of patents	27.3%	15.6%	22.4%	8.4%	*15.2%*
Advanced research skills	79.4%	83.3%	80.2%	66.6%	*73.2%*
Contacts/networks	88.2%	91.8%	93.7%	92.1%	*92.4%*
Ability to obtain research funding	61.8%	51.3%	51.3%	48.4%	*50.2%*
Recognition in the research community	62.5%	73.2%	85.0%	79.2%	*79.5%*
Job options in academia	60.6%	61.0%	57.4%	38.1%	*48.1%*
Job options outside academia	45.5%	52.8%	36.6%	21.3%	*32.1%*
Overall career progression	77.1%	81.0%	80.6%	67.1%	*73.1%*
Progression in salary and financial conditions	37.5%	32.5%	34.0%	26.1%	*29.8%*
Quality of life for you/your family	56.7%	51.2%	60.0%	62.5%	*60.2%*

Source: MORE2 Extra-EU mobility survey (2012)

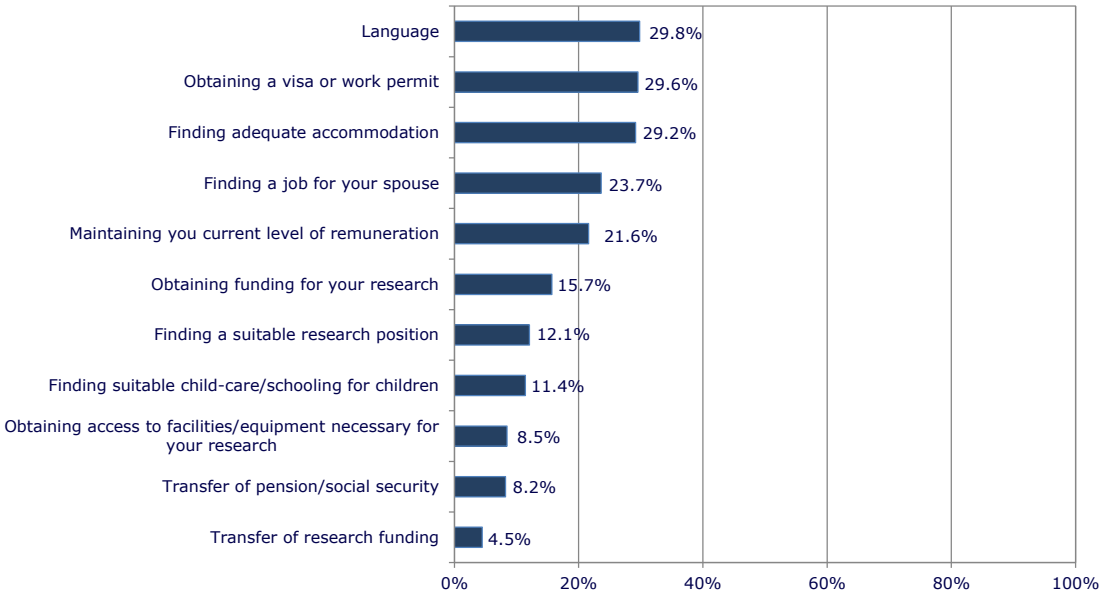
Note:
- *Difference in share of non-EU researchers who have previously worked in the EU who indicate the effect on the specific aspect of their career to be (strongly) increased (as compared to researchers answering (strongly)increased, (strongly) decreased or unchanged) due to their past stay in the EU per career stage and the total (strongly) increased effect (n=759)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Recognition in the research community, job options in academia and the ability to obtain researcher funding are more frequently indicated as effects of EU mobility for non-EU female researchers than for male researchers. On the other hand, patenting activity is less often an effect of EU mobility for female than male researchers.

- Barriers for mobility of non-EU researchers based on their last move to the EU

Non-EU researchers were also asked whether they faced any difficulties when moving to the EU. 30% of researchers indicated that the language, obtaining a visa or work permit and finding an adequate accommodation were some of the problems they had to deal with. The transfer of researcher funding and pension/social security as well as the access to facilities/equipment was mentioned by less than 10% of non-EU researchers as a difficulty when moving to the EU. 29% of non-EU researchers who moved to the EU did not face difficulties when moving to Europe.

Figure 59: Difficulties faced by non-EU researchers when moving to the EU



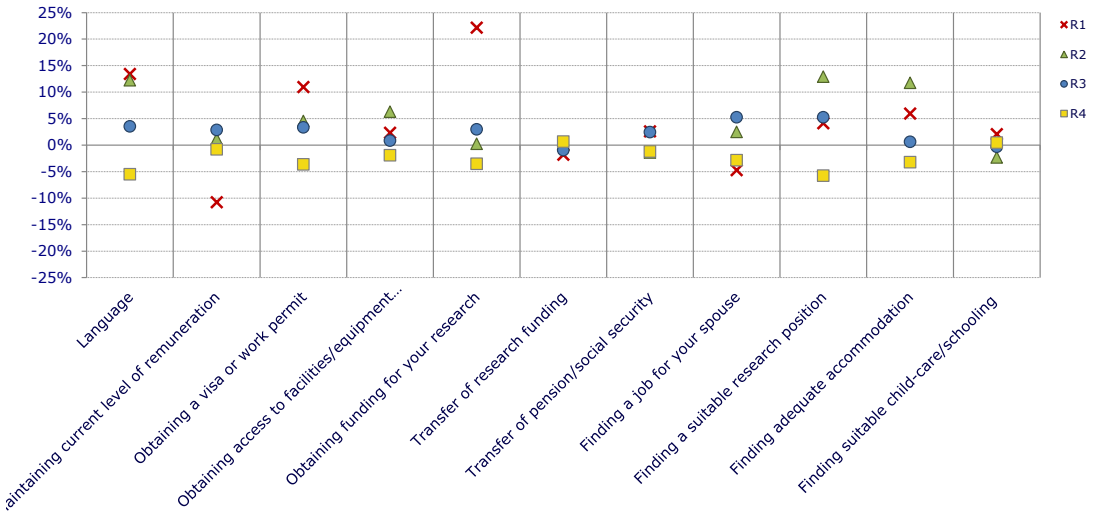
Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU for whom the specific factor was a difficulty (as compared to researchers answering difficult or not difficult) in their move to the EU (n=778).*
- *Multiple options are possible*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The transfer of researcher funding and social security rights was strongly felt to be equally difficult by researchers across the different career stages. There were, however, some differences indicated between the kinds of difficulties faced when moving to the EU between researchers at different the career stages. Obtaining funding was a difficulty most frequently faced by first stage researchers (R1) when moving to the EU. Maintaining the current level of remuneration was, on the other hand, indicated more frequently as a faced difficulty by R2-R4 researchers than by R1 researchers. Finding a suitable research position and adequate accommodation are labelled as difficulties for R2 researchers more frequently than for other researchers.

Figure 60: Difference in difficulties faced when moving to the EU by career stage[43]



	R1	R2	R3	R4	*Total*
Language	43.2%	42.0%	33.3%	24.3%	*29.8%*
Maintaining you current level of remuneration	10.8%	22.7%	24.4%	20.8%	*21.6%*
Obtaining a visa or work permit	40.5%	34.1%	32.9%	25.9%	*29.6%*
Obtaining access to facilities/equipment necessary for your research	10.8%	14.8%	9.3%	6.5%	*8.5%*
Obtaining funding for your research	37.8%	15.9%	18.7%	12.2%	*15.7%*
Transfer of research funding	2.7%	4.5%	3.6%	5.1%	*4.5%*
Transfer of pension/social security	10.8%	6.8%	10.7%	7.0%	*8.2%*
Finding a job for your spouse	18.9%	26.1%	28.9%	20.8%	*23.7%*
Finding a suitable research position	16.2%	25.0%	17.3%	6.3%	*12.1%*
Finding adequate accommodation	35.1%	40.9%	29.8%	25.9%	*29.2%*
Finding suitable child-care/schooling for children	13.5%	9.1%	11.1%	11.9%	*11.4%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Difference between the share of non-EU researchers who have previously worked in the EU by career stage to whom the specific factor was an important difficulty (compared to researchers answering important or unimportant) in their last move to the EU and the total share of non-EU researchers who have moved to the EU in the for whom the specific factor was an important barrier to mobility (n=778)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The difficulties faced when moving to the EU appear to be quite similar among US, Australian, Turkish, Brazilian and Russian researchers. For Turkish researchers, obtaining a visa or work permit was a more significant barrier than for the other nationalities. Language was also more frequently a difficulty that Australian and Brazilian researchers faced when moving to the EU, while Russian researchers faced most difficulties when looking for accommodations. A comparison with other countries is not meaningful given the small number of observations (n<30).

[43] The scale of Figure 60 is different than the other figures by career stage

Table 23: Difference in difficulties faced when moving to the EU by career stage by country of citizenship

	Australia	Brazil	Russia	Turkey	United States
Language	36.5%	34.2%	16.7%	23.8%	28.8%
Maintaining you current level of remuneration	23.8%	13.2%	13.3%	14.3%	25.3%
Obtaining a visa or work permit	34.9%	26.3%	20.0%	45.2%	27.6%
Obtaining access to facilities/equipment necessary for your research	6.3%	10.5%	6.7%	14.3%	9.6%
Obtaining funding for your research	12.7%	18.4%	16.7%	14.3%	12.9%
Transfer of research funding	4.8%	0.0%	0.0%	7.1%	3.5%
Transfer of pension/social security	14.3%	7.9%	10.0%	14.3%	4.0%
Finding a job for your spouse	25.4%	23.7%	20.0%	19.0%	22.0%
Finding a suitable research position	11.1%	7.9%	16.7%	21.4%	8.7%
Finding adequate accommodation	33.3%	34.2%	40.0%	35.7%	27.2%
Finding suitable child-care/schooling for children	14.3%	5.3%	13.3%	21.4%	11.5%

Source: MORE2 Extra-EU mobility survey (2012)

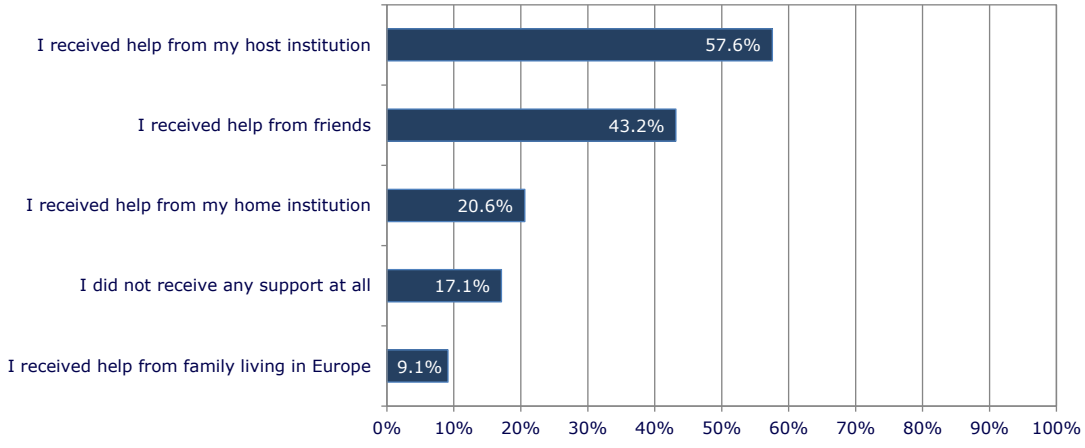
Note:

- *Difference between share of non-EU researchers who have previously worked in the EU by career stage for whom the specific factor was an important difficulty (as compared to researchers answering either important or unimportant) in their last move to the EU; and the total share of non-EU researchers who have moved to the EU for whom the specific factor was an important barrier to mobility by country of citizenship (for countries with a response > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- How to overcome barriers to EU mobility

As Figure 61 shows, 17% of the non-EU researchers who moved to the EU in the past did not receive any support at all. 58% of the non-EU researchers indicated that they received support from the host institution in order to help overcome the difficulties of moving to the EU. 43% received help from friends.

Figure 61: How to overcome the barriers to EU mobility



Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Received help for non-EU researchers who have previously worked in the EU in order to overcome barriers to EU-mobility (n=549).*
- *Multiple answers are possible*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

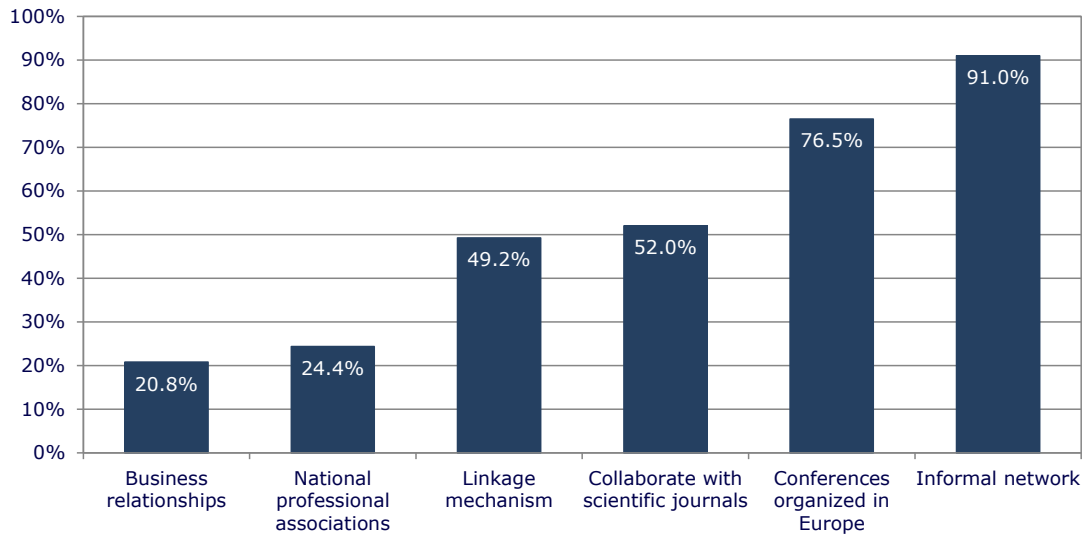
4.2.4 Network and collaboration: Does EU mobility encourage research collaboration?

In this section we focus on the collaborative research behaviour of those non-EU who have previously worked in the EU. In particular, we look at their current research connections with the EU; the type of research collaborations in which they are involved; the effects of their mobility experience on this kind of research; and the influence that virtual technologies have had on both their collaboration and mobility patterns.

4.2.4.1 Network effects

Based on the survey, 94% of the respondents in the sample are still "connected" to European research or researchers. Figure 62 shows the distribution by type of connection. As expected, non-EU researchers with past working experience in Europe keep connected to Europe most frequently via informal networks formed by friends, acquaintances or colleagues from Europe (91%). A large proportion - 77% - maintain their connections with European researchers via conferences organized in Europe. Nearly half of the respondents reported they used scientific journals and their linkage mechanisms as means of keeping connected with their European counterparts. A much lower proportion of respondents maintained connections with Europeans and the EU via professional associations or business relationships (24% and 21%, respectively).

Figure 62: Type of connections with EU researchers maintained by non-EU researchers who have been to the EU



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU who indicate that they maintain current relationships with EU researchers via a specific type of connection (n=731)*
- *Multiple connection types per respondent are possible*

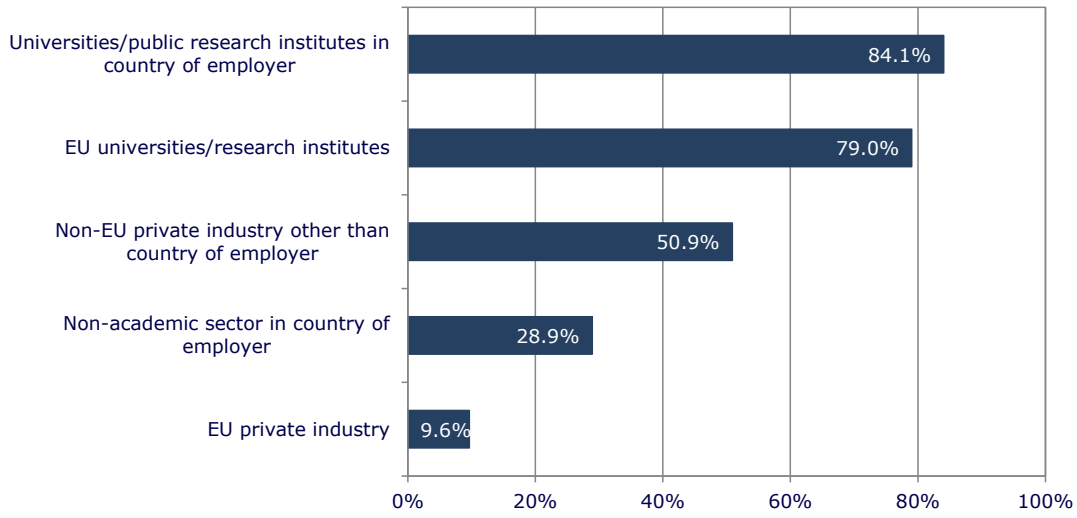
4.2.4.2 Effects of research collaboration

- Type of collaboration

Similar to European researchers working abroad, non-European researchers who have worked in Europe are active research collaborators; indeed, 94% of them work in this way. Most indicate that they have worked with more than one partner. In fact, 28% of them worked with two partners, 33% with three, 15% with four, and only 13% indicated that they collaborated with just one partner.

Based on distribution by categories of research collaboration shown in Figure 63, the most frequent partners are researchers affiliated with universities/public research institutes in the country of employment (84%); followed by collaboration with researchers affiliated with EU universities/institutes (79%); with non-EU private industry other than the country of employment (51%); with the non-academic sector in the country of employment (29%), and with researchers affiliated to EU private industry (10%). These results are shown in Figure 63.

Figure 63: Distribution by categories of research collaboration by non-EU researchers who have been to the EU

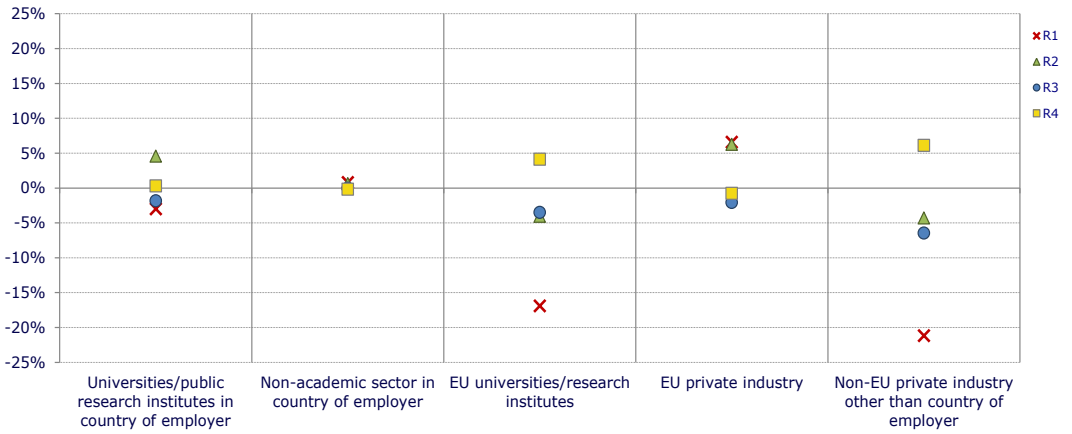


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU who indicate that they collaborated in the previous 12 months with specific categories (n=778)*
- *Multiple collaboration types per respondent are possible*

The career stage of the researcher seems to affect patterns of research collaboration. Figure 64 suggests that as the research career consolidates, the probability of collaborating with EU universities/research institutes increases. No such pattern is found regarding research collaboration with the other types of partners.

Figure 64: Difference in share of categories of collaboration of non-EU researchers who have been to the EU by current career stage



	R1	R2	R3	R4	*Total*
Universities/public research institutes in country of employer	81.1%	88.6%	82.2%	84.3%	84.1%
Non-academic sector in country of employer	29.7%	29.5%	28.9%	28.7%	28.9%
EU universities/research institutes	62.2%	75.0%	75.6%	83.2%	79.0%
EU private industry	16.2%	15.9%	7.6%	8.9%	9.6%
Non-EU private industry other than country of employer	29.7%	46.6%	44.4%	57.0%	50.9%

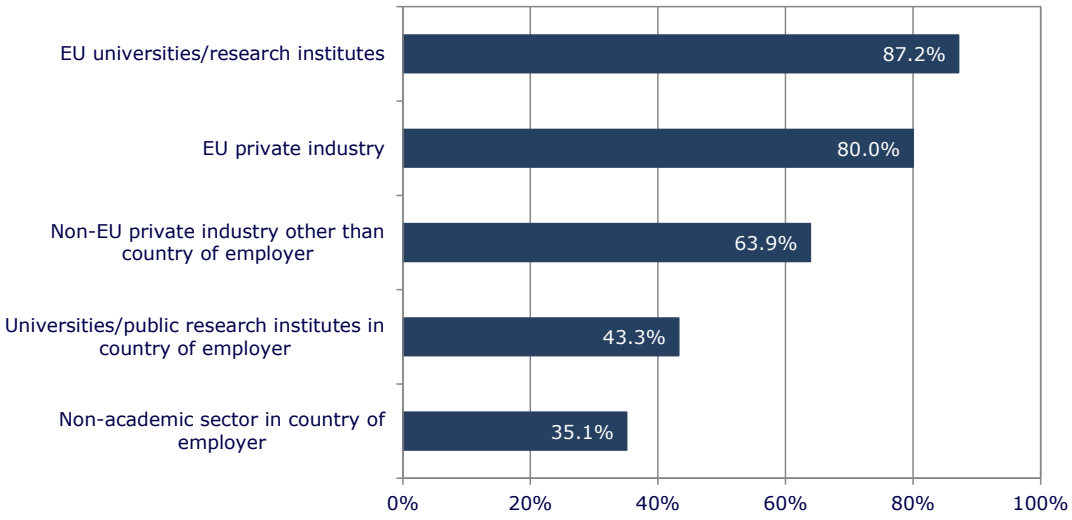
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Difference between the share of non-EU researchers who have previously worked in the EU and who indicate collaboration with each category by current career stage and total share at all career stages (n=778)*
- *Multiple collaboration types per respondent are possible*

- Research collaboration as a result of mobility experience

The relationship between mobility and research collaboration is again confirmed in this sample. In fact, nearly 80% of the respondents indicated that the collaborative experience they had in the previous 12 months also resulted from a mobility experience in the past. Furthermore, those reporting collaboration with European researchers were more likely to indicate that this was the case. In fact, as shown in Figure 65, 87% of the respondents indicated that their collaboration with EU universities/research institutions resulted from previous mobility experiences. 80% of the respondents indicated that their collaboration with EU private industry resulted from their previous mobility experiences. Less frequent research collaboration resulting from mobility is reported among those working with third countries (64%); with a university/public research institution in the country of employment (43%); and with the non-academic sector in their country of employment (35%).

Figure 65: Share of non-EU researchers who have been to the EU indicating research collaboration as a direct result of mobility experience



Source: MORE 2 Extra-EU Mobility Survey (2012)

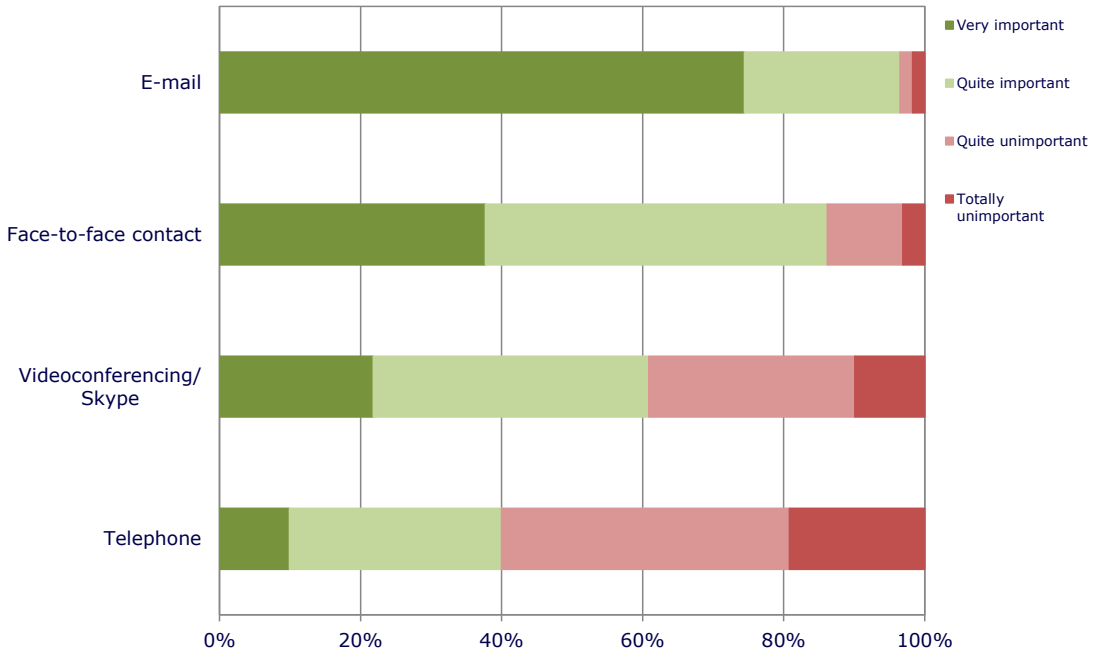
Note:
- *Share of non-EU researchers who have previously worked in the EU who indicated research collaboration in the previous 12 months with specific categories as a result of mobility experience (n=778)*
- *Multiple collaboration types per respondent are possible*

No meaningful conclusions can be drawn from the data available regarding the distribution over career stage, country of citizenship or country of employment as the sample size is too small.

- Influence of virtual technology

While virtual technology such as e-mail and videoconferencing (Skype) are largely rated between "quite important" and "very important" by the non-EU researchers working abroad who have previous experience in Europe, interaction by telephone is mainly rated between "quite unimportant" and "totally unimportant". Interestingly, and as shown in Figure 66 and the source table, face-to-face interaction is still perceived as being either "quite important" (49%) or "very important" (38%).

Figure 66: Degree of importance of web-based or virtual technology in research collaboration for non-EU researchers who have been to the EU



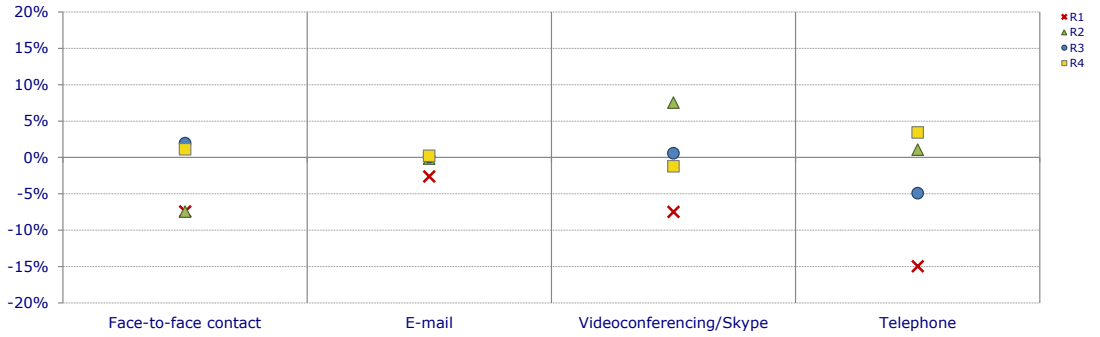
	Totally unimportant	Quite unimportant	Quite important	Very important
Face-to-face contact	3.1%	10.7%	48.5%	37.7%
E-mail	1.7%	1.8%	22.1%	74.5%
Videoconferencing/Skype	9.9%	29.2%	39.0%	21.8%
Telephone	19.2%	40.8%	30.1%	9.9%

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU who indicate level of importance of web-based or virtual technology on research (n=778)*
- *Multiple interaction types per respondent are possible*

The analysis of the perception of the importance of virtual technologies by career stage, depicted in Figure 68, shows that there are no major differences by career stage when it comes to the importance of email. There are some differences for the role assigned to the telephone as a research tool. While R1 researchers have been less likely than average to use the telephone in this context, R4 researchers have been more likely than average to use them. Concerning fact-to-face contact, R1 and R2 researchers consider it less important than R3 and R4 researchers. Videoconferencing/Skype is perceived as being most important by R2 researchers and as least important by R1 researchers.

Figure 67: Difference in degree of importance of web-based or virtual technology in research collaboration for non-EU researchers who have been to the EU by career stage



	R1	R2	R3	R4	*Total*
Face-to-face contact	78.8%	78.8%	88.2%	87.3%	*86.2%*
E-mail	93.9%	96.4%	96.6%	96.8%	*96.6%*
Videoconferencing/Skype	53.3%	68.4%	61.4%	59.6%	*60.8%*
Telephone	25.0%	41.0%	35.1%	43.4%	*40.0%*

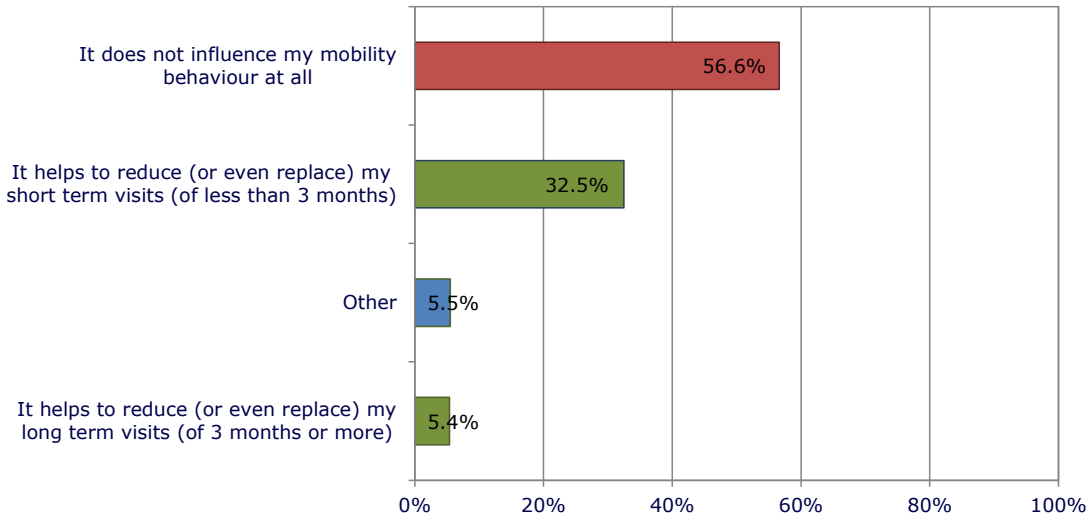
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Difference between share of non-EU researchers who have previously worked in the EU who use virtual technology to support research collaboration by current career stage and total share at all career stages (n=778)*
- *Multiple collaboration types per respondent are possible*

- Virtual mobility

Figure 69 shows how important web-based or virtual technologies are for influencing mobility behaviour. While 57% of the respondents indicated that it did not influence their mobility behaviour at all, 33% indicated that it helped reduce (or even replace) short term visits of less than 3 months. Very few (5%) indicated that it helped reduce (or even replace) long term visits of more than 3 months.

Figure 68: Influence of web-based or virtual technology on mobility behaviour of non-EU researchers who have been to the EU

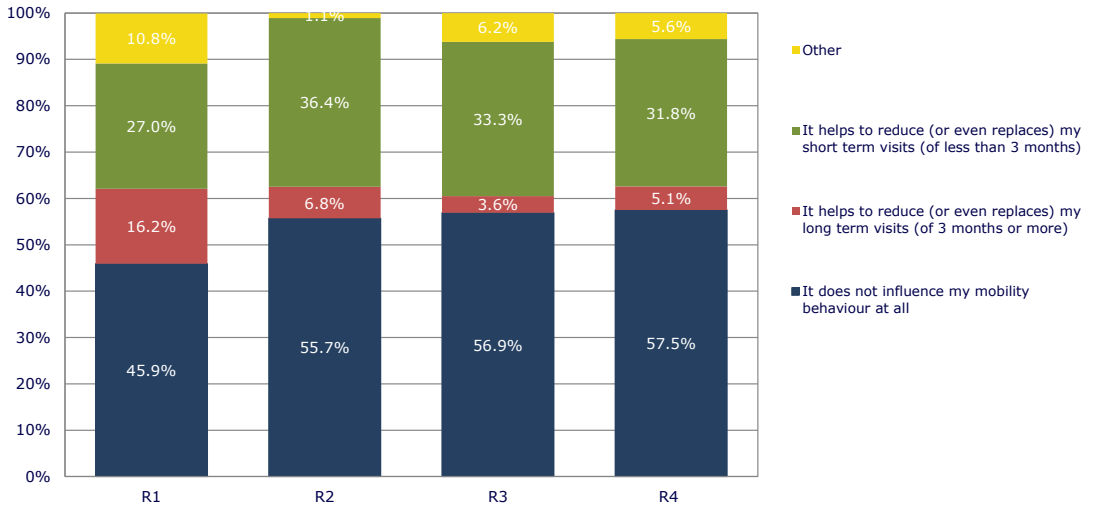


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have previously worked in the EU who indicated the effect of web-based or virtual technology on their mobility behaviour or decision (n=778)*
- *Multiple interaction types per respondent are possible*

Figure 69 illustrates the finding that web-based or virtual technologies have different effects, depending on the career stage of the respondent. While for the majority of respondents, web-based or virtual technology did not affect their mobility behaviour, a relatively large proportion of early stage researchers (R1) think that it helped to reduce (or even replace) long term visits (16%). 37% of the recognized researchers (R2) also indicate that virtual technology helps to reduce short term visits, which is more than for the R1 (27%), R3 (33%) and R4 (32%) researchers.

Figure 69: Influence of web-based or virtual technology on the mobility behaviour of non-EU researchers who have been to the EU by career stage



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:

- *Share of non-EU researchers who have previously worked in the EU who indicated the effect of web-based or virtual technology on their mobility behaviour or decision by career stage (n=778)*
- *Multiple effects per respondent are possible*

4.2.5 Retention aspects and drivers to leave the EU

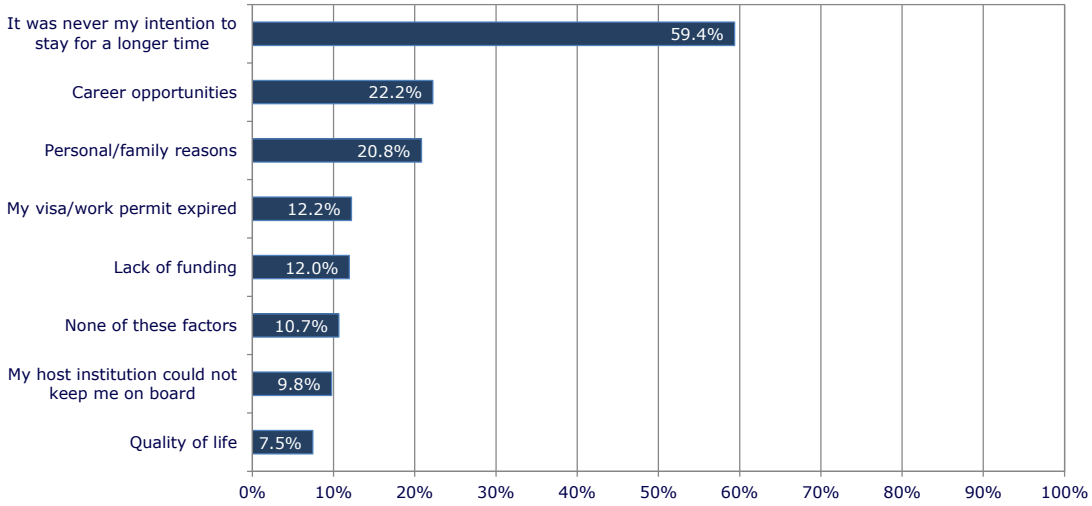
- Retention of non-EU researchers who have been to the EU

72% of the non-EU researchers indicate that they would have liked to stay in Europe. 93% would also recommend to other colleagues that they work in Europe as researchers.

- Drivers to leave the EU

The primary factor indicated as a driver to leave Europe was the fact that it was never the researchers' intention to stay for a longer period of time (Figure 70); 59% of non-EU researchers who moved to the EU never intended to stay longer but 72% would have liked to stay longer. This information corresponds to the fact that only 34% of non-EU researchers who moved to the EU also changed employer (this is much lower than the percentage of EU researchers who move abroad and change employer). Career opportunities (22%) and personal/family reasons (21%) are also important factors for non-EU researchers to leave the EU.

Figure 70: Factors that played a role for mobile non-EU researchers in their decision to leave the EU



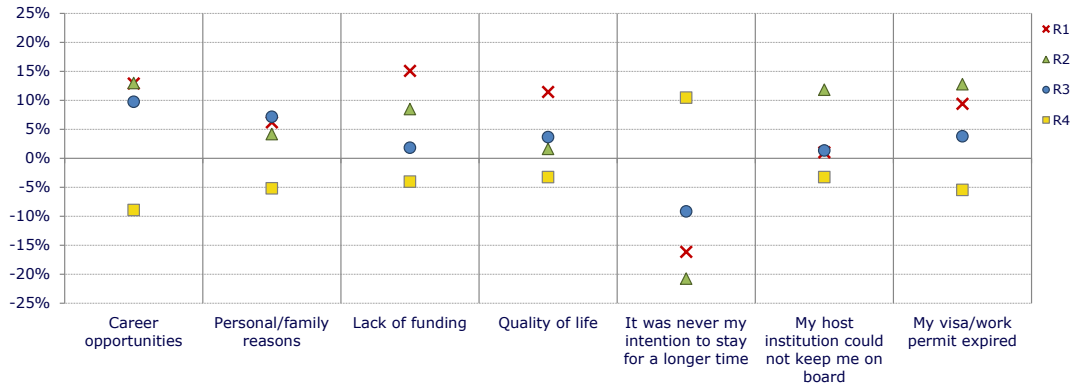
Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Factors that played a role for non-EU researchers who have previously worked in the EU in their decision to leave Europe (n=778)*
- *Multiple factors per respondent are possible*

Figure 71 illustrates that that the drivers to leave Europe are very different for researchers at different career stages. R4 researchers' driver to leave Europe is more frequently the fact that they had not intended to stay for long compared to researchers at other career stages. Career opportunities, lack of funding and visa/work permit expiration issues were more often the factors that influenced the decision to leave Europe for R1 and R2 researchers than for R3 and R4 researchers.

Figure 71: Difference in the factors that played a part for mobile non-EU researchers in their decision to leave the EU by career stage[44]



[44] The scale of Figure 60 is different than the other figures per career stage

	R1	R2	R3	R4	*Total*
Career opportunities	35.1%	35.2%	32.0%	13.3%	*22.2%*
Personal/family reasons	27.0%	25.0%	28.0%	15.7%	*20.8%*
Lack of funding	27.0%	20.5%	13.8%	7.9%	*12.0%*
Quality of life	18.9%	9.1%	11.1%	4.2%	*7.5%*
It was never my intention to stay for a longer time	43.2%	38.6%	50.2%	69.9%	*59.4%*
My host institution could not keep me on board	10.8%	21.6%	11.1%	6.5%	*9.8%*
My visa/work permit expired	21.6%	25.0%	16.0%	6.8%	*12.2%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Difference between share of non-EU researchers who have previously worked in the EU by career stage for whom the factor was an important (versus not important) driver to leave the EU and the total share of non-EU researchers who had moved to the EU for whom the factor was an important (versus not important) driver to leave the EU (n=778)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

A clear pattern in drivers to leave Europe can also be observed between the genders. More men than women decided to leave because they had not intended to stay for longer, whereas the other factors were less important for men than for women. Most differences are only marginal.

A lack of funding was more frequently a factor driving the decision to leave the EU for Russian (23%) and Turkish (26%) researchers than for those from other countries. For Russian researchers, an expired visa/work permit was frequently a reason to leave the EU (43%). US researchers, on the other hand, had often not intended to stay (70%), whereas for Australian researchers, quality of life was an important factor in deciding to leave the EU (Table 24). A comparison with other countries is not meaningful given the small number of observations (n<30).

Table 24: Factors that played a role for mobile non-EU researchers in their decision to leave the EU by citizenship

	Australia	Brazil	Russia	Turkey	United States	*Total*
Career opportunities	27.0%	28.9%	16.7%	33.3%	19.0%	*22.2%*
Personal/family reasons	28.6%	15.8%	23.3%	31.0%	16.9%	*20.8%*
Lack of funding	11.1%	7.9%	23.3%	26.2%	8.7%	*12.0%*
Quality of life	22.2%	5.3%	3.3%	9.5%	4.2%	*7.5%*
It was never my intention to stay for a longer time	54.0%	50.0%	20.0%	38.1%	69.8%	*59.4%*
My host institution could not keep me on board	4.8%	7.9%	13.3%	19.0%	8.4%	*9.8%*
My visa/work permit expired	11.1%	15.8%	43.3%	16.7%	8.4%	*12.2%*

Source: MORE2 Extra-EU mobility survey (2012)

Note: Factors that played a role for non-EU researchers who have previously worked in the EU in their decision to leave Europe by country of citizenship (n=778) (for n>30).

4.3 Non-EU researchers who have not moved to the EU but who have moved to non-EU countries

This section presents the indicators for non-EU researchers (according to citizenship) who have not moved the EU but who have moved (for more than 3 months) to countries outside the EU. When referring to researchers in this section, the reader should bear in mind that we are focusing on non-EU researchers whose only moves have been to countries outside the EU. The sample size is 335 researchers.

First, some profile characteristics are discussed in order to identify the non-EU researchers who had never moved to the EU but who had moved to non-EU countries. Next, the mobility patterns towards non-EU destinations are discussed in detail.

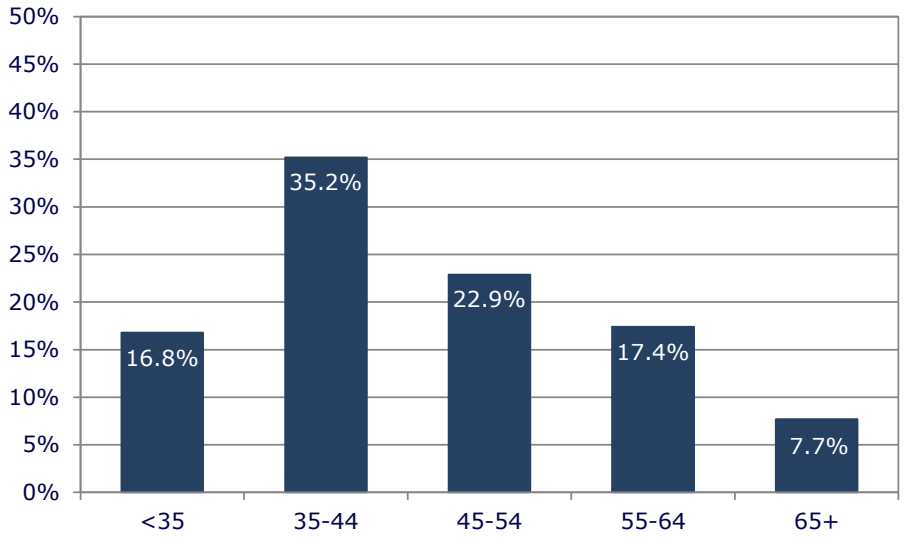
The remaining topics are limited to the mobility of non-EU researchers to the following countries only: US, Japan, China, India, Singapore, Russia, South Africa and Brazil. In the third section, we discuss the motives, effects and barriers for non-EU researchers regarding their moves to these non-EU countries. The network and collaboration effects are then discussed in section four. Section five queries the attractiveness of the EU for mobile non-EU researchers who had never been to the EU. Subsequently, the anticipated barriers to EU mobility experienced by these researchers are discussed.

4.3.1 Profile characteristics: Who are they?

4.3.1.1 Socio-demographics

Of the total non-EU researchers who had moved only to non-EU countries, 35% are women and 65% are men. The distribution by age is presented in Figure 72. More than half of them are under 45, with the largest proportion of them in the 35-44 age group (35%). 25% of these researchers are 55 years and over.

Figure 72: Mobile non-EU researchers who have never worked in the EU by age group



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have not worked previously in the EU but have moved to non-EU countries (n=335)

Looking at the country of citizenship, it appears that the United States has the highest proportion of these researchers (42%), followed by Australia (14%), and Turkey (10%). For many other countries the numbers are very small.

Table 25: Mobile non-EU researchers who have never worked in the EU by country of citizenship

Country of citizenship	N	Percentage
Australia	46	13.7%
Turkey	34	10.1%
United States	141	42.1%

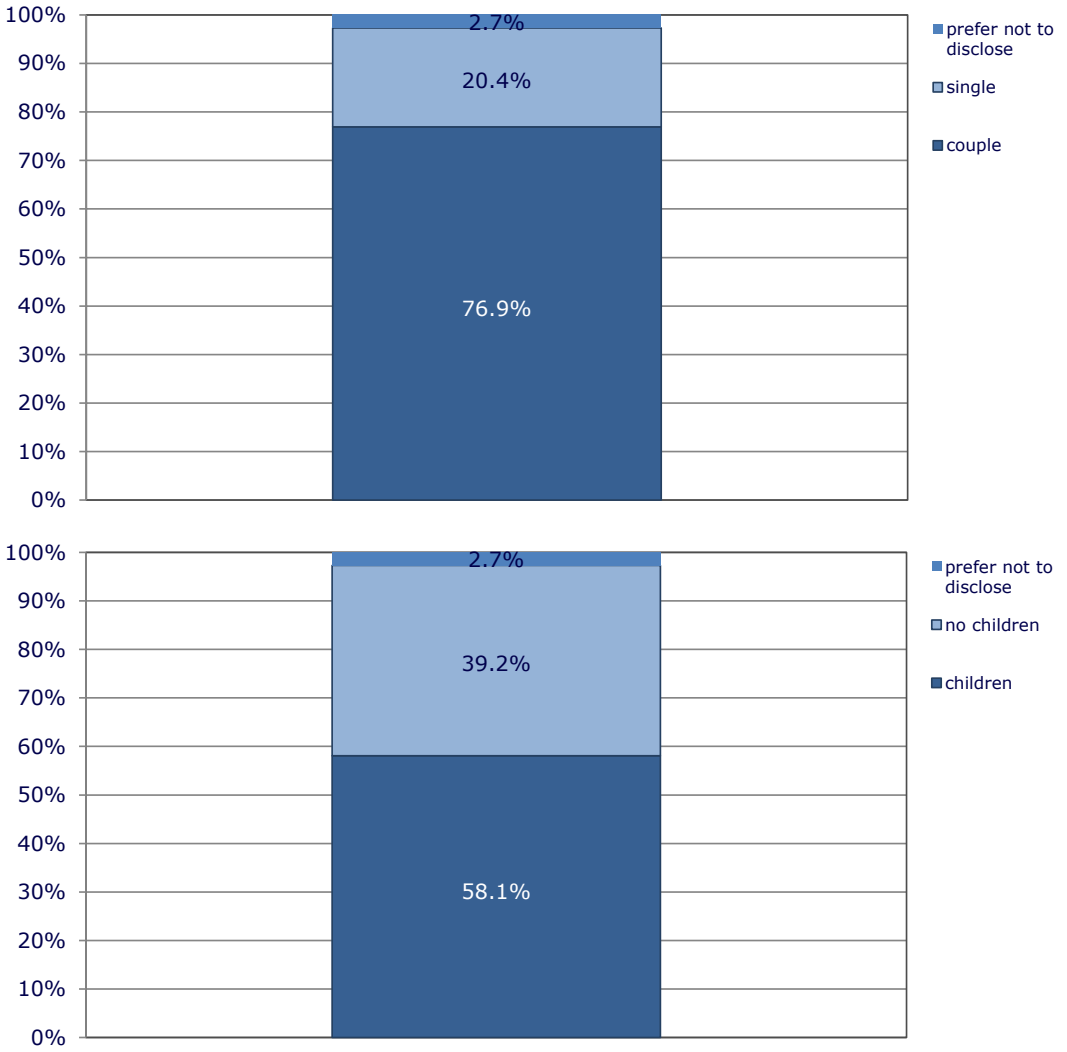
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but have moved to non-EU countries by country of citizenship (for n > 30)

For the countries of residence, similar percentages apply, the most popular again being the United States (43%) followed by Australia (15%), Turkey (11%) and Israel (10%). All the other respondents (21%) are distributed across 31 different countries.

Looking at marital status, 77% are married or cohabiting and 20% are single. 58% of all respondents have children (Figure 73).

Figure 73: Mobile non-EU researchers who have never worked in the EU by marital and family status



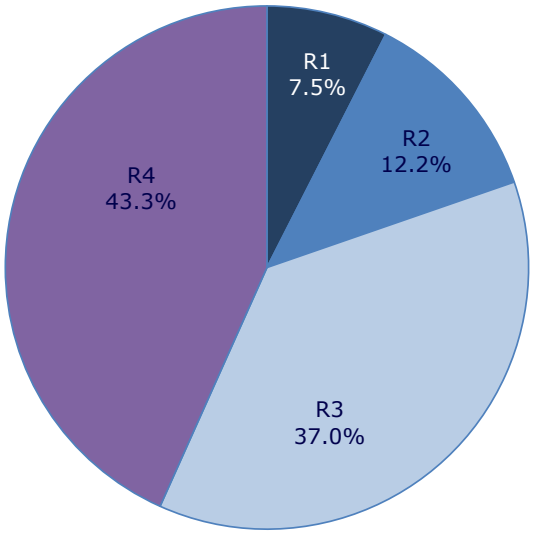
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who were single or in a couple, who had children, no children or who did not disclose their family status (n=335)

4.3.1.2 Current employment as a researcher

Figure 74 presents the distribution of non-EU researchers who had not worked previously in the EU but who had worked in non-EU countries according to their career stage. The leading researchers (R4) dominate this group (43%), followed by the established researchers (37%), whereas 8% of the researchers identify themselves as being at the doctoral candidate stage.

Figure 74: Mobile non-EU researchers who have never worked in the EU by career stage



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries and their career stage (n=335)

- PhD coverage

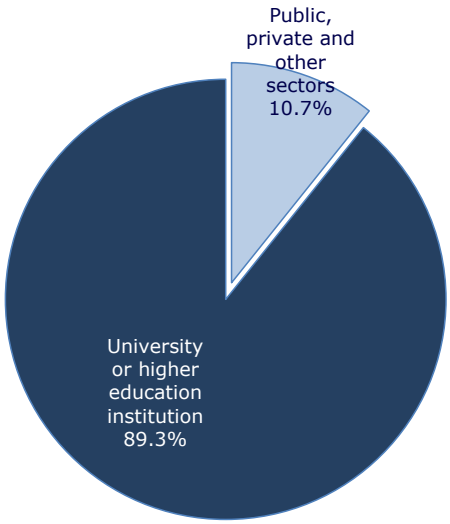
Regarding PhD coverage, the proportion of R1 researchers is relatively small, with 25 respondents. 17 of these 25 indicated that they were currently working on a PhD or enrolled in a doctoral program. Most of them were in their third year (41%) and the others were distributed over several years of PhD study.

- Sector of employment

Looking at the distribution of EU researchers abroad by sector of employment, we observe that 89% are employed at a university or higher education institution and 11% work in the public, private or other sector.[45]

[45] Due to the small sample (n<30), no subdivision is made between public versus private and other sectors.

Figure 75: Mobile non-EU researchers who have never worked in the EU by sector of employment



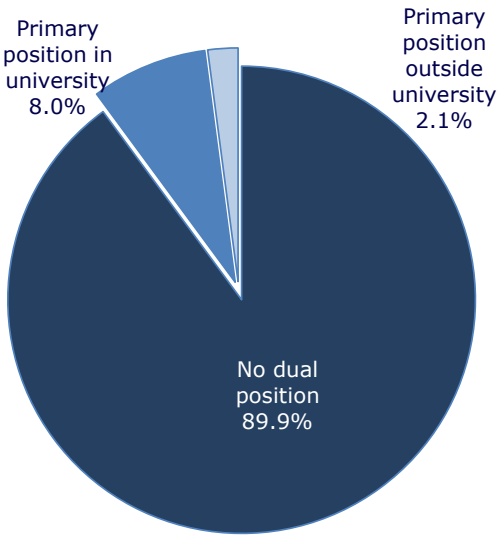
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries and their sector of employment (n=335)*
- *No subdivision was made between public and private sector as the sample size was too small*

- Dual position

A small proportion of all these non-EU researchers held a dual position (10%) and for the majority, the university was their primary employer.

Figure 76: Mobile non-EU researchers who have never worked in the EU by status dual position



Source: MORE 2 Extra-EU Mobility Survey (2012)

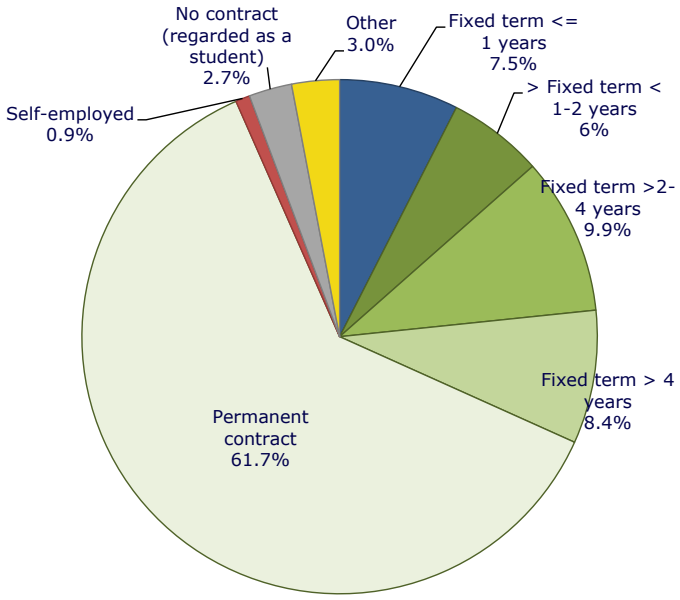
Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries currently in a "dual position", whereby they are employed both at a university (or generally higher education institution) and in another sector (n=335)

The proportion of dual positions in countries of residence with more than 30 observations was Australia (8%), Israel (6%), Turkey (24%) and the United States (10%).

- Working conditions

The type of employment contract held by these researchers is presented in Figure 77. The majority of researchers had a permanent contract (62%), while 32% had fixed term contracts. If we analyse the distribution of fixed term contracts by duration, we find that the majority of contracts were for a 2-4 year period, followed by contracts of 4 or more years.

Figure 77: Mobile non-EU researchers who have never worked in the EU per contract type

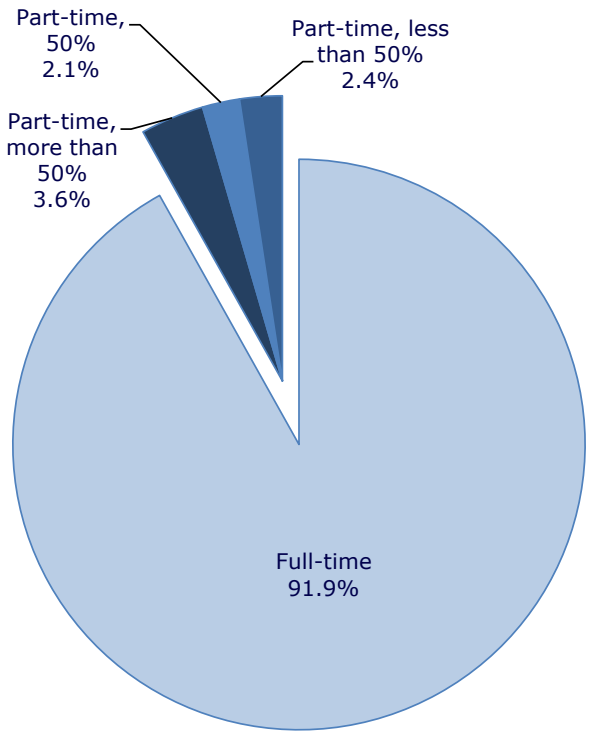


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries and their contract type; no contract is regarded as student (n=335)

Figure 78 shows that the majority of researchers held a full-time position and the distribution among the part-time classifications is more or less the same.

Figure 78: Mobile non-EU researchers who have never worked in the EU by type of position

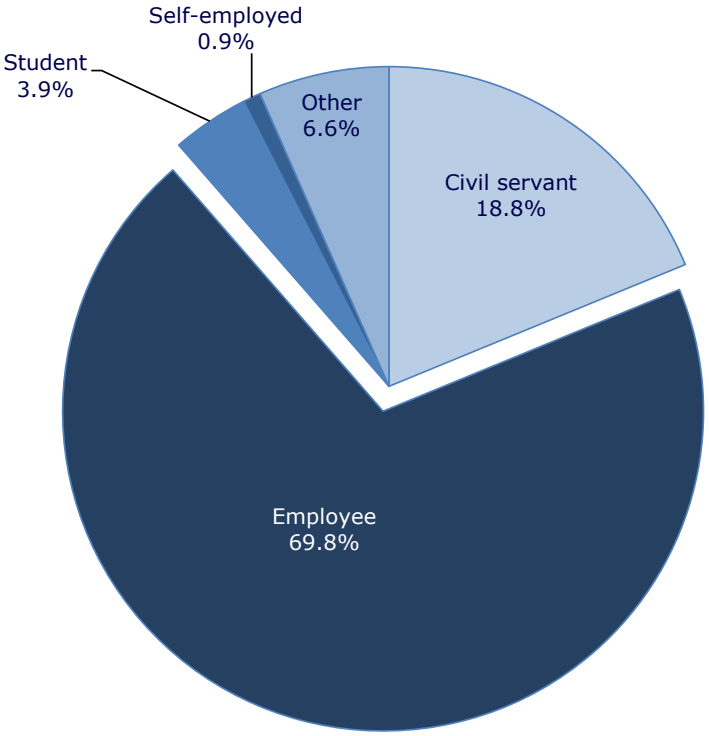


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries and their type of position (n=335)

As compared to the EU researchers who currently work abroad and to the non-EU researchers who previously worked in the EU (studied in the previous sections of this chapter), a larger proportion of the non-EU researchers who have never worked in the EU but who have moved to non-EU countries have civil servant status.

Figure 79: Mobile non-EU researchers who have never worked in the EU by employment status



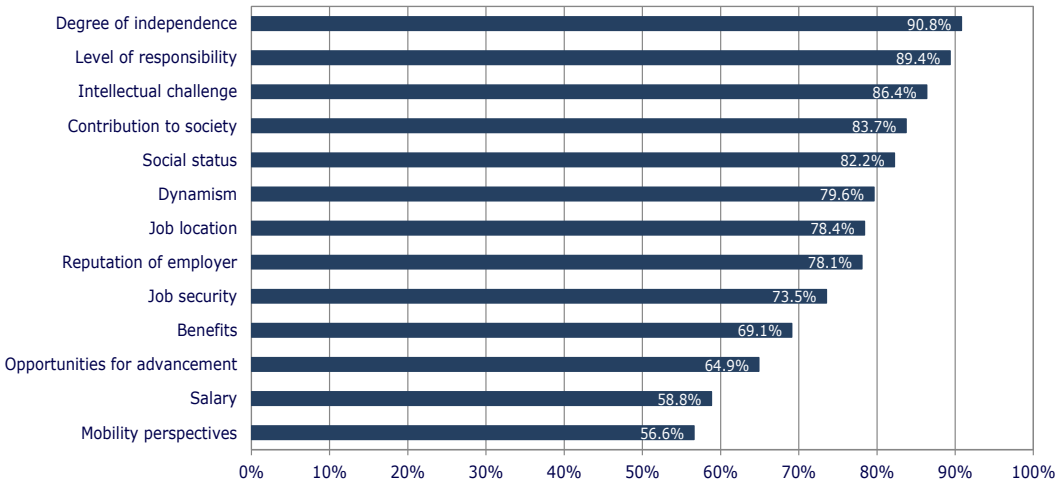
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries by employment status (n=335)

- Degree of satisfaction

Non-EU researchers who have only moved to non-EU countries were quite satisfied with the intrinsic or academic aspects of their work. Their satisfaction with their degree of independence, level of responsibility and intellectual challenge were at the top of the satisfaction level. The extrinsic aspects like benefits, opportunities for advancement, salary and the mobility perspectives were all at the lower end.

Figure 80: Degree of satisfaction of mobile non-EU researchers who have never worked in the EU



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who were satisfied (as compared to the researchers answering either satisfied or dissatisfied) with different aspects of their current academic position (n=330)

Comparing satisfaction levels by career stage, it appears that the "leading researchers" (R4) were mostly satisfied in terms of virtually all aspects of their situation. Established researchers (R3) score their satisfaction level, on average, higher, except for dynamism and intellectual challenge, which they score lower. R2 researchers are less satisfied with most of the aspects of their post. The recognized researchers (R2) are overall the least satisfied, especially regarding salary, benefits, social status, and degree of independence. Due to the small sample of first stage researchers (R1) (n<30), no conclusions can be reached regarding the degree of satisfaction for this group.

Researchers employed in Turkey are, on average, less satisfied with the following issues relating to their post: dynamism, intellectual challenge, level of responsibility, degree of confidence, contribution to society, their opportunities for advancement, and mobility perspective, relative to researchers employed in Australia, Israel or the US. In terms of job security, researchers employed in Australia are less satisfied relative to Israel, Turkey and the US. Researchers employed in the US and Turkey are also quite satisfied about the reputation of their employer (72%), as well as those employed in Australia and Israel (91%). Social status is perceived as less satisfactory when employed in Australia, relative to the other countries (Israel, Turkey and the US).

Table 26: Degree of satisfaction of mobile non-EU researchers who have never worked in the EU by country of current employer

	Australia	Israel	Turkey	United States	*Total*
Dynamism	90.9%	94.1%	63.9%	78.8%	*79.6%*
Intellectual challenge	95.7%	91.2%	51.4%	92.4%	*86.4%*
Level of responsibility	93.5%	94.1%	83.8%	90.3%	*89.4%*
Degree of independence	87.2%	97.1%	80.0%	95.2%	*90.8%*
Contribution to society	93.6%	87.5%	61.1%	87.6%	*83.7%*
Opportunities for advancement	57.4%	74.2%	51.4%	71.8%	*64.9%*
Mobility perspectives	62.8%	70.0%	44.4%	60.0%	*56.6%*
Social status	71.1%	84.4%	78.4%	87.2%	*82.2%*
Salary	70.2%	78.8%	32.4%	62.8%	*58.8%*
Benefits	69.6%	75.8%	43.2%	82.6%	*69.1%*
Job security	51.1%	75.0%	70.3%	81.7%	*73.5%*
Job location	80.9%	79.4%	78.4%	75.0%	*78.4%*
Reputation of employer	91.5%	90.9%	72.2%	71.3%	*78.1%*
N =	47	34	37	145	*335*

Source: MORE 2 Extra-EU Mobility Survey (2012)

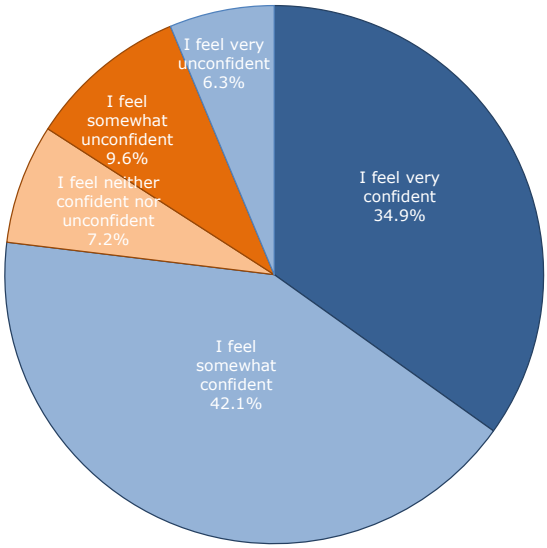
Note: Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries and were satisfied (as compared to the researchers answering either satisfied or dissatisfied) with different aspects of their current academic position by country of current employer (n > 30)

- Degree of confidence about the future

The degree of confidence of non-EU researchers who have never worked in the EU but who have worked in non-EU countries about their future is presented in

Figure 81. 77% were very confident or somewhat confident, while 16% were very unconfident or somewhat unconfident and around 7% were neutral.

Figure 81: Degree of confidence of mobile non-EU researchers who have never worked in the EU about future prospects



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries about their future prospects for their research careers (n=335)

The leading researchers (R4) felt very confident about the future (44%). The recognized researchers (R2) felt the most unconfident compared to their counterparts at other career stages. Due to the small sample for first stage researchers (R1) (n<30), no conclusions can be offered regarding the degree of confidence of R1 researchers.

When considering the degree of confidence of non-EU researchers by country of current employer, we can only compare Australia, Israel, Turkey and the US. Confidence about future career prospects is highest in Israel, with 80% of the researchers indicating very or somewhat confident, closely followed by the US (79%). Furthermore, the degree of confidence about future prospects is 71% for Australia, and 65% for researchers who are employed in Turkey. A comparison with other countries cannot be made as the sample size is smaller than 30.

Table 27: Degree of confidence of mobile non-EU researchers who have never worked in the EU about future prospects by country of current employer

	Australia	Israel	Turkey	United States	*Total*
I feel very confident	25.0%	47.1%	16.2%	37.8%	*34.9%*
I feel somewhat confident	45.8%	32.4%	48.6%	41.2%	*42.1%*
I feel neither confident nor unconfident	6.3%	5.9%	13.5%	6.1%	*7.2%*
I feel somewhat unconfident	10.4%	0.0%	18.9%	10.1%	*9.6%*
I feel very unconfident	12.5%	14.7%	2.7%	4.7%	*6.3%*
N=	48	34	37	148	*335*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Degree of confidence of Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries about their future prospects for their research careers by country of current employer (for country responses of n > 30)

4.3.2 Mobility experience: What were their preferred destinations if not the EU?

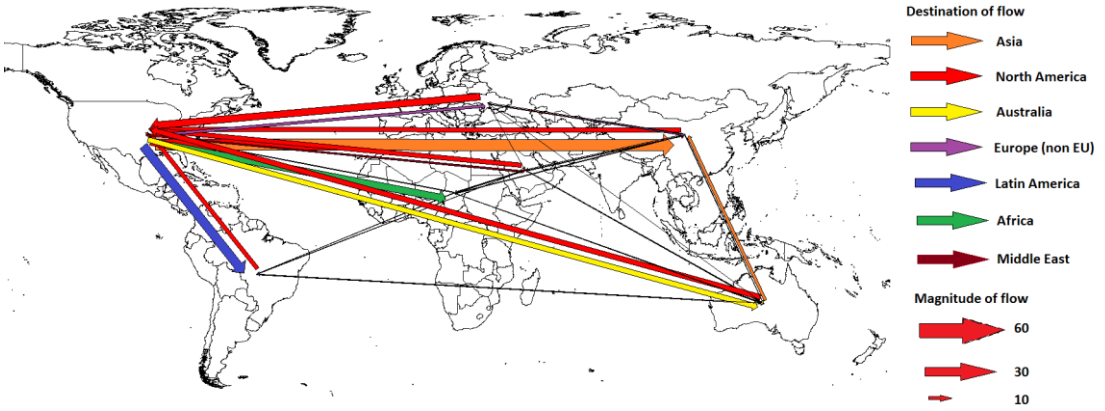
This section presents the mobility experience of those non-EU researchers who have not worked in the EU, but who have worked in non-EU countries. Most indicators are based on the moves and not on the individuals themselves. Since one researcher can have multiple mobility moves, the number of moves is larger than the number of researchers.

The first part below describes the mobility flows, including the number of moves and mobility patterns outside the EU. The frequency and length of the period overseas is then discussed, taking into account moves with and without a change in employer. Moves with a change in employer are defined as "employer mobility". Subsequently, we focus on mobility conditions such as contract, destination sector and career progress.

4.3.2.1 Mobility flow

In total, 610 moves were registered for 335 non-EU researchers who have never been to the EU but have worked in non-EU countries. Figure 82 illustrates the main flows of mobility for non-EU researchers who have worked in non-EU countries.

Figure 82: Mobility map indicating non-EU mobility for non-EU researchers who have never worked in the EU



Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Number of moves by non-EU researchers who have never worked in the EU but who have moved in non-EU countries (n=610)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*
- *With country of departure equal to country of citizenship*
- *The size of the arrows is proportional to the number of moves*
- *Only flows of 3 moves or more are presented*

Some interesting observations can be made when analysing the mobility flows to non-EU countries:

- The United States accounted for 32% of moves and was by far the most popular non-EU destination, followed by Australia (9%), Canada (6%) and Japan (5%)

- Comparing regions: North-America takes up a share of 40% of the mobility, Asia 28%, Oceania 11%, Africa 9%, Central America 6%, South America (5%) and the rest of Europe (2%)
- the origin of this extra-EU mobility is mainly the US (49%) followed by Australia (17%), Turkey (8%) and Israel (7%)

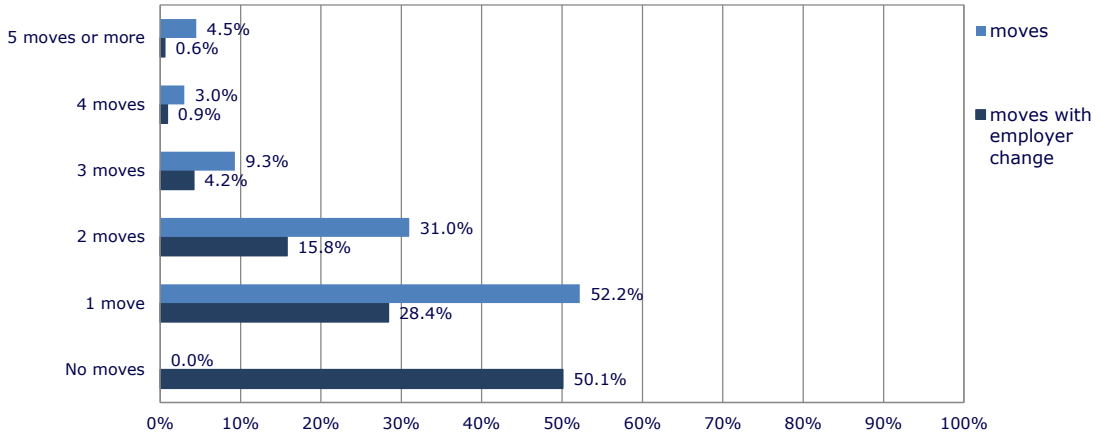
However, these results must be interpreted with caution. As the results are not based on a representative sample, we do not know whether this large response from the US is due to the high number of EU researchers in the US or to their higher levels of willingness to participate in the survey for EU researchers in the US. The same reasoning applies to other countries.

- Frequency of mobility

As indicated in Figure 83, 52% of the mobile non-EU researchers who have never been to the EU had moved only once. 5% had moved 5 times or more.

The average number of moves in the last 10 years for non-EU researchers who had never been to the EU but had been mobile to non-EU countries was 1.8 moves. Half of the researchers indicated that they changed employer for at least one of their moves. This corresponds to 43% of all moves which are made due to a change in employer.

Figure 83: Number of non-EU moves by non-EU researchers who have never worked in the EU



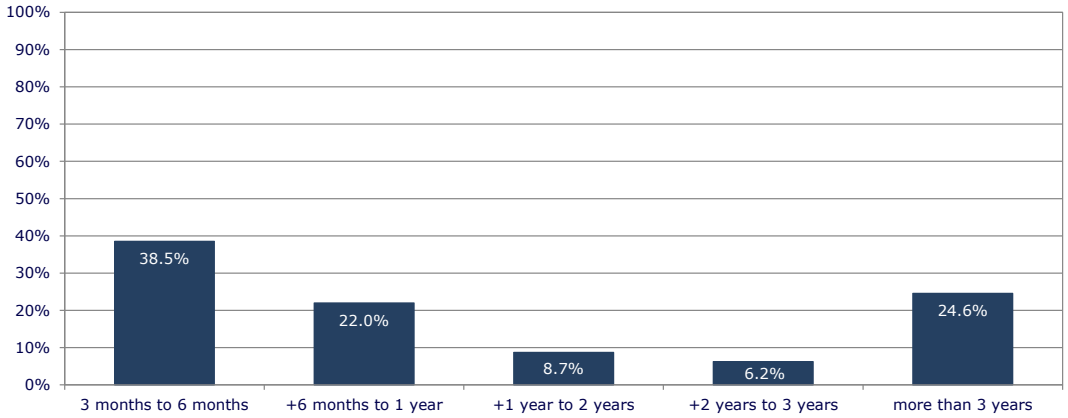
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution of non-EU researchers who have never worked in the EU but have moved to non-EU countries by number of moves (n=610)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Duration of mobility

39% of the moves had a length of 3 to 6 months. 25% of moves lasted more than 3 years (Figure 84).

Figure 84: Duration of non-EU moves by non-EU researchers who have never worked in the EU



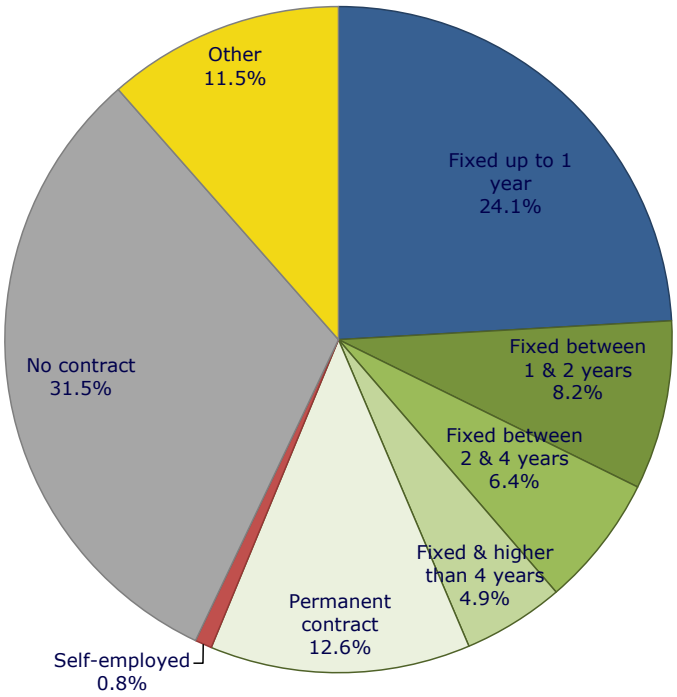
Source: MORE2 Extra-EU mobility survey (2012)

Note: Distribution of non-EU researchers who have never worked in the EU but have moved to non-EU countries by duration (n=610)

- Contract

46% of all moves were undertaken with a fixed contract and 13% with a permanent contract (Figure 85). 32% of all moves took place without a contract.

Figure 85: Contract type of non-EU moves by non-EU researchers who have never worked in the EU



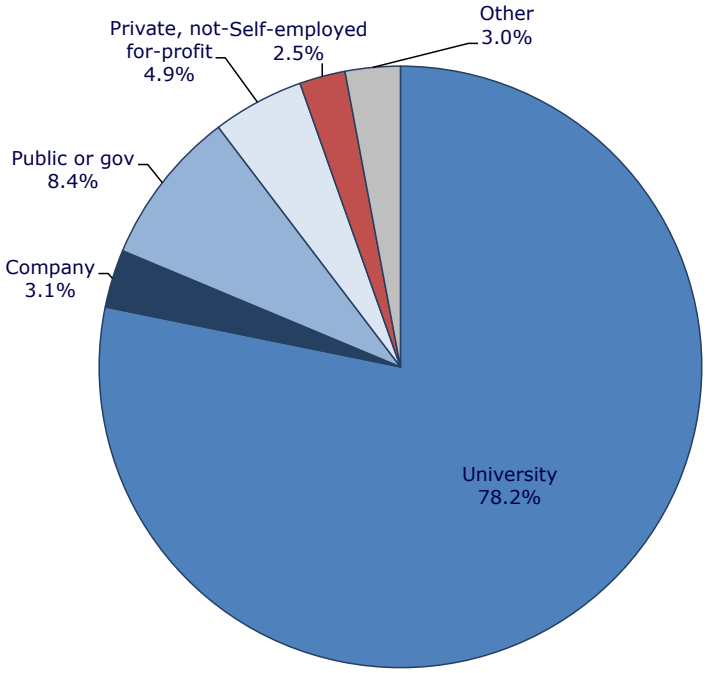
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution of moves for non-EU researchers who have never worked in the EU but have moved to non-EU countries by contract type (n=610)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Destination sector

The destination sector for 79% of all moves involved universities or other higher education institutions. 8% of moves were to public institutions or government and 3% to companies (Figure 86).

Figure 86: Destination sector for non-EU moves of non-EU researchers who have never worked in the EU



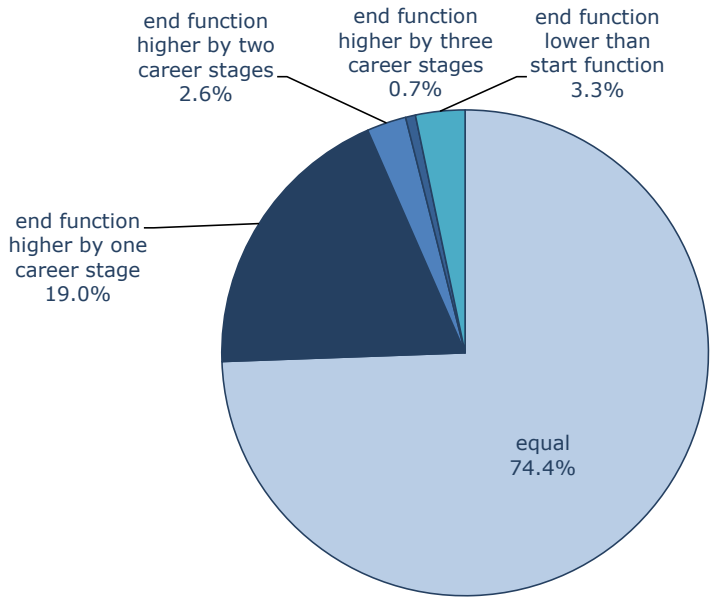
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Distribution of moves for non-EU researchers who have never worked in the EU but have moved to non-EU countries by destination sector (n=610)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

- Career progression

In 75% of moves undertaken, no career progression occurred as the end function equals the start function (Figure 87). In 19% of moves, a career progression of one step was obtained, 3% rose two steps, and 1% of the moves led to a career progression from R1 to R4 researcher. On the other hand, about 3% of the moves led to a downgrading of the researcher's career, with an end function lower than the start function.

Figure 87: Career progression of mobility to non-EU countries by non-EU researchers who have never worked in the EU



Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Distribution of moves by non-EU researchers who never worked in the EU but who moved to non-EU countries over shifts in career stage (n=610)*
- *With "moves" defined as moves of three months or more in the last ten years to another country than the country of citizenship of the researcher*

4.3.3 Motives, barriers and effects for mobility

This section discusses how non-EU researchers who have never worked in the EU but who have worked in non-EU countries come to perceive their motivations.

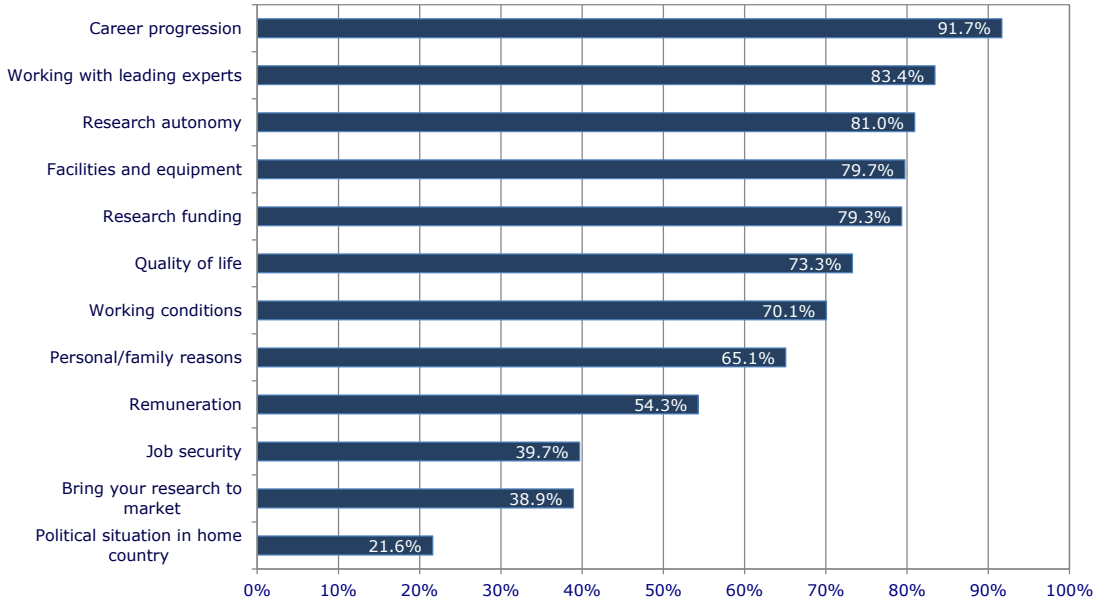
A list of 11 factors was presented as possible motives for mobility. As noted above, a general distinction can be drawn between those reasons which were intrinsic (e.g. the desire to perform an activity because of inherent interest and the desire to move) and those that were extrinsic (especially financial issues or employment conditions). Personal motives were treated as a separate category.

Only mobility of non-EU researchers to the following countries is discussed here: the US, Japan, China, India, Singapore, Russia, South Africa and Brazil.

- Motives for non-EU mobility

This section discusses which motives have driven non-EU researchers to move to non-EU countries. Figure 88 summarizes our results. 92% of the non-EU researchers indicated that career progression was an important reason for mobility outside the EU. The other intrinsic motives were also highly ranked. The extrinsic factors were generally less important than the intrinsic, except for the availability of researcher funding, which 80% of the researchers considered to be important.

Figure 88: Motives for mobile non-EU researchers who have never worked in the EU to move to non-EU countries



Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who find certain motives important (versus not important) for their EU move (n=156)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

When looking at the motives for mobility by gender, female researchers found research funding, the availability of facilities and equipment, research autonomy, quality of life, remuneration, working conditions, political situation at home and especially job security more important than male researchers. The differences are only marginal. Due to the small sample, no conclusions can be offered regarding the motives for mobility by career stage.

The small sample size does not allow us to draw conclusions about any country other than the US (n>30). Comparing the US with the total responses of non-EU researchers who had never been to the EU but who had moved to non-EU countries showed that only research autonomy and the possibility of bringing research to the market were slightly more important motives for moves by US researchers. Working with experts, remuneration, job security and the political situation at home were less important motives for mobility.

Table 28: Motives for mobile non-EU researchers who have never worked in the EU to move to non-EU countries by citizenship

	US citizenship	non-US citizenship	*Total*
Research funding	75.8%	80.3%	*79.3%*
Career progression	88.2%	92.6%	*91.7%*
Facilities and equipment	72.7%	81.7%	*79.7%*
Working with experts	61.3%	89.2%	*83.4%*
Research autonomy	90.6%	78.3%	*81.0%*
Bring your research to market	44.4%	37.5%	*38.9%*
Personal/family reasons	63.3%	65.5%	*65.1%*
Quality of life	67.7%	74.8%	*73.3%*
Remuneration	34.5%	59.5%	*54.3%*
Job security	25.9%	43.4%	*39.7%*
Working conditions	48.4%	75.9%	*70.1%*
Political situation in home country	7.7%	25.3%	*21.6%*
N =	34	122	*156*

Source: MORE2 Extra-EU mobility survey (2012)

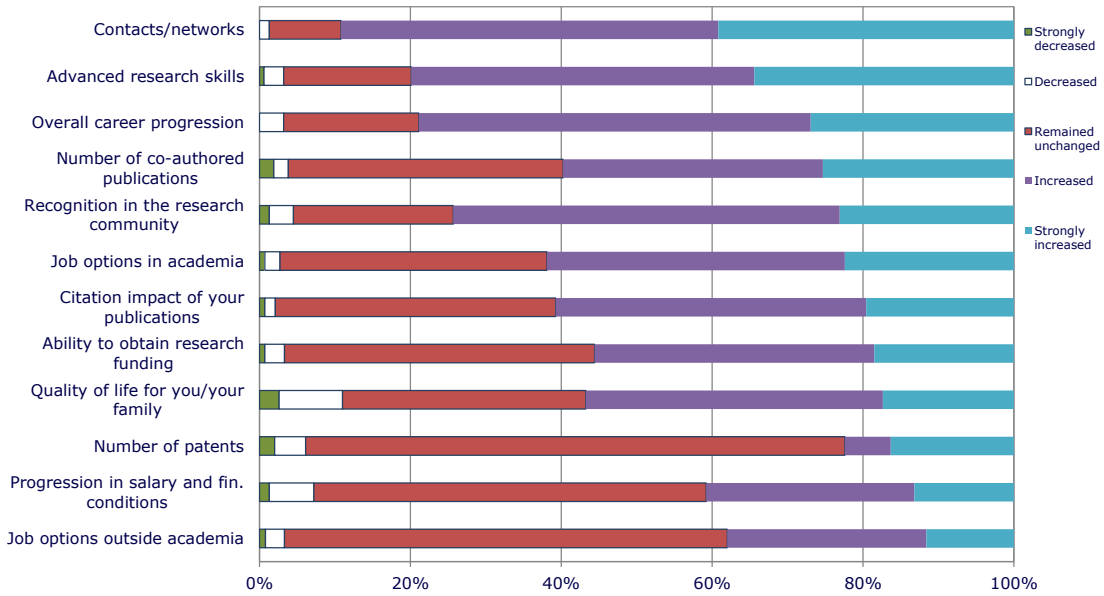
Note:

- *Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who find certain motives important (versus not important) for their EU move by US and non-US citizenship (n=156)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Effects of non-EU mobility

Overall, there were numerous (strongly) decreasing effects attributable to mobility. Salary progression and financial conditions, as well as quality of life, were most often negatively affected by mobility. The number of patents and job options outside of academia, however, did not appear to be affected by geographical mobility in most of the cases. Advanced research skills, contacts and networks and overall career progression were the most important (positive) effects of mobility (Figure 89).

Figure 89: Effects of moving to non-EU countries by mobile non-EU researchers who have never worked in the EU



	Strongly decreased	Decreased	Remained unchanged	Increased	Strongly increased
Number of co-authored publications	1.9%	1.9%	36.4%	34.4%	25.3%
Citation impact of your publications	0.7%	1.4%	37.2%	41.2%	19.6%
Number of patents	2.0%	4.1%	71.4%	6.1%	16.3%
Advanced research skills	0.6%	2.6%	16.9%	45.5%	34.4%
Contacts/networks	0.0%	1.3%	9.5%	50.0%	39.2%
Ability to obtain research funding	0.7%	2.6%	41.1%	37.1%	18.5%
Recognition in the research community	1.3%	3.2%	21.2%	51.3%	23.1%
Job options in academia	0.7%	2.0%	35.4%	39.5%	22.4%
Job options outside academia	0.8%	2.5%	58.7%	26.4%	11.6%
Overall career progression	0.0%	3.2%	17.9%	51.9%	26.9%
Progression in salary and fin. Conditions	1.3%	5.9%	52.0%	27.6%	13.2%
Quality of life for you/your family	2.6%	8.4%	32.3%	39.4%	17.4%

Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have never worked in the EU but have moved to non-EU countries who indicated the effect of specific aspects of their career to have (strongly) increased, (strongly) decreased or remained unchanged due to their past stay in the EU (n=158)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Only the US had a sufficiently high response rate (n>30). For both US citizens as well as non-US citizens, contacts and networks is the largest effect of moving overseas. US researchers, on average, indicate fewer effects of non-EU mobility than non-US researchers, except for contacts/networks. The largest difference in effect is the progression in salary and financial conditions which is larger for non-US citizens than US citizens when moving to China, India, Singapore, South Africa and Brazil.

Table 29: Effects of mobility on non-EU researchers who have never worked in the EU moving to non-EU countries by citizenship

	US citizenship	non-US citizenship	*Total*
Number of co-authored publications	45.5%	63.6%	*59.7%*
citation impact of your publications	45.2%	65.0%	*60.8%*
Number of patents	20.0%	22.7%	*22.4%*
Advanced research skills	67.6%	83.3%	*79.9%*
Contacts/networks	94.3%	87.8%	*89.2%*
Ability to obtain research funding	39.4%	60.2%	*55.6%*
Recognition in the research community	71.4%	75.2%	*74.4%*
Job options in academia	42.4%	67.5%	*61.9%*
Job options outside academia	28.6%	40.9%	*38.0%*
Overall career progression	68.6%	81.8%	*78.8%*
Progression in salary and fin. Conditions	17.6%	47.5%	*40.8%*
Quality of life for you/your family	55.9%	57.0%	*56.8%*

Source: MORE2 Extra-EU mobility survey (2012)

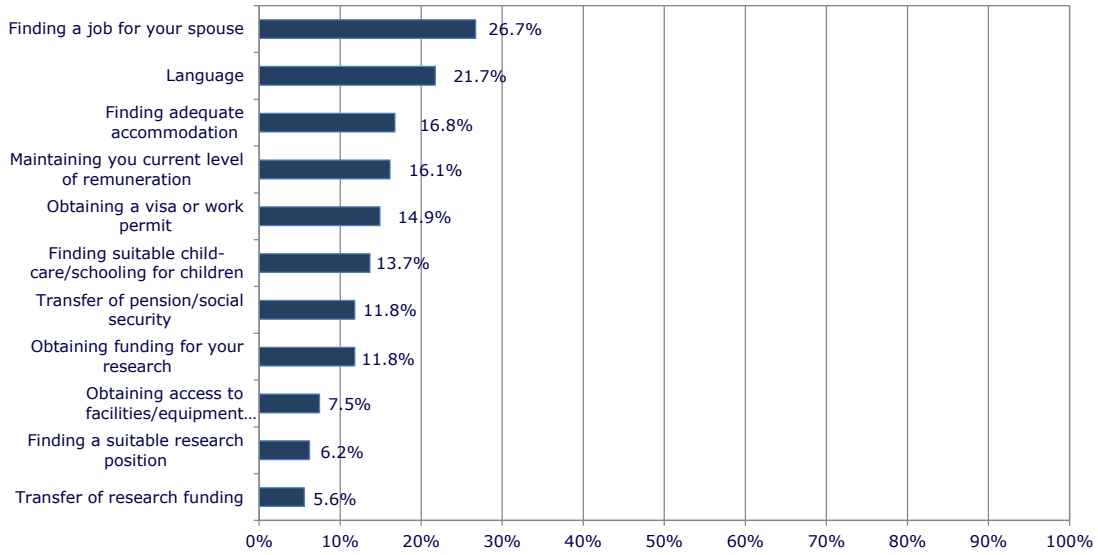
Note:
- *Share of non-EU researchers who have never worked in the EU but had moved to non-EU countries who indicated the effect of specific aspects of their career to have (strongly) increased (versus unchanged and (strongly)decreased) due to their past stay in the EU, by US and non-US citizenship (n=158)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The number of patents is a more important effect of mobility for men than for women. Other effects of mobility more important for men are contacts/networks, jobs outside academia and quality of life. The number of co-authored publications, citation impact of publications, advancement of research skills, ability to obtain research funding, recognition in the research community, job functions in academia, overall career progression and progression in salary and financial conditions are often increased due to an overseas move for women than for men.

- Barriers to non-EU mobility

Overall, there were no significant barriers observed regarding the mobility of non-EU researchers to the US, Japan, China, India, Singapore, Russia, Brazil or South Africa. 39% of the researchers even indicated that none of the difficulties listed had occurred to them. 27% of researchers indicated that finding a job for their spouse was a difficulty they faced in moving. Language was also a difficulty for 22% of the researchers. However, transfer of funding and finding a suitable research position was not often a challenge.

Figure 90: Barriers of mobility to non-EU countries by mobile non-EU researchers who have never worked in the EU



Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have never worked in the EU but have moved to non-EU countries for who specific factors were a difficulty in their move (n=161)*
- *With mobility defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The difficulties researchers faced in their move do not appear to differ considerably in terms of gender.

Due to the small sample, no conclusions can be offered regarding the barriers to mobility in terms of career stage. Again, only the US had a sufficiently high response rate (n>30). US researchers moving to China, India, Singapore, South Africa and Brazil mainly faced barriers concerning language, remuneration, visa/work permit and finding a job for their spouse. Non-US researchers less frequently indicated barriers to mobility towards China, India, Singapore, South Africa and Brazil. The main barrier for them was finding a job for their spouse.

Table 30: Barriers of mobility to non-EU countries by mobile non-EU researchers who have never worked in the EU by citizenship

	US citizenship	non-US citizenship	*Total*
Language	45.7%	15.1%	*21.7%*
Maintaining your current level of remuneration	28.6%	12.7%	*16.1%*
Obtaining a visa or work permit	22.9%	12.7%	*14.9%*
Obtaining access to facilities/equipment necessary for your research	11.4%	6.3%	*7.5%*
Obtaining funding for your research	17.1%	10.3%	*11.8%*
Transfer of research funding	2.9%	6.3%	*5.6%*
Transfer of pension/social security	8.6%	12.7%	*11.8%*
Finding a job for your spouse	17.1%	29.4%	*26.7%*
Finding a suitable research position	2.9%	7.1%	*6.2%*
Finding adequate accommodation	17.1%	16.7%	*16.8%*
Finding suitable child-care/schooling for children	0.0%	17.5%	*13.7%*

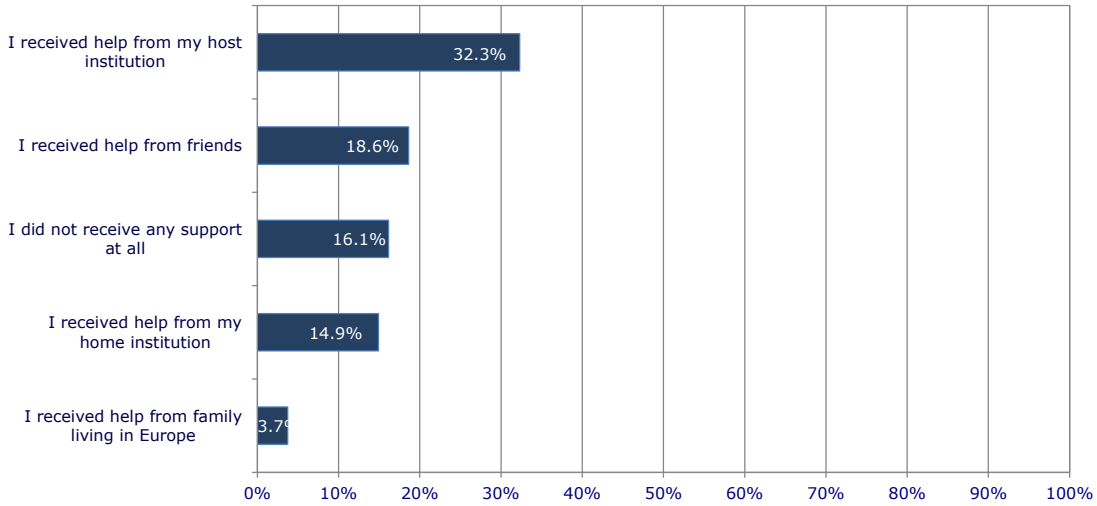
Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have never worked in the EU but had moved to non-EU countries for whom specific factors were a difficulty in their move, by US and non-US citizenship (n=161)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- How to overcome the barriers to mobility

For 32% of the researchers, the host institution offered help to overcome the difficulties faced. 19% received help from friends. 16 % did not receive any help.

Figure 91: How were barriers to mobility towards non-EU countries overcome by non-EU researchers who have never been to the EU?



Source: MORE2 Extra-EU mobility survey (2012)

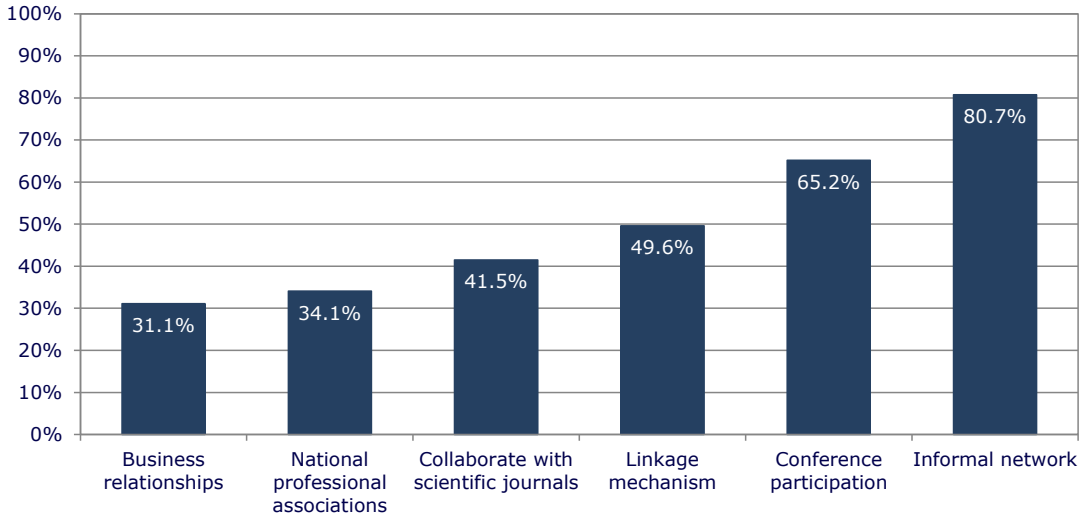
Note:
- *Help received by non-EU researchers that had never worked in the EU but that have moved to non-EU countries in order to overcome difficulties faced when moving to non-EU countries (n=99)*
- *Multiple options per respondent are possible*
- *With mobility defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

4.3.4 Networking: Which research connections emerge from non-EU mobility?

In this section we focus on the current research connections to the EU by the non-EU researchers working abroad, who had never worked in the EU but had worked in other countries.

The vast majority of non-European researchers who have worked in non-EU countries kept active connections with researchers and research from the rest of the world (94%). As Figure 92 shows, 81% kept their connections with those countries via informal networks, 62% via international conferences, and nearly 50% via linkage mechanisms. Connections with the rest of the world were less likely to result from national professional associations or from business relationships. In fact, only 34% reported keeping their connections via the former, while 31% of them reported maintaining their connections via the latter.

Figure 92: Type of connections maintained by non-EU researchers who have never worked in the EU while being mobile towards non-EU countries



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:

- *Share of non-EU researchers who have worked in non-EU countries (other than their country of citizenship) and maintained connections with these non-EU countries via specific type of connection (n=135).*
- *Multiple connection types per respondent are possible.*

4.3.5 Moving to non-EU countries: Attractiveness and anticipated difficulties

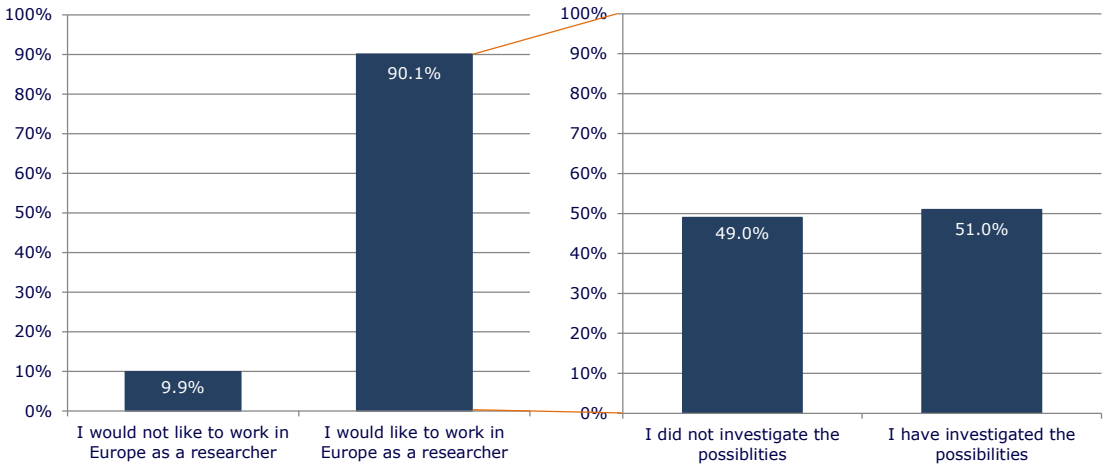
This section discusses the attractiveness of non-EU countries for non-EU researchers who had never been to the EU but have worked in non-EU countries. We specifically asked to what extent they are interested in working in EU countries as a researcher and whether they had investigated this possibility. A list of 11 possible barriers to EU mobility was presented which distinguished between intrinsic, extrinsic and personal barriers.

- Future career mobility

Figure 93 shows that 90% of the non-EU researchers who have worked in non-EU countries would be interested to work in Europe as researchers. Due to the small sample, only some conclusions can be derived for researchers from Turkey, Australia and the US. 80% of the US researchers were interested in working in the EU versus 87% of the Australian and 97% of the Turkish researchers.

About 51% of those non-EU researchers who were interested in working in Europe had also investigated the possibility of doing so.

Figure 93: Share of mobile non-EU researchers who have never worked in the EU but who are interested in working in Europe and the share who have investigated possibilities



Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who were interested or not to work in Europe (n=335). Share of non-EU researchers who had never worked in the EU but had moved to non-EU countries who were interested in working in Europe who had or had not investigated the possibilities (n=302)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

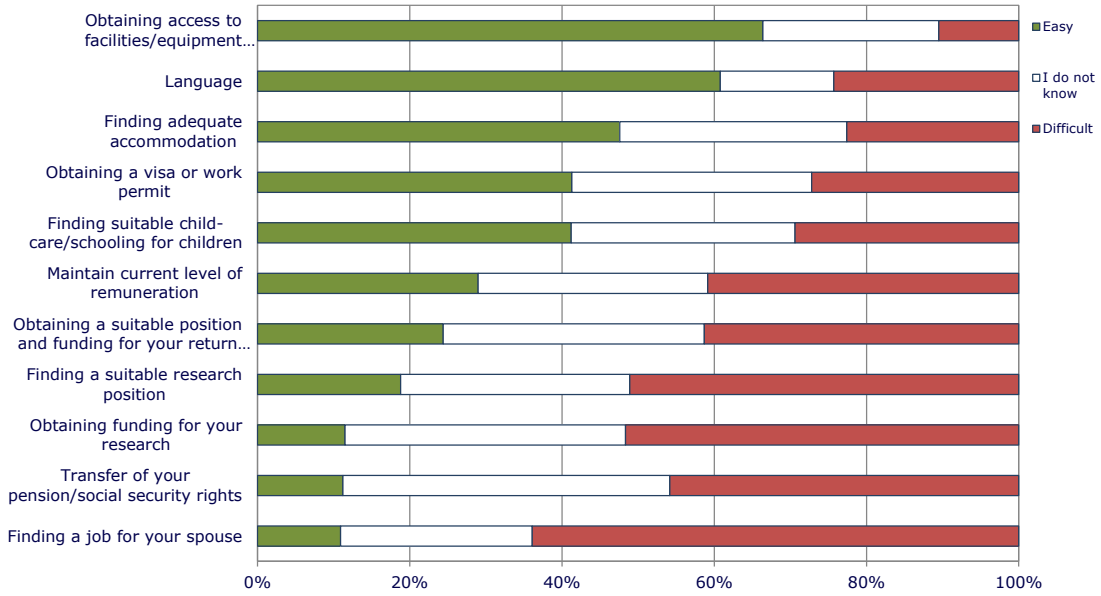
- Perceived barriers to mobility

Mobile non-EU researchers were asked whether they thought it would be easy or difficult to deal with some factors if working in Europe. Finding a job for a spouse was perceived to be the most difficult problem facing them when moving to the EU (64%). Furthermore, finding a suitable research position (51%) and obtaining funding for research (52%) were perceived to be challenges.

On the other hand, obtaining access for facilities and equipment was perceived to be easy (66%). 61% of the mobile non-EU researchers who have never worked in the EU perceived language to be easy to deal with if moving to the EU.

The most ambiguous factor for non-EU researchers concerning moving to the EU was the transfer of pension and social security rights. 37% also indicated that they do not know whether obtaining funding for research would be easy or difficult.

Figure 94: Perceived barriers to EU mobility for mobile non-EU researchers who have never worked in the EU



	Easy	I do not know	Difficult
Finding a suitable research position	18.8%	30.1%	51.1%
Language	60.8%	14.9%	24.3%
Maintain current level of remuneration	29.0%	30.2%	40.9%
Obtaining a visa or work permit	41.3%	31.5%	27.2%
Obtaining access to facilities/equipment necessary for your research	66.4%	23.1%	10.5%
Obtaining funding for your research	11.5%	36.9%	51.7%
Transfer of your pension/social security rights	11.2%	42.9%	45.8%
Finding a job for your spouse	10.9%	25.2%	63.9%
Finding adequate accommodation	47.6%	29.8%	22.6%
Finding suitable child-care/schooling for children	41.2%	29.4%	29.4%
Obtaining a suitable position and funding for your return home	24.4%	34.3%	41.3%

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have never worked in the EU but have moved to non-EU countries who expect certain factors to be difficult (as compared to researchers who indicated "difficult", "I don't know" or "easy") to deal with when working in the EU (n=329)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Finding suitable childcare or schooling for children was perceived to be less difficult by women than for men. Similar findings held for finding a job for one's spouse. Due to the small sample, no conclusions can be offered regarding the perceived barriers to mobility by career stage

The small sample only allows us to compare US with non-US researchers. The largest differences in perception of barriers to EU mobility occur for finding adequate accommodation; the transfer of pension/social security rights; for obtaining a visa/work permit; maintaining current level of remuneration; and for finding a suitable research position. These factors are perceived less as barriers to EU mobility by US researchers than by non-US researchers. Only when it comes

to maintaining the current level of remuneration do US researchers consider it more frequently a barrier to EU mobility than non-US researchers.

Table 31: Perceived barriers to EU mobility by mobile non-EU researchers who have never worked in the EU by citizenship

	US citizenship	non-US citizenship	*Total*
Finding a suitable research position	46.8%	54.2%	*51.1%*
Language	21.7%	26.2%	*24.3%*
Maintain current level of remuneration	44.9%	37.9%	*40.9%*
Obtaining a visa or work permit	21.7%	31.2%	*27.2%*
Obtaining access to facilities/equipment necessary for your research	11.9%	9.5%	*10.5%*
Obtaining funding for your research	51.8%	51.6%	*51.7%*
Transfer of your pension/social security rights	38.9%	50.5%	*45.8%*
Finding a job for your spouse	65.0%	63.3%	*63.9%*
Finding adequate accommodation	13.6%	29.2%	*22.6%*
Finding suitable child-care/schooling for children	24.1%	31.8%	*29.4%*
Obtaining a suitable position and funding for your return home	39.7%	42.3%	*41.3%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-EU researchers who have never worked in the EU but who have moved to non-EU countries who expect certain factors to be difficult (as compared to researchers who responded "easy", "difficult", "I don't know") to deal with when working in the EU by US and non-US citizenship (n=329)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Retention of non-EU mobility

45% of non-EU researchers who had never moved to the EU but who have moved to the US, South Africa, Singapore, Brazil, Japan, China, India or Russia, would have liked to stay in the country they had moved to. About 47% engaged in employer mobility (change of employer) when moving to their last non-EU destination.

4.4 Non-mobile non-EU researchers

This section presents the indicators for non-EU researchers (according to citizenship) who have not worked in the EU or anywhere else in the last ten years for more than 3 months. Specifically, this sample includes non-EU researchers:

- who had never been mobile,
- non-EU researchers who have last been mobile more than 10 years ago,
- non-EU researchers who have been mobile for less than 3 months.

The sample size of this subgroup is 2,336. First, some profile characteristics are discussed. In the second section, the attractiveness of the EU for non-mobile non-EU researchers is discussed together with the anticipated difficulties for EU mobility.

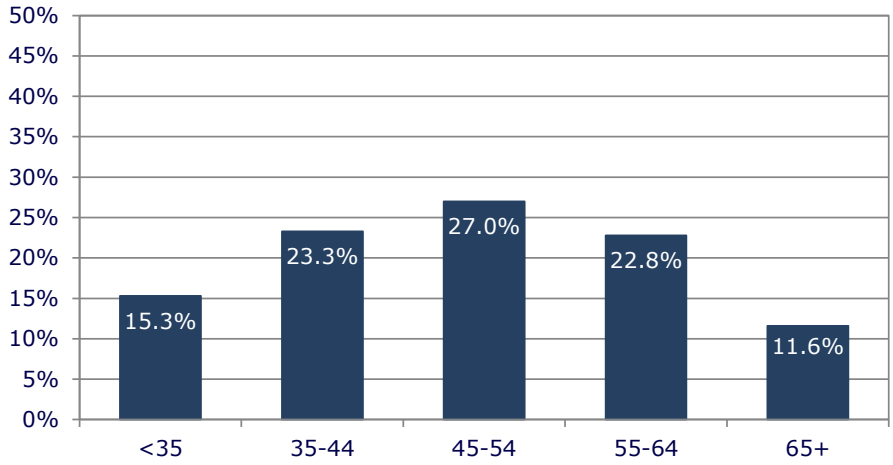
4.4.1 Profile characteristics: Who are they?

This section first describes the socio-demographic characteristics of the non-mobile non-EU researchers. The second part describes the current employment situation of the researchers. Subsequently, we focus on the career stages of the researchers in the sample; their PhD coverage; sector of employment; and whether researchers are in a dual position; the type of employment contract; employment status; the satisfaction with their working conditions and their future prospects.

4.4.1.1 Socio-demographics

Of the non-mobile non-EU researchers, the share of female researchers was 37% and 63% were male. The age distribution is presented in Figure 95. 15% of the respondents were under 35, and more than a third were 55 or older.

Figure 95: Non-mobile non-EU researchers by age group



Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile by age group (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The distribution of the non-mobile, non-EU researchers according to country of citizenship shows that more than half of the respondents were from the United Sates. Altogether, 89 countries are represented in this sample.

Table 32: Non-mobile non-EU researchers by country of citizenship

Country of citizenship	N	Percentage
United States	1,222	52.3%
Turkey	196	8.4%
Australia	179	7.7%
Brazil	104	4.5%
India	65	2.8%
Russia	62	2.7%
Mexico	45	1.9%
Israel	38	1.6%
Canada	37	1.6%
Switzerland	37	1.6%
Croatia	34	1.5%
Norway	34	1.5%

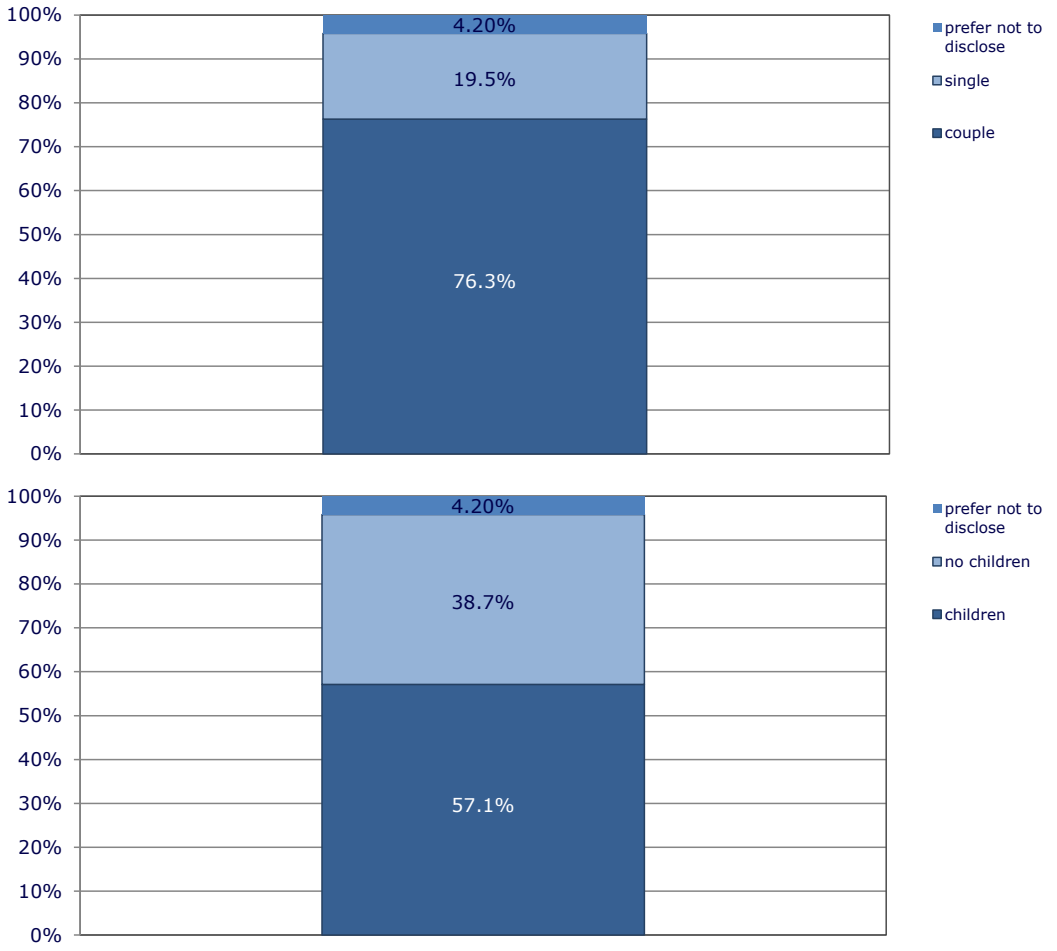
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile, by country of citizenship (for countries with responses n>30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

A similar pattern occurs in terms of country of residence, not surprisingly, since these researchers had never been mobile.

Of those who disclosed their marital status, it appears that 76% were married or cohabiting and 20% were single. 57% of all respondents had children, 39% did not (Figure 96).

Figure 96: Non-mobile non-EU researchers by marital and family status



Source: MORE 2 Extra-EU Mobility Survey (2012)

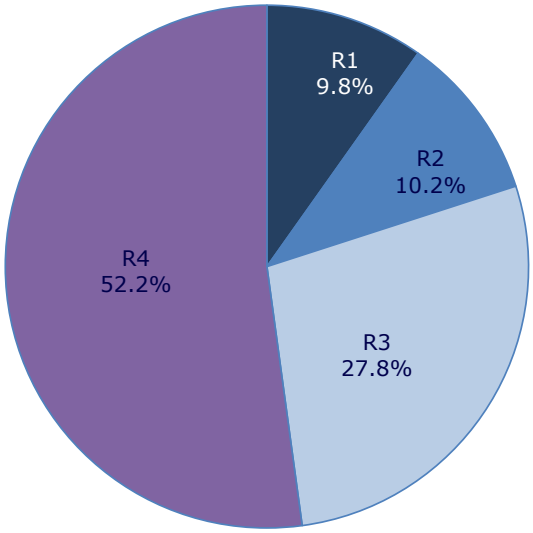
Note:

- *Share of non-EU researchers who have never been mobile who are in couple, single or did not disclose their marital status and those who did or did not have children or did not disclose (n=2,328)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

4.4.1.2 Current employment as a researcher

Similar to the results for previous subgroups, this group of non-EU researchers who had never been mobile consisted predominantly of leading researchers (R4) (52%), followed by established researchers (R3)(28%). There were equal proportions of first stage researchers (R1) and recognized researchers (R2) (10%).

Figure 97: Non-mobile non-EU researchers by career stages



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile by career stages (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

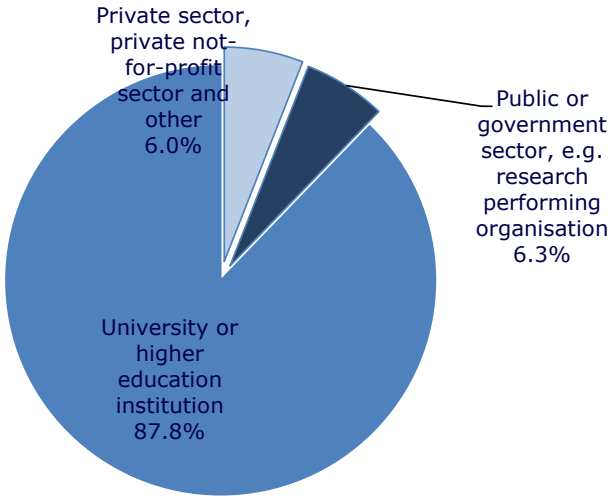
- PhD coverage

230 respondents indicated that they belonged to the R1 category of researchers, of which 69% were currently working on a PhD or enrolled in a doctoral program. Contrary to what we found for other subgroups, the larger part of this group of non-mobile researchers was in their first year (30%). The proportion in their second, third and fourth years were fairly equally spread (18-22%). 11% of the sample were in their 5th or subsequent year.

- Employment sector

Looking at the distribution of non-mobile non-EU researchers by employment sector, we observe that 88% are employed at a university or higher education institution, 6% in a public or government sector and 6% in the private or another sector.

Figure 98: Non-mobile non-EU researchers by employment sector



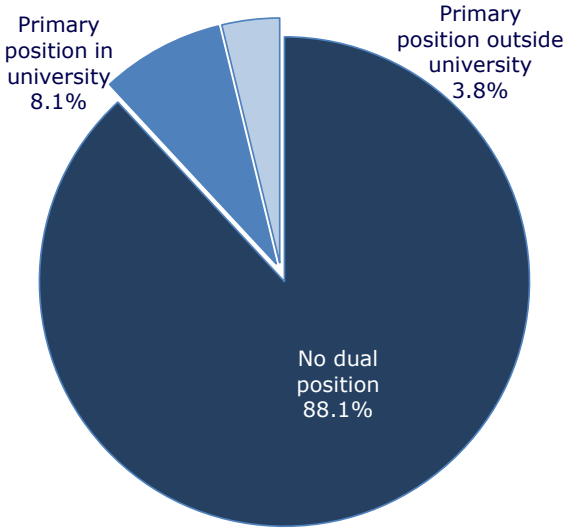
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile by sector of employment (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Dual position

A small proportion of all the non-EU researchers who have never been mobile had a dual position (12%) and for the majority, the university was their primary employer (Figure 99).

Figure 99: Non-mobile non-EU researchers by dual position status



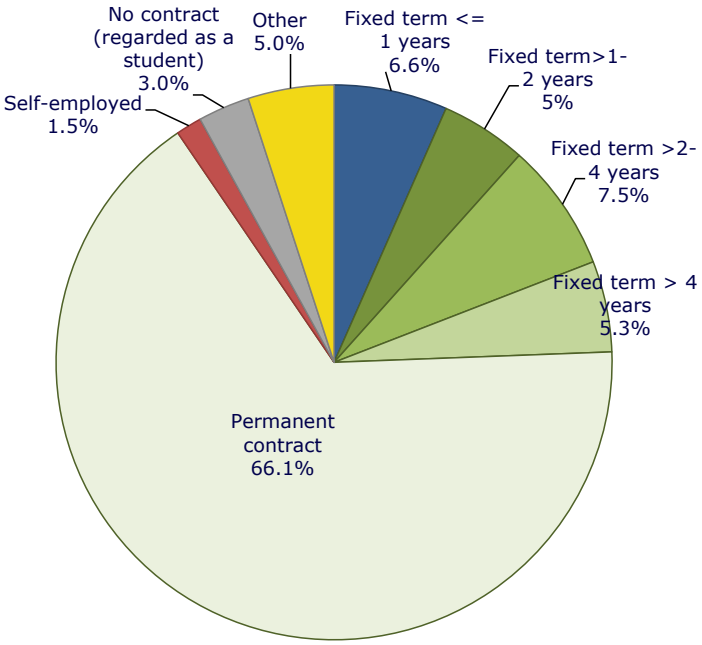
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile and are currently in a "dual position" whereby they are employed both at a university (or generally higher education institution) and in another sector (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Working conditions

The majority of these researchers had a permanent position and 24% had a fixed term contract. The percentage holding the various fixed term contracts varied between 20% and 30%, with the 2-4 year length contract being the most common (Figure 100).

Figure 100: Non-mobile non-EU researchers by type of contract

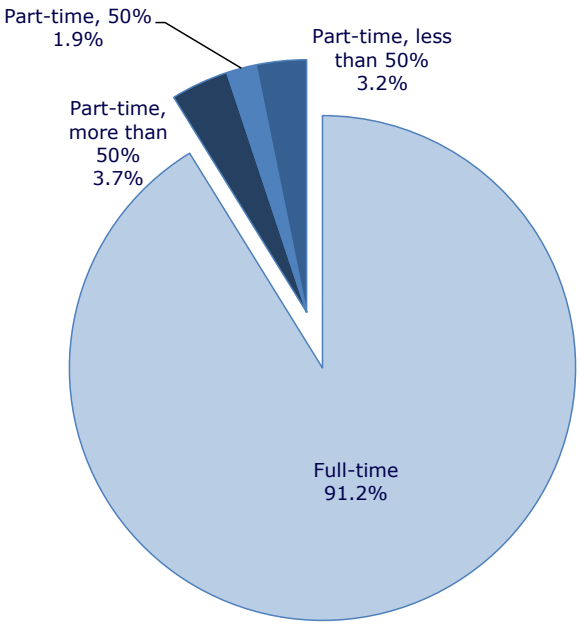


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile by type of contract; no contract is regarded as student (n= 2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The majority of the non-mobile non-EU researchers hold full-time positions while 9% are employed in a part-time position, with an equal share of those working less and more than 50% of the time (Figure 101).

Figure 101: Non-mobile non-EU researchers by type of position

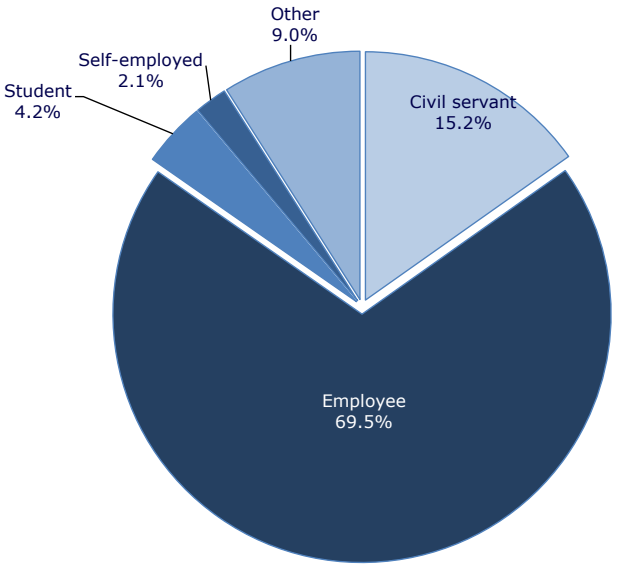


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile by type of position (n=2,330)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

The majority of researchers had the status of employee, reflecting the fact that the countries where most of these researchers were employed did not have positions classified with civil servant status (Australia, United States, Canada as well as China and Japan).

Figure 102: Non-mobile non-EU researchers by employment status



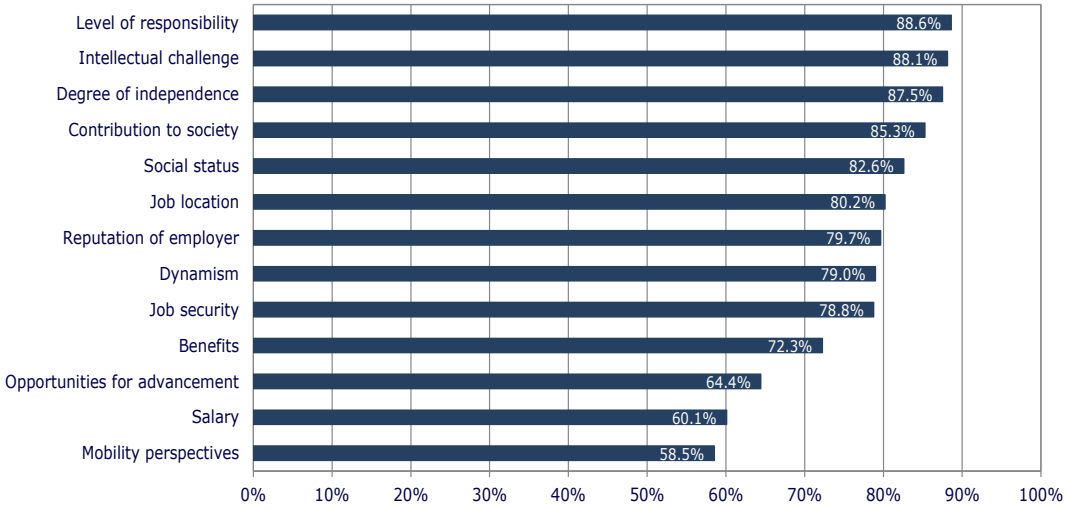
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile, by employment status (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Satisfaction with current position

It appears that non-mobile non-EU researchers were quite satisfied with the intrinsic aspects of their current academic position. More than 80% were satisfied with their level of responsibility, intellectual challenge, degree of independence, contribution to society, and social status. The opportunities for advancement, salary and particularly mobility perspectives scored lower in terms of satisfaction.

Figure 103: Degree of satisfaction for non-mobile non-EU researchers with their current position

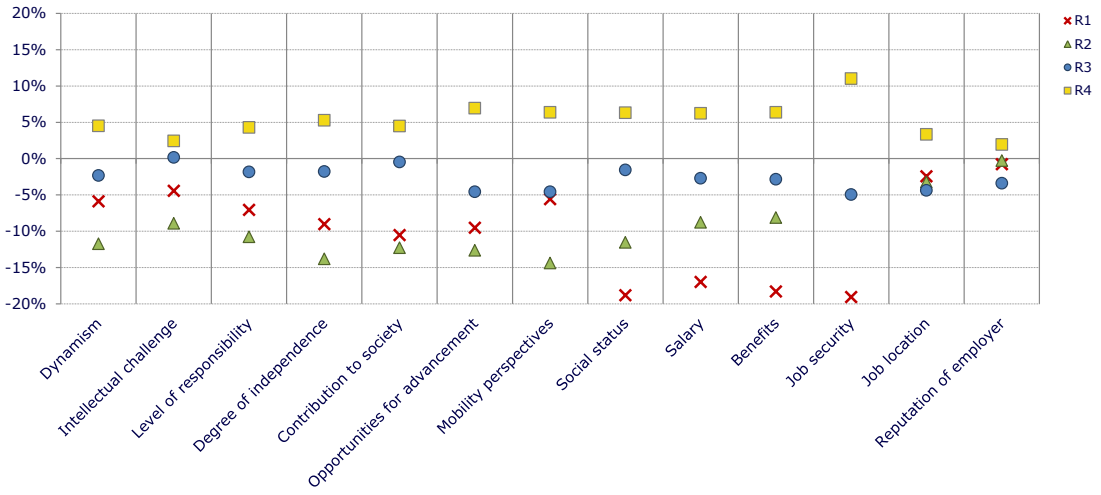


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:
- *Share of non-EU researchers who have never been mobile who were satisfied with different aspects of their current academic position (as compared to the researchers who were either satisfied or dissatisfied) (n=2,289)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

On comparing researchers across the four career stages (Figure 104), it appears that the established researchers (R4) were mostly satisfied with virtually all aspects of their position. Established researchers (R3) had an average score for all aspects, except for opportunities for advancement and mobility perspectives, where they were less satisfied. Compared with R4 and R3 researchers, the R1 and R2 researchers tended to be less satisfied with most of the aspects of their current position. The first stage researchers (R1) were less satisfied with job security, benefits, salary and social status. The recognized researchers (R2) were overall the least satisfied, especially with respect to degree of independence, opportunities for advancement, and mobility perspectives.

Figure 104: Difference in degree of satisfaction for non-mobile non-EU researchers with their current position by current career stage



	R1	R2	R3	R4	*Total*
Dynamism	73.1%	67.3%	76.7%	83.5%	*79.0%*
Intellectual challenge	83.7%	79.2%	88.3%	90.6%	*88.1%*
Level of responsibility	81.6%	77.8%	86.8%	92.9%	*88.6%*
Degree of independence	78.5%	73.7%	85.7%	92.8%	*87.5%*
Contribution to society	74.8%	73.0%	84.8%	89.8%	*85.3%*
Opportunities for advancement	54.9%	51.8%	59.9%	71.4%	*64.4%*
Mobility perspectives	52.9%	44.1%	54.0%	64.9%	*58.5%*
Social status	63.8%	71.0%	81.0%	88.9%	*82.6%*
Salary	43.1%	51.3%	57.4%	66.3%	*60.1%*
Benefits	54.0%	64.1%	69.4%	78.6%	*72.3%*
Job security	59.7%	52.9%	73.8%	89.8%	*78.8%*
Job location	77.8%	77.0%	75.8%	83.5%	*80.2%*
Reputation of employer	78.9%	79.4%	76.3%	81.6%	*79.7%*

Source: MORE2 Extra-EU Mobility Survey (2012)

Note:

- *Difference between satisfaction of non-mobile non-EU researchers (as compared to the researchers who answered either "satisfied" or "dissatisfied") by career stage and the overall percentage of those satisfied (n=2,241)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Researchers who are employed in Switzerland and Norway appear to be relatively satisfied with their current position, especially in terms of factors such as intellectual challenge, job location and reputation of employer, as more than 90% indicated that they were satisfied. Researchers employed in Croatia, Turkey and Mexico appear to be the least satisfied with their current position (Table 33).

Looking at the different factors, we observe that dynamism, level of responsibility, opportunities for advancement and mobility perspectives are rated lowest in Croatia. Mobility perspectives and level of responsibility have an equally (low) satisfaction rate in Mexico. When looking at salary, researchers employed in Australia, Norway and Switzerland are satisfied, while researchers employed in Brazil, Mexico, Russia and Turkey are less satisfied. A comparison with other countries is not possible as the sample size is too small (n<30).

Table 33: Degree of satisfaction for non-mobile non-EU researchers with their current position by country of employer

	Australia	Brazil	Croatia	India	Israel	Mexico	Norway	Russia	Switzerland	Turkey	United States	Total
Dynamism	74.2%	73.2%	52.9%	84.0%	87.9%	76.3%	89.3%	71.0%	81.8%	77.1%	82.2%	79.0%
Intellectual challenge	89.2%	84.4%	76.5%	88.5%	94.3%	84.2%	96.6%	84.4%	97.1%	72.3%	91.7%	88.1%
Level of responsibility	83.9%	89.8%	71.0%	83.3%	91.4%	71.1%	96.4%	93.3%	85.3%	81.8%	93.1%	88.6%
Degree of independence	85.1%	71.4%	81.8%	84.6%	91.7%	76.3%	96.6%	76.7%	76.5%	72.2%	93.6%	87.5%
Opportunities for advancement	53.8%	63.5%	40.6%	60.0%	90.3%	47.2%	80.8%	54.8%	56.7%	60.2%	69.2%	64.4%
Mobility perspectives	55.0%	51.1%	38.7%	52.2%	82.1%	37.1%	74.1%	50.0%	64.3%	49.7%	62.3%	58.6%
Salary	72.5%	39.2%	51.5%	64.0%	65.7%	39.5%	71.4%	37.9%	85.3%	32.4%	66.5%	60.1%
Benefits	74.6%	44.3%	57.6%	57.7%	70.6%	64.9%	80.8%	44.8%	76.7%	53.8%	82.2%	72.2%
Job security	59.7%	71.1%	79.4%	62.5%	88.9%	92.1%	88.9%	69.0%	69.7%	77.1%	85.5%	78.8%
Job location	86.1%	73.1%	90.9%	87.5%	88.6%	76.3%	96.6%	80.6%	97.0%	83.1%	78.6%	80.3%
Reputation of employer	78.0%	78.4%	70.6%	88.0%	82.4%	81.6%	89.3%	83.3%	94.1%	73.8%	80.0%	79.7%

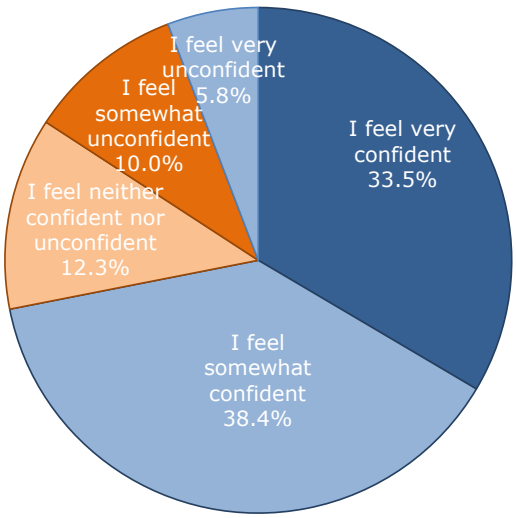
Source: MORE2 Extra-EU Mobility Survey (2012)

Note:
- *Degree of satisfaction for non-mobile non-EU researchers (as compared to the researchers who answered either "satisfied" or "dissatisfied") by country of employer (for countries with response n > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

- Confident about future prospects

Of all the non-mobile, non-EU researchers, 72% were very confident or somewhat confident while 16% were very unconfident or somewhat unconfident about their future prospects (Figure 105).

Figure 105: Degree of confidence about future prospects for non-mobile non-EU researchers

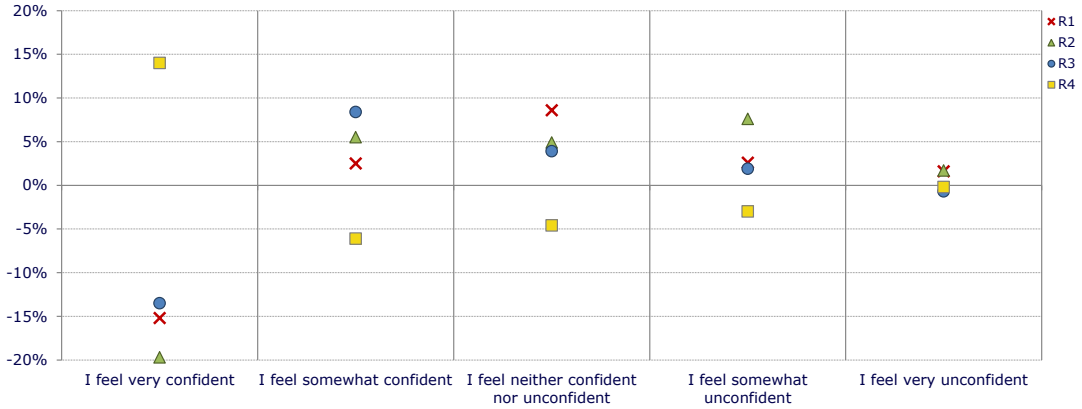


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Confidence levels of non-EU researchers who have never been mobile expressed in terms of their future career prospects (n=2,336)

The distribution of these results in terms of career stage is illustrated by Figure 106. The leading researchers (R4) felt very confident about the future (48%), while the other three types of researchers included higher numbers who were only somewhat confident. Similar to the other subgroups studied in this survey, the recognized researchers (R2) were the least confident about the future.

Figure 106: Difference in degree of confidence about future prospects of non-mobile non-EU researchers by career stage



	R1	R2	R3	R4	*Total*
I feel very confident	18.3%	13.8%	20.0%	47.5%	*33.5%*
I feel somewhat confident	40.9%	43.9%	46.8%	32.3%	*38.4%*
I feel nor confident nor unconfident	20.9%	17.2%	16.2%	7.7%	*12.3%*

I feel somewhat unconfident	12.6%	17.6%	11.9%	7.0%	*10.0%*
I feel very unconfident	7.4%	7.5%	5.1%	5.6%	*5.8%*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:

- *Difference in the degree of confidence of non-mobile non-EU researchers as expressed in terms of the future prospects for their research careers and the total degree of satisfaction (n=2,336)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Comparing the degree of confidence between researchers working in different countries (for Australia, Brazil, Croatia, Israel, Mexico, Russia, Switzerland, Turkey and the United States as n>30 only for these countries).

Researchers employed in Brazil, Croatia, Mexico, Russia are on average more confident to very confident about their future prospects, as compared to Australian, Israel, Swiss, Turkish and US employed researchers. Researchers employed in Russia (11%) and Switzerland (15%) are more frequently very unconfident about their future prospects than researchers employed in other countries (Table 34).

Table 34: Degree of confidence about future prospects of non-mobile non-EU researchers by country of employer

	Australia	Brazil	Croatia	Israel	Mexico	Russia	Switzerland	Turkey	United States	*Total*
I feel very confident	11.7%	18.2%	17.6%	13.9%	18.4%	14.7%	8.8%	20.9%	8.7%	*11.3%*
I feel somewhat confident	35.7%	41.4%	44.1%	19.4%	44.7%	52.9%	35.3%	39.6%	38.8%	*38.7%*
I feel neither confident nor unconfident	19.9%	9.1%	14.7%	16.7%	10.5%	5.9%	5.9%	10.7%	7.9%	*9.6%*
I feel somewhat unconfident	24.5%	28.3%	20.6%	47.2%	23.7%	14.7%	35.3%	24.1%	39.8%	*35.3%*
I feel very unconfident	8.2%	3.0%	2.9%	2.8%	2.6%	11.8%	14.7%	4.8%	4.8%	*5.1%*

Source: MORE 2 Extra-EU Mobility Survey (2012)

Note:

- *Degree of confidence by non-mobile non-EU researchers about the future prospects for their research careers by country of employer (for countries with resonse n >30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

4.4.2 Moving to Europe: Attractiveness and anticipated difficulties

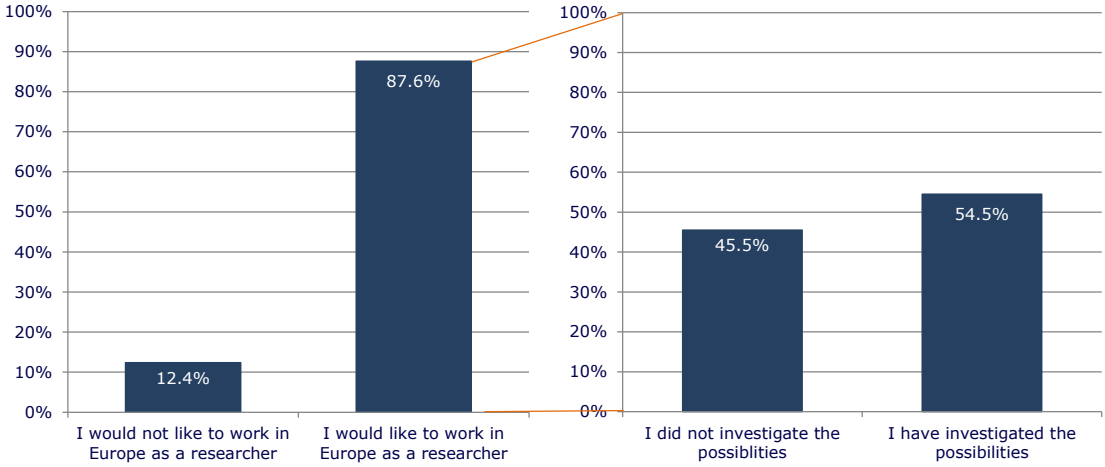
This section discusses the attractiveness of the EU for non-mobile non-EU researchers. We specifically asked to what extent participants were interested in working in Europe as a researcher and whether they had investigated the possibility of doing so. In addition, they were asked to evaluate 11 potential barriers to EU mobility. This list included intrinsic, extrinsic and personal barriers.

- Future career mobility

Figure 107 shows that 88% of the non-mobile non-EU researchers would be interested to work in Europe as a researcher. However, one has to bear in mind that this result might be biased, as respondents to the survey might be more open minded and/or more interested in research outside their country.

Approximately 55% of the non-mobile non-EU researchers who were interested in working in Europe had also investigated the possibility of doing so.

Figure 107: Share of non-mobile non-EU researchers who are interested in working in Europe as a researcher and the proportion who had investigated the possibilities



Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Share of non-mobile non-EU researchers who were or were not interested in working in Europe (n=2,336). Share of non-mobile non-EU researchers who were interested in working in Europe who had or had not investigated the possibilities (n=2,047)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

Non-EU researchers from Brazil (97%), Russia (98%), Turkey (96%) and India (95%) who had never been mobile were slightly more interested in working in the EU than were US (85%), Australian (85%), Croatian (85%), Israeli (88%) and Mexican researchers (91%)

- Perceived barriers to mobility

Non-mobile, non-EU researchers were asked whether they thought it would be easy or difficult (or do not know) to deal with some potential barriers to working in Europe. Finding a job for a spouse was thought to be the most difficult factor to handle when moving to the EU. Furthermore, finding a suitable research position and obtaining funding for research were also perceived to be challenging issues. On the other hand, obtaining access to facilities and equipment was perceived to

be easy. 55% thought that language would be an 'easy' factor to cope with compared, with 28% who regarded as it being 'difficult'. The most unclear factor for non-EU researchers concerning moving to the EU was the transfer of pension and social security rights. This may indicate a lack of information on these issues.

Figure 108: Perceived barriers to non-EU mobility for non-EU researchers

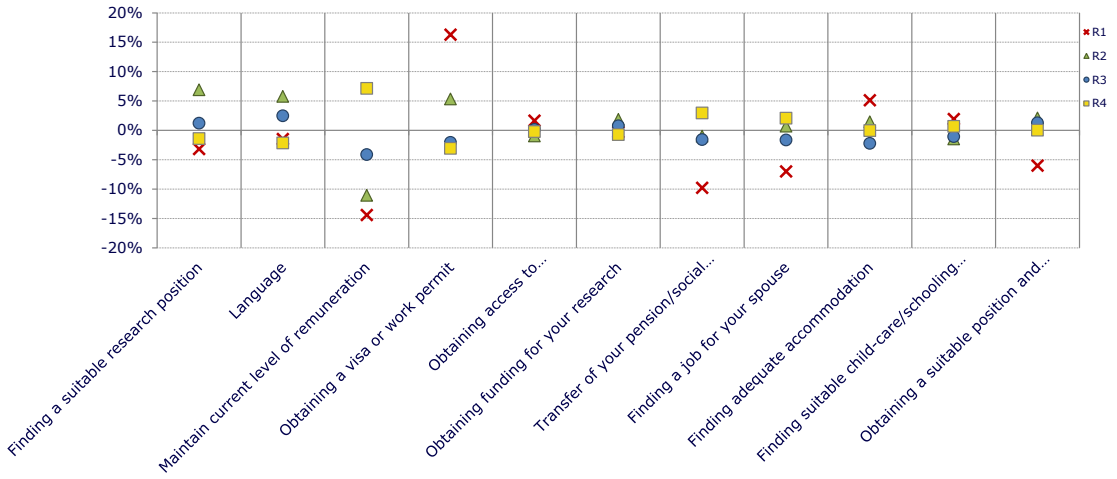
	Easy	I do not know	Difficult
Obtaining a suitable position and funding for your return home	23.8%	35.0%	41.2%
Finding suitable child-care/schooling for children	35.9%	35.1%	29.0%
Finding adequate accommodation	46.7%	28.3%	24.9%
Finding a job for your spouse	10.8%	25.4%	63.8%
Transfer of your pension/social security rights	15.2%	43.4%	41.4%
Obtaining funding for your research	13.0%	36.0%	51.0%
Obtaining access to facilities/equipment necessary for your research	64.2%	24.0%	11.9%
Obtaining a visa or work permit	49.4%	30.3%	20.3%
Maintain current level of remuneration	21.0%	32.2%	46.8%
Language	55.3%	16.4%	28.3%
Finding a suitable research position	17.4%	28.9%	53.6%

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-mobile, non-EU researchers who perceived certain factors to be difficult (as compared to researchers answering either "easy", "difficult", "don't know") to deal with when working in the EU (n=2,284)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

R1 researchers had different perceptions on barriers to EU mobility relative to R2, R3 and R4 researchers (Figure 109). Maintaining their current level of remuneration and the transfer of pension and social security rights were perceived as being less difficult by them, relative to researchers at later career stages. However, obtaining a visa or work permit for the EU was perceived to be more difficult for R1 researchers than others.

Figure 109: Differences in the perceived barriers to non-EU mobility for non-EU researchers by career stage



	R1	R2	R3	R4	*Total*
Finding a suitable research position	50.4%	60.5%	54.9%	52.2%	*53.6%*
Language	26.8%	34.1%	30.7%	26.1%	*28.3%*
Maintain current level of remuneration	32.4%	35.8%	42.7%	54.0%	*46.8%*
Obtaining a visa or work permit	36.6%	25.6%	18.3%	17.3%	*20.3%*
Obtaining access to facilities/equipment necessary for your research	13.5%	10.9%	12.0%	11.6%	*11.9%*
Obtaining funding for your research	50.7%	52.8%	51.7%	50.3%	*51.0%*
Transfer of your pension/social security rights	31.7%	40.4%	39.8%	44.4%	*41.4%*
Finding a job for your spouse	56.8%	64.5%	62.2%	65.9%	*63.8%*
Finding adequate accommodation	30.0%	26.4%	22.7%	24.9%	*24.9%*
Finding suitable child-care/schooling for children	31.0%	27.6%	28.0%	29.7%	*29.0%*
Obtaining a suitable position and funding for your return home	35.2%	43.3%	42.5%	41.2%	*41.2%*

Source: MORE2 Extra-EU mobility survey (2012)

Note:

- *Difference between share of non-mobile non-EU researchers by career stage for whom a factor was perceived to impose a difficult barrier (as compared to researchers answering either "easy", "difficult" or "I don't know") to EU mobility and the total share of non-mobile non-EU researchers for whom the specific factor was perceived to impose a difficult barrier to EU mobility (n=2,284)*
- *For R1 (first stage), R2 (recognized), R3 (established) and R4 (leading) researchers*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

There was not much difference between the perceived barriers to EU mobility by gender.

Table 35 provides an overview of the perceived barriers to mobility by citizenship. Only a small percentage of researchers from Croatia (3%), Switzerland (8%) and Israel (11%) consider language to be a possible barrier to mobility to EU27 countries. Specifically, researchers from Australia (46%), India (43%), the US (31%) and Canada (30%) consider language as a possible barrier to EU mobility. Obtaining a visa or work permit is raised as a possible challenge to EU mobility more frequently by Indian (28%), Mexican (28%), Russian (30%) and Turkish (27%) researchers. Only a small fraction of Israeli, Norwegian and Swiss researchers consider a obtaining a visa to constitute a possible barrier to EU mobility. Australian (58%), Canadian (64%) and Swiss (62%) researchers in

particular, consider obtaining a suitable position and funding for their return home as a barrier to EU mobility.

Table 35: Perceived barriers to EU mobility for non-EU researchers by citizenship

	Australia	Brazil	Canada	Croatia	India	Israel	Mexico	Norway	Russia	Switzerland	Turkey	United States	*Total*
Finding a suitable research position	57.1%	44.1%	56.8%	52.9%	53.2%	40.5%	53.5%	29.0%	58.1%	72.2%	43.8%	55.4%	*53.6%*
Language	46.3%	20.4%	29.7%	2.9%	42.6%	10.5%	23.3%	15.6%	16.1%	8.3%	16.8%	30.9%	*28.3%*
Maintain current level of remuneration	54.5%	34.0%	60.0%	20.6%	30.0%	22.2%	34.9%	50.0%	36.1%	72.2%	34.2%	54.3%	*46.8%*
Obtaining a visa or work permit	18.3%	21.8%	18.9%	11.8%	27.9%	2.7%	27.9%	6.5%	30.0%	5.9%	27.2%	17.0%	*20.3%*
Obtaining access to facilities/equipment necessary for your research	12.6%	10.8%	22.2%	11.8%	11.5%	5.9%	9.5%	12.5%	8.3%	22.9%	13.5%	11.2%	*11.9%*
Obtaining funding for your research	62.9%	42.6%	58.3%	55.9%	40.0%	44.4%	42.9%	51.6%	56.7%	69.4%	44.3%	51.7%	*51.0%*
Transfer of your pension/social security rights	43.8%	43.9%	52.8%	35.3%	28.1%	58.8%	44.2%	38.7%	34.4%	51.4%	36.5%	42.7%	*41.4%*
Finding a job for your spouse	75.8%	61.7%	61.3%	51.9%	48.0%	70.6%	68.6%	76.0%	59.3%	72.4%	50.9%	66.9%	*63.8%*
Finding adequate accommodation	29.4%	29.4%	18.9%	17.6%	29.0%	19.4%	32.6%	21.9%	21.7%	33.3%	24.1%	23.1%	*24.9%*
Finding suitable child-care/schooling for children	43.4%	18.6%	7.7%	31.8%	30.2%	38.1%	28.6%	44.4%	31.1%	38.1%	27.6%	26.7%	*29.0%*
Obtaining a suitable position and funding for your return home	57.2%	21.6%	63.3%	38.2%	33.9%	18.2%	32.6%	26.7%	47.5%	61.8%	31.2%	42.5%	*41.2%*
N =	177	103	37	34	62	38	43	32	62	36	194	1,197	2,284

Source: MORE2 Extra-EU mobility survey (2012)

Note:
- *Share of non-mobile non-EU researchers by citizenship for whom a factor was perceived to impose a difficult barrier (versus total) to EU mobility (for countries with response n > 30)*
- *With "mobility" defined as moving to another country than the country of citizenship for three months or more in the last 10 years*

5 HOW ATTRACTIVE IS EUROPE? A COMPARATIVE PERSPECTIVE

5.1 Introduction

This chapter brings together all the findings which relate to the attractiveness of the EU. One should bear in mind that these results are not based on a representative survey and should therefore be interpreted tentatively.

'Attractiveness' is a key determining factor in the realisation of Europe's ambition to expand the number of researchers in Europe by 2020 (ERA Communication July 2012; Expert Group on the Research Profession July 2012), not only by training 'home' researchers, but also by attracting researchers from outside Europe. There is a risk of not fulfilling this ambition if there is insufficient attention paid to strengths, barriers and potential bottlenecks.[46;47]

We shall highlight the following issues using a 'comparative' perspective:

1. Findings on the (dis)satisfaction of researchers in their current academic position;
2. Confidence in future researcher career prospects across the different groups of researchers (future prospects);
3. Drivers and experiences of researchers with respect to mobility (including aspects reflecting the broader research system, motives, effects and barriers);
4. Visibility and awareness of EU mobility policy instruments and measures.

The discussion of these aspects is based on data availability. Every subgroup did not have to respond to the same questions. This selectivity was justifiable in order to keep the focus on comparing the attractiveness of the EU with non-EU countries.

5.2 Levels of satisfaction in current academic positions

As illustrated by Figure 110, about 80-90% of the (EU) researchers currently working outside the EU were satisfied with the levels of intellectual challenge and responsibility, their degree of independence, and the contribution to society which their current job provides.

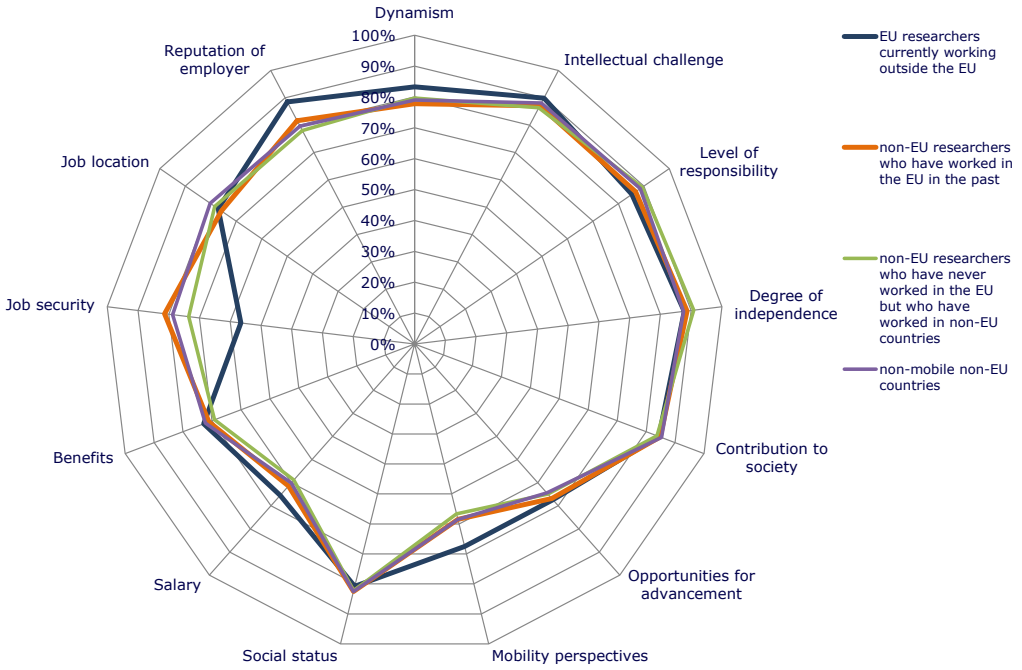
They also had the same level of satisfaction concerning opportunities for advancement, their social status, the benefits and attractiveness of their job location. However, we noted some differences between the subgroups:

46 JRC-IPTS (2011) Barriers and bottlenecks to making research careers more attractive and promoting mobility. EC, JRC-IPTS, ERAWATCH: Fernández-Zubieta A. and R. van Bavel.

47 Veugelers, R. (2011) A G2 for science. Policy Briefs, 519, Bruegel.

- EU researchers currently working outside the EU were generally more satisfied with their mobility perspectives, their salary level, reputation of their employer and dynamism than non-EU researchers.
- At the same time, they seem to be less satisfied with their current level of job security compared to non-EU researchers: this could be partly explained by the fact that the share of R4 (settled) researchers was higher among the latter group. This is also reflected in the share of researchers having a permanent contract. About 39.5% of EU researchers currently abroad had a permanent contract; for non-EU researchers who have worked in Europe before, this percentage was 71%; for non-EU researchers who had been mobile but not to Europe, the percentage who had a permanent contract was 62%.
- If speculating, one could assume that the lower levels of job security might encourage EU researchers currently abroad to return to Europe - of course with the right conditions and given the right incentives.

Figure 110: Satisfaction in current academic position



	EU researchers currently working outside the EU	non-EU researchers who have worked in the EU in the past	non-EU researchers who have never worked in the EU but who have worked in non-EU countries	non-mobile non-EU countries
Dynamism	83.3%	77.8%	79.6%	79.0%
Intellectual challenge	89.9%	87.1%	86.4%	88.1%
Level of responsibility	85.3%	86.8%	89.4%	88.6%
Degree of independence	87.8%	88.7%	90.8%	87.5%
Contribution to society	84.4%	84.8%	83.7%	85.3%
Opportunities for advancement	67.4%	66.8%	64.9%	64.4%
Mobility perspectives	67.5%	58.4%	56.6%	58.5%
Social status	80.8%	82.5%	82.2%	82.6%
Salary	65.5%	61.4%	58.8%	60.1%
Benefits	72.8%	71.0%	69.1%	72.3%
Job security	56.5%	81.4%	73.5%	78.8%
Job location	77.1%	75.8%	78.4%	80.2%
Reputation of employer	88.5%	81.7%	78.1%	79.7%

Source: MORE2 Extra-EU mobility survey (2012)

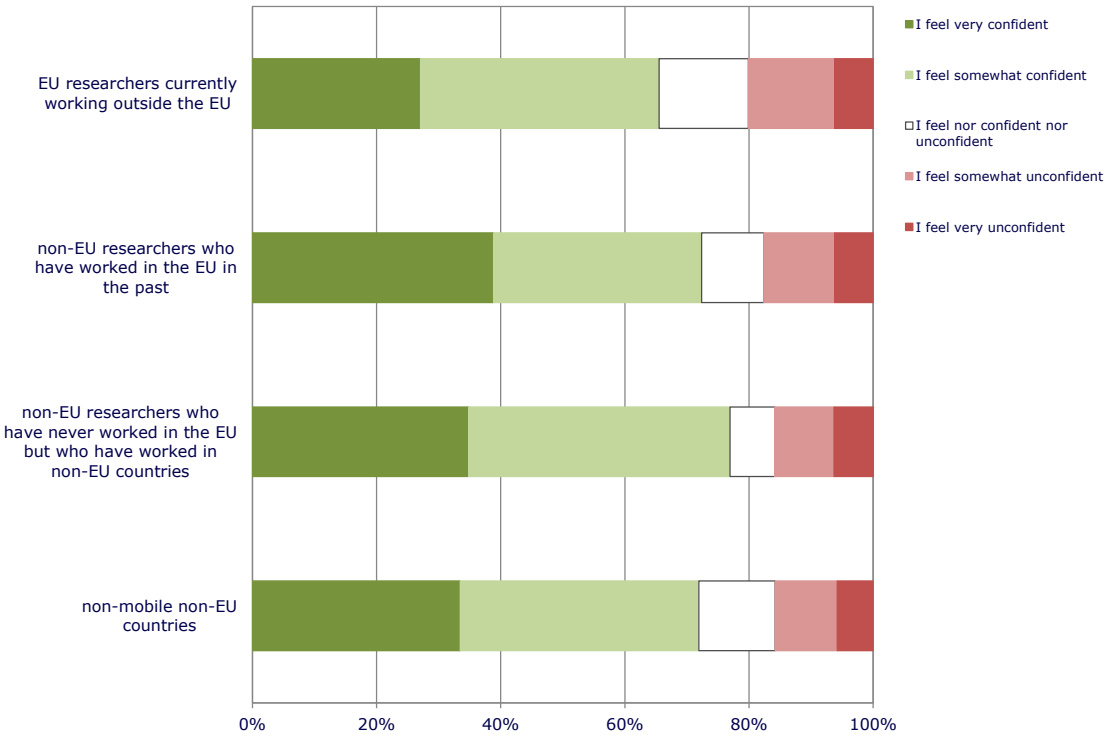
Note: Share of researchers who were satisfied with different aspects of their current academic position (as compared to researchers answering either "satisfied" or "dissatisfied") (n=4,090)

5.3 Future prospects

Closely related to the previous discussion is the topic of career prospects, as perceived by the different researchers. Figure 111 illustrates levels of confidence in this area.

- Non-EU researchers, who had worked in the EU in the past, had quite a high degree of confidence about the prospects for their research careers.
- A large majority of non-EU researchers who have worked in non-EU countries felt somewhat confident about their prospects. Only a small group of them were neither confident nor unconfident.
- EU researchers currently working outside Europe, surprisingly, were the least confident about their future careers. This could be related to fact that a rather 'young' group of researchers in this subgroup participated in this survey.

Figure 111: Confidence about career prospects of those working outside the EU



Source: MORE2 Extra-EU mobility survey (2012)

Note: Share of researchers currently working abroad who were confident about the future prospects for their career position (as compared to researchers answering either ("very") confident, ("very") unconfident or "not" confident or "unconfident") (n=4,090)

5.4 Different facets of the mobility experience

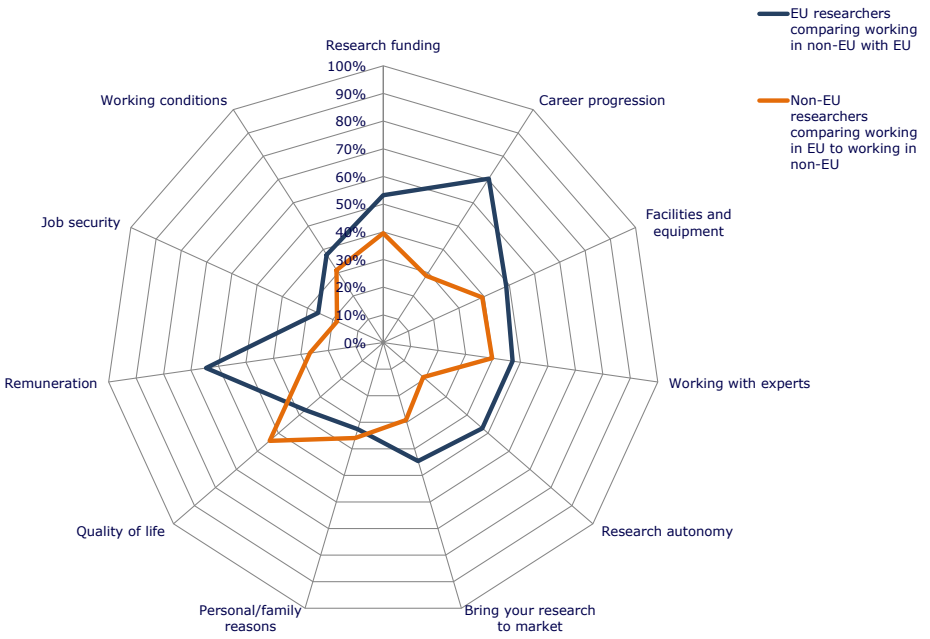
5.4.1 Appreciation of systemic aspects

All researchers were asked to compare their experience in their home country (EU or non-EU) with those in their time abroad (again respectively EU and non-EU). Figure 112 shows the comparison between different aspects of the research systems in EU and non-EU countries. EU researchers were asked how working in non-European countries compared to working in the EU (better, worse, similar). The same was asked of non-EU researchers', vis-à-vis their working experience in Europe:

- EU researchers currently working abroad evaluated most aspects to be better in non-EU countries (where they were currently working) than in the EU (based on their experience). Career progression possibilities, remuneration, and research funding were judged to be much better when they were currently working than in the EU. Job security is only judged by 26% of EU researchers to be better outside the EU than in it. Personal/family life, the quality of life, and working conditions were felt to be better outside the EU than in it by 32%-38% of the EU researchers.
- Non-EU researchers clearly indicated that their quality of life was much better in the EU than where they were currently working. Job security and research autonomy was only highlighted by 19% of the non-EU researchers as being better in the EU than outside it.

- By comparing the two statements above, it becomes clear where the differences lie between the two groups. EU researchers abroad seem to value the likelihood of career progression abroad and the remuneration, whereas non-EU researchers who had worked in the EU value the quality of life found in Europe.

Figure 112: Comparing working outside the EU and working inside the EU as a researcher for EU and non-EU researcher, respectively



	EU researchers comparing working in non-EU with EU	Non-EU researchers comparing working in EU to working in non-EU
Research funding	53.2%	39.5%
Career progression	70.4%	28.7%
Facilities and equipment	48.8%	39.3%
Working with experts	47.1%	39.7%
Research autonomy	47.3%	19.1%
Bring your research to market	44.6%	29.2%
Personal/family reasons	32.6%	35.9%
Quality of life	37.2%	54.2%
Remuneration	64.5%	26.7%
Job security	25.8%	18.3%
Working conditions	37.7%	31.1%

Source: MORE2 Extra-EU mobility survey (2012)

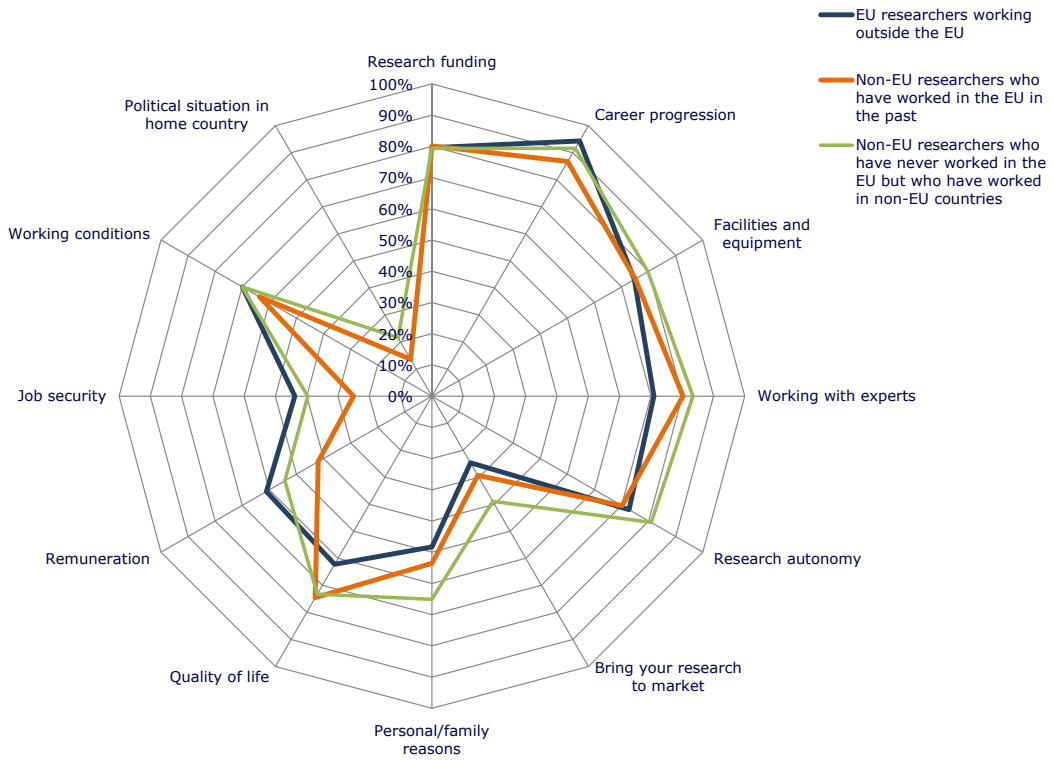
Note: Share of EU versus non-EU researchers who indicated a factor to be better when working as a researcher outside the EU than when working inside it (as compared to researchers who indicated either "better", "worse" or "similar") (n=619 for EU researchers and n=744 for non-EU researchers).

5.4.2 Comparison of mobility motives

Why do researchers consider moving overseas? This question was put to the different groups of researchers in our study. Figure 113 compares the mobility motives of 1) EU researchers who are currently working outside the EU, 2) non-EU researchers who had moved to the EU in the past and 3) non-EU researchers who had relocated to other parts of the World (but not Europe).

- Career progression, remuneration and job security were more important mobility motives for European researchers who moved outside the EU than for the other researchers.
- Quality of life, career progression and working with experts were important motives for non-EU researchers to come to Europe.
- Mobility of non-EU researchers to other parts of the world was mainly driven by research autonomy, availability of facilities and equipment, working with experts, career progression and availability of research funding.
- It is interesting to note that political situation, job security and the option to bring research to the market hardly played a role in the mobility decisions of any of these groups.

Figure 113: Comparing working outside the EU and working inside the EU as a researcher for non-EU and EU researchers, respectively



	EU researchers working outside the EU	Non-EU researchers who have worked in the EU in the past	Non-EU researchers who have never worked in the EU but who have worked in non-EU countries
Research funding	79.6%	80.2%	79.3%
Career progression	94.4%	86.8%	91.7%
Facilities and equipment	74.7%	75.1%	79.7%
Working with experts	71.0%	80.2%	83.4%
Research autonomy	72.8%	70.2%	81.0%
Bring your research to market	24.6%	29.3%	38.9%
Personal/family reasons	48.3%	53.6%	65.1%
Quality of life	62.2%	74.6%	73.3%
Remuneration	61.1%	41.9%	54.3%
Job security	43.8%	25.0%	39.7%
Working conditions	70.0%	63.6%	70.1%
Political situation in home country		13.6%	21.6%

Source: MORE2 Extra-EU mobility survey (2012)

Note: Share of EU versus non-EU researchers who indicated motives for moving to and outside the EU. (n=619 for EU researchers, n=744 for non-EU researchers, n=335 for non-EU researchers who had never been to the EU but who had been mobile towards non-EU countries)

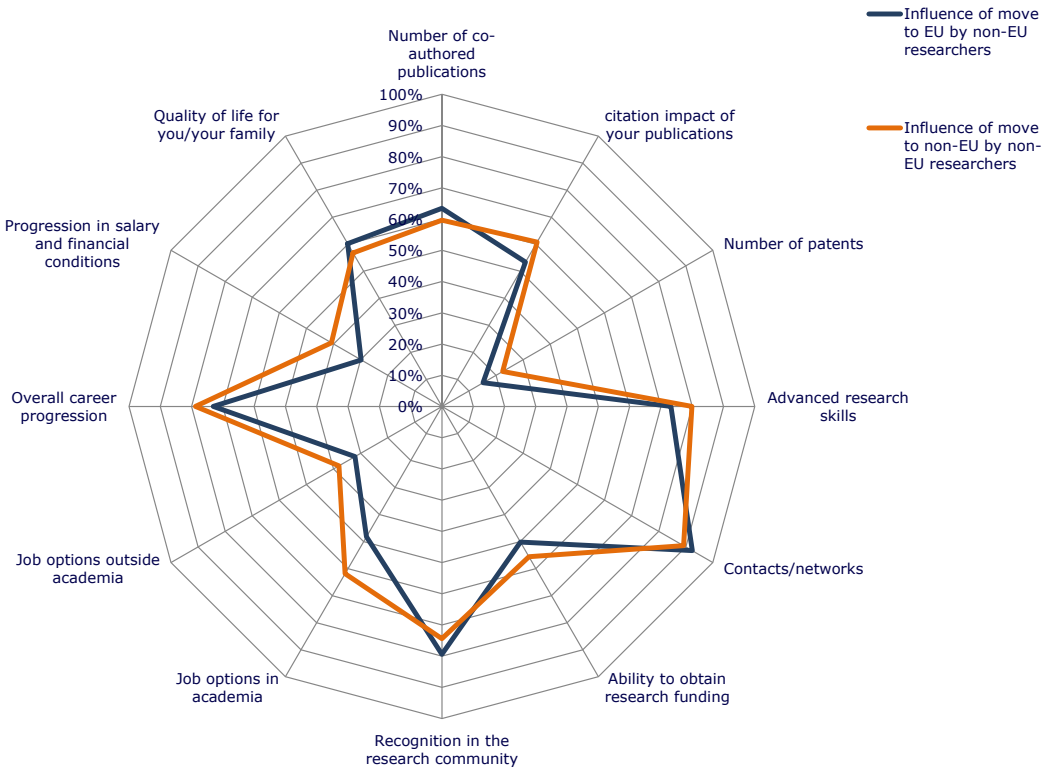
5.4.3 Comparison of effects

Important effects of mobility, in general, were an increase in networks, advanced research skills, recognition in the research community and overall career progression.

Comparing non-EU researchers who have previously worked in the EU with non-EU researchers who had only worked in non-EU countries, Figure 114 shows that there was little difference in the perceived effects of mobility whether researchers were moving to the EU or beyond.

- Larger numbers of co-authored publications, better recognition in the research community and improved quality of life were prominent effects for non-EU researchers who had moved to Europe in the past (compared to non-EU destinations).
- A move outside Europe by non-EU researchers had a major effect on the citation impact of publications, advanced research skills, job options in and outside academia, and overall career progression (compared to a move to non-European countries by non-EU researchers).
- Higher levels of patenting do not seem to have been an observable effect for either group/destination. The effect of mobility on improvements in salary and financial conditions is rather low, though the effect is higher for non-EU researchers moving to a non-EU destination than for non-EU researchers moving to an EU destination.

Figure 114: Comparing effects of mobility of non-EU researchers moving to EU versus non-EU countries



	Influence of move to EU by non-EU researchers	Influence of move to non-EU by non-EU researchers
Number of co-authored publications	63.5%	59.7%
citation impact of your publications	53.4%	60.8%
Number of patents	15.2%	22.4%
Advanced research skills	73.2%	79.9%
Contacts/networks	92.4%	89.2%
Ability to obtain research funding	50.2%	55.6%
Recognition in the research community	79.4%	74.4%
Job options in academia	48.2%	61.9%
Job options outside academia	32.1%	38.0%
Overall career progression	73.1%	78.8%
Progression in salary and financial conditions	29.8%	40.8%
Quality of life for you/your family	60.2%	56.8%

Source: MORE2 Extra-EU mobility survey (2012)

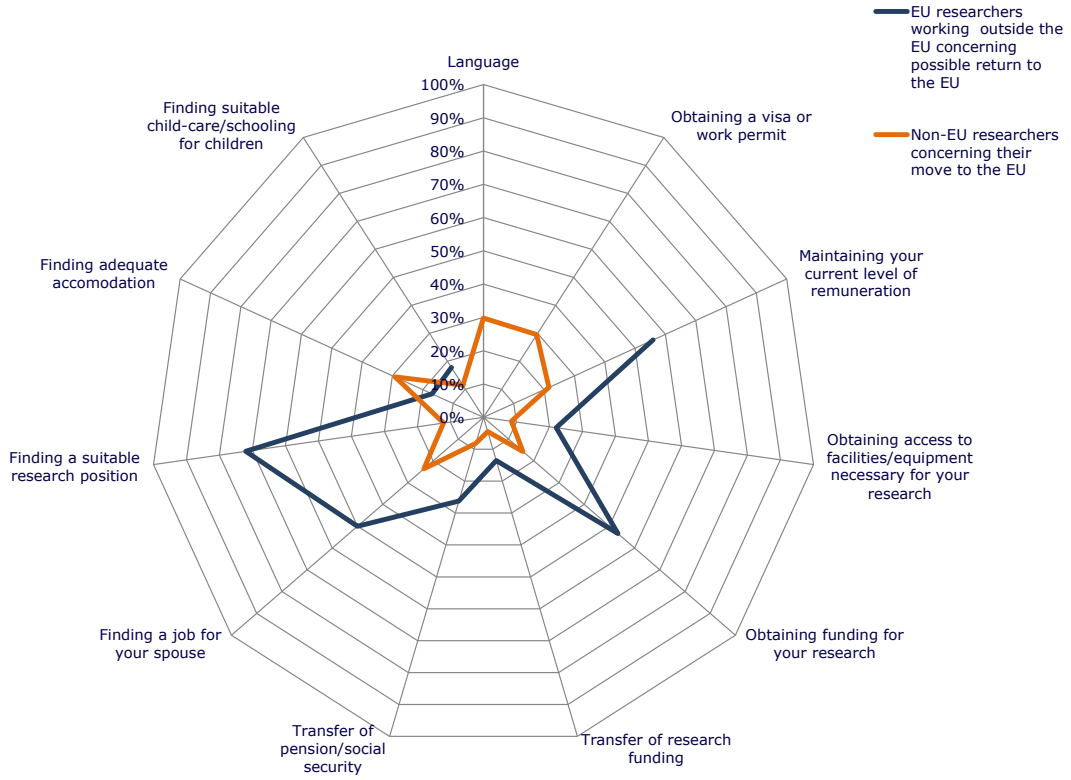
Note: Share of non-EU researchers who indicated effects of moving outside the EU versus moving towards the EU (n=778 for non-EU researchers who had been to the EU in the past, n=335 for non-EU researchers who had never been to the EU but who had moved to non-EU countries)

5.4.4 Comparison of difficulties experienced in becoming mobile

Figure 115 compares the difficulties faced by EU researchers currently working abroad in their attempt to return to Europe (i.e. those who had made an effort to return) and non-EU researchers who had been to Europe and had actually faced these difficulties. Thus, we compare the difficulties faced on entering Europe, on the one hand, by EU researchers currently working abroad (return mobility) and, on the other hand, by non-EU researchers who had been to Europe.

- European researchers currently abroad who had to make an effort to return to Europe, mainly faced difficulties related to finding a suitable position (including a position for their spouse), obtaining funding for research, and securing current levels of remuneration.
- Non-EU researchers who had worked in Europe had difficulties obtaining a work permit, language, finding accommodations and finding a job for their spouse (information on the work permits and language was not available for EU researchers concerning their return mobility)
- Europeans returning to Europe mainly faced issues relating to their job, while for non-EU researchers who wanted to come to Europe, the administrative/formal aspects of their move were more important.
- 8% of EU researchers abroad did not face any difficulties while undertaking concrete steps to return to the EU. 30% of non-EU researchers did not face any difficulties when moving to the EU. It could indeed be perceived as rather odd that those EU researchers returning home consider some factors to be much more difficult than do non-EU researchers.
  This could, however, be related to the fact that many more EU researchers who move abroad change employer (employer mobility) and a high percentage of the EU researchers currently working abroad relocate for more than 3 years.
  This situation is unlike that of non-EU researchers, who have been to the EU, who less frequently have a change in employer when moving to the EU, and also work in Europe for a much shorter time period (often 3 to 6 months). As a reason to leave the EU, 60% of non-EU researchers indicated that it had never been their intention to stay longer in the EU.

Figure 115: Comparing difficulties faced by non-EU researchers moving to the EU and EU researchers returning to the EU



	EU researchers working outside the EU concerning possible return to the EU	Non-EU researchers concerning their move to the EU
Language		29.8%
Obtaining a visa or work permit		29.6%
Maintaining your current level of remuneration	55.9%	21.6%
Obtaining access to facilities/equipment necessary for your research	22.0%	8.5%
Obtaining funding for your research	53.4%	15.7%
Transfer of research funding	13.6%	4.5%
Transfer of pension/social security	26.3%	8.2%
Finding a job for your spouse	50.0%	23.7%
Finding a suitable research position	72.0%	12.1%
Finding adequate accomodation	16.9%	29.2%
Finding suitable child-care/schooling for children	17.8%	11.4%

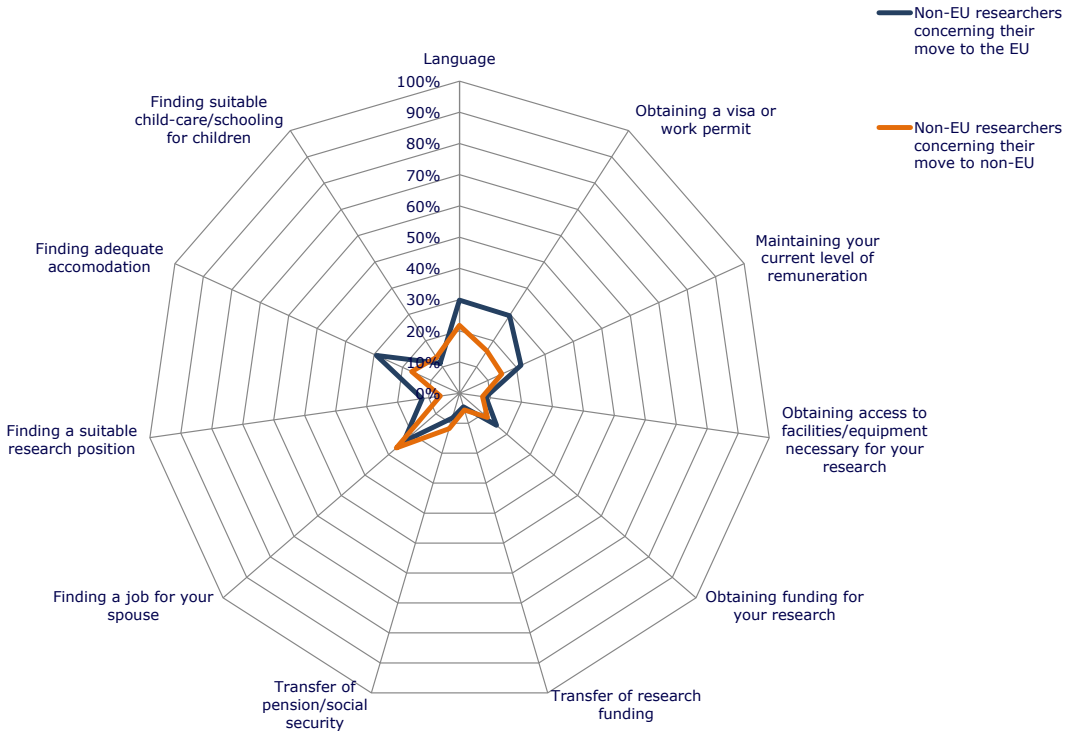
Source: MORE2 Extra-EU mobility survey (2012)

Note: Share of EU versus non-EU researchers who faced difficulties of (possible) mobility to the EU (n=118 for EU researchers who have taken concrete steps in order to return to Europe, n=778 for non-EU researchers who have worked in the EU in the past). The question on difficulties faced for moving to the EU for EU researchers currently abroad did not have the response options "language" and "obtaining a visa or work permit".

Figure 116 makes a similar comparison, but this time for EU versus non-EU countries as destinations for non-EU researchers.

- Overall, language, obtaining a visa or work permit, maintaining current levels of remuneration, finding a job for one's spouse and adequate accommodation are more often difficulties that non-EU researchers face than the transfer of research funding, finding a suitable research position, obtaining access to research facilities and finding suitable childcare.
- Differences can be seen with respect to obtaining a visa or work permit, finding adequate accommodation, language (hence the initiative of several European universities to introduce a 'welcoming office'), maintaining current levels of remuneration and finding an adequate research position.
- Transfer of researcher funding, transfer of pension/social security, access to facilities and equipment as well as finding suitable child-care/schooling for children and a job for one's spouse were factors which were almost equally perceived as being difficult for relocating to both EU and non-EU countries.
- 30% of the non-EU researchers did not face any difficulties when moving to the EU. Even 40% of non-EU researchers who never went to the EU experienced any difficulties when moving to non-EU countries.

Figure 116: Comparing difficulties faced for mobility to the EU and mobility to non-EU countries



	Non-EU researchers concerning their move to the EU	Non-EU researchers concerning their move to non-EU
Language	29.8%	21.7%
Obtaining a visa or work permit	29.6%	16.1%
Maintaining your current level of remuneration	21.6%	14.9%
Obtaining access to facilities/equipment necessary for your research	8.5%	7.5%
Obtaining funding for your research	15.7%	11.8%
Transfer of research funding	4.5%	5.6%
Transfer of pension/social security	8.2%	11.8%
Finding a job for your spouse	23.7%	26.7%
Finding a suitable research position	12.1%	6.2%
Finding adequate accomodation	29.2%	16.8%
Finding suitable child-care/schooling for children	11.4%	13.7%

Source: MORE2 Extra-EU mobility survey (2012)

Note: Share of non-EU researchers who faced difficulties when moving to the EU versus non-EU(n=778 for non-EU researchers who have worked in the EU in the past, n=335 for non-EU researchers who had never been to the EU but who have worked in non-EU countries)

5.5 Visibility and awareness of EU policy instruments

All respondents answered a number of questions on EURAXESS, the main job and mobility portal of the European Commission. As Table 36 indicates, the EURAXESS portal was best known among the EU researchers currently working abroad and least known by non-EU researchers who have never moved to the EU (but had been to non-EU countries). In terms of the use of the EURAXESS portal, the percentages for both groups were quite similar. The highest use was found for non-EU researchers who had moved to non-EU destinations, while the lowest was by non-EU researchers who had been to the EU.

Table 36: Awareness and use of EURAXESS

	EU researchers currently working outside the EU	non-EU researchers who have worked in the EU in the past	non-EU researchers who have never worked in the EU but who have worked in non-EU countries	non-mobile non-EU countries
Awareness of EURAXESS	24.90%	9.20%	4.50%	6.90%
Use of EURAXESS by those researchers who are aware of EURAXESS	42.50%	39.50%	43.80%	41.90%

Source: MORE2 Extra-EU mobility survey (2012)

Note: The share of researchers who use Euraxess is calculated as percentage of researchers who are aware of Euraxess.

The share of researchers who use Euraxess are calculated as percentage of researchers who are aware of Euraxess.

The respondents were also asked about their familiarity with Marie Curie actions (a major European training and mobility support scheme). Table 37 shows that non-EU researchers (especially the non-mobile) were less familiar with the Marie Curie actions than EU researchers who were currently abroad. In terms of

funding, 4% of the non-EU researchers who had been mobile to the EU in the past had been funded as an 'experienced' researcher; just 3% had been funded as an 'early' researcher. A more detailed overview of the awareness and use of EURAXESS and Marie Curie actions per subgroup can be found in Annex 2.

Table 37: Awareness and use of Marie Curie actions

	EU researchers currently working outside the EU	non-EU researchers who have worked in the EU in the past	non-EU researchers who have never been worked in the EU but who have worked in non-EU countries	non-mobile non-EU countries
Awareness of MC	53.8%	35.8%	32.5%	23.8%
Funded as an early researcher	5.9%	3.2%	6.5%	3.1%
Funded as an experience researcher	2.6%	4.3%	4.6%	1.6%
Not funded	91.5%	92.8%	89.8%	95.5%

Source: MORE2 Extra-EU mobility survey (2012)

Note: The share of researchers funded as an early researchers, as an experience researcher or not funded are calculated as percentage of researchers who are aware of MC actions.

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ANNEX 1: SURVEY IMPLEMENTATION

Sampling

Almost in tandem with the development of the online survey questionnaire, the identification of potential respondents was also in progress. Therefore, the research team worked in close collaboration with the University of Wolverhampton, who specialise in complex web-based data collection and analysis processes.

The entire sampling approach can be characterised by 'convenience' sampling. We used a web-based method to collect large samples of researchers' emails. This method has been previously used under MORE1 to generate tens of thousands of academics' email addresses for online surveying, and so it is known to work and to give good results.

The first step of the method is to collect a large sample of the URLs of academics' home pages. This is achieved through Bing and Yahoo advanced site-specific searches of a list of thousands of European university web sites for keywords like "home page", "homepage", "CV" or "Curriculum Vitae". The searches are conducted twice, once for normal HTML pages and once for PDF files, since many academics post CVs online in PDF format. These searches can be targeted at academics with particular profiles by adding appropriate keywords. For example, to target academics that have moved from the US, the searches would be run with names of prominent US universities as additional keywords. This method is imperfect as it can match conferences listed in CVs instead of previous employment histories but in a previous study it had a reasonable success rate.

The second step is to automatically download all the home pages and CVs identified from the searches and to automatically extract email addresses from them. The limitation of this step is that some academics omit or obscure their email address, but the method still gives reasonable results. The main limitation of this method is that it might under-represent universities that have a standard home page format for all of their academics which does not include an email address or that obscures their email address. We expect the top universities to be heavily represented in our sample since they tend to be large, have extensive web presences and to contain many matching authors. Hence it should be possible to separate out a significant number of researchers from the sample in top universities to analyse separately, if needed.

As mentioned previously, the survey particularly targets four groups of researchers:

(1) European researchers currently working outside the EU

(2) Non-European researchers having worked previously in the EU

(3) Non-EU researchers not having worked previously in the EU

(4) Non-EU researchers not having worked previously in the EU or other non-EU countries

To identify emails of group (2) (and group (1) to some extent), the method above is used to search for the CVs of the web sites of 1021 EU universities and 275 universities from associated countries. This produces a list of email addresses of researchers with a presence in an EU or associated country. The CVs or home

pages are also scanned for a mention of a non-EU country (above any list of publications) and emails of people associated with such non-EU countries in this way are identified as likely to be in group (2).

To identify group (1) 5,200 web sites of non-EU universities in selected countries – the BRIC nations, North America, plus a heuristically selected sample of other countries judged important (Australia, China, Japan, Mexico, New Zealand, Saudi Arabia, South Africa, South Korea, Taiwan, United States) are searched for CVs as above. Email addresses are extracted as above. The CVs or home pages are also scanned for a mention of an EU country (above any list of publications) and emails of people associated with such EU countries in this way are identified as likely to be in group (2 or 1). Email addresses of people extracted from this non-EU data set but which are not associated with an EU country are the candidates for group (3 and 4).

All extracted email addresses will be retained and any not identified as being likely to belong to groups 1-4 above will be used as a reserve supply in case the main samples do not yield enough positive results.

On top of this contact generation approach, we announced the survey to the researchers through various means. One of these is the EURAXESS websites; we added an information section about the survey and its objectives, and a link to the online survey. In addition, we announced the survey in the communities of EU researchers abroad, like the ones that can be accessed through the EU centres of excellence around the world. This combined approach has worked well in the MORE1 study. On top of this, and in view of our particular interest in China, we addressed China – EU collaboration networks (with whom interviews will also take place in the coming weeks).

Survey implementation

After the data collection process described above, the email addresses were inputted into the online survey tool and the survey is launched automatically (in collaboration with our partners CheckMarket). In terms of follow-up, a number of precautions were taken in order to maximize the output:

- The online tool offers the possibility of generating automatic reminder emails for those respondents who have not yet participated in the survey. The research team followed up response and consequently decided on the optimal timing for sending out reminder emails.
- The respondents also received an email address where they were able to address any questions or comments in relation to the questionnaire. One of the team members responsible for WP2 was responsible for responding to these emails and provided clarifications or assistance when needed on a daily basis.
- The response evolution was followed 'on the foot' in order to take corrective measures if/when needed.

Finally, "snowballing" also was used as an additional source to increase the survey sample. All respondents of the survey had the opportunity to forward the survey link to people potentially interested in the survey.

The sampling method generated far more emails than was necessary. However, a large sample set is required in order to balance the size of the populations we are interested in, and to have a 'reserve' in case response rates were not as expected. Response rates are lower for some types of country (e.g., Associated Countries) due to the low numbers of relevant researchers and the limited web presence of research institutions in some research areas. In this respect, we refer

to the MORE1 experience, where an approximate 5% response rate was achieved. In order to obtain a high response rate, the questionnaire was also translated into Spanish.

ANNEX 2: AWARENESS OF EURAXESS AND MARIE CURIE OPTIONS

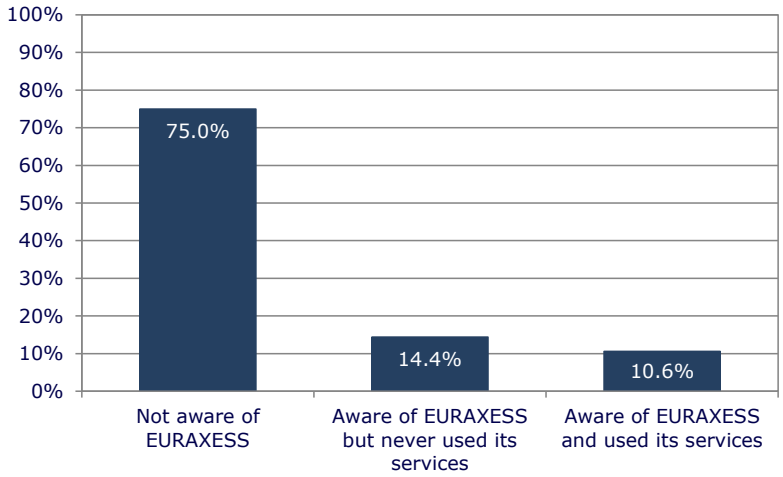
This annex discusses the awareness of researchers working outside the EU regarding EURAXESS and the Marie Curie Actions of the EU's Seventh Framework for each of the subgroups. In Chapter 5, a comparative overview is provided on their levels of awareness.

Again, we would like to urge caution with the interpretation of these results. This extra-EU mobility survey has been promoted by EURAXESS via their website and might therefore have increased the response of researchers aware of it, thus inducing a bias. If interested in the awareness of researchers' working in the EU as regards EURAXESS and Marie Curie Actions, we strongly recommend that the reader consults the results of the "MORE2 Higher Education Institutions (HEI) survey (2012)", as these survey results are representative for the total EU research population. Results of the HEI-survey indicate that 11% of researchers currently in the EU are aware of EURAXESS and 3% use it. 60% of researchers currently in the EU are aware of Marie Curie Actions while 5% of them use it.

Awareness of EU policy: Are EU researchers abroad aware of EURAXESS and Marie Curie actions?

Figure 117 shows the awareness and user levels of EURAXESS. This programme is known to a quarter of the EU researchers working abroad. Of those who indicate knowing about EURAXESS, 43% reported that have used its services (11% of the total sample of EU researchers currently abroad).

Figure 117: Share of EU researchers abroad who are aware *of EURAXESS*

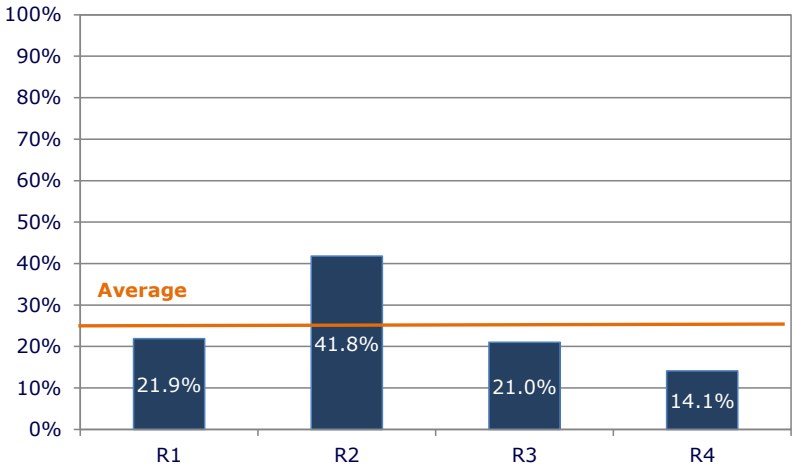


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers abroad (not) aware of the EURAXESS portal and services (n=639) AND the share of EU researchers working abroad and the use of its services (n=160)

EURAXESS seems to be used more by recognized researchers (R2) (42% of them) than by researchers at other career stages. Only 14% of the leading researchers (R4) who responded to this question indicated familiarity with this programme (Figure 118).

Figure 118: Share of EU researchers abroad who are aware of EURAXESS by career stage

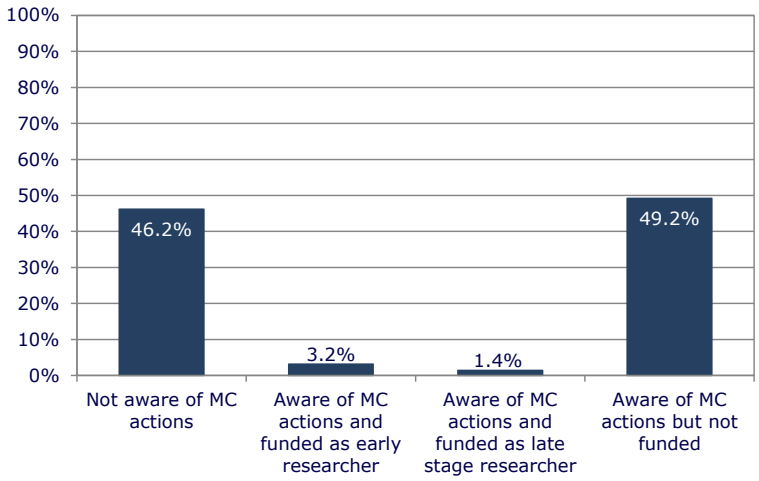


Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers abroad (not) aware of the EURAXESS portal and services per career stage (n=639)

The Marie Curie (MC) programme seems to be more popular among the EU researchers working abroad than the EURAXESS platform. In fact, as Figure 119 shows, more than half of the respondents indicated knowledge of the MC Actions. Of those aware of the MC Actions, 6% indicated that they have been funded by the programme as an early stage researcher (3% of the total sample of EU researchers currently abroad), and 3% indicated that they have been funded by the programme as an experienced researcher (1,4% of the total sample of EU researchers currently abroad).

Figure 119: Share of EU researchers abroad who are aware of Marie Curie Actions



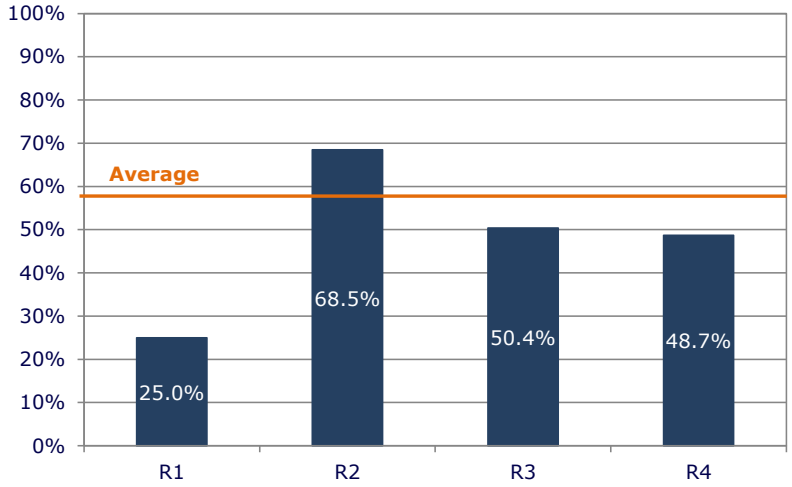
Source: MORE2 Extra-EU Mobility Survey (2012)

Note: Share of EU researchers abroad (not) aware of the Marie Curie actions (n=639) AND the share of EU researchers aware of the Marie Curie actions and the funding (n=343)

Similar to the EURAXESS programme, the Marie Curie Actions are also better known by the recognized (R2) researchers than by the researchers at other career stages. Moreover, as Figure 120 shows, it is rather popular amongst the

mid-career researchers (R2 and R3), somewhat popular among the leading researchers (R4), but largely unknown to the first-stage researchers (R1).

Figure 120: Share of EU researchers abroad who are aware of Marie Curie Actions by career stage



Source: MORE2 Extra-EU Mobility Survey (2012)

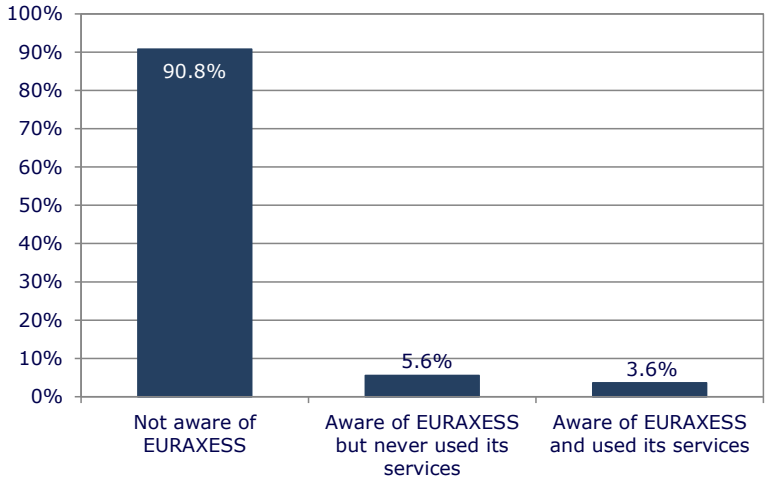
Note: Share of EU researchers working abroad (not) aware of the Marie Curie Actions by career stage (n=639)

Analysis of the usage of EURAXESS or the Marie Curie Actions programme by career stage is not possible due to the limited sample sizes.

Awareness of EU policy: Are non-EU researchers who have previously worked in the EU aware of EURAXESS and Marie Curie actions?

Awareness of the EURAXESS platform and services among those non-EU researchers working abroad - with previous work experience in the EU - is limited. As Figure 121 shows, only 9% of the non-EU researchers who have moved to the EU in the past indicated knowledge of EURAXESS and of those aware of it, 40% had actually used it. They represent nearly 4% of the total number of non-EU researchers who had been to the EU.

Figure 121: Share of non-EU researchers who have previously worked in the EU and who are aware of EURAXESS

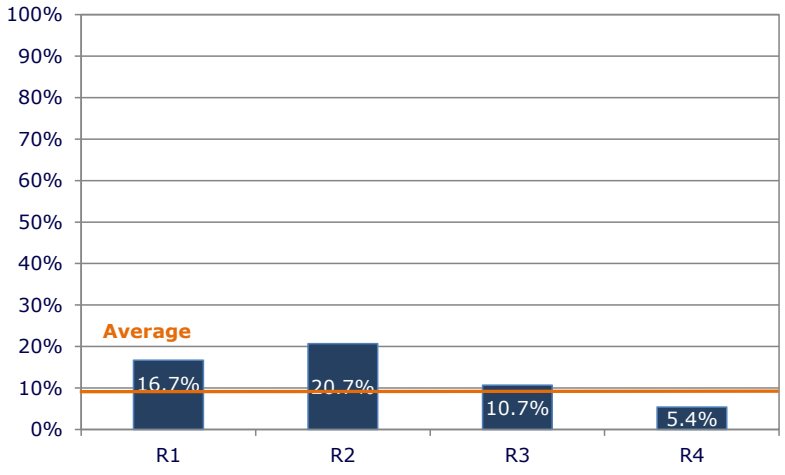


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU aware of the EURAXESS portal and services (n=773)

Awareness of the EURAXESS platform and services varies by career stage. As Figure 122 shows, while those at the early stages are somewhat aware of this tool (17% of the R1s and 21% of the R2s), those at the later stages are even less aware of it (11% of the R3s and 4% of the R4s).

Figure 122: Share of non-EU researchers who have previously worked in the EU who are aware of EURAXESS by career stage

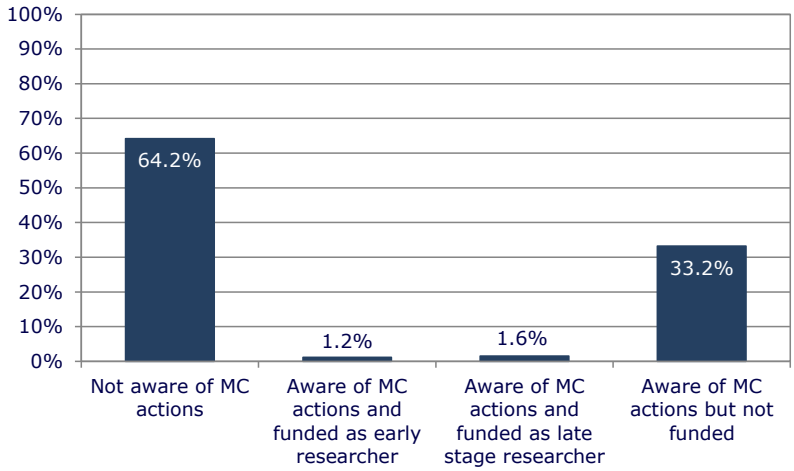


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have previously worked in the EU aware of the EURAXESS portal and services by career stage (n=773)

Contrary to the EURAXESS programme, the Marie Curie (MC) Actions are better known to non-EU researchers working abroad with previous work experience in the EU. As Figure 123 shows, 36% of the respondents indicated knowledge of it, of whom 8% had already benefited from it (nearly 3% of the non-EU researchers who had been to the EU in the past).

Figure 123: Share of non-EU researchers who have previously worked in the EU and who are aware of Marie Curie Actions

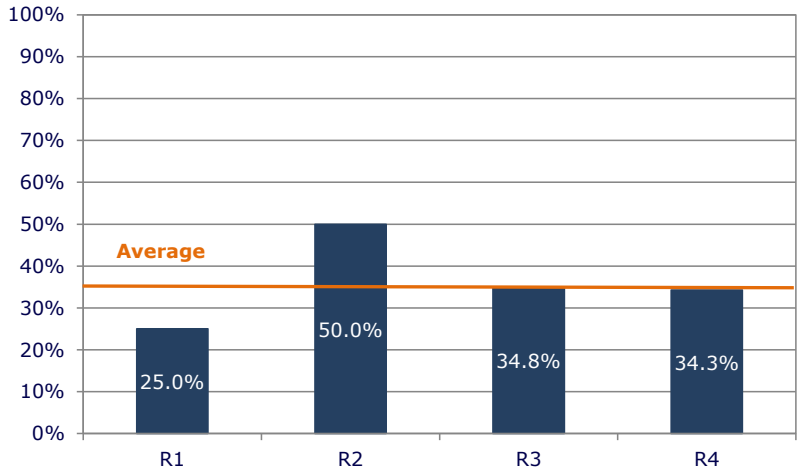


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers who have worked previously in the EU aware of the Marie Curie Actions (n=774)

Figure 124 shows that half of the R2 career stage researchers were aware of the MC Actions. A comparable proportion of the R3s and R4s were aware of this programme (around 35%); however, only a quarter of the R1 researchers in the sample were aware of Mare Curie Actions.

Figure 124: Share of non-EU researchers who have previously worked in the EU who are aware of Marie Curie Actions by career stage



Source: MORE 2 Extra-EU Mobility Survey (2012)

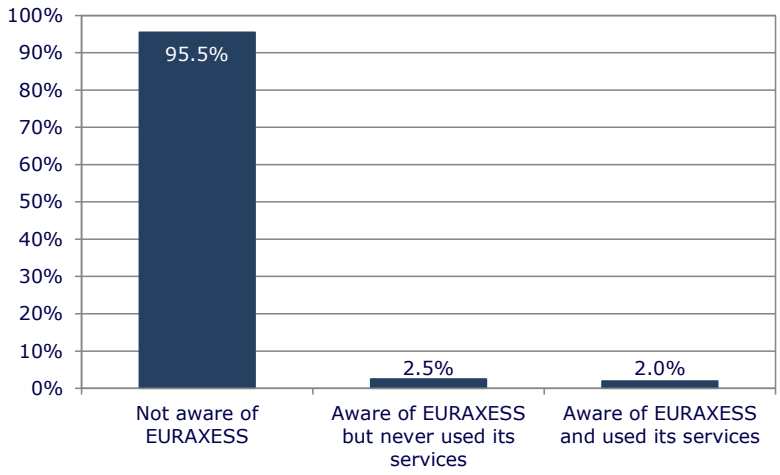
Note: Share of non-EU researchers who have previously worked in the EU aware of the Marie Curie Actions per career stage (n=774)

No reliable conclusions can be drawn from an analysis of EURAXESS users or the Marie Curie Actions by career stage as the sample size is too small.

Awareness of EU policy: Are non-EU researchers who have never worked in the EU but who have worked in non-EU countries aware of EURAXESS and Marie Curie Actions?

As expected, the EURAXESS platform was little known among the non-EU researchers working abroad with mobility experience in non-EU countries. In fact, as Figure 125 shows, 96% of the respondents indicated that they were not aware of EURAXESS. Of the researchers who were aware of EURAXESS, 45% used it. For the whole sample of non-EU researchers who had never been to the EU but who had been mobile to non-EU countries, only 2% had ever used its services.

Figure 125: Share of non-EU researchers who have never worked in the EU but who have worked in non-EU countries aware of EURAXESS



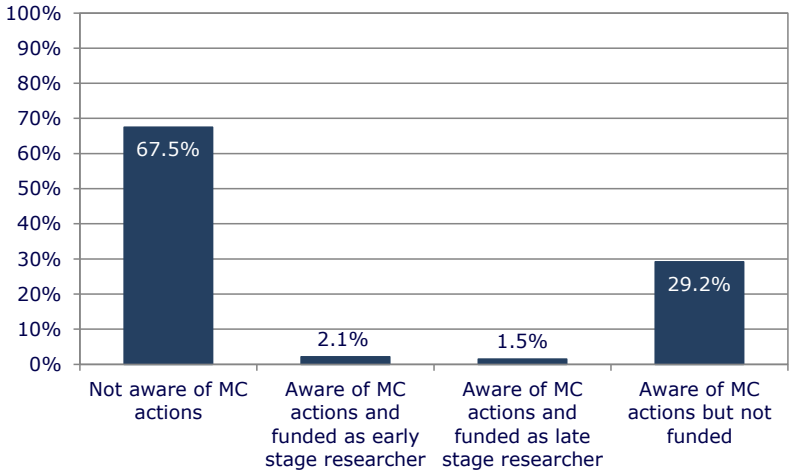
Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers working abroad with mobility experience in countries other than the EU who were aware of the EURAXESS portal and services (n=334)

Due to the small sample, no conclusions can be offered regarding the awareness or use of the EURAXESS platform by career stage.

Awareness of the Marie Curie (MC) Actions among the non-EU researchers with mobility experience in countries other than the EU is not as rare as with EURAXESS. As Figure 126 shows, a third of the respondents were aware of MC Actions. Nearly 4% of the non-EU researchers who had never been to the EU but who had been to non-EU countries had benefited from the programme.

Figure 126: Share of non-EU researchers who have never worked in the EU but who have worked in non-EU countries aware of Marie Curie Actions



Source: MORE 2 Extra-EU Mobility Survey (2012)

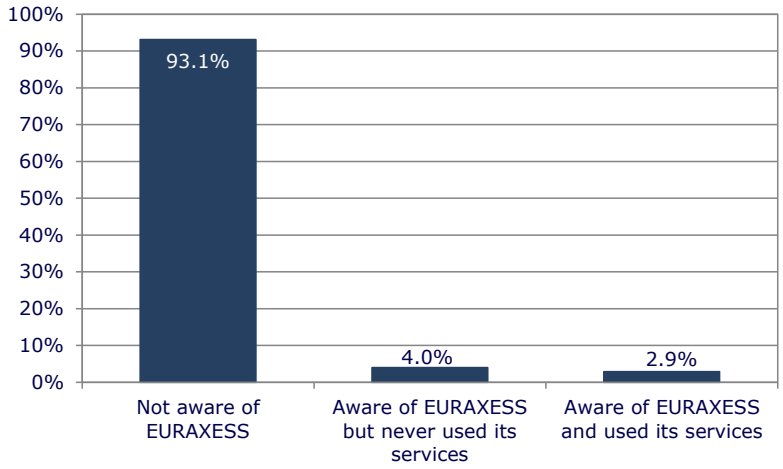
Note: Share of non-EU researchers working abroad with mobility experience in countries other than the EU who were aware of the Marie Curie Actions (n=332)

No conclusions can be drawn from the analysis of the use of the MC Actions by career stage due to the small sample size.

Awareness of EU policy: Are non-mobile non-EU researchers aware of EURAXESS and Marie Curie Actions?

EURAXESS was known to 7% of the non-EU and non-mobile researchers. As Figure 127 shows, 42% of the researchers aware of EURAXESS used it. This is 3% of the sample of non-mobile non-EU researchers who indicated that they had used its services.

Figure 127: Share of non-mobile non-EU researchers aware of EURAXESS

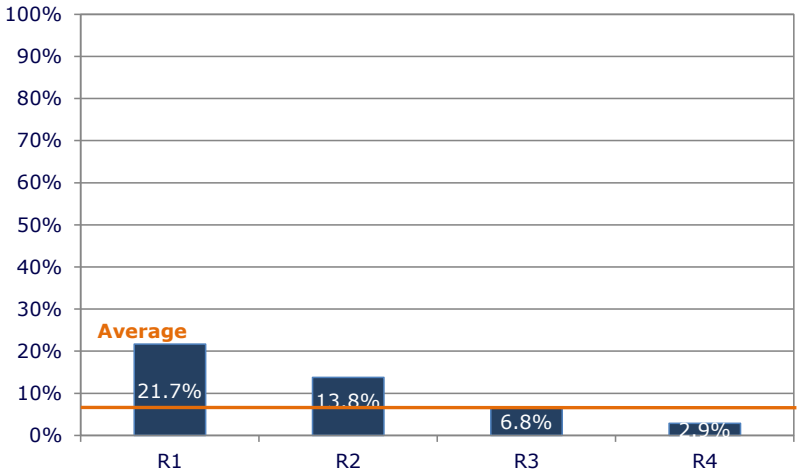


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers working abroad who have not moved at all that are aware of the EURAXESS portal and services (n=2,335)

Figure 128 shows that the EURAXESS platform was more popular among the R1 researchers than among researchers at other career stages. In fact, it was known by 22% of the researchers at the R1 stage, by 14% of R2s, by 7% of R3s, and by 3% of R4s.

Figure 128: Share of non-mobile non-EU researchers aware of EURAXESS by career stage

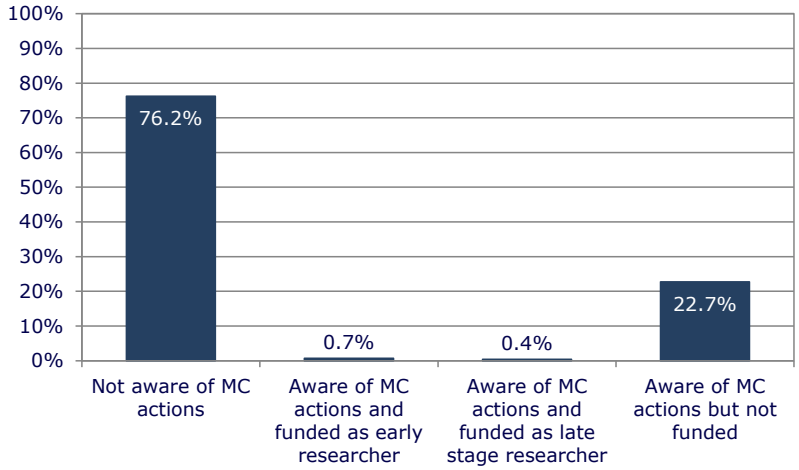


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers working abroad who had never been mobile who were aware of the EURAXESS portal and services by career stage (n=2,335)

Marie Curies Actions were relatively better known than the EURAXESS platform among the non-EU researchers in this sample. As Figure 129 shows, nearly a quarter of them knew about the MCA, of whom almost 5% (approximately 1% of the entire sample of non-mobile non-EU researchers) had benefited from them, either as early researcher or as late stage researcher.

Figure 129: Share of non-mobile non-EU researchers aware of Marie Curie Actions

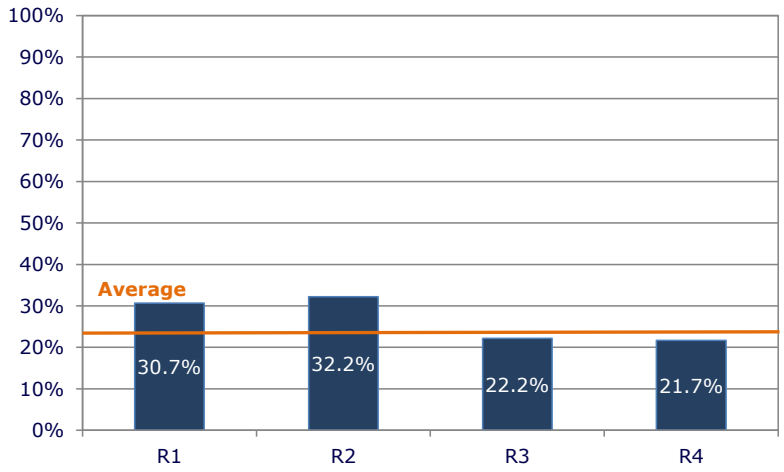


Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers working abroad who had never been mobile who were aware of the Marie Curie Actions (n=2,324)

Awareness of the Marie Curie Actions varied by career stage. While around a third of the R1 researchers and a third of the R2 researchers were aware of the programme, less than a fourth of the R3 and R4 researchers were aware of its activities.

Figure 130: Share of non-mobile non-EU researchers aware of Marie Curie Actions by career stage



Source: MORE 2 Extra-EU Mobility Survey (2012)

Note: Share of non-EU researchers working abroad who had never been mobile who were aware of the Marie Curie Actions by career stage (n=2,324)

ANNEX 3: QUESTIONNAIRE

MORE 2 - WP2

Welcome to the survey on working conditions and mobility of international researchers.

In this research, commissioned by the European Commission, we specifically target “researchers” (including doctoral candidates), being professionals carrying out and/or supervising research, and/or being involved in the development/supervision of new products, processes and/or services.

The questions below are tailored to this target group.

Page 1

*** 1. I consider myself to be a researcher...**

- Yes
- No

Go to **alternative thank-you page** if
1. I consider myself to be a researcher...
is *No*

Page 2

Background

*** 2. What is your gender?**

- Male
- Female

3. What is your year of birth?

1994 or later
1993
1992
1991
1990
1989
1988
1987
1986
1985
1984

Page 3

*** 4. What is your country of residence?**

Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece

Additional options (question 4)
Order responses: alphabetically

*** 5. What is your country of citizenship?**

If you have more than one citizenships you may indicate these by holding the [ctrl] button.

Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary

Additional options (question 5)

- Min. selections required: 1
- Max. selections allowed: 2
- Order responses: alphabetically

6. What is your current status?

- In couple with children
- In couple without children
- Single with children
- Single without children
- Prefer not to disclose

Page 4

Education and training

In this section we would like to ask you about the diplomas/degrees you attained during your higher education, the time when these were completed and the countries where you studied.

*** 7. Did you obtain a higher education (post -secondary) degree?**

- Yes
- No

Go to **page 9** if
7. Did you obtain a higher education (post-secondary) degree?
is *No*

Page 5

Please indicate below all higher education diplomas/degrees you obtained and their details. We refer to post -secondary education, i.e. under-graduate, graduate and post -graduate degrees.

- *You may include more than one diploma/degree of the same level (e.g. two master degrees).*
- *If you obtained a PhD degree, please include this.*

*** 8. Which were the three latest higher education diplomas/degrees you obtained (i.e. post-secondary, including PhD if applicable)?**

	Year	Diploma/Degree	N/A
Diploma/Degree 1 - the most recent one		Select one	
Diploma/Degree 2		Select one	
Diploma/Degree 3		Select one	

Additional options (question 8)
- Validation: integer
- Min value: 1950
- Max value: 2012

Go to **page 6** if
- *8.1. Diploma/Degree 1 - the most recent one*
  - **is not empty**
- **or**
- *8.2. Diploma/Degree 2*
  - **is not empty**
- **or**
- *8.3. Diploma/Degree 3*
  - **is not empty**

Else go to page 7

Page 6

*** 9. What was the field of study for these degrees?**

	Natural Sciences	Engineering and Technology	Medical Sciences	Agricultural Sciences	Social Sciences	Humanities
Diploma/Degree 1: $$$Quest8~1_2$$$ in $$$Quest8~1_1$$$						
Diploma/Degree 2: $$$Quest8~2_2$$$ in $$$Quest8~2_1$$$						
Diploma/Degree 3: $$$Quest8~3_2$$$ in $$$Quest8~3_1$$$						

Additional options (question 9)
- Extraction based on:

*** 10. Was this a joint degree between institutions in different countries, and in which country did you graduate?**

A joint degree is a degree officially issued by two institutions.

	Yes	No	Country of Graduation
Diploma/Degree 1: $$$Quest8~1_2$$$ in $$$Quest8~1_1$$$	○	○	Select one
Diploma/Degree 2: $$$Quest8~2_2$$$ in $$$Quest8~2_1$$$	○	○	Select one
Diploma/Degree 3: $$$Quest8~3_2$$$ in $$$Quest8~3_1$$$	○	○	Select one

Additional options (question 10)
- Extraction based on:

Page 7

*** 11. During your (under)graduate studies (bachelor, master or equivalent), did you study for 3 months or more in another country than the country where you graduated?**

- ○ Yes
- ○ No

*** 12. During your (under)graduate studies (bachelor, master or equivalent), did you work in industry (e.g. internship, apprenticeship)? Please do not consider vacation or side jobs unrelated to your program of study.**

- ○ Yes
- ○ No

Go to **page 9** if
12. During your (under)graduate studies (bachelor, master or equivalent), did you work in industry (e.g. internship, apprenticeship)? Please do not consider vacation or side jobs unrelated to your program of study....
is *No*

Page 8

*** 13. In which sector did you work during your (under)graduate studies?**

- ○ Public or government sector, e.g., research performing organisation
- ○ Private, not-for-profit sector, e.g., research foundation, NGO
- ○ Private industry (including SMEs)

Page 9

Current employment as a researcher (including PhD work)

*** 14. In which career stage would you currently situate yourself?**

- **R1 First Stage Researcher** (doctoral candidate stage or at equivalent, without having undertaken a doctorate)
- **R2 Recognized Researcher** (PhD holders or equivalent who are not yet fully independent; post-doctoral stage)
- **R3 Established Researcher** (researchers who have developed a level of independence; research specialist or manager, senior lecturer, senior scientist, …)
- **R4 Leading Researcher** (researchers leading their research area or field; professor stage)

Go to **page 12** if
14. In which career stage would you currently situate yourself?
is not *R1 First Stage Researcher (doctoral candidate stage or at equivalent, without having undertaken a doctorate)...*

Page 10

*** 15. Are you currently working on a PhD or are you enrolled in a doctoral program?**

- Yes
- No

Go to **page 12** if
15. Are you currently working on a PhD or are you enrolled in a doctoral program?
is *No*

Page 11

*** 16. In what year of your PhD are you currently studying?**

- 1st
- 2nd
- 3rd
- 4th
- 5th or more

*** 17. Concerning your PhD research work, which of the following were/are your financial sources?**

- Yourself, your family or other private source
- A national government funding body
- A European funding body
- Funding from industry
- Your institution or department
- A charitable organisation
- An international funding body
- Other:
- Unknown

Page 12

*** 18. Are you currently in a so-called "dual position" whereby you are employed both in a university (or higher education institution) and in another sector (e.g. company, NGO, etc.)?**

- Yes
- No

Go to **page 13** if
18. Are you currently in a so-called "dual position" whereby you are employed both in a university (or higher education institution) and in another sector (e.g. company, NGO, etc.)?...
is *Yes*

Else go to page 14

Page 13

*** 19. Is your university employment your primary employment?**

- Yes
- No

*** 20. In which other sector are you employed in your second position?**

Public or government sector, e.g. research performing organisation
Private, not-for-profit sector, e.g. research foundation
Private sector
Other, please specify

Page 14

Could you please fill out the following questions with regard to your **current/main employment position**?

By 'employment' we mean all researchers, including those doing a PhD, whether or not they are employees, civil servants, students etc If you have more than one paid academic post, please only consider the primary one.

*** 21. Employed since**

2012
2011
2010
2009
2008
2007
2006
2005
2004
2003
2002

*** 22. Country of employer**

Austria
Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece

Additional options (question 22)

- Order responses: alphabetically

*** 23. Sector of employment**

University or higher education institution
Public or government sector, e.g. research performing organisation
Private, not-for-profit sector, e.g. research foundation
Private sector
Other, please specify

Page 15

*** 24. Type of contract**

- No contract (regarded as a student)
- Fixed term <= 1 years
- Fixed term >1-2 years
- Fixed term >2-4 years
- Fixed term > 4 years
- Permanent contract
- Self-employed
- Other:

25. Type of position

- Full-time
- Part-time, more than 50%
- Part-time, 50%
- Part-time, less than 50%

Page 16

*** 26. Status**

- Civil servant
- Employee
- Student
- Self-employed
- Other:

Page 17

27. Are you satisfied or disatisfied with each of the following factors as they relate to your current position?

	+ Satisfied	- Dissatisfied	N/A
Dynamism			
Intellectual challenge			
Level of responsibility			
Degree of independence			
Contribution to society			
Opportunities for advancement			
Mobility perspectives			
Social status			
Salary			
Benefits			
Job security			
Job location			
Reputation of employer			

Page 18

*** 28. Overall, how confident or unconfident do you feel about the future prospects for your research career?**

- - I feel very unconfident	- I feel somewhat unconfident	-/+ I feel nor confident nor unconfident	+ I feel somewhat confident	+ + I feel very confident
○	○	○	○	○

Page 19

29. Which of the following nationalities are currently represented in your research team?

- ○ European
- ○ Brazilian
- ○ Indian
- ○ Chinese
- ○ Canadian
- ○ Other, please specify:
- ○ United States
- ○ Russian
- ○ South African
- ○ Japanese
- ○ Australian
- ○ None of the above

Page 20

Your geographical mobility experience as a researcher

Below is a number of questions about your mobility experiences as a researcher. We are interested in international moves of 3 months or more (including both research visits and changes of employer).

In case you have taken a PhD or currently working on it, you should also indicate your mobility events during your PhD.

*** 30. How would you typify your international mobility experience as a researcher?**

- ○ In the last 10 years, I have worked at least once abroad for more than 3 months
- ○ In the last 10 years, I have worked abroad but each time only for less than 3 months
- ○ I have worked abroad, but this was more than 10 years ago
- ○ I have never worked abroad

Go to **page 21** if
- *30. How would you typify your international mobility experience as a researcher?*
  - **is** *In the last 10 years, I have worked at least once abroad for more than 3 months*

Go to **page 47** if
- *5. What is your country of citizenship? If you have more than one citizenships you may indicate these by holding the [ctrl] button....*
  - **greater than** *United Kingdom*

Else go to page 57

Page 21

*** 31. Please indicate the international steps/moves in the last 10 years of your researcher career, including your current position.**

If applicable, you may include any international steps during your PhD.

You can provide up to 8 instances of mobility (either or not accompanied by a change in employer).

	Year in which you moved	Destination country	N/A
Move 1 (most recent move)		Select one	
Move 2		Select one	
Move 3		Select one	
Move 4		Select one	
Move 5		Select one	
Move 6		Select one	
Move 7		Select one	
Move 8		Select one	

Additional options (question 31)
- Validation: integer
- Min value: 2000
- Max value: 2012

Go to **page 22** if
- *31.1. Move 1 (most recent move)*
  - **is not empty**
- **or**
- *31.2. Move 2*
  - **is not empty**
- **or**
- *31.3. Move 3*
  - **is not empty**
- **or**
- *31.4. Move 4*
  - **is not empty**
- **or**
- *31.5. Move 5*
  - **is not empty**
- **or**
- *31.6. Move 6*
  - **is not empty**
- **or**
- *31.7. Move 7*
  - **is not empty**
- **or**
- *31.8. Move 8*
  - **is not empty**

Else go to page 57

Page 22

*** 32. How long did you stay in each of these countries**

	3 months to 6 months	+6 months to 1 year	+ 1 year to 2 years	+ 2 years to 3 years	More than 3 years
Move 1: to $$$Quest31~1_2$$$ in $$$Quest31~1_1 $$$					
Move 2: to $$$Quest31~2_2$$$ in $$$Quest31~2_1 $$$					
Move 3: to $$$Quest31~3_2$$$ in $$$Quest31~3_1 $$$					
Move 4: to $$$Quest31~4_2$$$ in $$$Quest31~4_1 $$$					
Move 5: to $$$Quest31~5_2$$$ in $$$Quest31~5_1 $$$					
Move 6: to $$$Quest31~6_2$$$ in $$$Quest31~6_1 $$$					
Move 7: to $$$Quest31~7_2$$$ in $$$Quest31~7_1 $$$					
Move 8: to $$$Quest31~8_2$$$ in $$$Quest31~8_1 $$$					

Additional options (question 32)

- Extraction based on:

*** 33. Did your international move go together with a change of employer and what was the main motive for this move?**

	Yes	No	What was the main motive for this move?
Move 1: to $$$Quest31~1_2$$$ in $$$Quest31~1_1$$$			Select one
Move 2: to $$$Quest31~2_2$$$ in $$$Quest31~2_1$$$			Select one
Move 3: to $$$Quest31~3_2$$$ in $$$Quest31~3_1$$$			Select one
Move 4: to $$$Quest31~4_2$$$ in $$$Quest31~4_1$$$			Select one
Move 5: to $$$Quest31~5_2$$$ in $$$Quest31~5_1$$$			Select one
Move 6: to $$$Quest31~6_2$$$ in $$$Quest31~6_1$$$			Select one
Move 7: to $$$Quest31~7_2$$$ in $$$Quest31~7_1$$$			Select one
Move 8: to $$$Quest31~8_2$$$ in $$$Quest31~8_1$$$			Select one

Additional options (question 33)

- Extraction based on:

Page 23

What was your function in the beginning (start function) and at the end of this move (end function)?

*** 34.**

	Start Function				End function			
	R1 (first stage researcher)	R2 (recognized researcher)	R3 (established researcher)	R4 (leading researcher)	R1 (first stage researcher)	R2 (recognized researcher)	R3 (established researcher)	R4 (leading researcher)
Move 1: to $$$Quest31~1_2 $$$ in $$$Quest31~1_1 $$$								
Move 2: to $$$Quest31~2_2 $$$ in $$$Quest31~2_1 $$$								
Move 3: to $$$Quest31~3_2 $$$ in $$$Quest31~3_1 $$$								
Move 4: to $$$Quest31~4_2 $$$ in $$$Quest31~4_1 $$$								
Move 5: to $$$Quest31~5_2 $$$ in $$$Quest31~5_1 $$$								
Move 6: to $$$Quest31~6_2 $$$ in $$$Quest31~6_1 $$$								
Move 7: to $$$Quest31~7_2 $$$ in $$$Quest31~7_1 $$$								
Move 8: to $$$Quest31~8_2 $$$ in $$$Quest31~8_1 $$$								

Additional options (question 34)

- Extraction based on:

*** 35. What type of contract and destination sector did you enter into when you moved to this country?**

	Fixed term up to 1 year	Fixed term >1-2 years	Fixed term >2-4 years	Fixed term >4 years	Permanent contract	Self-employed	No contract (e.g. grant, stipend)	Other	Destination sector?
Move 1: to $$$Quest31~1_2 $$$ in $$$Quest31~1_1 $$$									Select one
Move 2: to $$$Quest31~2_2 $$$ in $$$Quest31~2_1 $$$									Select one
Move 3: to $$$Quest31~3_2 $$$ in $$$Quest31~3_1 $$$									Select one
Move 4: to $$$Quest31~4_2 $$$ in $$$Quest31~4_1 $$$									Select one
Move 5: to $$$Quest31~5_2 $$$ in $$$Quest31~5_1 $$$									Select one
Move 6: to $$$Quest31~6_2 $$$ in $$$Quest31~6_1 $$$									Select one
Move 7: to $$$Quest31~7_2 $$$ in $$$Quest31~7_1 $$$									Select one
Move 8: to $$$Quest31~8_2 $$$ in $$$Quest31~8_1 $$$									Select one

Additional options (question 35)

- Extraction based on:

- Go to **page 24** if
  - *36. You are a European researcher (by citizenship) that is CURRENTLY working outside the EU?Q5 = EU and Q22/Q31-1 not EU...*
    - **is** *Yes*
- Go to **page 35** if
  - *37. You are a non-European researcher (by citizenship) who in the PAST has worked in Europe? Q5 not EU and Q31 (Move 2-8) = EU and Q22/Q31-1 not EU...*
    - **is** *Yes*
- Go to **page 47** if
  - *38. You are a non-European researcher (by citizenship) and you have NEVER worked in Europe? Q5 not EU and Q31 (Move 2-8) not EU and Q22/Q31-1 not EU...*
    - **is** *Yes*
- **Else go to page 57**

Page 24

SPECIFIC COUNTRY MOBILITY EXPERIENCES

EU researchers currently working outside the EU

*** 42. Were the following factors important or unimportant in your decision to move outside Europe?**

	+ Important	- Unimportant	N/A
Availability of research funding			
Career progression (positive impact on your future career)			
Facilities and equipment for your research			
Working with leading experts (star scientists)			
Research autonomy			
Bring your research to market			
Personal/family reasons			
Quality of life			
Remuneration (salary, other financial incentives etc.)			
Job security			
Working conditions			

Page 25

*** 43. How does working in $$$Quest22$$$ compare to working as a researcher in the EU?**

Please indicate if something was worse, similar or better in $$$Quest22$$$ than in the EU.

	- Worse	-/+ Similar	+ Better	N/A
Availability of research funding				
Career progression (positive impact on your future career)				
Facilities and equipment for your research				
Working with leading experts (star scientists)				
Research autonomy				
Bring your research to market				
Personal/family reasons				
Quality of life				
Remuneration (salary, other financial incentives etc.)				
Job security				
Working conditions				

Page 26

*** 44. Are you still 'connected' to European research/researchers?**

- Yes
- No

Go to **page 27** if

44. Are you still 'connected' to European research/researchers?

is *Yes*

Else go to page 28

Page 27

45. Please indicate below the type of connections you still maintain

- You keep in touch with official "Diaspora" networks (i.e. networks of nationals from your country/Europe of origin living abroad)
- You are active in some linkage mechanisms (visits, training, joint projects, mentoring, fundraising)
- You are involved in national professional associations in your country of origin/Europe
- You participate in conferences organized in Europe
- You have a wide informal network formed by friends/ acquaintances/ colleagues from your country of origin/Europe
- You maintain business relationships with your country of origin/Europe
- You collaborate with scientific journals in your country of origin/Europe

Page 28

*** 46. Are you considering moving back to Europe in the coming 12 months?**

- Yes
- No
- Do not know

Go to **page 29** if

46. Are you considering moving back to Europe in the coming 12 months?

is *Yes*

Else go to page 32

Page 29

*** 47. Have you undertaken any concrete steps (e.g. look for a position, got in touch with contacts) in order to return to Europe?**

- Yes
- No

Go to **page 30** if

47. Have you undertaken any concrete steps (e.g. look for a position, got in touch with contacts) in order to return to Europe?...

is *Yes*

Else go to page 31

Page 30

*** 48. Did you face any of the following difficulties in your efforts so far (please tick as appropriate)?**

- Maintaining your current level of remuneration (salary, other financial incentives etc.)
- Obtaining funding for your research
- Transfer of your pension/social security rights
- Finding a suitable researcher position
- Finding suitable child-care/schooling for children
- Obtaining access to facilities/equipment necessary for your research
- Transfer of research funding
- Finding a job for your spouse
- Finding adequate accommodation
- None of the above

Else go to page 32

Page 31

*** 49. Which of following difficulties, if any, do you expect to face if you would plan to move back to Europe (please tick as appropriate)?**

- Maintaining your current level of remuneration (salary, other financial incentives etc.)
- Obtaining funding for your research
- Transfer of your pension/social security rights
- Finding a suitable researcher position
- Finding suitable child-care/schooling for children
- Obtaining access to facilities/equipment necessary for your research
- Transfer of research funding
- Finding a job for your spouse
- Finding adequate accommodation
- None of the above

Page 32

*** 50. Concerning research collaboration, please indicate below with whom you have collaborated in the previous 12 months, and whether or not this collaboration is the direct result of a previous mobility event.**

	Yes	Result of mobility experience	No
Researchers at universities/public research institutes in $$$Quest22$$$		Select one 6	
Researchers from the non-academic sector in $$$Quest22$$$		Select one 6	
Researchers from EU universities/research institutes		Select one 6	
Researchers from EU private industry		Select one 6	
Researchers from non-EU private industry other than $$$Quest22$$$		Select one 6	

Go to **page 33** if

50.1. Researchers at universities/public research institutes in $$$Quest22$$$
is *Yes*

or

50.2. Researchers from the non-academic sector in $$$Quest22$$$
is *Yes*

or

50.3. Researchers from EU universities/research institutes
is *Yes*

or

50.4. Researchers from EU private industry
is *Yes*

or

50.5. Researchers from non-EU private industry other than $$$Quest22$$$
is *Yes*

Else go to page 34

Page 33

*** 51. In your research collaborations, how important or unimportant are the following forms of interaction:**

	- - Totally unimportant	- Quite unimportant	+ Quite important	+ + Very important	N/A
Face-to-face contact					
E-mail					
Videoconferencing/skype					
Telephone					

Page 34

*** 52. How does the use of web-based or virtual technology in collaboration influence your mobility behaviour and decisions?**

- It helps to reduce (or even replace) my short term visits (of less than 3 months)
- It helps to reduce (or even replace) my long term visits (of 3 months or more)
- It does not influence my mobility behaviour at all
- Other, please specify

Else go to page 57

Page 35

non-EU researchers having worked previously in the EU

*** 53. Were the following factors important or unimportant in your decision to move to Europe?**

	+ Important	- Unimportant	N/A
Availability of research funding			
Career progression (positive impact on your future career)			
Facilities and equipment for your research			
Working with leading experts (star scientists)			
Research autonomy			
Bring your research to market			
Personal/family reasons			
Quality of life			
Remuneration (salary, other financial incentives etc.)			
Job security			
Working conditions			
Political situation in home country			

Page 36

*** 54. How does working in Europe compare to working as a researcher in $$$Quest22$$$?**

	- Worse	-/+ Similar	+ Better	N/A
Availability of research funding				
Career progression (positive impact on your future career)				
Facilities and equipment for your research				
Working with leading experts (star scientists)				
Research autonomy				
Bring your research to market				
Personal/family reasons				
Quality of life				
Remuneration (salary, other financial incentives etc.)				
Job security				
Working conditions				

Page 37

*** 55. Please indicate below how your stay in Europe has incluenced the following factors**

	- - Strongly decreased	- Decreased	-/+ Remained unchanged	+ Increased	+ + Strongly increased	N/A
Number of co-authored publications						
Citation impact of your publications						
Number of patents						
Advanced research skills						
Contacts/network						
Ability to obtain research funding						
“Recognition” in the research community						
Job options in academia						
Job options outside of academia						
Overall career progression						
Progression in salary and financial conditions						
Quality of life for you/your family						

Page 38

*** 56. Have you faced any of the following difficulties in your move to Europe (please tick as appropriate)?**

- Language
- Obtaining a visa or work permit
- Obtaining funding for your research
- Transfer of your pension/social security rights
- Finding a suitable researcher position
- Finding suitable child-care/schooling for children
- Maintaining your current level of remuneration (salary, other financial incentives etc.)
- Obtaining access to facilities/equipment necessary for your research
- Transfer of research funding
- Finding a job for your spouse
- Finding adequate accommodation
- None of the above

Go to **page 40** if

56. Have you faced any of the following difficulties in your move to Europe (please tick as appropriate)?...
is empty
or
56. Have you faced any of the following difficulties in your move to Europe (please tick as appropriate)?...
is *None of the above*

Page 39

*** 57. Who helped you to overcome these difficulties?**

- I received help from friends
- I received help from family living in Europe
- I received help from my host institution (e.g. through a 'welcoming' office)
- I received help from my home institution
- I did not receive any support at all

Page 40

*** 58. Did any of the following factors played a role in your decision to leave Europe?**

- Career opportunities
- Personal/family reasons
- Lack of funding
- Quality of life
- It was never my intention to stay for a longer time (beyond my initially agreed duration)
- My host institution could not keep me on board
- My visa/work permit expired
- None of the above

Page 41

*** 59. Would you have liked to stay in Europe as a researcher?**

- Yes
- No

*** 60. Are you still 'connected' to European research / researchers?**

- Yes
- No

Go to **page 43** if
60. Are you still 'connected' to European research / researchers?
is *No*

Page 42

*** 61. Please indicate below the type of connections you still maintain**

- You have a wide informal network formed by friends/ acquaintances/ colleagues from Europe
- You are active in linkage mechanisms (visits, training, joint projects, mentoring, fundraising)
- You maintain business relationships with Europeans
- You are involved in national professional associations in Europe
- You collaborate with scientific journals in Europe
- You participate in conferences organized in Europe

Page 43

*** 62. Concerning research collaboration, please indicate below with whom you have collaborated in the previous 12 months, and whether or not this collaboration is the direct result of a previous mobility event.**

	Yes	Result of mobility experience	No
Researchers at universities/public research institutes in $$$Quest22$$$		Select one 6	
Researchers from the non-academic sector in $$$Quest22$$$		Select one 6	
Researchers from EU universities/research institutes		Select one 6	
Researchers from EU private industry		Select one 6	
Researchers from non-EU countries other than $$$Quest22$$$		Select one 6	

Go to **page 44** if
- *62.1. Researchers at universities/public research institutes in $$$Quest22$$$*
  - **is** *Yes*
- **or**
- *62.2. Researchers from the non-academic sector in $$$Quest22$$$*
  - **is** *Yes*
- **or**
- *62.3. Researchers from EU universities/research institutes*
  - **is** *Yes*
- **or**
- *62.4. Researchers from EU private industry*
  - **is** *Yes*
- **or**
- *62.5. Researchers from non-EU countries other than $$$Quest22$$$*
  - **is** *Yes*

Else go to page 45

Page 44

*** 63. In your international collaborations, how important or unimportant is:**

	- - Totally unimportant	- Quite unimportant	+ Quite important	+ + Very important	N/A
Face-to-face contact					
E-mail					
Videoconferencing/skype					
Telephone					

Page 45

*** 64. How does the use of web-based or virtual technology in collaboration influence your mobility behaviour and decisions?**

- It helps to reduce (or even replaces) my short term visits (of less than 3 months)
- It helps to reduce (or even replaces) my long term visits (of 3 months or more)
- It does not influence my mobility behaviour at all
- Other, please specify

Page 46

*** 65. Would you recommend other colleagues to work in Europe as a researcher?**

- Yes
- No
- No opinion

Else go to page 57

Page 47

Non-EU researchers NOT having worked in Europe during the last 10 years

*** 66. Would you be interested to work in Europe as a researcher?**

- Yes
- No

Go to **page 48** if
66. Would you be interested to work in Europe as a researcher?
is *Yes*

Else go to page 49

Page 48

*** 67. Have you ever investigated the possibility of working in Europe as a researcher?**

- Yes
- No

Page 49

*** 68. Do you think it would be easy or difficult to deal with the following factors if you would like to work in Europe?**

	Easy	Difficult	I don't know	N/A
Finding a suitable researcher position				
Language				
Maintaining your current level of remuneration (salary, other financial incentives etc.)				
Obtaining a visa or work permit				
Obtaining access to facilities/equipment necessary for your research				
Obtaining funding for your research				
Transfer of your pension/social security rights				
Finding a job for your spouse				
Finding adequate accommodation				
Finding suitable child-care/schooling for children				
Obtaining a suitable position and funding for your return home				

Go to **page 57** if
39. Country SG3

is empty

or

41. Q5 = Q39

is *Yes*

Go to **page 57** if

38. You are a non-European researcher (by citizenship) and you have NEVER worked in Europe? Q5 not EU and Q31 (Move 2-8) not EU and Q22/Q31-1 not EU...

is not *Yes*

Page 50

*** 69. It seems that you have been working as a researcher in $$$Quest39$$$ for more than 3 months, is this correct?**

- Yes
- No

Go to **page 57** if

69. It seems that you have been working as a researcher in $$$Quest39$$$ for more than 3 months, is this correct?...

is *No*

Page 51

*** 70. Were the following factors important or unimportant in your decision to move to $$$Quest39$$$?**

	+ Important	- Unimportant	N/A
Availability of research funding			
Career progression (positive impact on your future career)			
Facilities and equipment for your research			
Working with leading experts (star scientists)			
Research autonomy			
Bring your research to market			
Personal/family reasons			
Quality of life			
Remuneration (salary, other financial incentives etc.)			
Job security			
Working conditions			
Political situation in home country			

Page 52

*** 71. Please indicate below how your stay in $$$Quest39$$$ has incluenced the following factors**

	- - Strongly decreased	- Decreased	-/+ Remained unchanged	+ Increased	+ + Strongly increased	N/A
Number of co-authored publications						
Citation impact of your publications						
Number of patents						
Advanced research skills						
Contacts/network						
Ability to obtain research funding						
“Recognition” in the research community						
Job options in academia						
Job options outside of academia						
Overall career progression						
Progression in salary and financial conditions						
Quality of life for you/your family						

Page 53

*** 72. Have you faced any of the following difficulties in your move to $$$Quest39$$$? (please tick as appropriate)**

- Language
- Obtaining a visa or work permit
- Obtaining funding for your research
- Transfer of your pension/social security rights
- Finding a suitable researcher position
- Finding suitable child-care/schooling for children
- None of the above
- Maintaining your current level of remuneration (salary, other financial incentives etc.)
- Obtaining access to facilities/equipment necessary for your research
- Transfer of research funding
- Finding a job for your spouse
- Finding adequate accommodation

Go to **page 55** if
72. Have you faced any of the following difficulties in your move to $$$Quest39$$$? (please tick as appropriate)...
is *None of the above*

Page 54

*** 73. Who helped you to overcome these difficulties?**

- I received help from friends
- I received help from my host institution (e.g. through a ‘welcoming’ office)
- I did not receive any support at all
- I received help from family living in Europe
- I received help from my home institution

Go to **page 57** if
40. Q22 = Q39
is *Yes*

Page 55

*** 74. Would you have liked to stay in $$$Quest39$$$?**

- Yes
- No

*** 75. Are you still 'connected' to research / researchers in $$$Quest39$$$?**

- Yes
- No

Go to **page 56** if
75. Are you still 'connected' to research / researchers in $$$Quest39$$$?
is *Yes*

Else go to page 57

Page 56

*** 76. Please indicate below the type of connections you still maintain**

- You have a wide informal network formed by friends/acquaintances/colleagues
- You maintain business relationships
- You collaborate with scientific journals
- You are active in linkage mechanisms (visits, training, joint projects, mentoring, fundraising)
- You are involved in professional associations
- You participate in conferences

Page 57

77. Do you know the EURAXESS portal (Services network, Jobs Portal, Links)?

- Yes
- No

Go to **page 59** if
77. Do you know the EURAXESS portal (Services network, Jobs Portal, Links)?
is *No*

Page 58

78. Have you made use of any of these services?

- Yes
- No

Page 59

79. Are you aware of the Marie-Curie Actions of the EU's Seventh Framework Programme for Research (FP7)?

- Yes
- No

Go to **page 61** if
79. Are you aware of the Marie-Curie Actions of the EU's Seventh Framework Programme for Research (FP7)?...
is *No*

Page 60

80. Are you or have you been a funded researcher under the Marie Curie Actions? (for at least 3 months)?

- Yes, I was funded as an early stage researcher
- Yes, I was funded as an experienced researcher
- No

Page 61

81. If you would like to add any comments in relation to your international mobility expirience as a researcher, please do so below.

Go to **page 64** if
14. In which career stage would you currently situate yourself?
greater than *R2 Recognized Researcher (PhD holders or equivalent who are not yet fully independent; post-doctoral stage)...*

Page 62

Choice of job attributes - early stage researcher

This is the last section of the survey.

Below, you will be presented three different jobs at universities corresponding to the level of early stage researcher.
The jobs differ in their attributes such as salary, working conditions and career perspectives.
Assuming all job attributes not mentioned in the job offers are equal, which job do you consider to be the most attractive, irrespective of your current job?

	Job offer 1	Job offer 2	Job offer 3
Remuneration and fringe benefits			
Net salary p.a.(incl. bonuses)	$$$Salary1$$$	$$$Salary2$$$	$$$Salary3$$$
Health care is...	$$$HealthCare1$$$	$$$HealthCare2$$$	$$$HealthCare3$$$
Retirement pension: Expected net replacement rate is...	$$$Retirement1$$$	$$$Retirement2$$$	$$$Retirement3$$$
Fringe benefits covered	$$$Fringe1$$$	$$$Fringe2$$$	$$$Fringe3$$$
Country characteristics			
The quality of life (consider e.g. education, health, income) in the target country is...	$$$QualityLife1$$$	$$$QualityLife2$$$	$$$QualityLife3$$$
Working Conditions			
Career perspectives I: Length of initial contract is...	$$$ContractLength1$$$	$$$ContractLength2$$$	$$$ContractLength3$$$
Career perspectives II: Extension of initial contract...	$$$ContractExtension1$$$	$$$ContractExtension2$$$	$$$ContractExtension3$$$
Split between teaching and research tasks is...	$$$Split1$$$	$$$Split2$$$	$$$Split3$$$
Research autonomy: Time for own research	$$$Autonomy1$$$	$$$Autonomy2$$$	$$$Autonomy3$$$
University-internal funds for research...	$$$InternalFunds1$$$	$$$InternalFunds2$$$	$$$InternalFunds3$$$
University-external funds for research: Availability of...	$$$ExternalFunds1$$$	$$$ExternalFunds2$$$	$$$ExternalFunds3$$$
Your most prestigious peer at your department...	$$$Peer1$$$	$$$Peer2$$$	$$$Peer3$$$

*** 82. Which job would you prefer?**

- Job 1
- Job 2
- Job 3

- None of the above

Page 63

As in the previous question, please choose once again among three different jobs at universities presented below based on which you consider to be the most attractive.

	Job offer 1	Job offer 2	Job offer 3
Remuneration and fringe benefits			
Net salary p.a.(incl. bonuses)	$$$Salary1$$$	$$$Salary2$$$	$$$Salary3$$$
Health care is...	$$$HealthCare1$$$	$$$HealthCare2$$$	$$$HealthCare3$$$
Retirement pension: Expected net replacement rate is...	$$$Retirement1$$$	$$$Retirement2$$$	$$$Retirement3$$$
Fringe benefits covered	$$$Fringe1$$$	$$$Fringe2$$$	$$$Fringe3$$$
Country characteristics			
The quality of life (consider e.g. education, health, income) in the target country is...	$$$QualityLife1$$$	$$$QualityLife2$$$	$$$QualityLife3$$$
Working Conditions			
Career perspectives I: Length of initial contract is...	$$$ContractLength1$$$	$$$ContractLength2$$$	$$$ContractLength3$$$
Career perspectives II: Extension of initial contract...	$$$ContractExtension1$$$	$$$ContractExtension2$$$	$$$ContractExtension3$$$
Split between teaching and research tasks is...	$$$Split1$$$	$$$Split2$$$	$$$Split3$$$
Research autonomy: Time for own research	$$$Autonomy1$$$	$$$Autonomy2$$$	$$$Autonomy3$$$
University-internal funds for research...	$$$InternalFunds1$$$	$$$InternalFunds2$$$	$$$InternalFunds3$$$
University-external funds for research: Availability of...	$$$ExternalFunds1$$$	$$$ExternalFunds2$$$	$$$ExternalFunds3$$$
Your most prestigious peer at your department...	$$$Peer1$$$	$$$Peer2$$$	$$$Peer3$$$

*** 85. Which job would you prefer?**

- Job 1
- Job 2
- Job 3

- I don't know

Else go to thank-you page

Page 64

Choice of job attributes - later stage researcher

This is the last section of the survey.

Below, you will be presented three different jobs at universities corresponding to the level of later stage researcher.
The jobs differ in their attributes such as salary, working conditions and career perspectives.
Assuming all job attributes not mentioned in the job offers are equal, which job do you consider to be the most attractive, irrespective of your current job?

	Job offer 1	Job offer 2	Job offer 3
Remuneration and fringe benefits			
Net salary p.a.(incl. bonuses)	$$$Salary1$$$	$$$Salary2$$$	$$$Salary3$$$
Salary advancement is according to…	$$$SalaryAdvancement1$$$	$$$SalaryAdvancement2$$$	$$$SalaryAdvancement3$$$
Health care is…	$$$HealthCare1$$$	$$$HealthCare2$$$	$$$HealthCare3$$$
Retirement pension: Expected net replacement rate is…	$$$Retirement1$$$	$$$Retirement2$$$	$$$Retirement3$$$
Fringe benefits covered	$$$Fringe1$$$	$$$Fringe2$$$	$$$Fringe3$$$
Country characteristics			
The quality of life (consider e.g. education, health, income) in the target country is...	$$$QualityLife1$$$	$$$QualityLife2$$$	$$$QualityLife3$$$
Working Conditions			
University-internal funds for research...	$$$InternalFunds1$$$	$$$InternalFunds2$$$	$$$InternalFunds3$$$
University-external funds for research: Availability of...	$$$ExternalFunds1$$$	$$$ExternalFunds2$$$	$$$ExternalFunds3$$$
Split between teaching and research tasks is...	$$$Split1$$$	$$$Split2$$$	$$$Split3$$$
Ease of starting new lines of research: The position replaces...	$$$NewResearch1$$$	$$$NewResearch2$$$	$$$NewResearch3$$$
Quality of administrative support: The researcher needs to devote...	$$$QualitySupport1$$$	$$$QualitySupport2$$$	$$$QualitySupport3$$$
Your most prestigious peer at your department...	$$$Peer1$$$	$$$Peer2$$$	$$$Peer3$$$

*** 88. Which job would you prefer?**

- Job 1
- Job 2
- Job 3

- I don't know

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Below, you will be presented another set of three jobs, this time corresponding to the level of early stage researcher.
Looking back in your career, please proceed as above: Assuming that all job attributes not mentioned in the job offer are equal, which job do you consider to be the most attractive, independently of your current job.

	Job offer 1	Job offer 2	Job offer 3
Remuneration and fringe benefits			
Net salary p.a.(incl. bonuses)	$$$Salary1$$$	$$$Salary2$$$	$$$Salary3$$$
Salary advancement is according to...	$$$SalaryAdvancement1$$$	$$$SalaryAdvancement2$$$	$$$SalaryAdvancement3$$$
Health care is...	$$$HealthCare1$$$	$$$HealthCare2$$$	$$$HealthCare3$$$
Retirement pension: Expected net replacement rate is...	$$$Retirement1$$$	$$$Retirement2$$$	$$$Retirement3$$$
Fringe benefits covered	$$$Fringe1$$$	$$$Fringe2$$$	$$$Fringe3$$$
Country characteristics			
The quality of life (consider e.g. education, health, income) in the target country is...	$$$QualityLife1$$$	$$$QualityLife2$$$	$$$QualityLife3$$$
Working Conditions			
University-internal funds for research...	$$$InternalFunds1$$$	$$$InternalFunds2$$$	$$$InternalFunds3$$$
University-external funds for research: Availability of...	$$$ExternalFunds1$$$	$$$ExternalFunds2$$$	$$$ExternalFunds3$$$
Split between teaching and research tasks is...	$$$Split1$$$	$$$Split2$$$	$$$Split3$$$
Ease of starting new lines of research: The position replaces...	$$$NewResearch1$$$	$$$NewResearch2$$$	$$$NewResearch3$$$
Quality of administrative support: The researcher needs to devote...	$$$QualitySupport1$$$	$$$QualitySupport2$$$	$$$QualitySupport3$$$
Your most prestigious peer at your department...	$$$Peer1$$$	$$$Peer2$$$	$$$Peer3$$$

*** 91. Which job would you prefer?**

- Job 1
- Job 2
- Job 3

- I don't know

Your responses have been registered!

Thank you for your interest and availability to fill out the survey, your input is valuable to us.